

**THE REPUBLIC OF SOUTH SUDAN
MINISTRY OF WATER RESOURCES AND IRRIGATION (MWRI)
SOUTH SUDAN URBAN WATER CORPORATION (SSUWC)**

**THE PROJECT FOR
MANAGEMENT CAPACITY
ENHANCEMENT OF
SOUTH SUDAN URBAN WATER
CORPORATION
PHASE 2
IN SOUTH SUDAN**

**FINAL COMPLETION REPORT
(MAIN REPORT)**

FEBRUARY 2022

**JAPAN INTERNATIONAL COOPERATION AGENCY
(JICA)**

TEC INTERNATIONAL CO., LTD. (TECI)

| |
|--------|
| GE |
| JR |
| 22-024 |

Project Site
Organization Charts
Photo Album

Table of Contents

| | |
|---|----------|
| 1. Outline of Project | 1 |
| 1.1. Background | 1 |
| 1.2. Purpose of Project | 2 |
| 1.3. Evacuation and Remote Training | 2 |
| 1.4. Contract Amendment | 3 |
| 1.5. Project Outline | 4 |
| 1.6. Joint Coordination Committee (JCC)..... | 5 |
| 1.6.1. 1 st JCC | 5 |
| 1.6.2. 2 nd JCC..... | 5 |
| 1.6.3. 3 rd JCC | 5 |
| 1.6.4. 4 th JCC | 5 |
| 1.7. Revision of PDM | 5 |
| 1.7.1. Revision to PDM ver. 1 | 5 |
| 1.7.2. Revision to PDM ver. 2 | 6 |
| 1.7.3. Revision to PDM ver. 3 | 6 |
| 1.7.4. Revision to PDM ver. 4 | 7 |
| 2. Content of Activities..... | 8 |
| 2.1. Content of results of outputs based on Project Design Matrix (PDM) | 8 |
| 2.1.1. Status of external conditions | 8 |
| 2.1.2. Achievement of project purpose..... | 10 |
| 2.1.3. Progress of achievement on output..... | 12 |
| 2.1.4. Results of Inputs | 17 |
| 2.2. Outline of remote training..... | 25 |
| 2.3. Trainings in Japan and Third Countries | 26 |
| 2.4. Activities contents based on plan of operation (PO)..... | 29 |
| 2.4.1. Output 1 Activity (Water charge collection capacity of Juba Station is strengthened)... | 29 |
| 2.4.2. Output 2 Activity (Public awareness activities for Juba citizens by Juba Station are enhanced) | 50 |
| 2.4.3. Output 3 Activity (Non-revenue water management capacity of Juba Station is strengthened.) | 61 |
| 2.4.4. Output 4 Activity (Operation and management capability improvement on existing and new water supply Facilities)..... | 68 |

| | |
|---|------------|
| 2.4.5. Output 5 Activity (Strengthening of support and supervisory function of SSUWC headquarters toward Juba Station)..... | 83 |
| 2.4.6. Other activities (Monitoring sheet, Training building, Procurement of equipment and materials, etc.) | 102 |
| 3. Issues, Countermeasures and lessons learned on Operation | 104 |
| 4. Achievement Status of the Project..... | 112 |
| 5. Recommendations to Achieve Overall Goal | 121 |
| 5.1. Prospect of Achieving Overall Goal | 121 |
| 5.2. Recommendations toward Achieving Overall Goal..... | 123 |
| 5.3. External conditions..... | 124 |

Appendixes

Appendix-1: PDM (the latest version, and transition)

Appendix-2: Work Flowchart

Appendix-3: JICA Expert Dispatch Schedule (Final version)

Appendix-4: Remote Training and Seminar (Training program)

Appendix-5: Trainings Program in Japan and Third Country

Appendix-6: Participants in Trainings

Appendix-7: Record of Equipment Procured

Appendix-8: Minutes of Meeting of JCC

Appendix-9: Other Materials

9.1: Final presentation of C/P on maintenance

9.2: Field training plan at Term 4

9.3: Juba Station database and major PIs

9.4: Juba Station Improvement Action Plan

9.5: Performance Contract (between SSUWC Headquarters and Juba Station)

9.6: Juba Station Annual Report (2020/21) and Annual Plan (2022)

9.7: SSUWC Headquarters Reform Action Plan

List of Annexes

Technical cooperation deliverables

- Annex-1: Guideline for Water Tariff Setting
- Annex-2: Materials for Public Awareness and Customer Service Manual
- Annex-3: SOP for Updating GIS Mapping for Facilities and Customers
- Annex-4: Manual for Non-revenue Water Management/ O&M of Distribution Facilities
- Annex-5: Water Treatment and Water Quality Monitoring O&M Manual (revised edition)
- Annex-6: Material and Equipment Inventory Management Manual
- Annex-7: Study Report on Management of Taker Filling Station and Public Tap Stand
- Annex-8: Remote Training Report

CD

- CD1: Baseline Survey Report and Capacity Assessment Report
- CD2: Remote Training Materials
- CD3: Visual and Online Teaching Materials
- CD4: Documents on Construction of Training Building

List of Tables

| | |
|---|----|
| Table 1-1 Outline the Project..... | 4 |
| Table 2-1 Adverseness of external conditions and impacts on the Project..... | 8 |
| Table 2-2 Impact of adverse external conditions, COVID-19 pandemic, and field activity period | 9 |
| Table 2-3 Status of achievement of target indicators of the project purpose..... | 11 |
| Table 2-4 Expert input (Term 1 and Term 2)..... | 18 |
| Table 2-5 Expert input (Term 3 and Term 4)..... | 19 |
| Table 2-6 List of equipment procured | 20 |
| Table 2-7 List of SSUWC C/P..... | 24 |
| Table 2-8 Training attendance | 25 |
| Table 2-9 Subjects of Remote Training..... | 25 |
| Table 2-10 Social condition survey outline | 30 |
| Table 2-11 Outline of survey result | 30 |
| Table 2-12 History of water tariff..... | 33 |
| Table 2-13 Lecture outline..... | 35 |

| | |
|--|-----|
| Table 2-14 Questionnaire | 35 |
| Table 2-15 Outline of lecture..... | 37 |
| Table 2-16 Outline of training | 38 |
| Table 2-17 Schedule and Contents of Financial Committee Activity..... | 40 |
| Table 2-18 Outline of lecture..... | 42 |
| Table 2-19 Strategy Action plan to Improve Billing & Collection..... | 43 |
| Table 2-20 Outline of large consumption consumers | 48 |
| Table 2-21 Location of handwashing stations | 55 |
| Table 2-22 Number of delivered soap bars..... | 60 |
| Table 2-23 List of procured hygiene products..... | 61 |
| Table 2-24 Summary of revised SOP (Mar. 2019) | 69 |
| Table 2-25 Annual Facility Operation Plan 2022 of Juba Station | 74 |
| Table 2-26 Main Features of Operation and Management Models of TFSs | 76 |
| Table 2-27 Management Model and Main Concept | 77 |
| Table 2-28 Main Issues to be Considered for Private Management Model | 79 |
| Table 2-29 Issues to be tackled in field activities after June 2021 | 88 |
| Table 2-30 Number of people surveyed | 96 |
| Table 5-1 Current status of evaluation of major indicators | 121 |

List of Figures

| | |
|--|----|
| Figure 2-1 Installation of a fence at the boundary of the SSUWC headquarters / Juba station site | 22 |
| Figure 2-2 Project operating structure as well as Joint Coordination Committee..... | 23 |
| Figure 2-3 Satisfaction on main water resource | 31 |
| Figure 2-4 How to assign a customer ID..... | 36 |
| Figure 2-5 Alternative of cost recovery in water tariff setting | 38 |
| Figure 2-6 Sensitivity Analysis of Necessary Average Tariff by NRW Ratio Factor | 40 |
| Figure 2-7 Training Materials for Asset Management, by Uganda NWSC..... | 41 |
| Figure 2-8 Water Meter Installation Plan | 49 |
| Figure 2-9 Teaching materials for educational activities..... | 54 |
| Figure 2-10 Handwashing station: Tank capacity 500 L | 56 |
| Figure 2-11 Handwashing station: Tank capacity 250 L | 57 |
| Figure 2-12 Existing water distribution facilities..... | 62 |
| Figure 2-13 Customer location information in Juba city..... | 63 |
| Figure 2-14 Zone and DMAs | 65 |
| Figure 2-15 Distribution zone for equal water distribution..... | 73 |

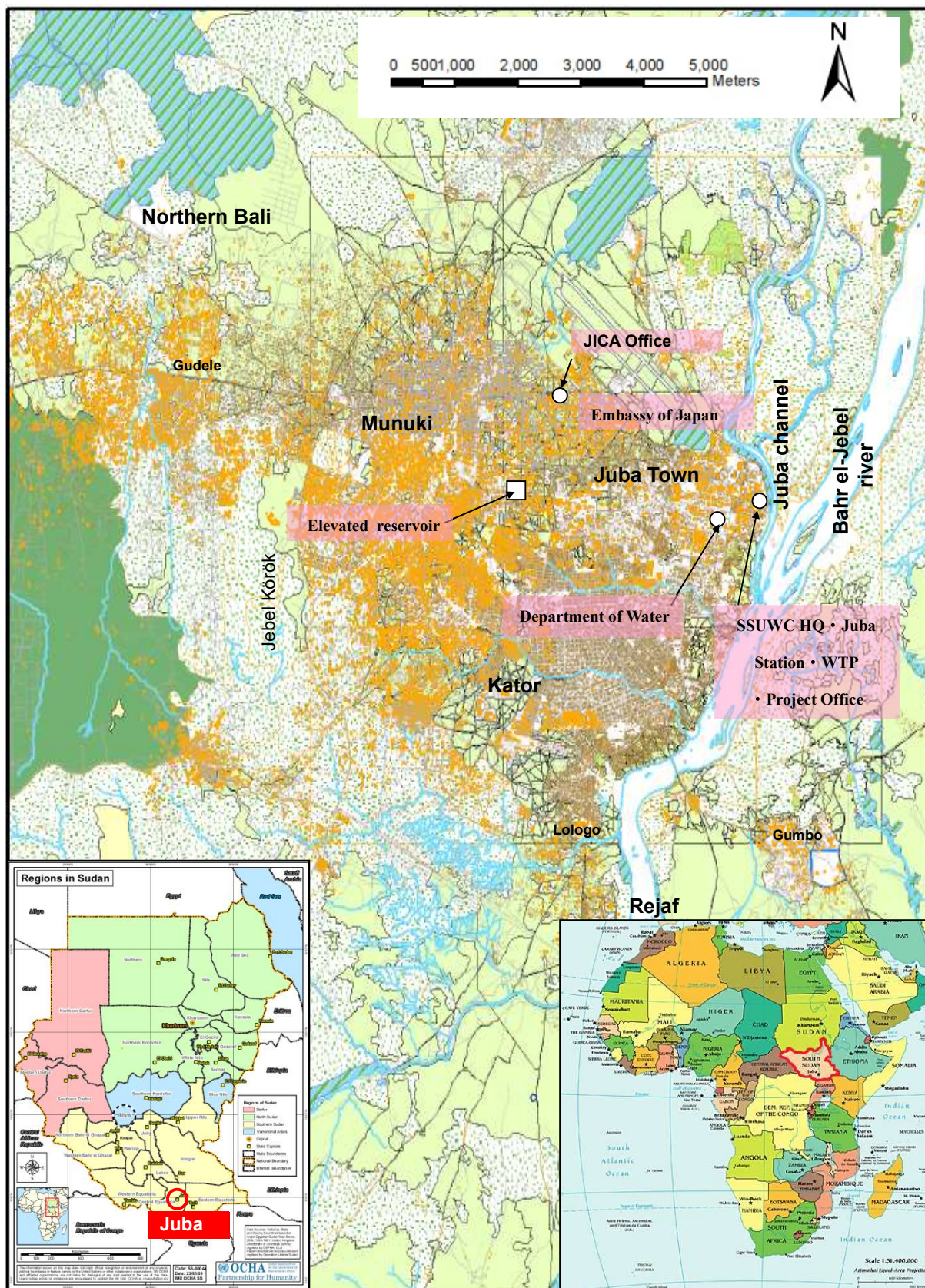
| | |
|---|-----|
| Figure 2-16 Changes in organizational core capacity of Juba Station..... | 95 |
| Figure 2-17 Water Distribution Section: Changes in organizational core capacity..... | 96 |
| Figure 2-18 Water Distribution Section: Changes in individual technical capacity..... | 97 |
| Figure 2-19 Water Purification Section: Changes in organizational core capacity | 97 |
| Figure 2-20 Changes in individual technical capacity..... | 98 |
| Figure 2-21 Water quality monitoring section: Changes in organizational core capacity | 99 |
| Figure 2-22 Water quality monitoring section: Changes in individual technical capacity | 100 |
| Figure 2-23 Account and Revenue: Changes in Organizational core capacity..... | 100 |
| Figure 2-24 Account and Revenue: Changes in individual technical capacity | 101 |
| Figure 2-25 Change of Management Capacity Result of Kiosk : Organizational Technical Capacity..... | 102 |
| Figure 2-26 Floor plan of the training building..... | 103 |

List of Photos

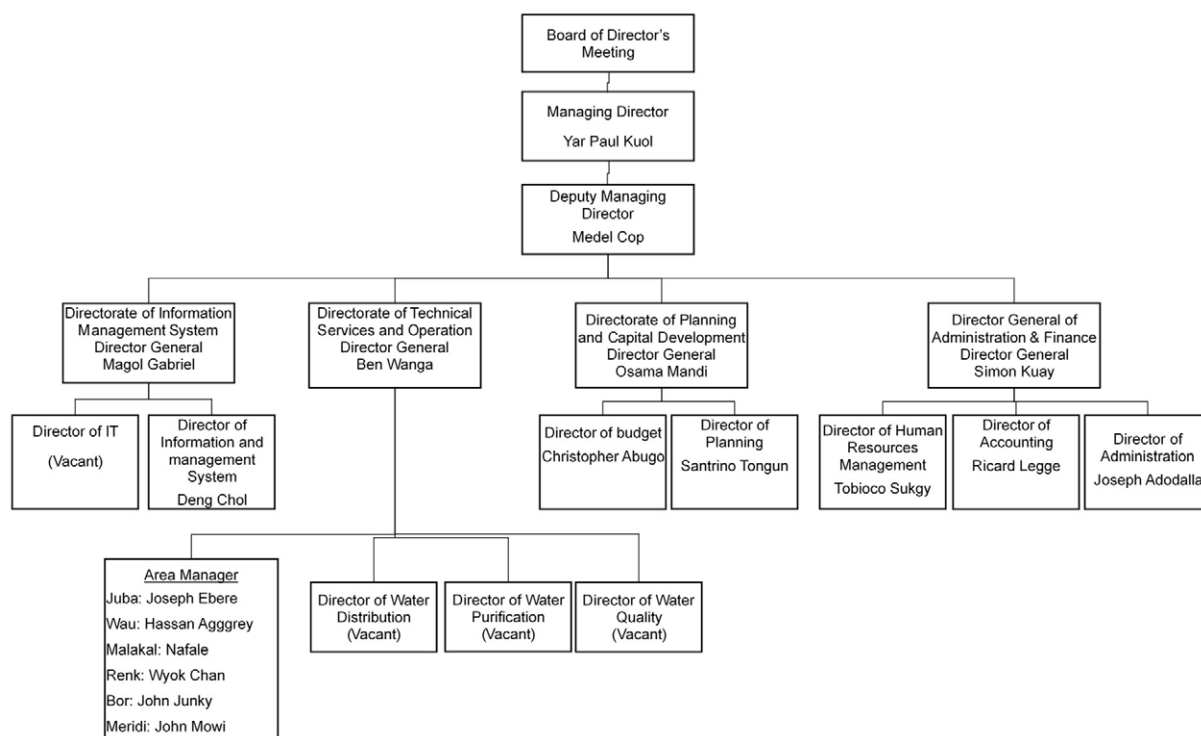
| | |
|---|----|
| Photo 2-1 Fence at the boundary of the SSUWC headquarters / Juba station site | 22 |
| Photo 2-2 Strengthening of the door and windows of the expert office..... | 22 |
| Photo 2-3 Installed hand-washing stations | 58 |
| Photo 2-4 Use of handwashing educational material | 59 |
| Photo 2-5 Display of “Water is Life” banner | 60 |
| Photo 2-6 Handover of soap bars | 60 |
| Photo 2-7 Procured hygiene products..... | 61 |
| Photo 2-8 Presentation of the Project result by C/P | 81 |

Abbreviation

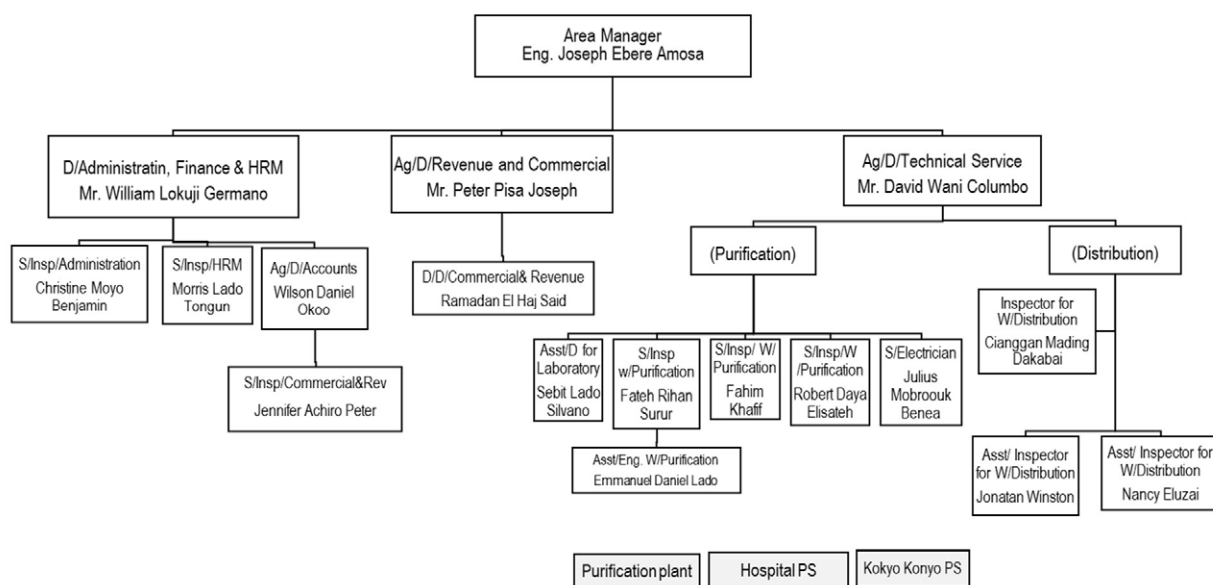
| | |
|-------|--|
| ACP | Asbestos Cement Pipe |
| AfDB | African Development Bank |
| CA | Capacity Assessment |
| C/P | Counterpart or Counterparts |
| DMA | District Metered Area |
| DIP | Ductile Iron Pipe |
| GIS | Geographic Information System |
| GPS | Global Positioning System |
| HDPEP | High Density Polyethylene Pipe |
| HQ | Headquarters |
| ICRC | International Committee of the Red Cross |
| IREC | International Resource Center in NWSC |
| IWA | International Water Association |
| JCC | Joint Coordination Committee |
| JD | Job Description |
| KEWI | Kenya Water Institute |
| KPI | Key Performance Indicator |
| NRW | Non-Revenue Water |
| NRA | National Revenue Authority |
| NWSC | National Water and Sewerage Corporation |
| OJT | On-the-Job Training |
| O&M | Operation and Maintenance |
| PA | Public Awareness |
| PEP | Polyethylene Pipe |
| PI | Performance Indicator |
| PPWSA | Phnom Penh Water Supply Authority |
| SOP | Standard Operation Procedure |
| PTS | Public Tap Stand |
| SSUWC | South Sudan Urban Water Corporation |
| TFS | Tanker Filling Station |
| USAID | U.S. Agency for International Development |
| VSDF | Vocational Skills Development Facility in NWSC |
| WTP | Water Treatment Plant |
| WQ | Water Quality |



Project Site



Organization Chart of SSUWC Headquarters






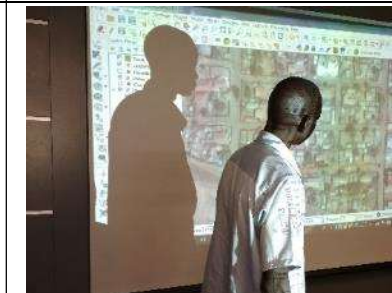





Organization Chart of SSUWC Juba Station

Photo Album

Remote training (NWSC in Uganda)

| | | |
|---|--|---|
|  |  |  |
| Water charge calculation training | NWSC Asset management training | GIS Joint training (NRW and Finance teams) |
|  |  |  |
| Seminar on safety management | Practical training on safety management (Fire extinguishing training) | Practical training on WTP operation |
|  |  |  |
| Motor disassembly and assembly training | 1st Joint Workshop regarding SOP | 2nd Joint Workshop regarding SOP |
|  |  |  |
| Visit to a supplier of water quality analysis equipment (Palin Corporation) | Site tour of the NWSC distribution tank | Training for headquarters |

| | | |
|--|--|--|
|  |  |  |
| Site tour at a leak repair site | Pipe joint parts storage of NWSC | Water pressure measurement test |
|  |  |  |
| Water meter maintenance training | Water meter management training using a test bench | Presentation about GIS mapping |
|  |  |  |
| Practical training at pipe installation demonstration field | Leakage repair on work site | Site tour at house connection |

Guidance on cleaning the water intake (photographed in October 2021)

| | | |
|---|---|---|
|  |  |  |
| Before cleaning: retention status of floating matters | During cleaning work | After cleaning |

Guidance for repairing power generator at water treatment plant (photographed in October 2021)

| | | |
|---|---|---|
|  |  |  |
| Power generator provided by JICA | Damaged oil filter cover | Generator repair guidance |

Blower repair guidance (photographed in October 2021)

| | | |
|---|---|---|
|  |  |  |
| Broken blower | Worn out V-belt | V-belt replacement work |







Guidance for improvement of filter basin (photographed in October 2021)

| | | |
|---|---|---|
|  |  |  |
| Sampling of filtered sand (Surface, middle and lower layer) | Washing of filtered sand by hand | Sieve test |
|  |  |  |
| Removal of surface layer sand (1) | Removal of surface layer sand (2) | Removal of surface layer sand (3) |







Hand-washing stations (photographed in October 2021)

| | | |
|---|---|---|
|  |  |  |
| Emmanuel parish | Juba one Girls primary school | St. Joseph school |

Global handwashing day (photographed in Oct. 2021) Banner of “Water is life”

| | | |
|---|---|---|
|  |  |  |
| Emmanuel parish | All Saints cathedral | Juba one Boys primary school |
|  |  |  |
| Juba one Girls primary school | St. Joseph school | SSUWC Juba station |

Water quality analysis guidance and seminars

| | | |
|---|---|---|
|  |  |  |
| Water sampling jointly with interns of University of Juba | Guidance by C/P of water quality analysis | Water sampling jointly with interns of University of Juba |
|  |  |  |
| Joint water quality seminar (1) with interns of University of Juba | Joint water quality seminar (2) with interns of University of Juba | Joint water quality seminar with interns of University of Juba (Last day) |






SSUWC Annual Report / Plan Presentation (December 2021)

| | | |
|---|---|--|
|  |  | |
| SSUWC Annual Report / Plan Presentation (1) | SSUWC Annual Report / Plan Presentation (2) | |

Handover ceremony of JICA-provided materials and equipment (15th December, 2021)

| | | |
|---|---|---|
|  |  |  |
| Hand-over ceremony for equipment provided by JICA | Materials and equipment for pipeline repair | Backhoe and motorbike |

Repair work of pipes by SSUWC staff in Juba

| | | |
|---|---|---|
|  |  |  |
| Leaking pipeline to be replaced | Pipeline replacement work | Pipeline replacement work by backhoe |
|  |  |  |
| Water meter-replacement work | Water meter-replacement work | Operation check after replacement |

1. Outline of Project

1.1. Background

South Sudan became independent in July 2011 through Comprehensive Peace Agreement (CPA) in January 2005. The population of Juba, capital of South Sudan, increased rapidly due to returnees from other areas in South Sudan and outside countries. The current population is estimated as 600,000-800,000. The infrastructure in Juba has been damaged because of its aging and inappropriate operation and maintenance owing to the long conflict.

Juba Station (with 164 staff members) of South Sudan Urban Water Corporation (SSUWC) under the Ministry of Water Resources and Irrigation (MWRI) operates and maintains water supply facilities consisting of water treatment plants and distribution facilities and collects water charges in Juba. However, it is difficult for Juba Station to distribute water in planned and efficient manners because of a) aged facilities, b) lack of knowledge on operation and maintenance of water supply facilities, c) absence of water quality monitoring system, d) absence of updated customer database, e) insufficient equipment for operation and maintenance, and f) lack of budget. Additionally, its revenue is not sufficient to operate and maintain water facilities since fixed water tariff system is applied without evaluation of financial situations or water tariff policy and tariff collection system is far from efficient. SSUWC Headquarters (HQ) with 38 staff members has a role to find solutions to technical problems encountered by Juba and other Stations and to appropriate the budget necessary for O&M of their water facilities. However, the HQ cannot provide suitable support for them because of the absence of institutional framework to grasp their actual conditions and lack of adequate information exchange system between them.

Therefore, South Sudan Government at that time requested the Government of Japan to implement a capacity development project for Juba Station. In response to this, the Government of Japan implemented ‘The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation’ in the period between October 2010 and September 2013 (Phase 1). Terminal evaluation conducted in May to June 2013 concluded that some issues related to the financial and technical sustainability in O&M are yet to be solved and the technical assistance is required to continue while their capacity was improved to a certain level until their operation and maintenance are in shape. Additionally, the evaluation pointed out that there are needs to systematize training, increase water revenue and enhance SSUWC HQ’s capacity. Besides, technical assistance on operation and maintenance of the facilities currently under construction by Japan’s grant aid, “the Project for the Improvement of Water Supply System of Juba in Southern Sudan”, will be needed.

In this situation, South Sudan Government requested ‘The Phase 2 Project for Management Capacity Enhancement of South Sudan Urban Water Corporation’ (hereinafter referred to as “the Project”), JICA conducted detail planning survey in January 2015, both sides agreed to project framework and

the Project commenced.

1.2. Purpose of Project

(1) Overall Goal

Safe and clean water is supplied in a reliable manner in Juba.

(2) Project Purpose

The capacity of SSUWC Juba Station regarding sustainable service delivery (financial management, non-revenue water management, operation and maintenance of facilities) is strengthened.

(3) Expected Outputs

- 1) Juba Station's water charge collection capacity is strengthened.
- 2) Public awareness activities for Juba citizens by Juba Station are enhanced.
- 3) Non-revenue water management capacity of Juba Station is strengthened.
- 4) Operation and maintenance capacity for new and existing water supply facilities by Juba Station is strengthened.
- 5) Support and supervisory function of SSUWC HQ toward Juba Station is strengthened.

(4) Target Area

Juba, Republic of South Sudan

(5) Related Institutions

Implementing agency: SSUWC HQ and Juba Station

Cooperative agency: Ministry of Water Resources and Irrigation (MWRI), the former Ministry of Electricity, Dam, Irrigation, and Water Resources (MEDIWR)

(6) Project implementation period

February 2016 – February 2020 (Finally changed to February 2022)

1.3. Evacuation and Remote Training

Due to the political conflict that occurred on 8 July 2016, the JICA Expert suspended the Project activities in Juba city and evacuated from South Sudan (SS). Thereafter, the project activities continued as a remote training until entering SS is permitted. Remote trainings were implemented in neighboring countries namely, Uganda and Kenya. The remote trainings were implemented by communication from Japan and in those neighboring countries by bringing the counterparts (the C/P) there.

Based on the discussion with SSUWC in Uganda, National Water and Sewerage Corporation (NWSC) of Uganda accepted to implement the training for SSUWC trainees and the remote trainings were started from November 2016 in Term 1 in cooperation with NWSC and the JICA Expert. The Kenya Water Institute (KEWI) also accepted SSUWC trainees from November 2016. They had implemented third country training in the Phase 1 of the Project. From May 2017 onward in Term 2, the trainings were conducted only at NWSC. In Term 2, training for SSUWC HQ in Japan and Cambodia was also

implemented.

Remote training was continued at NWSC in Term 3. At the end of Term 3, as the situation in Juba improved, the JCC was held in Juba in April 2019.

In Term 4, the field activities were implemented from September 2019 to February 2020, but after March 2020, due to the new coronavirus pandemic (COVID-19), field activities were again stopped. The Project activities were continued through regular online meetings with the Juba Station and SSUWC HQ. The field activities restarted in June 2021.

1.4. Contract Amendment

The following contract amendments were made between JICA and the Expert Team:

(1) Term 1

1) 1st Contract Amendment

Date of Amendment: 1st July 2016

Content of amendment : Finalization of the contract amount (cost) for construction of training building

2) 2nd Contract Amendment

Date of Amendment: 28th October 2016

Content of amendment: Implementation of remote operation due to evacuation

(2) Term 2

1) 1st Contract Amendment

Date of Amendment : 28th June 2017

Content of amendment: additional cost for training in Cambodia

2) 2nd Contract Amendment

Date of Amendment: 22nd February 2018

Content of amendment: Extension of contract implementation period

Date of contract implementation period after amendment: 16th May 2017 – 31st May 2018

(3) Term 3

1) 1st Contract Amendment

Date of Amendment : 10th April 2019

Content of amendment: Resume the Project in South Sudan (JCC in Juba)

(4) Term 4

1) 1st Contract Amendment

Date of Amendment : 30th September 2020

Content of amendment: Extension of contract implementation period due to COVID-19, addition of domestic assignment, etc.

Date of contract implementation period after amendment: September 2019 – September 2021

2) 2nd Contract Amendment

Date of Amendment : 21st January 2021

Content of amendment: Additional procurement of materials and equipment, addition of domestic assignment, etc.

3) 3rd Contract Amendment

Date of Amendment : 26th August 2021

Content of amendment: Extension of contract implementation period, additional procurement of materials and equipment, addition of domestic and field assignment, etc.

Date of contract implementation period after amendment: September 2019 – February 2022

1.5. Project Outline

The outline the Project since Term 1 is shown below. The detail work flowchart is attached in Appendix-2.

Table 1-1 Outline the Project

| Term | Period | Content |
|------|--|--|
| 1 | 22 nd January 2016 – 14 th July 2016 | Beginning of the work -- Normal operation |
| | 8 th July 2016– 15 th July 2016 | Conflict eruption – Evacuation from SS |
| | 31 st October 2016 – 5 th November 2016 | Discussion with SSUWC on remote training in Uganda Visiting NWSC and their training facilities and discussion with NWSC |
| | 20 th November 2016– 3 rd December 2016 | 1 st training in Uganda and Kenya |
| | 8 th January 2017 – 21 st January 2017 | 2 nd training in Uganda and Kenya |
| 2 | 6 th June 2017 – 15 th July 2017 | 1 st training in Uganda |
| | 28 th June 2017 – 7 th July 2017 | Training in Japan |
| | 10 th July 2017 – 14 th July 2017 | Training in Cambodia |
| | 4 th September 2017 – 28 th September 2017 | 2 nd training in Uganda |
| | 1 st November 2017 – 9 th November 2017 | 3 rd training in Uganda |
| | 28 th November 2017 – 22 nd December 2017 | 4 th training in Uganda |
| | 1 st February 2018- 10 th March 2018 | 5 th training in Uganda |
| | 16 th April 2018 – 21 st April 2018 | 6 th training in Uganda |
| 3 | 30 th October 2018 – 6 th November 2018 | 1 st training in Uganda |
| | 4 th December 2018 – 15 th December 2018 | 2 nd training in Uganda |
| | 29 th January 2019 – 7 th March 2019 | 3 rd training in Uganda |
| | 9 th April 2019 – 13 th April 2019 | 4 th training in Uganda |
| | 14 th April 2019 – 19 th April 2019 | JCC in Juba |
| 4 | September 2019 – February 2020 | Field activities in Juba |
| | March 2020 – June 2022 | Remote work in Japan by COVID-19 |
| | June 2021 – February 2022 | Field activities in Juba and parallel with remote operation in Japan |

Note: Gray-colored is the field operation period in Juba.

1.6. Joint Coordination Committee (JCC)

1.6.1. 1st JCC

1st JCC was carried out on 16th July 2016. The agenda was as shown below.

- Results of a baseline survey on SSUWC
- Output of this Project (Phase 1)
- Explanation of Work Plan
- Progress of Project activity
- Results of capacity assessment

1.6.2. 2nd JCC

2nd JCC was carried out on 12-13 February 2018. The agenda was as shown below.

- Progress of Project activity
- Explanation and discussion of amendment of PDM and PO
- Discussion on Minutes of Meeting

1.6.3. 3rd JCC

3rd JCC was carried out on 16th April 2019. The agenda was as shown below.

- Progress of Project activity
- Progress of Action Plan (HQ, Juba Station) and Performance Contract
- Setup Means of Verification
- Discussion on issues (training building, procurement equipment)
- Work Plan for Term 4

1.6.4. 4th JCC

The 4th JCC was carried out on 16th December 2020 through online. The agenda was as shown below.

- Progress of Project activity
- Outline of Monitoring Sheet

The MM of 1st JCC to 4th JCC are attached in Appendix-8.

1.7. Revision of PDM

The revision history of PDM is shown below, and the final version and the history of transition are attached to Appendix-1.

1.7.1. Revision to PDM ver. 1

The revision was made based on the following policies:

- The implementation of O&M activities related to new facilities constructed by Japanese grant aid project “the Project for the Improvement of Water Supply System of Juba” is judged to be difficult. Therefore, the activities and the indicators related to new facilities, shown in PDM ver. 0, is modified to the activities to target the existing facilities. If such modification is difficult due to

lack of new facilities, these activities shall be deleted.

- The training activities on institutional management will be added. These activities are already on-going even they are not indicated in PDM ver.0.
- The timing of recommencement of project activity in Juba city of South Sudan is still not clear. The activities indicated in PDM ver.1 will be implemented in Uganda as the third country in Term 3 and implemented in South Sudan in Term 4.

Term 3: July 2018 – May 2019 (Remote training: Uganda)

Term 4: June 2019 – February 2020 (South Sudan)

The objective verifiable indicators (OVI) of overall goal, project purpose, and indicators of Output 1 are still not determined. These indicators will be determined in Term 3 with the agreement in JCC, and the R/D will be revised.

1.7.2. Revision to PDM ver. 2

(1) Revision policy

The values of undecided OVIs are decided.

(2) Revision points and reasons

The undecided OVIs have been decided as below and the values were agreed with South Sudan side.

| NARRATIVE SUMMARY | OBJECTIVE VERIFIABLE INDICATOR |
|--|--|
| Overall Goal : Safe and clean water is supplied in a reliable manner in Juba. | <ul style="list-style-type: none"> – Existing water supply facilities are operated more than 22 hours per day on average. <i>(Assumption: More than 70% of the fuel for generators will be purchased from subsidized fuel, or 100% of city power supply is supplied to water supply facilities.)</i> – The number of the days of the total samples that treated water meets the water quality standards of turbidity (less than 5 NTU) and free residual chlorine (1.5 mg/l ~2.0 mg/l) achieve 90% of the sampling. |
| Project purpose: The capacity of SSUWC Juba Station regarding sustainable service delivery (financial management, non-revenue water management, facilities operation and maintenance) is strengthened. | <ul style="list-style-type: none"> – 100 % of operation and maintenance expenses excluding personnel costs and chemical costs are recovered from water sale revenue. <i>(Assumption: More than 70% of the fuel for generators will be purchased from subsidized fuel, or 100% of city power is supplied to water supply facilities.)</i> |
| Output 1: Juba Station's water charge collection capacity is strengthened. | <ul style="list-style-type: none"> – The number of water meters installed at large-consumption customers is increased from 45 to 220. |

1.7.3. Revision to PDM ver. 3

(1) Revision policy

Extension of project period, addition of work for COVID-19

(2) Revision points and reasons

The additional work was agreed with the South Sudanese side as follows.

Period of Project: 5 years and 5 months

| Activities | |
|------------|--|
| 1-1 | Conduct a baseline survey regarding water works management, facilities operation and maintenance and customer satisfaction. |
| 1-2 | Understand the latest cost structure and review of the current water tariff. |
| 1-3 | Update the customer information. |
| 1-4 | Visualize the customer information utilizing GIS and to understand actual situation of water bill collection. |
| 1-5 | Develop a guideline for appropriate water pricing for Juba Station and the guideline is approved by the Headquarters. |
| 1-6 | Based on the guideline developed in the activity 1-5, develop a revenue and expenditure plan. |
| 1-7 | Develop an activity plan for improvement of billing and bill collection. |
| 1-8 | Conduct bill collection based on the activity plan developed in the activity 1-7 and monitor the bill collection activities. |
| 1-9 | Take a measure for the customers without payments and to monitor these activities. |
| 1-10 | Promote installation of a meter for large-consumption customers. |
| 1-11 | Conduct the support activities in response to the COVID-19 emergency. |

1.7.4. Revision to PDM ver. 4

(1) Revision policy

Extension of project period

(2) Revision points

Period of Project: 5 years and 11 months

2. Content of Activities

2.1. Content of results of outputs based on Project Design Matrix (PDM)

2.1.1. Status of external conditions

(1) Impacts of external conditions

In the Project, assumptions of several external conditions were not achieved, which had great impacts on the project activities. The table below summarizes the status of non-achievement of the assumptions and the impacts on the Project.

Table 2-1 Adverseness of external conditions and impacts on the Project

| | External conditions | Non-achievement status |
|-----------------|--|--|
| Overall Goal | - Subsidized fuel for generator for water supply facilities or subsidized city power supply is available in Juba | Unavailable (subsidy on fuel has decreased due to the deterioration of the national economy and fuel is no longer available. City power is not connected to SSUWC) |
| | - Political situation of South Sudan does not affect security of Juba as well as functions of SSUWC. | Negatively affected (conflict occurred in July 2016, evacuation of the Expert) |
| | Economic conditions of South Sudan do not become worse significantly. | Significantly worsened (The national economy has deteriorated significantly due to the decrease in oil revenue, the exchange rate has fallen to about 1/50, and the NRA (National Revenue Agency) has intervened in collecting water charges * 1). |
| Project purpose | - Quality of raw water is not deteriorated significantly. | No impact |
| | - Quantity of raw water is not reduced significantly. | No impact |
| | - Subsidized fuel for generator for water supply facilities or subsidized city power supply is available in Juba | Not available (same as above) |
| | - Political situation of South Sudan does not affect security of Juba as well as functions of SSUWC | Adversely affected (same as above) |
| | - Economic conditions of South Sudan do not become worse significantly. | Significantly worsened (same as above) |
| Outputs | - Subsidized fuel for generator for water supply facilities or subsidized city power supply for operation of facilities for minimum 12 hours/day is available in Juba. | Not available (same as above) |
| | - Government budget for SSUWC will not be decreased significantly. | Significantly decreased (no budget allocation other than salary for last two years) |
| | - Serious damage on water supply facilities does not occur. | No impact |
| | - Personnel of counterparts do not leave the job and are not transferred considerably. | Significantly affected (turnover of capable C/P due to significant decrease in salary (reduced to about 20 USD from about 500USD at the beginning of the Project) and delayed payment of salary) |

* 1): See the next section

The table below summarizes the impacts of adverse external conditions, and COVID-19 pandemic,

and the field activity period. The field activity period was 5 months from the beginning, 4 months from the latter half of 2019, 8 months from June 2021, which is, 17 months out of a total of 6 years (72 months).

Table 2-2 Impact of adverse external conditions, COVID-19 pandemic, and field activity period

| Conditions | Y2016 | Y2017 | Y2018 | Y2019 | Y2020 | Y2021 | Y2022 |
|--|-------|-------|-------|-------|-------|-------|-------|
| Field activity period | ■ | | | ■ | | ■ | |
| Remote training due to conflict | ■ | ■ | ■ | ■ | | | |
| Continued deterioration of the national economy and falling exchange rates | ■ | ■ | ■ | ■ | ■ | ■ | |
| NRA revenue collection intervention | | | | | | ■ | |
| Web conferencing due to COVID-19 pandemic | | | | | ■ | ■ | |

(2) Intervention in water tariff collection by NRA

As part of the Ministry of Finance's reform of national financial management, the National Revenue Authority (NRA) has revived a block account system from July 2021 that puts the revenues of all national institutions and public corporations into the national treasury. In the case of SSUWC, NRA staff were stationed at one of the two tanker filling stations (Hospital TFS) and started collecting charges directly. In the other TFS, the staff of Juba Station collected the charges, but all went to the NRA. Similarly, the revenues from connected customers were collected by NRA staff stationed at the Juba Station. Only 5% of the collected revenue was allocated to SSUWC by the government. As a result, the SSUWC Juba Station was depleted of cash, which had the following effects.

- The allowance for the night shift operator, the plumber who repairs leaks and installs meters, meter readers, and the allowance for transportation expenses for staff, which were paid from the revenue of the Juba Station, could not be paid. As a result, the number of staff who went to work at the Station decreased significantly. The total number of employees is 112, but the number attending work has decreased to about 40. Due to the extremely low salary level and late delivery, the attendance rate (70~90) had already dropped considerably. The number of employees leaving their jobs is increasing.
- New water supply connections and leak repairs were also delayed.
- Regarding the Revenue and Commercial Department, only the Director was working, and the ability to bill and collect water charges had declined. The consumable could not be procured so that the invoice could not be printed.
- It was difficult to purchase maintenance materials such as generator filters, and there was a concern about generator failure. In fact, at the end of September 2021, the generator donated by JICA broke down and stopped operation.
- Since July 2021 as a response to COVID-19, the JICA Expert have procured chemicals and fuel, which are sufficient till the end of January 2022. Also, various water supply equipment has been procured. In theory, water supply can be continued as long as those materials are in stock.

However, due to the above situation, even if there is fuel or chemicals, there was a possibility that the operation of the water supply facilities will be stopped, and the service operation under the emergency condition will continue.

SSUWC HQ worked with the Minister of MWRI, the Ministry of Finance, the Government Economic Cluster Committee, etc. to improve the situation. On 22nd October 2021, the Minister of MWRI issued an order to use water charges directly for the operation of SSUWC water supply facilities in accordance with the provisions of the SSUWC Act and the decisions of SSUWC Board of Directors. The Minister of Finance did not issue the order because he was on a business trip abroad and it was unknown when he would return. Therefore, it was issued by the Minister of MWRI for the early resolution of the SSUWC crisis. However, the NRA did not stop the collection, so Juba Station officials took a hardline approach to stop water distribution to the TFS. On the other hand, SSUWC HQ requested the police to mediate, and by the police mediation, the revenue has returned to the SSUWC HQ (revenue from TFS) and the Juba Station (revenue from general customers) from November 8th, 2021, and the situation has become same as before the NRA intervention. Currently, revenue is on a recovery trend. However, it is understood that a final settlement has not yet been reached because the matter was not resolved by order of the Ministry of Finance. In order to avoid the occurrence of similar cases in the future, a final settlement with the Ministry of Finance is desired.

SSUWC HQ is trying to explain the situation to new Minister of Finance again since the new Minister took office in December 2021. SSUWC HQ submitted a letter requesting a meeting with the Minister, but he was too busy immediately after his appointment to make an appointment for a meeting. On the other hand, the Water Committee, consisting of members of the National Assembly, visited SSUWC HQ and Juba Station on January 27th, 2022, to receive a briefing from the SSUWC on the operation of the water supply system and to tour the existing facilities and the facilities under-construction. On this occasion, they also discussed the issue of NRA and agreed that SSUWC will operate the facilities with water revenue. The Water Committee also agreed to set up a meeting with the Minister of Finance to discuss the issue. The Water Commission is a water sector-focused committee established by the parliament to deal with various issues on water with about 15 members expected in the future. It has not yet been formally established and currently has four members.

According to Juba Station, NRA is trying to collect water charges directly from customers. The staff of Juba Station visited the customers and asked them not to pay the bill to NRA and informed them that even if they paid to NRA, SSUWC would re-collect the bill from them.

2.1.2. Achievement of project purpose

The status of achievement of target indicators of the project purpose is shown as below.

Table 2-3 Status of achievement of target indicators of the project purpose

| Indicator | Development situation |
|---|---|
| Indicator 1: More than 80% of the indicators of the Juba reform action plan are improved from the baseline figures | <p>The transition of the indicators is shown below in detail table.</p> <p>In 2020, improvements were observed in all items, but in 2021, the index value declined due to the deterioration of fuel procurement conditions and the intervention in the revenue collection by the NRA. With the resolution of the NRA issue, the trend is toward recovery in November 2021. Except for unmeasurable indicators, more than 80% of the indicators have improved compared to the baseline.</p> |
| <p>Indicator 2: 100 % of operation and maintenance expenses excluding personnel costs and chemical costs are recovered from water sale revenue.</p> <p>(Assumption: More than 70% of the fuel for generators will be purchased from subsidized fuel, or 100% of city power is supplied to water supply facilities.)</p> | <p>In 2020, the expenditure of Juba Station excluding salary and chemical could be covered by revenue as the subsidized fuel was available. Since January 2021, the subsidized fuel was not procured, so that there was a deficit of 0.8 million (results of Jan-Jul 2021). The income and expenditure of Juba Station excluding salary and chemical expenses is 0.8 million SSP/year deficit (January-July 2021 results). It worsen due to the intervention of NRA from July 2021. Since November 2021, when the NRA issue was resolved, revenues have been recovering and the situation is now as it was before the NRA intervention. Revenue and expenditure are in balance, and maintenance is being done within the limits of revenue. A large amount of arrears will be collected (4 million SSP from prisons) in January 2022, and revenue is expected to be 7 million SSP. It was recommended that when a large amount of revenue is received, a portion of it should be retained for future fuel and chemical needs. In addition, it was decided to increase the flat tariff rate from February 2022. This is expected to further increase revenues</p> <p>The assumption of this target, "more than 70% of the fuel for generators will be purchased from subsidized fuel, or 100% of the city power is supplied to water supply facilities" cannot be satisfied.</p> |

Detail table of Indicator

| Indicator | Baseline | October 2020 | July 2021 | Nov. 2021 | Comparison |
|---------------------------------|----------------------------------|------------------------|------------------------|--------------------------------------|---|
| Operation hour/d | 14 | 14~18 | 12.2 | 13.4 | Improved in 2020, Decreased in 2021, Improved to 17.3 hours in December 2021 |
| Cleaning & improving the intake | Overgrowth of aquatic plants and | Remove aquatic plants. | Remove aquatic plants. | Removal of aquatic plants is further | Improvement |

| Indicator | Baseline | October 2020 | July 2021 | Nov. 2021 | Comparison |
|--|-----------------------|-----------------------|-----------------------|------------------------|--|
| | sedimentation | | | improved | |
| Residual chlorine in the clear water tank (1.5 – 2.0PPM) | Standard satisfaction | Standard satisfaction | Standard satisfaction | Standard satisfaction | Standard satisfaction |
| Turbidity of water in clear water tank, 5 NTU or less | Standard satisfaction | Standard satisfaction | Standard satisfaction | Standard satisfaction | Standard satisfaction |
| NRW | Unmeasurable | - | Unmeasurable | Unmeasurable | - |
| No. of customers (No. of connection confirmed) | 2,186 | 2,295 | (580) | (613) | Tendency of improvement |
| Number of fixed-price customers (No. of metered customers) | 1676 | 1,154 | (295) | (306) | Tendency of improvement |
| Number of bills distributed | 332 | 354 | 86 | 386 | Improved in 2020, Decreased in 2021, Recovered in November 2021, Decreased in December 2021 due to Christmas, Improved in January 2022 |
| Collected amount (SSP) | 402,625 | 2,539,447 | 904,980 | 1,228,999 | Improved in 2020, Decreased in 2021 Increasing trend since November 2021, Rapid increase in January 2022 due to collection of large amount of arrear |
| Arrears (SSP) (accumulated amount) | 1,643,584 | 2,141,735 | 931,015 (9,388,941) | 1,947,000 (36,518,837) | Increased due to NRA issue in November 2021 Recovery measures of arrear promoted from January 2022 based on annual plan (2022) |

Note: The number of customers is the total number in the customer ledger, and there are many unconnected customers at present. From January 2021, the confirmation survey of connected customers started and recorded it as "number of confirmed connections".

2.1.3. Progress of achievement on output

Project purpose, indicators and progress of achievement are shown as below.

(1) Output 1: capacity of SSUWC Juba Station on water charge collection is enhanced

| Indicator | Development situation |
|--|---|
| Indicator 1: Customer information is updated | <p>(Almost achieved)</p> <ul style="list-style-type: none"> Customer information was collected from customer surveys in the 1st to 3rd terms and entered into GIS. The confirmation of GIS and the customer information of customer database were checked and matched. There are many old customers in the customer database which do not have any connection now. From January 2021, the survey to check the connection started and recorded as 'confirmed connection' when they are still connected. From June 2020, Juba Station launched the "Committee for Inspection and Disconnection" and started activities to check the operation of meters and installing new ones. Customer information (meter number, |

| Indicator | Development situation |
|---|---|
| | <p>new customer, etc.) was registered and added to the GIS database, and customer information was updated. However, in 2021, activity stagnated. Committee activities resumed in November 2021.</p> |
| <p>Indicator 2: Water sale revenue has an increasing trend.</p> | <p>(Achieved)</p> <ul style="list-style-type: none"> • The baseline value of sale revenue was set up as 800,000 SSP/month. The revenue tends to be up and down depending on months, but the target value was achieved during three months in Term 3. • In the 4th term, despite the impact of the COVID-19, the target value was achieved more than 1 million SSP in all periods. In July 2020, it exceeded 3 million SSP, and the amount of water sale revenue has increasing trend. • Behind the achievement of the goal are the increase in billing amount due to the installation of the meter by "Committee for Inspection & Disconnection", the effort to collect the arrears mainly from the government agency, and the revision of the water tariff. • However, in 2021, it dropped to 1.75 million SSP (July 2021) due to lack of staff and fuel for generator. • As part of the national financial management reform by the Ministry of Finance, the block account was revived in July 2021 and the NRA collected all SSUWC water revenue, 5% of which was returned from the central government to SSUWC. This drastically reduced the revenue of Juba Station. • From November 2021, the revenue collection has been returned to SSUWC, and revenue is on a recovery trend. In January 2022, the activities of the Committee for Inspection & Disconnection resumed, and vigorous collection of arrears is underway, with 4 million SSP owed from the jail; revenue for January 2022 is expected to be 7 million SSP. • The fixed tariff rates have been revised and increased from February 2022. If the water supply to customers is stable, the revenue is expected to increase due to this rate revision. |
| <p>Indicator 3: Water tariff is proposed based on the principles and guideline to be developed in the Project</p> | <p>(Achieved)</p> <ul style="list-style-type: none"> • The draft of tariff setting guideline was prepared. The unit operational cost and the average tariff were estimated in Term 3. In addition, discussions were held with the C/P of Juba Station and SSUWC HQ. • In Term 4, Expert Team conducted confirmation work on the costs to be recovered under the cost recovery policy in terms of operation and maintenance costs. And cost recovery tariff was calculated with HQ staff. In addition, the C/P of Juba Station were briefed on the guideline and trained to use the "Rate Calculation Working Sheet" through remote training in Uganda. • Modifications were made to the guideline and the "Rate Calculation Working Sheet," and the revised version of the guideline was explained again to SSUWC HQ for discussion. • SSUWC has increased the tariff in April 2018, December 2021 and |

| Indicator | Development situation |
|---|--|
| | February 2022. |
| Indicator 4: The number of water meters installed at large-consumption customers is increased from 45 to 220. | <p>(Achieved)</p> <ul style="list-style-type: none"> The indicator value was set up in Term 3. Sixty-five (65) sets of water meters were installed (as of April 2019). In Term 4, installation of newly procured meters was enhanced. By 2020, installation of 156 meters was completed, and the total exceeded 220, thus the target is achieved. The activity stagnated in 2021 and the number of newly installed meters did not increase. However, meter readers and plumbers gradually resumed their activities in December 2021, and 9 meters were installed, bringing the total to 230 by December 2021. |

(2) Output 2 : Public awareness activities for Juba citizens by SSUWC Juba Station are enhanced.

| Indicator | Development situation |
|--|--|
| Indicator 1: Public awareness raising activities plan is developed. | <p>(Achieved)</p> <p>Public awareness raising activities plan was developed.</p> |
| Indicator 2: Public awareness raising activities are conducted in accordance with the plan. | <p>(Achieved)</p> <ul style="list-style-type: none"> The manual for setting up a customer section at the Juba Station was developed. Public awareness raising materials such as pamphlets, poster, T-shirts, and banner were developed, distributed, and explained to the customers. Hand-washing stations have been set up in 9 elementary schools, churches and SSUWC, and educational activities have been carried out. Posters and picture-story showing hand-washing enlightenment were created and distributed to schools and churches. Soaps and masks were distributed to citizens at two church locations. |
| Indicator 3: The better understanding of the sampled citizens on water supply service provided by SSUWC is improved from the baseline. | <p>(It is unknown whether it has improved because the end-line survey was cancelled.)</p> <ul style="list-style-type: none"> Sampling survey data was finalized. Strengthened the understanding for the water services by the Public Awareness educational materials. On the other hand, awareness activities are limited due to the expansion of the COVID-19. It is difficult to compare with the baseline data because the customer satisfaction survey of the end line survey was canceled. |

(3) Output 3 : Operation and maintenance capacity for new and existing water supply facilities by Juba Station is strengthened.

| Indicator | Development situation |
|--------------------------|-----------------------|
| Indicator 1: Non-revenue | (Achieved) |

| Indicator | Development situation |
|---|---|
| water management manual is developed. | <ul style="list-style-type: none"> A NRW management manual combined with SOP for leak repair has been prepared. |
| Indicator 2: GIS map for existing water supply facilities, pipes and valves are prepared. | <p>(Achieved)</p> <ul style="list-style-type: none"> GIS map including the facility information was prepared and updated. A new pipeline map (design stage) prepared by the AfDB project has been added to the GIS map. The audiovisual SOPs for updating water network data and customer data using Android-based mobile devices was prepared. New pipeline information and customer information are being updated on the GIS map. |
| Indicator 3: GIS customer database is prepared. | <p>(Achieved)</p> <ul style="list-style-type: none"> GIS customer database containing 2,149 customer points was prepared. Out of these 538 customers were checked in detail and matched with customer ledger. Additionally, about 250 currently active customers have been updated by "Committee for Inspection & Disconnection" team. |
| Indicator 4: SOP of leakage repair is prepared | <p>(Achieved)</p> <ul style="list-style-type: none"> Included in the NRW management manual for Indicator 1 above. |
| Indicator 5: Leakage monitoring report is prepared. | <p>(Achieved)</p> <ul style="list-style-type: none"> Leakage reporting and leak repair reporting formats were prepared. Leakage monitoring report is prepared every month from the data recorded in the formats. JICA Expert confirmed the leakage report have been done in the mission of Sep. and Oct. 2021. Monthly reports of Juba Station include the overview of leakage repairing work. |

(4) Output 4: Management capacity of operation and maintenance for new and existing water supply facilities by Juba Station is strengthened.

| Indicator | Development situation |
|--|--|
| Indicator 1: A study report of management method of new water tanker filling stations is prepared. | <p>(Achieved)</p> <ul style="list-style-type: none"> Study Report for Management of Tanker Filling Station and Public Tap Stand was prepared. In the report, past information and analysis on management of tanker filling station was summarized and recommendations on management methods for new tanker filling station was made. In addition, the sources of information obtained in the study were given although information on management methods in other countries was limited. |

| Indicator | Development situation |
|--|---|
| Indicator 2: A study report of management method of new public tap stand is prepared. | <p>(Achieved)</p> <ul style="list-style-type: none"> • Study Report for Management of Tanker Filling Station and Public Tap Stand was prepared. • In the report, past information and analysis on management of public tap stand was summarized and recommendations on management methods for public tap stand was made. |
| Indicator 3: Operation and maintenance data of existing water supply facilities are compiled in monthly and annual reports and shared among the concerned persons. | <p>(Achieved)</p> <ul style="list-style-type: none"> • Monthly report including PI is prepared every month and shared with HQ. The explanation of monthly report is done in the online meeting with the C/P. • The contents of monthly report have been improved based on the guidance of Expert team. • O&M and water meter recording have been done continuously and properly. The values of some unmeasurable flow meters in the WTP are estimated based on the operating time of the pumps. • Some damaged or malfunctioning devices such as blowers, electrical equipment, and flow meters were also reported and shared in the monthly report. • Water quality monitoring at the WTP is continuously conducted, reported and shared in monthly reports. Water quality monitoring at distribution reservoirs and water taps outside the WTP are not conducted due to safety concerns during sampling operations (for public safety reasons) and lack of means to transport samples. • The consumption of coagulant and chlorine agents is being monitored. However, since it seems that injection continues even when the generator or pump is stopped, the C/P was guided to instruct the operator to stop the injection pump when the WTP operation is stopped. • The distribution pipeline route map in Juba City was prepared by checking the areas where the pipelines had been re-routed in the past. TFS flow meters were also included in the map. • Inventory management of materials and equipment has been carried out according to the JICA Expert's format and guidance, and records have been prepared. • An annual report for FY 2020/2021 was prepared and shared with HQ top management. |

(5) Support and supervisory function of SSUWC HQ toward Juba Station is strengthened.

| Indicator | Development situation |
|---|--|
| Indicator 1: Training plan for Juba Station is developed by SSUWC | <p>(Achieved)</p> <ul style="list-style-type: none"> • Capacity Assessment (CA) was done at Term 1. A remote training plan was prepared according to needs and training was conducted |

| Indicator | Development situation |
|--|--|
| | in a third country. In September 2021, a training plan to be implemented in the site was created for Term 4. |
| Indicator 2: Remote training report including all outputs of the project is prepared by the Headquarters. | (Achieved) <ul style="list-style-type: none"> The remote training report has been prepared. |
| Indicator 3: Annual report, annual plan, and monthly report of Juba Station are examined and feedbacks provided by SSUWC HQ to Juba Station for more than three years. | (Partially unachieved) <ul style="list-style-type: none"> Monthly reports are being prepared by the Juba Station. Re-training on monthly report evaluation was conducted and evaluation of the report for October 2020 was conducted. Monthly reports are submitted by the Juba Station every month, but evaluation and feedback from the HQ is insufficient. The person in charge of the HQ left in 2020, and assigned new person evaluated the reports (January-June 2021). However, that person also left in November 2021, so the evaluation was suspended. The Annual Report 2020/2021 and Annual Plan 2022 were prepared and briefed to HQ by the C/P, and comments and guidance were provided by HQ. Since field activities resumed in November 2019, suspended, and resumed in June 2021 due to COVID-19, the annual report and plan were prepared only for one year. |
| Indicator 4: Juba Station improvement action plan is prepared. | (Achieved) <ul style="list-style-type: none"> The reform action plan for the Juba Station was developed and monitored during the remote training in 2018. After resumption of field activities, a new reform action plan was prepared in December 2021 based on the current situation. |
| Indicator 5: SSUWC Headquarters reform action plan is prepared. | (Achieved) <ul style="list-style-type: none"> HQ Reform Action Plan was developed during the remote training in 2018 and monitored during on-line monthly meetings with HQ. |
| Indicator 6: SSUWC Headquarters operation manuals are prepared. | (Almost Achieved) <ul style="list-style-type: none"> The table of contents of operation manuals were prepared. The financial management manual, HR manual and job description for key sections in HQ were prepared. The manual for procurement is under preparation. |

2.1.4. Results of Inputs

(1) Japanese side

1) JICA Expert

Input plan and actual record on the JICA Expert are shown in Table 2-4 and Table 2-5. The JICA Expert dispatch schedule is shown in Appendix-3.

Table 2-4 Expert input (Term 1 and Term 2)

| Responsibility | Name of member | MM in Term 1 | | | | MM in Term 2 | | | |
|---|------------------------|--------------|-------|--------|-------|--------------|-------|--------|-------|
| | | Plan | | Actual | | Plan | | Actual | |
| | | Days | M/M | Days | M/M | Days | M/M | Days | M/M |
| At Site | | | | | | | | | |
| 1. Chief Advisor / Water Utility Management | Hiroataka Sato | 103 | 3.43 | 103 | 3.43 | 40 | 1.33 | 39 | 1.30 |
| 2. Operation and Maintenance of Water Treatment facilities | Naohide Matsumoto | 49 | 1.63 | 50 | 1.67 | 45 | 1.50 | 47 | 1.57 |
| 3. Operation and Maintenance of Water Distribution Facilities | Yarai Sato | 41 | 1.37 | 41 | 1.37 | 16 | 0.53 | 19 | 0.63 |
| 4. Water Leakage Survey | Thapa Phatta Bahadur | 28 | 0.93 | 36 | 1.20 | 32 | 1.07 | 32 | 1.07 |
| 5. Water Quality Management | Yasuhiko Morita | 61 | 2.03 | 62 | 2.07 | 45 | 1.50 | 43 | 1.43 |
| 6. Water Tariff/ Financial Management 1 | Shoko Yamada | 52 | 1.73 | 53 | 1.77 | 23 | 0.77 | 23 | 0.77 |
| 7. Deputy Chief Advisor/ Management of Water Filling Station and Water Kiosks Water Tariff/ Financial Management2 | Atsuo Ohno | 63 | 2.10 | 58 | 1.93 | 31 | 1.03 | 31 | 1.03 |
| 8. Hygiene Education/ Public Awareness Raising | Yasushi Sawazaki** | 44 | 1.47 | 43 | 1.43 | 24 | 0.80 | 24 | 0.80 |
| 9. GIS Expert/ Water Distribution Management | Thapa Phatta Bahadur * | 79 | 2.63 | 72 | 2.40 | 38 | 1.27 | 38 | 1.27 |
| 10. Design/Cost Estimation | Takao Ishiwada | 15 | 0.50 | 15 | 0.50 | - | - | - | - |
| 11. Construction Supervision | Akira Yamazaki | 0 | 0.00 | 0 | 0.00 | - | - | - | - |
| 12. Training Management/ Project Coordinator | Tomoaki Matsui | 28 | 0.93 | 30 | 1.00 | 35 | 1.17 | 25 | 0.83 |
| | Total | 563 | 18.75 | 563 | 18.77 | 329 | 10.97 | 321 | 10.70 |
| | | Days | M/M | Days | M/M | Days | M/M | Days | M/M |
| Japan | | | | | | | | | |
| 1. Chief Advisor / Water Utility Management | Hiroataka Sato | 16 | 0.80 | 16 | 0.80 | 32 | 1.60 | 26 | 1.30 |
| 2. Operation and Maintenance on Water Treatment facilities | Naohide Matsumoto | 7 | 0.35 | 7 | 0.35 | 15 | 0.75 | 15 | 0.75 |
| 3. Operation and Maintenance on Water Distribution facilities | Yarai Sato | 7 | 0.35 | 7 | 0.35 | 10 | 0.50 | 10 | 0.50 |
| 4. Water Leakage Survey | Thapa Phatta Bahadur | 7 | 0.35 | 7 | 0.35 | 15 | 0.75 | 12 | 0.60 |
| 5. Water Quality Management | Yasuhiko Morita | 7 | 0.35 | 8 | 0.40 | 15 | 0.75 | 15 | 0.75 |
| 6. Water Tariff/ Financial Management 1 | Shoko Yamada | 9 | 0.45 | 9 | 0.45 | 10 | 0.50 | 10 | 0.50 |
| 7. Deputy Chief Advisor/ Management of Water Filling Station and Water Kiosks Water Tariff/ Financial Management2 | Atsuo Ohno | 19 | 0.95 | 19 | 0.95 | 22 | 1.10 | 22 | 1.10 |
| 8. Hygiene Education/ Public Awareness Raising | Yasushi Sawazaki** | 5 | 0.25 | 5 | 0.25 | 15 | 0.75 | 15 | 0.75 |
| 9. GIS Expert/ Water Distribution Management | Thapa Phatta Bahadur * | 9 | 0.45 | 8 | 0.40 | 10 | 0.50 | 10 | 0.50 |
| 10. Design/Cost Estimation | Takao Ishiwada | 45 | 2.25 | 45 | 2.25 | - | - | - | - |
| 11. Construction Supervision | Akira Yamazaki | 0 | 0.00 | 0 | 0.00 | - | - | - | - |

| Responsibility | Name of member | MM in Term 1 | | | | MM in Term 2 | | | |
|--|--------------------------------|--------------|--------------|------------|--------------|--------------|--------------|------------|--------------|
| | | Plan | | Actual | | Plan | | Actual | |
| | | Days | M/M | Days | M/M | Days | M/M | Days | M/M |
| 12. Training Management/ Project Coordinator | Tomoaki Matsui | 0 | 0.00 | 0 | 0.00 | 15 | 0.75 | 28 | 1.40 |
| | Total of input in Japan | 131 | 6.55 | 131 | 6.55 | 159 | 7.95 | 163 | 8.15 |
| | Total | 694 | 25.30 | 694 | 25.32 | 488 | 18.92 | 484 | 18.85 |

* Katayama Alok Kumar was assigned in Term 1.

** Keiji Mochida was assigned at the beginning of Term 1.

Table 2-5 Expert input (Term 3 and Term 4)

| Responsibility | Name of member | MM in Term 3 | | | | MM in Term 4 | | | |
|---|----------------------|--------------|------|--------|------|--------------|-------|--------|-------|
| | | Plan | | Actual | | Plan | | Actual | |
| | | Days | M/M | Days | M/M | Days | M/M | Days | M/M |
| At Site | | | | | | | | | |
| 1. Chief Advisor / Water Utility Management | Hiroataka Sato | 26 | 0.87 | 24 | 0.80 | 84 | 2.80 | 76 | 2.53 |
| 2. Operation and Maintenance on Water Treatment facilities | Naohide Matsumoto | 28 | 0.93 | 28 | 0.93 | 60 | 2.00 | 42 | 1.40 |
| 3. Operation and Maintenance on Water Distribution facilities | Yarai Sato | 16 | 0.53 | 16 | 0.53 | 60 | 2.00 | 54 | 1.80 |
| 4. Water Leakage Survey | Thapa Phatta Bahadur | 20 | 0.67 | 20 | 0.67 | 80 | 2.67 | 65 | 2.17 |
| 5. Water Quality Management | Yasuhiko Morita | 16 | 0.53 | 16 | 0.53 | 60 | 2.00 | 42 | 1.40 |
| 6. Water Tariff/ Financial Management 1 | Shoko Yamada | 18 | 0.60 | 18 | 0.60 | 90 | 3.00 | 81 | 2.70 |
| 7. Deputy Chief Advisor/ Management of Water Filling Station and Water Kiosks Water Tariff/ Financial Management2 | Atsuo Ohno | 24 | 0.80 | 24 | 0.80 | 78 | 2.60 | 36 | 1.20 |
| 8. Hygiene Education/ Public Awareness Raising | Yasushi Sawazaki* | 16 | 0.53 | 16 | 0.53 | 60 | 2.00 | 32 | 1.07 |
| 9. GIS Expert/ Water Distribution Management | Thapa Phatta Bahadur | 14 | 0.47 | 14 | 0.47 | 30 | 1.00 | 15 | 0.50 |
| 10. Training Management/ Project Coordinator | Tomoaki Matsui | 16 | 0.53 | 16 | 0.53 | - | - | - | 0.00 |
| 11. Training Management 1/ Project Coordinator | Koichi Iwamoto** | - | - | - | - | 9 | 0.30 | - | 0.00 |
| 12. Training Management 1/ Project Coordinator | Masahiro Sugaya** | - | - | - | - | - | - | - | |
| 13. Training Management 2/ Project Coordinator | Mari Yasuda** | - | - | - | - | 38 | 1.27 | 35 | 1.17 |
| | Total | 194 | 6.46 | 192 | 6.39 | 649 | 21.64 | 478 | 15.94 |
| Japan | | | | | | | | | |
| 1. Chief Advisor / Water Utility Management | Hiroataka Sato | 8 | 0.40 | 8 | 0.40 | 52 | 2.60 | 68.51 | 3.43 |
| 2. Operation and Maintenance on Water Treatment facilities | Naohide Matsumoto | 6 | 0.30 | 6 | 0.30 | 23 | 1.15 | 34.56 | 1.73 |
| 3. Operation and Maintenance on Water Distribution facilities | Yarai Sato | 4 | 0.20 | 4 | 0.20 | 38 | 1.90 | 42.20 | 2.11 |
| 4. Water Leakage Survey | Thapa Phatta Bahadur | 6 | 0.30 | 3 | 0.15 | 47 | 2.35 | 41.56 | 2.08 |
| 5. Water Quality Management | Yasuhiko Morita | 6 | 0.30 | 6 | 0.30 | 47 | 2.35 | 66.85 | 3.34 |

| Responsibility | Name of member | MM in Term 3 | | | | MM in Term 4 | | | |
|---|--------------------------------|--------------|-------------|-----------|-------------|--------------|--------------|----------------|--------------|
| | | Plan | | Actual | | Plan | | Actual | |
| | | Days | M/M | Days | M/M | Days | M/M | Days | M/M |
| 6. Water Tariff/ Financial Management 1 | Shoko Yamada | 6 | 0.30 | 4 | 0.20 | 54 | 2.70 | 57.30 | 2.87 |
| 7. Deputy Chief Advisor/ Management of Water Filling Station and Water Kiosks Water Tariff/ Financial Management2 | Atsuo Ohno | 9 | 0.45 | 11 | 0.55 | 91 | 4.55 | 120.60 | 6.08 |
| 8. Hygiene Education/ Public Awareness Raising | Yasushi Sawazaki* | 4 | 0.20 | 4 | 0.20 | 63 | 3.15 | 80.95 | 4.05 |
| 9. GIS Expert/ Water Distribution Management | Thapa Phatta Bahadur | 4 | 0.20 | 4 | 0.20 | 15 | 0.75 | 15.00 | 0.75 |
| 10. Training Management/ Project Coordinator | Tomoaki Matsui | 12 | 0.60 | 12 | 0.60 | - | - | | |
| 11. Training Management 1 / Project Coordinator | Koichi Iwamoto** | - | - | - | - | 22 | 1.10 | 28.80 | 1.44 |
| 12. Training Management 2 | Mari Yasuda** | | | | | 8 | 0.40 | 16.39 | 0.82 |
| | Total of input in Japan | 65 | 3.25 | 62 | 3.10 | 460 | 23.00 | 573.72 | 28.70 |
| | Total | | 9.71 | | 9.49 | 1,040 | 44.64 | 1051.72 | 44.64 |

* Shigeki Taniho was assigned after October 2021.

** Koichi Iwamoto, Mari Yasuda, and Masahiro Sugaya were added to project coordinator and training management.

As on 7th February 2022.

2) Equipment provision

The details of procurement of materials and equipment for the entire project period are shown below. For further details, refer to Appendix-7.

Table 2-6 List of equipment procured

| Item | Content | Quantity | | | | | |
|------------------------------------|--|---------------|--------|--------|--------|--------|-------|
| | | Original Plan | Term 1 | Term 2 | Term 3 | Term 4 | Total |
| 1. Equipment for training building | Computer | 7 | 7 | 0 | 0 | 5 | 12 |
| | UPS | 7 | 0 | 0 | 0 | 5 | 5 |
| | UPS (big) | 1 | 1 | 0 | 0 | 0 | 1 |
| | Printer (color) | 1 | 0 | 2 | 0 | 5 | 7 |
| | Printer (block and white) | 1 | 0 | 0 | 0 | 0 | 0 |
| 2-1. Copy machine | Copy machine | 1 | 1 | 0 | 0 | 0 | 1 |
| 2-2. Stabilizer | Copy machine | 1 | 1 | 0 | 0 | 0 | 1 |
| 3. GIS software | | 1 | 0 | 0 | 0 | 0 | 0 |
| 4. GPS | | 2 | 2 | 0 | 0 | 0 | 2 |
| 5. Equipment for leakage survey | Metal detector (Fujitecom F-90M) | 1 | 0 | 0 | 0 | 0 | 0 |
| | Metal pipe location detector (Fujitecom GA-1) | 1 | 0 | 0 | 0 | 0 | 0 |
| | Reduced plastic pipe water leakage detector (Good man PVC rokerter D305) | 1 | 0 | 0 | 0 | 0 | 0 |
| | Ultra-sonic flowmeter (Fujitecom portaflo C) | 1 | 0 | 0 | 0 | 0 | 0 |
| | Water leakage detector (Fujitecom HG-10AII) | 1 | 0 | 0 | 0 | 0 | 0 |
| | High sensitivity sound hearing stick (Fujitecom LSP-1.0) | 2 | 0 | 0 | 0 | 0 | 0 |
| | Water leakage detector (Fujitecom DNR-18) | 1 | 0 | 0 | 0 | 0 | 0 |

| Item | Content | Quantity | | | | | |
|---|--|---------------|--------|--------|--------|--------|-------|
| | | Original Plan | Term 1 | Term 2 | Term 3 | Term 4 | Total |
| | Water leakage detector (Fujitecom HG-10AII) | 1 | 0 | 0 | 0 | 0 | 0 |
| | Portable water meter test bench | 1 | 0 | 0 | 0 | 1 | 1 |
| 6.Machinery for leakage repair | Medium sized wheel type backhoe | 1 | 0 | 0 | 0 | 1 | 1 |
| | Asphalt cutter | 1 | 0 | 0 | 0 | 1 | 1 |
| 7.Equipment for piping | Plumbing tool, water meter and plumbing tool, service pipe, valve and pipe accessory | 1 | 0 | 0 | 1 | 3 | 3 |
| 8.Flow meter | Electromagnetic flowmeter | 1 | 0 | 0 | 0 | 1 | 1 |
| | Bladed wheel flowmeter | 3 | 0 | 0 | 0 | 2 | 2 |
| 9.Sluice valve | | 25 | 0 | 0 | 0 | 5 | 5 |
| 10.Water quality test | Bacillus coli test kit and reagent, test kit | 1 | 0 | part | 0 | 1 | 1 |
| 11. Online meeting equipment | Speakerphone / camera | 0 | 0 | 0 | 0 | 1 | 1 |
| 12.Water supply equipment materials and equipment (COVID-19 response) | Plumbing tools set, water meter, water supply pipe, valve, pipe material accessories | - | - | - | - | 1 | 1 |
| 13. Chemicals (COVID-19 response) | Coagulant (105,000 kg), chlorine agent (2,000 kg) | - | - | - | - | 1 | 1 |
| 14. Fuel (COVID-19 response) | Diesel fuel (126,000L) | - | - | - | - | 1 | 1 |
| Motorcycle | (Procurement by JICA SS office) | - | - | - | - | 9 | 9 |

* GIS software was deleted because open-source free software is used.

** The leak investigation equipment was deleted because it was not possible to conduct an on-site investigation at night due to security issues.

3) Facilities required for training

Training facilities of NWSC was utilized for remote training.

- IREC training enter
- Gaba vocational skill development training center

4) Safety measures

Building fence was necessary around SSUWC HQ and Juba Station where project office is located. Following measures were taken to strengthen safety at the office.

- Reinforcement of the existing fence by barbed wires at the boundary of national security
- Constructing new fence line and barbed wires at the boundary of electric power company

The border line and photos are shown below.



Figure 2-1 Installation of a fence at the boundary of the SSUWC headquarters / Juba station site



Photo 2-1 Fence at the boundary of the SSUWC headquarters / Juba station site

In September 2020, the expert office was relocated to a room in the SSUWC HQ building. Based on the recommendation from a JICA security advisor, the doors and windows were strengthened in August 2021.



Photo 2-2 Strengthening of the door and windows of the expert office

(2) South Sudan side

1) Counterpart assignment

Project operating structure as well as Joint Coordination Committee (JCC) is shown in Figure 2-2. List of the C/P of South Sudan Urban Water Cooperation (SSUWC) is shown in Table 2-7.

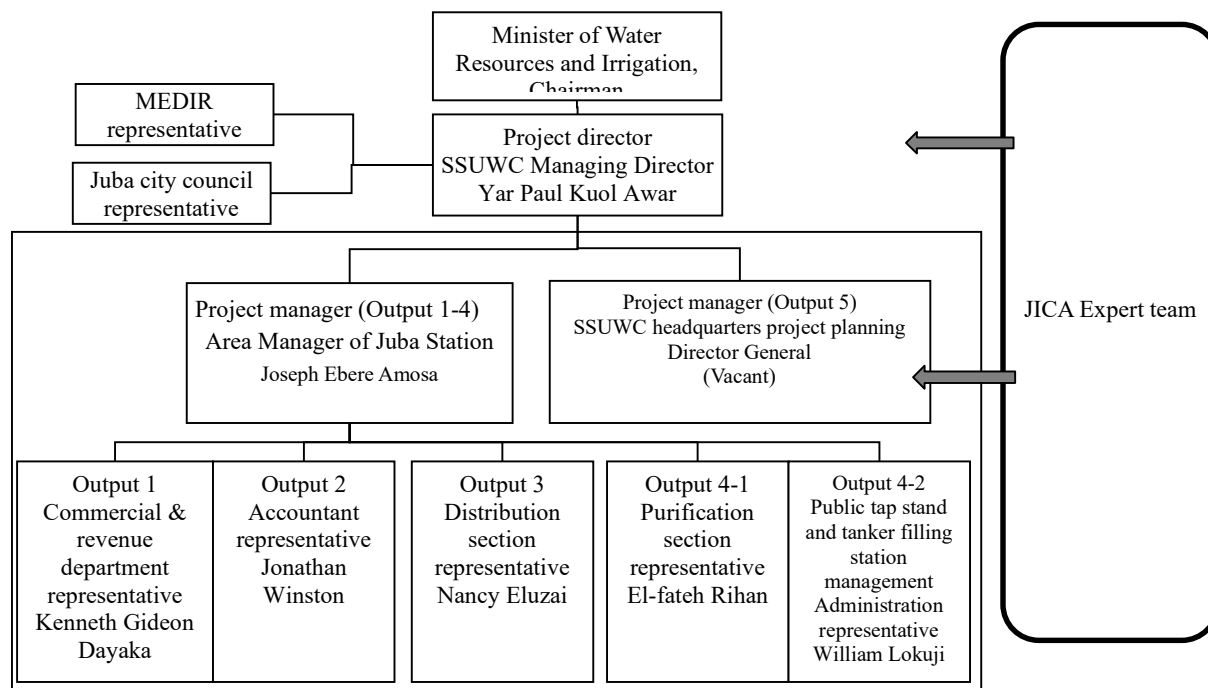


Figure 2-2 Project operating structure as well as Joint Coordination Committee
Project counterpart (C/P) organization (end of 2021)

The major C/P changes during the project period are shown below.

a) Area Manager of Juba Station (Project Manager)

- At the start: Joseph El Nur Sule (Retirement)
- Until 2019: Osama Mahdi (Transferred to headquarters)
- After 2019: Josef Ebere

b) Project Manager (Output 5)

- Lawrence Lopula Busuk Muludyang retired at the end of 2020
- Ben Wanga entered in 2021 but retired in December 2021

c) Other major retires, leave of absence

- Responsible Person of Output 1 (Head of Commercial and Revenue Department, Juba Station) Leave of absence: Kennth Gideon Dayaka
- Responsible Person of Output 4-1 (Juba Station Water Purification and Water Supply Manager) Leave of absence: Peter Tabura Nigo

Table 2-7 List of SSUWC C/P

| Output 1: Financial Management | Output 2: Public Awareness | Output 3: Non-Revenue Water management | Output 4: Facilities O&M | Output 4-2: Public stand pipe and water tanker filling station | Output 5: Head Quarter Management |
|--|--|--|---|--|--|
| Kenneth Gideon Jenefar Achiro Lona Wani Simon Boss Kangs Towaro | Jonathan Winston Kenneth Gideon Lona Wani Christper Phillip Diab Umjuma Nora Bakole Luka Malih | NRW Cienggan Mading Dakbai Nancy Eluzai Jonathan Winston Friday Idris Dominic Michael Francis Simon Steven Joseph Dogalle Primo Luka Malish Philmon Christopher Philip Lado GIS Peter Pisa Joseph Cienggan Mading Dakbai Daniel Loguya | Peter Tabura El-fateh Rihan Fahim Kafif George Wani Julius Mobruk Low Joseph Charles Mogga Manas Lukule Poul Albino Anjelo Peter John Brown Martin Rume Marcelo Tombe Sebit lodo Viola Victor Robert Lubang Tivo Abowro John Kenyi Sebit lodo Tivo Abowro | William Louji Robert Wani David Duku Peter Loro Kenneth Gideon Hakim Emmanuel | Yar Paul Kuol Awar (HQ MD) Madol Cuot Chep (HQ Deputy MD) Simon Koak Kuay Diu (HQ) Joseph Ebere Amosa (HQ) Chrisphine Abugo Paul (HQ) Aleer Philiphs Leek (HQ) Lawrence L.B. Muludyang (HQ) Osama Mahdi Mohamed Bekhit (Juba) Elfateh Rihan Surur Api (Juba) William Lokuji Gremano (Juba) Wilson Daniel Okongo (Juba) |

2) Facility

An office building in water purification department of Juba Station was provided for JICA Expert Team. In September 2020, the building was demolished for the construction of reservoir by the AfDB project, and the expert office was relocated to a room in the SSUWC headquarters office.

3) Maintenance for equipment provided from JICA Expert Team

Seven laptop computers (PC) and two GPSs were handed over in Term 1. This equipment is utilized in the remote training in Term 3. Furthermore, two color printers were purchased in Uganda in Term 2 and utilized for training in Term 3. They were carried to Juba after the completion of training in March 2019 and kept in JICA expert office in Juba station. In Term 4, JICA Expert Team provided 5 PCs and 5 printers, portable water meter test equipment, backhoe, asphalt cutter, water supply equipment, installation tools, and flowmeters.

a) Local cost and Management cost

No local cost occurred in South Sudan side.

b) C/P (Trainee)

The number of remote training attendance in Terms 1, 2 and 3 is shown in Table 2-8. Attendance list is shown in Appendix-6.

Table 2-8 Training attendance

| Name of Training Item | Output | Term 1 | | Term 2 | | Term 3 | |
|----------------------------------|--------|----------------------|-----------------|----------------------|-----------------|----------------------|-----------------|
| | | Total (person×times) | Trained persons | Total (person×times) | Trained persons | Total (person×times) | Trained persons |
| Meeting for training preparation | - | 4 | 4 | 0 | 0 | 0 | 0 |
| Financial management | 1 | 11 | 6 | 31 | 8 | 22 | 12 |
| Public awareness | 2 | 10 | 5 | 20 | 5 | 5 | 5 |
| GIS | 1,3,4 | 6 | 3 | 9 | 3 | 3 | 3 |
| Non-revenue water management | 3 | 4 | 2 | 16 | 4 | 7 | 7 |
| O&M of purification plant | 4 | 12 | 7 | 21 | 7 | 20 | 10 |
| Water quality management | 4 | 6 | 3 | 9 | 3 | 5 | 3 |
| Distribution pipeline network | 3 | 6 | 3 | 11 | 3 | 14 | 9 |
| PTS and TFS | 4 | 3 | 3 | 0 | 0 | 0 | 0 |
| Headquarters (HQ) management | 5 | 8 | 5 | 29 | 11 | 37 | 29 |
| Total No. Attendance | | 70 | 41 | 146 | 44 | 113 | 78 |

2.2. Outline of remote training

The outline of remote training is shown in Table 2-9. The detailed programs are given in Annex-8.

Table 2-9 Subjects of Remote Training

| Term | Period (training name) | Training Subject |
|------|--|---|
| 1 | 20/Nov/2016 to 3/Dec/2016 (1st Uganda / Kenya Training) | <ul style="list-style-type: none"> Financial Management Public Awareness Activities Non-revenue Water Management Geographic Information System (GIS) O&M of Purification Plant in Juba Station O&M of Distribution Pipeline Network Public Tap Stand and Tanker Filling Station Management Headquarter Management |
| | 8/Jan/2017 to 21/Jan/2017 (2nd Uganda / Kenya Training) | <ul style="list-style-type: none"> Financial Management Public Awareness Activities Geographic Information System (GIS) Safety for O&M(Treatment Team, Pump and Generator Team) O&M of Purification Plant in Juba Station (Electric and Generator, Pumps) O&M of Purification Plant in Juba Station (Water Purification) 3 persons Headquarter (HQ) Management |
| 2 | 6/June/2017 to 15/July/2017 (1st Uganda Training) | <ul style="list-style-type: none"> Financial Management NRW, O&M Distribution Pipeline Network Geographic Information System (GIS) O&M of Purification Plant in Juba Station (Treatment Team, and Pump and Generator Team) O&M of Distribution Pipeline Network Water Quality Monitoring Headquarter Management |
| | 28/June/2017 to 7/July/2017 (Japan Training) | <ul style="list-style-type: none"> Headquarter Management /Utility Management |
| | 10/July/2017 to 14/July/2017 (Third country training in | <ul style="list-style-type: none"> Headquarters Management/Utility Management |

| Term | Period (training name) | Training Subject |
|------|---|---|
| | Cambodia) | |
| | 4/Sep. /2017 to 28/Sep. /2017 (2nd Uganda Training) | <ul style="list-style-type: none"> • Financial Management • Public Awareness • NRW & Distribution • Safety for O&M(Treatment Team, Pump and Generator Team) • O&M of Purification Plant in Juba Station (Treatment Team, and Pump and Generator Team) • O&M of Distribution Pipeline Network • Water Quality Monitoring |
| | 1/Nov. /2017 to 9/Nov. /2017 (3rd Uganda Training) | <ul style="list-style-type: none"> • Financial Management • Public Awareness |
| | 28/Nov. /2017 to 22/Dec. /2017 (4th Uganda Training) | <ul style="list-style-type: none"> • Financial Management • NRW & Distribution • GIS • O&M of Purification Plant in Juba Station (Treatment Team, and Pump and Generator Team) • O&M of Distribution Pipeline Network • Water Quality Monitoring • Headquarters Management |
| | 1/Feb /2018 to 10/Mar. /2018 (5th Uganda Training) | <ul style="list-style-type: none"> • Financial Management • Public Awareness • Non-Revenue Water (NRW) • GIS • Safety for O&M(Treatment Team, Pump and Generator Team) • O&M of Purification Plant in Juba Station (Treatment Team) • O&M of Purification Plant in Juba Station (Pump and Generator Team) • Headquarters Management |
| | 16/Apr. /2018 to 21/Apr. /2018 (6th Uganda Training) | <ul style="list-style-type: none"> • Headquarters Management |
| 3 | 29/Oct. /2018 to 15/Nov. /2018 (1st Uganda Training) | <ul style="list-style-type: none"> • Financial Management • Public Awareness • NRW Management • GIS and Distribution Management |
| | 4/Dec. /2018 to 15/Dec /2018 (2nd Uganda Training) | <ul style="list-style-type: none"> • Financial Management • Financial Management (Meter plumber) • O&M of Purification Plant in Juba Station (Treatment Team) • O&M of Purification Plant in Juba Station (Pump and Generator Team) • Water Quality Monitoring |
| | 28/Jan. /2019 to 13/Apr. /2019 (3rd Uganda Training) | <ul style="list-style-type: none"> • Financial Management • Public Awareness • NRW • GIS • Headquarters Management |

2.3. Trainings in Japan and Third Countries

(1) Training in Japan

1) Period: June 26, 2017 (from Juba) to July 8, 2017 (from Japan to Cambodia)

2) Participants:

| No. | Name | Job title |
|-----|--------------------------|--|
| 1 | Yar Paul Kuol Awar (Ms.) | Managing Director, South Sudan Urban Water Corporation (SSUWC) |

| No. | Name | Job title |
|-----|---------------------------------------|--|
| 2 | Lawrence Lopula Busuk Muludyang (Mr.) | Director General, Planning and Projects, SSUWC |
| 3 | Simon Koak Kuay Diu (Mr.) | Director General, Admin and Finance, SSUWC |
| 4 | Osama Mahdi Mohamed Bekhit (Mr.) | Ag. Area Manager, Juba Station, SSUWC |

3) Purpose of training:

1. To prepare policy of management manual of SSUWC HQ and draft reform action plan
2. To prepare draft reform action plan of Juba Station
3. To learn about financial system of waterworks bureaus of Japan, water administration (role of central government and municipality, regulations) and human resource development
4. To learn about history of waterworks, regulations, water safety plan, countermeasures for NRW, human resource development, management plan, water tariff, PR activity and overseas experience
5. To understand the Japanese advanced water treatment technology

4) Program:

The detail schedule is attached in Appendix-5.

- 28 June (Wed) AM: Orientation at JICA Yokohama
- 28 June (Wed) PM: Confirmation of the situation of reform plan of HQ and progress of each output (TECI)
- 29 June (Thu): Sharing the challenges of SSUWC HQ and proposal of solution (TECI)
- 30 June (Fri): Preparation of draft reform plan of SSUWC HQ
- 3 July (Mon): Japanese water administration (Japan Water Research Center)
- 4 July (Tue): Lecture / Site visit (Water Works Bureau of Yokohama City)
- 5 July (Wed): Lecture / Site visit (Water Works Bureau of Yokohama City)
- 6 July (Thu): Lecture / Site visit (Water Works Bureau of Yokohama City)
- 7 July (Fri): Preparation of SSUWC reform action plan and presentation

Note; TECI: TEC International

5) Outline of Results

The training was carried out in Japan for approximately two weeks in cooperation with City of Yokohama, Water Works Bureau and Japan Water Research Center (JWRC). Six members of counterparts from Ministry of Water Resources and Irrigation, and SSUWC participated in the training. The lectures by JWRC focused on demarcation of waterworks between the central and municipal governments related to regulatory frameworks and financial management system. Counterparts deepen their understanding on the overall framework of waterworks. With regard to training on roles of the central and municipal governments, both of the Japanese and South Sudanese cases were compared. In the Japanese case, the demarcation between them is clearly defined in their administration, in contrast to the South Sudanese case. The counterparts felt that the demarcation between the central and municipal governments should be necessarily defined.

In the training by Water Works Bureau in Yokohama, they deepened the actual operational practices of waterworks by municipal government within the overall framework. Also, the concept of municipal bond to secure financial resources for waterworks was new for them and had an active discussion. In addition, the counterparts visited the site of water source forests and its office, water treatment plant and Tokyo Waterworks Historical Museum.

At the end of training, they prepared the draft of action plan for HQ and Juba Station through a workshop. They considered the applicable lessons learnt and experiences and reflected on the plan.

After the training in Japan, they continuously participated in training in Cambodia. The program is attached in Appendix-5.

(2) Training in third country (Cambodia)

1) 8 July 2017 (departure from Japan and arrival at Cambodia) – 15 July 2017 (departure from Cambodia)

2) Participants:

| No. | Name | Job title |
|-----|---------------------------------------|--|
| 1 | Sophia Pal Gai Laam (Ms.) | Minister, Water Resources and Irrigation (MWRI), South Sudan |
| 2 | Alex Liki Ruben Lomundu (Mr.) | Director General, Planning, MWRI |
| 3 | Yar Paul Kuol Awar (Ms.) | Managing Director, South Sudan Urban Water Corporation (SSUWC) |
| 4 | Lawrence Lopula Busuk Muludyang (Mr.) | Director General, Planning and Projects, SSUWC |
| 5 | Simon Koak Kuay Diu (Mr.) | Director General, Admin and Finance, SSUWC |
| 6 | Osama Mahdi Mohamed Bekhit (Mr.) | Ag. Area Manager, Juba Station, SSUWC |

3) Purpose of training

The purpose is to learn the reform history of PPWSA after civil war and measures taken to achieve the reform. SSUWC leaned the experience of PPWSA such as:

- ✓ Outline of O&M of water supply facilities (treatment, quality monitoring, distribution monitoring)
- ✓ Management of NRW including water tariff billing & collection
- ✓ Interaction between present customer and potential customer

4) Program:

- 10 July (Mon): Reform history of PPWSA, actions taken to solve the problems, governance (PPWSA)
- 11 July (Tue): Outline of regulations, standards, guidelines, manual and SOP, business plan (PPWSA)
- 12 July (Wed): Management of NRW (physical and commercial loss), public awareness activity (PPWSA)
- 13 July (Thu): Reform of PPWSA and national water sector (Ek Sonn Chan, Ministry of

Industry and Handcraft), site visit to Niroth water treatment plant (PPWSA)

- 14 July (Fri): Human resource development, discussion, preparation and presentation of action plan (PPWSA)

5) Outline of Results

The training in Cambodia was carried out for 5 days in cooperation with PPWSA. Same as the training in Japan, six members of counterparts, two from Ministry of Water Resources and Irrigation, and four from SSUWC participated in the training. The water supply status of SSUWC could be similar to that of PPWSA just after the Cambodian civil war. Hence, the counterparts were concerned with the reform taken by PPWSA very much. They acquired knowledge and know-how on the roadmap of reform, importance of leadership, and actions for problem-solving. Through the lectures, they had an opportunity to study overall good practice on the PPWSA's reform, and the importance of strong leadership and actions directly by Mr. Ek Sonn Chan. Afterwards, they continued to finalize the draft of reform action plan which consisted of the following and made a presentation.

- Report on SSUWC Country Situation
- Preparation of a draft of reform action plan for SSUWC HQ and presentation
- Preparation of a draft of reform action plan for SSUWC Juba Station and presentation

In addition, they added declaration of commitment on SSUWC reform as a major output in the report. It was confirmed that they would translate it into practice after going back to South Sudan. The commitments are as follows.

- SSUWC enhances development of necessary regulation and rules through SSUWC council whose chairman is the minister of Water Resources and Irrigation.
- Most significant issue is to strengthen the partnership with development partners.
- Most priority issue is to translate what they learnt in the training into practice.

The program is attached in Appendix-5

2.4. Activities contents based on plan of operation (PO)

2.4.1. Output 1 Activity (Water charge collection capacity of Juba Station is strengthened)

1. Output 1: Water charge collection capacity of Juba Station is strengthened

1-1 Conduct a baseline survey regarding water works management, facilities operation and maintenance and customer satisfaction.

(1) O&M baseline

Baseline report was prepared as below;

- Outline of facilities in Juba station and organization of Juba station
- Outline of results of Phase 1 project and current evaluation
- Current situation of O&M of water treatment plant for Juba station
- Current situation O&M of water transmission facilities in the water treatment plant in Juba station

- Current situation O&M of water distribution facilities in Juba station
- Current situation on water quality analysis
- Current situation for water supply service
- Current situation on O&M of PTS & TFS
- Current situation on bill collection and finance
- Water tariff in Juba city

(2) Social condition survey

Interview survey on water usage and customer satisfaction for residence in Juba Town, Munuki, Kator, and Rajaf was implemented in March 2016. Total 541 samples were collected. Half of the samples is potential customer since water supply population is expected to increase by PTS & TFS after completion of the grant aid project of Japan. Survey outline and its result are shown as below;

1) Survey outline

The survey was implemented for both house connection population residence (SSUWC customer) and non-house connection residence (Non-SSUWC customer). The survey outline is described as below.

Table 2-10 Social condition survey outline

| | |
|----------------|---|
| Survey period: | 2 nd March 2016- 14 th March 2016 |
| Sample: | 541 (SSUWC house connection customer 270, Non- SSUWC customer: 271) |
| Target area: | Juba Town, Munuki, Kator, Rajaf |
| Survey method | Interview survey |

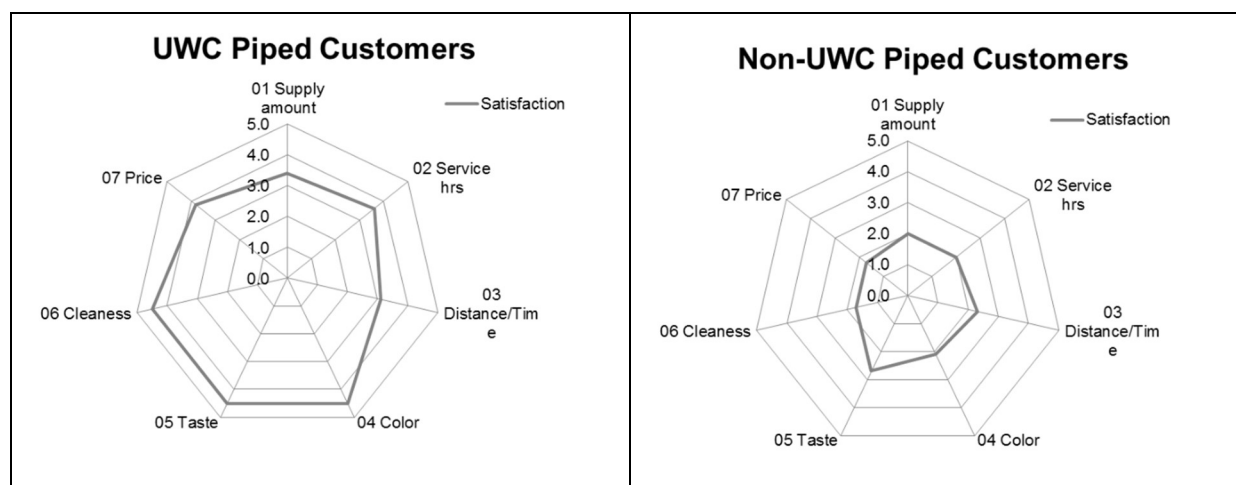
2) Survey result outline

Outline of survey result is shown as below.

Table 2-11 Outline of survey result

| | |
|---|--|
| Average number of persons per household: | 11.0 |
| Average monthly income per household: | Total average : 3,250 SSP, lowest 20% average : 1,250 SSP |
| Payment for total water cost per household: | House connection household : 810 SSP, Non-house connection household: 750 SSP |
| Water source: | House connection household : (1) House connection (100%), (2) Water tanker (UWC treated water) (98%), (3) Water tanker (river water) (44%), (4) Hand pump (26%), (5) PTS (14%) Non-house connection household : (1) Water tanker (river water) (82%), (2) Water tanker (UWC treated water) (31%), (3) Hand pump (26%), (4) Public well (10%), (5) Water seller (6%) Note: multiple answers |
| Water consumption amount : | All households :735L/day in dry season, 567L/day in rainy season House connection : 758L/day in dry season, 633/day in rainy season Non-house connection household : 706L/day in dry season, 485L/day in rainy season |
| Water supply situation: | Is water supplied periodically? : Yes (21%), No (79%) |

| | |
|--|---|
| | Average water supply days/ week : 2 days (48%), 3 days (17%), 4 days (15%) |
| Satisfaction for water supply situation: | House connection household : Satisfied : Yes (16%), No (84%) Non-house connection household : Satisfied : Yes (9%), No (91%) |
| Main problem (Multiple answer) : | House connection household : (1) water supply amount (73%), (2) water supply hours (73%), (3) irregular water supply (40%) (4) low water pressure (35%), (5) expensive water tariff (6%) Non-house connection household : (1) expensive water tariff (96%), (2) Unclean water (72%), (3) short water supply service time (70%), (4) water amount (66%), (5) water quality (color) (55%) |
| Satisfaction for main water resource : | House connection household : 3 : more than 3.0 overall (amount, hours, distance/time, quality (color, taste and cleanness)), 4.5 on water quality 3 items (color, taste and cleanness) Non-house connection household : less than 2.0 overall and satisfaction is low totally See the figure below. |
| Residence willingness to pay for safe water supply by PTS & water tanker | PTS : Yes (55%), No (45%) Water tanker : Yes (77%), No (23%) |



(left figure: SSUWC house connection, right: SSUWC non-house connection)

Figure 2-3 Satisfaction on main water resource

1-2 Understand the latest cost structure and review the current water tariff

The history of water tariff and current water tariff were understood (Table 2-12). The latest expense by item was analyzed and latest cost structure was understood. Water tariff was set in 2004 and since then it had several revisions. The water tariff was revised for household customers in January 2016 and then for all customers in July 2016. The tariff in July increased three-folds from January for customer who enrolled in fixed water tariff category. This revision was reflected by the condition of South Sudan such as depreciation of South Sudanese Pound (SSP) and deterioration of economic situation,

but it wasn't based on the guideline and principle of tariff setting. After that, in 2018 and January 2021, revisions were made due to price increase caused by inflation. In November 2021, a letter issued by the MWRI on the NRA issue stated that tariff of TFS would increase by more than double and tariff of metered customers by more than five times, but this has not been applied as of January 2022. However, in December 2021, the unit price of TFS and metered customers was raised from 200SSP/m³ to 300 SSP/m³. Furthermore, the fixed rates were increased in February 2022.

Table 2-12 History of water tariff

| Customer type | 2004-2010 | Oct. 2010- | Aug. 2012 | Jan. 2016- | Nov. 2016 | Apr. 2018 | Apr. 2019 | 1 st Feb. 2021 | Dec. 2021 Feb. 2022 *3 |
|------------------------------|-----------|------------|--|---|---------------------------------|-------------------------------------|--------------------|---------------------------|---------------------------|
| | (SDG) | (SDG) | (SSP) | (SSP) | (SSP) | (SSP) | | (SSP) | (SSP) |
| Tanker filling station rates | | | | | | | 170/m ³ | 200/m ³ | 300/m ³ |
| Metered Rates | | | 6/m ³ | 20/m ³ | 60/m ³ | 170/m ³ | 170/m ³ | 200/m ³ | 300/m ³ |
| Domestic | | | | | | | | | |
| Class 1 | 18 | 30 | 72 | 288 | 864 | 4,650 | | | 23,250 |
| Class 2 | 15 | 25 | 48 | 192 | 576 | 2,325 | | | 11,580 |
| Class 3 | 9 | 15 | 24 | 96 | 288 | 930 | | | 4,650 |
| Stand-pipes | 60 | | | | 6,720 | | | | |
| Ordinary stand pipes | | 100 | 500 | | | 93,000 | 170/m ³ | 200/m ³ | |
| Large standpipes for lorry | | 1000 | 6/m ³ | 20/m ³ | | | | | |
| Hospitals | 100 | *1 | 6/m ³ | 20/m ³ | | 170.m ³ | 170/m ³ | 200/m ³ | |
| NGOs | 100 | 300 | | | | | | | |
| NGOs (Big) | | | 0-30m ³ : 600 30m ³ :- 6/m ³ Flat rate: 600 | 0-30m ³ : 600 30m ³ :- 20/m ³ Flat rate: 600 | Flat rate: 7200 | Flat rate: 7200 | 170/m ³ | 200/m ³ | |
| NGOs (Small) | | | 0-30m ³ : 300 30m ³ :- 6/m ³ Flat rate: 300 | 0-30m ³ : 300 30m ³ :- 20/m ³ Flat rate: 300 | | | | | |
| Schools | 100 | 250 | 300 | | 3,600 | 4,650 | 4,650 | | 23,250 |
| University | | | 6/m ³ Flat rate: 1,500 | 20/m ³ Flat rate: 1,500 | | 170/m ³ | 170/m ³ | | 23,250 |
| Governmental units | 100 | 300 | 600 | 600 | 7,200 | 7,200 | 7,200 | | 36,000 |
| Hotels | | | | | | | 170/m ³ | | |
| Hotel (Small) & lodges | 1200 | 750 | 0-30m ³ : 500 30m ³ :- 6/m ³ Flat rate: 1,200 | 0-30m ³ : 500 30m ³ :- 20/m ³ Flat rate: 1,200 | Guest house Flat rate: 8,400 | Guest house Flat rate: 18,600 | 18,600 | | 93,000 |
| Hotel (Medium) | | 1200 | 0-30m ³ : 500 30m ³ :- 6/m ³ Flat rate: 1,500 | 0-30m ³ : 500 30m ³ :- 20/m ³ Flat rate: 1,500 | Hotel Flat rate: 2,1600 | Hotel Flat rate: 74,400 | 74,400 | | |
| Hotel (Large) | 1,440 | 1,440 | 0-30m ³ : 500 30m ³ :- 6/m ³ | 0-30m ³ : 500 30m ³ :- 20/m ³ | | | 170/m ³ | 200/m ³ | 300/m ³ |

| Customer type | 2004-2010 | Oct. 2010- | Aug. 2012 | Jan. 2016- | Nov. 2016 | Apr. 2018 | Apr. 2019 | 1 st Feb. 2021 | Dec. 2021 Feb. 2022 *3 |
|----------------------------|-----------|------------|------------------|------------------|-----------|-----------|--------------------|---------------------------|---------------------------|
| | (SDG) | (SDG) | (SSP) | (SSP) | (SSP) | (SSP) | | (SSP) | (SSP) |
| | | | Flat rate: 1,800 | Flat rate: 1,800 | | | | | |
| Restaurants | 100 | | 500 | | | | 170/m ³ | 200/m ³ | 300/m ³ |
| Factory | | 700 | | | | | 170/m ³ | 200/m ³ | 300/m ³ |
| Factory (Small) | | | 700 | 700 | | | 170/m ³ | 200/m ³ | 300/m ³ |
| Factory (Big) | | | 1,500 | 1,500 | | | 170/m ³ | 200/m ³ | 300/m ³ |
| Military (Mess) | | 250 | 700 | 700 | | | 170/m ³ | 200/m ³ | 300/m ³ |
| Public latrines | | 500 | 500 | 500 | 8,400 | 4,650 | 4,650 | | 300/m ³ |
| Petroleum station | | 300 | 700 | 700 | | | 170/m ³ | 200/m ³ | 300/m ³ |
| New construction buildings | | 500 | 1,500 | 1,500 | 18,000 | 93,000 | 93,000 | | 300/m ³ |
| Bakeries | | 300 | 250 | 250 | 3,000 | | 170/m ³ | 200/m ³ | 300/m ³ |
| Tower buildings | | 1,500 | | | | | 170/m ³ | 200/m ³ | 300/m ³ |
| Business center | | | | | 60,00 | | 170/m ³ | 200/m ³ | 300/m ³ |
| Churches & Mosques | | *2 | *1 | *1 | 576 | | 170/m ³ | 200/m ³ | 300/m ³ |
| Company | | | | | 8,400 | 46,650 | 46,650 | | |

*1: Domestic rate is applied according to the area located.

*2: 2nd class rate is applied. According to the number of taps.

*3: Tariff rates of tanker filling station and water meter were revised in Dec. 2021, and those of the other categories were revised in Feb. 2022.

On cost structure, salary, electrical cost (currently no supply of electricity) and chemical cost were paid by the Ministry and SSUWC HQ. Cost of insufficient fuel, which is not covered by SSUWC HQ, material costs such as pipe and meter, and incidental costs were paid by water charge collection in Juba Station. Balance of payments is basically surplus since operation is made within the revenue collected. However, since the largest expense item fuel and chemical isn't included in Juba station expense, their operation is far from financially independent.

The revenue and cost structure was analyzed in the 1st remote training program in Uganda and trial calculation of the structure was done using actual costs when water tariff calculation was exercised using Excel in the 2nd remote training program.

Table 2-13 Lecture outline

| Date | Training name | Content | Lecture |
|-------|---|--|-----------------------|
| 11/30 | Financial situation and projection, cost recovery | Financial management, budget management, account and cash flow | NWSC (Silver Emudong) |

In October 2020, a Financial Committee was set up and started the activities to formulate a financial plan, understand the cost structure of Juba Station, and prepare a budget. Details are described in Activities 1-5.

1-3 Update the customer information

(1) Activities implemented

Customer information database is needed to understand existing customer information and water supply situation. Customer information is managed by Revenue Section and it is not included as GIS information in GIS database. To update the customer information in GIS, customer information survey was implemented by 3 teams which included members in Distribution Department, Meter Reading Section and Revenue Section. Then, customer database was prepared in GIS. At first, GIS basic map including house plot was prepared through sub-contract work. Second, household interview using the questionnaire (Table 2-14) and GPS was carried out for collection of customer information. During the survey it was found that many customers have not received water and not paid water tariff since long. Most of the customers are expecting restarting water supply by SSUWC. Currently, they purchase contaminated water from private water seller at a higher price than the water price of SSUWC.

Table 2-14 Questionnaire

| | | | |
|--------------------------|---|--------------------|--|
| Table 2-14 Questionnaire | | | |
| 1. | Waypoint Number (Read from GPS for Mark Waypoint) | | |
| 2. | Customer Name | | |
| 3. | Plot Number | | |
| 4. | Address | | |
| 5. | Type of User (circle () or tick mark (✓) the option on right hand side) | Domestic Class I | |
| | | Domestic Class II | |
| | | Domestic Class III | |

| | | | |
|-----|--|---------------------|--|
| | | Commercial | |
| | | Government Units | |
| | | Schools | |
| | | Hotel | |
| | | NGOs | |
| | | Others (Write name) | |
| 6. | Number of members in family/ Number of Users (in case of Commercial or Govt. Offices) | | |
| 7. | Water supply condition | | |
| 8. | Type of applied tariff (Write “Flat” or “Meter-based”) | | |
| | - Rate/m ³ (for metered) | | |
| | - Rate/month (for flat) | | |
| 9. | Is Meter available? (Write YES or NO) | | |
| | - Meter Number | | |
| | - Meter working or not? | | |
| 10. | When the Bill was paid last time? | | |
| 11. | Amount paid last time (in SDG) | | |

The customer information within the billing & collection database was updated. The customer type was re-categorized based on the present tariff structure, and then the customer code and the serial number were decided. The column of customer ID was added to the present database and the ID was input. The customer ID is fixed as follows:

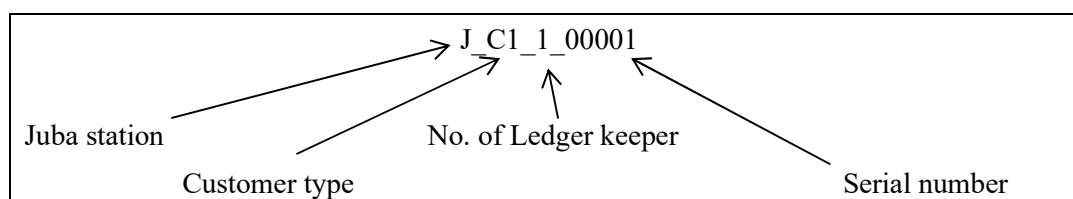


Figure 2-4 How to assign a customer ID

(2) Outcome

- MS Access, Billing & Collection Database (updated)

1-4 Visualize the customer information utilizing GIS and to understand actual situation of water bill collection

(1) Activities implemented

Originally, paid GIS software, ESRI ArcView was proposed to be used but finally an open source free software QGIS was used because it was free and judged to be enough for the purpose of SSUWC's use.

After inputting the customer ID, the name of customers in the GIS database and the billing & collection database were compared and same customer ID was input to the GIS database for the corresponding person in billing & collection database. Due to the different spelling of the name and

duplication of the customers in the billing & collection database, this work took quite a long time. The number of customers is 2,149 in GIS database and more than 2,600 in the billing & collection database. The difference between the two databases is more than 450. In order to solve this problem, it is necessary to reconfirm and organize the customer information in the customer database and to actually visit and confirm the customer at site, but it was difficult to carry out this by remote training and it was a carry-over issue in the Term 4. In the Term 4, COVID-19 made it impossible to visit customers for confirmation work, and customer confirmation work was not completed. On the other hand, the part of the acquired data by GPS during the activities of Committee for Inspection and Disconnection were reflected in GIS. A system was developed to update GIS customer data by recording location information using a smartphone application in the field and connecting to a PC at Juba Station to synchronize the application information automatically. Training was provided on how to use the system during the expert's stay in January 2022, and at least one person can use the system.

(2) Outcome

- GIS Database

1-5 Develop a guideline for appropriate water pricing for Juba Station and obtain HQ Approval

(1) Activities implemented

1) Promote understanding of water rate setting

To set water tariff, the understanding of financial management, financial forecast, and cost recovery is important. Experience of NWSC in Uganda, the neighboring country which may be similar to South Sudan conditions, was utilized for the Project. Financial management basics, cost recovery, financial forecast, and type and amount of water tariff in Uganda and surrounding countries were taught by NWSC in the 1st remote training. After that, the cost required in ten years from now on was estimated, and it was taught by the JICA Expert how much revenue was required and what tariff setting was required. Training on cost estimation using Excel in the 1st remote training was implemented. Since they were not familiar with operating PC and Excel it took too long time for them to understand, and they could not complete the assignment. Thus, this training was continued to the 2nd remote training.

Draft guideline of water tariff setting was prepared by the JICA Expert and it was explained to the C/P in the 1st remote training. Principle of water tariff, tariff structure, and water tariff structure in other countries were taught by NWSC. The C/P learned the examples similar to that of South Sudan.

Table 2-15 Outline of lecture

| Date | Training name | Content | Instructor |
|------|-------------------------------------|--|-----------------------------|
| 12/1 | Tariff setting policy and guideline | Tariff setting principle, tariff structure type, tariff structure in other countries | NWSC (Godfrey Katongole) |

Principle of water tariff, tariff structure, and water tariff structure in other countries were taught again

to the C/P including HQ by NWSC in the 2nd remote training. Through discussion on consideration in setting and principle of tariff, the understanding was deepened. After that, exercise of tariff setting method was carried out using Excel.

Table 2-16 Outline of training

| Date | Training name | Content | Instructor |
|-------------------|---|--|--|
| 1/10 PM - 1/13 AM | Tariff setting policy and guideline (Theory and practice) | Principle of water tariff, tariff structure, water tariff structure in other countries, tariff indexation, Affordability to pay, consideration of poor people, understanding of factor affecting water tariff, exercise of water tariff setting method using Excel | NWSC (Godfrey Katongole, Talent Tumwejiga) |

Based on these trainings and lectures, guideline (draft) of water tariff setting were prepared and discussed. In addition, based on the data from the PI data sheet, which was recorded and analyzed in parallel during the training, an exercise for water tariff setting was conducted.

2) Guideline for water tariff setting

The essential points of the first half of the outline of the guideline was lectured for and discussed with the counterparts. The lecture was focused on “principles of water tariff setting”, “basic procedure of water tariff setting” and “water costs and required tariff revenue”.

Tariff setting policy depends on the target level of cost recovery. In the training, following three alternative options were introduced. The option 1 of targeting cost recovery of only operation and maintenance costs was recommended by JICA Expert as the first step of tariff setting, considering the current condition of SSUWC Juba Station. This recommendation was discussed and confirmed with the counterparts.

Cost recovery items

Option 1: Operation & Maintenance (O&M) costs (incl. administration costs)

Option 2: O&M costs and debt service costs (loan payment + interest)

Option 3: O&M costs, debt service costs and depreciation costs

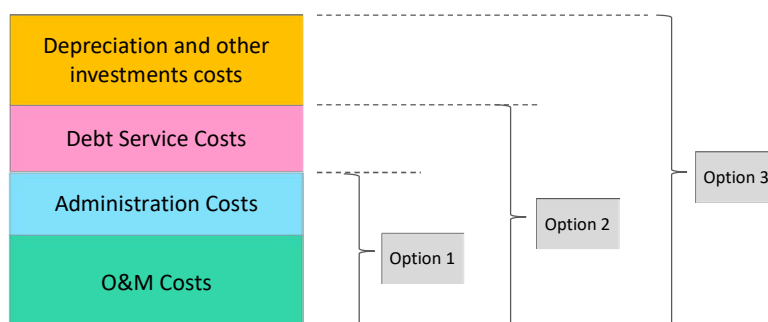


Figure 2-5 Alternative of cost recovery in water tariff setting

3) Practice lessons on water tariff setting

In the training, the total water cost was calculated at first, and required water tariff revenue was estimated by multiplying coefficient of Non-revenue water ratio.

Twenty-four hours operation was assumed as the condition in practice lessons, and the total water costs was estimated in accordance with the calculation worksheets of each cost item. In the estimation, following three options of fuel procurement were considered:

Option 1: procurement of 100% government subsidized fuel

Option 2: 100% market price fuel

Option 3: Combined option 1 (50%) and Option 2 (50%).

In cost estimation, the actual cost of annual expenditure in 2017 was utilized for the following items: personnel costs, which is paid by the Ministry of Finance and Economic Planning, equipment and materials costs, fuel costs for vehicle and other expenditure. Variable costs such as fuel costs for generator and chemical costs are estimated based on twenty-four hours operation. Afterwards, “average revenue per m³ (total supply amount)” was calculated and “unit operational cost per m³” was eventually estimated considering NRW factor.

In Term 3, the review on estimation for water tariff setting was carried out and the trainee’s understanding was brushed up. Furthermore, the expenditure amount was updated by using actual data of FY2018. The chemical costs tentatively calculated in Term 2 was reviewed by using actual expense in FY2018. Since “the unit operational costs per m³” is changed according to the actual NRW ratio, the training on preparation of a correlation chart was carried out to enhance the understanding on the necessary “average revenue per m³” by NRW ratio.

Afterwards, in the 3rd batch training, “unit operational costs per m³” and the necessary “average revenue per m³” was estimated to achieve the 100% cost recovery in case of 22 water supply hours. Also the countermeasures were considered and discussed in the remote training. With regard to the assumption of fuel costs, the estimation utilized the assumption, 50% for subsidized fuel use and 50% for market fuel use. Other necessary costs of chemical, materials, maintenance costs for generator and other consumable expenses were calculated. It is assumed that the partial expenditure such as all fuel costs and 50% of chemical costs will be covered by HQ, and other expenditure needs to be covered by Juba Station. The future revenue based on management efforts on increase revenue collection ratio was estimated and the countermeasures to recover the gap between revenue and expenditure were considered. As the results, it was concluded that operation of TFS nearby Juba Teaching Hospital needs to be re-started. The revenue collection of TFS nearby Hamza Inn became under management of HQ. On the other hand, JICA Expert insisted that the revenue collection of TFS nearby Juba Teaching Hospital be under management of Juba Station, and it was eventually agreed by HQ. However, the re-started Teaching Hospital TFS was also placed under the control of the HQ, just like Hamza Inn TFS.

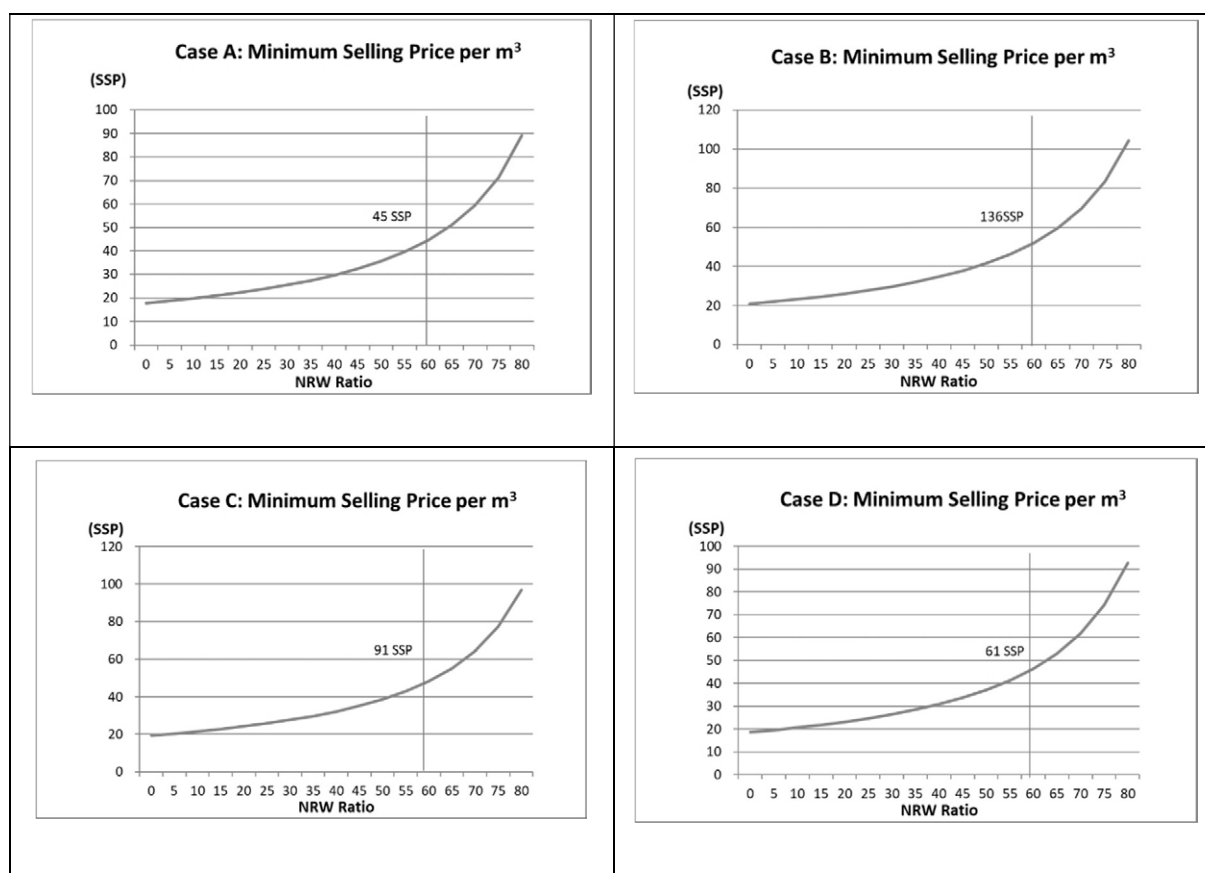


Figure 2-6 Sensitivity Analysis of Necessary Average Tariff by NRW Ratio Factor

4) Establishment and activities of the Financial Committee

In Term 4, the Financial Committee consisting of the HQ and the Juba Station was established to formulate a financial plan including tariff revisions. After April 2021, and after July 2021, the activity was stagnant due to NRA issue, but it is scheduled to resume from December 2021. Based on the budget plan prepared in the Finance Committee, the annual plan (2022) was formulated in December 2021. Future activities of the Finance Committee will be to monitor the implementation of the annual plan.

Table 2-17 Schedule and Contents of Financial Committee Activity

| Times | Date | Contents of the round of discussions |
|-------|-------------------|--|
| 1st | 30/Oct./2020 | <ul style="list-style-type: none"> • Confirmation of TOR of Financial Committee • Check the current financial status of the Juba Station and the latest water charges • Explanation of the overall revenue and expenditure of the water services of the Juba Station |
| 2nd | 19/Nov/2020 | <ul style="list-style-type: none"> • Update the data that was missing last time • Interview with water tariff by type • Explain that it is possible to spend fuel and chemicals by reducing the non-revenue water rate and increasing collection rate, and an independent profit system can be realized |
| 3rd | 8 and 18 Dec.2020 | <ul style="list-style-type: none"> • Explain the revenue required to cover all expenditures (including fuel and chemical costs provided by HQ) at the Juba Station. • Analyzing the effect of installing a meter based on the billed amount • Discuss measures to improve bill collection |

| Item | Contents |
|-------------------------|---|
| | 3. Estimation of water costs and required revenue for cost recovery 4. Tariff design and allocation of water costs 5. Submission of proposed new tariff and procedure for approval 6. Benefits of proposed new tariff |
| Worksheets for practice | Worksheets for practice of water tariff setting, which were utilized to estimate required revenue per m ³ for cost recovery assuming Term operation of according to the operating hours of the water treatment plant. Estimated with the following three options (24 hours, 22 hours, 18 hours). In Term 3, the factor of NRW ratio was taken into consideration, and the amount of operating expenditure of the HQ was added. |

1-6 Create a toll collection plan based on the guideline created in 1-5.

(1) Activities implemented

1) Formulation of an activity plan to improve billing and collection status

Based on the result of baseline survey, the situation of billing and revenue collection was explained in the 1st remote training. Bill collection rate was low since the current water supply area was small. However, the rate is lower than that of data in the past. Improvement was urgently required. Experience of NWSC and the action plan was explained by NWSC in the 1st remote training. Based on the lecture, draft activities plan was prepared for improvement of billing and revenue collection in Juba station. Explanation of this plan to the other staff in Juba station was given to the C/P as a homework and the activities plan was finalized in the 2nd remote training. The activity plan includes increase of customers, improvement of water supply contract, improvement of billing and revenue collection, decrease of amount in arrear, redressal of complaints and public awareness. The lecture by NWSC in the 1st remote training is shown as below.

Table 2-18 Outline of lecture

| Date | Training name | Content | Instructor |
|-------|-------------------------------------|--|---|
| 11/24 | Lecture on billing & collection | Importance of billing and revenue collection, outline of billing and revenue collection system by NWSC | NWSC (Jeremy Owar) |
| 11/25 | Lecture on billing & collection | Action plan for improvement of billing and revenue collection system by NWSC | NWSC (Jeremy Owar) |
| 11/26 | Site visit (Kansanga branch office) | Understanding of billing and revenue collection system by NWSC | NWSC (Annette Kukuda. K, Branch Manager Kansanga) and other 2 staff |

The activity plan for improvement of the billing and collection prepared in Term 1 is shown below. The table below was updated every time the remote training was conducted, and the situation and issues were confirmed.

Table 2-19 Strategy Action plan to Improve Billing & Collection

10 January, 2017

| Strategy & Action | | Detail activity | Responsibility (by who) | Time schedule (by when) | Remarks |
|-------------------|---|---|---|----------------------------------|---------|
| 1. | Increase the customers | | | | |
| | 1-1. Increase new customers New PTS & tanker filling under grand aid project | <ul style="list-style-type: none"> - Public awareness to the residence near around the new facilities - Cooperate with contractor of new facilities | <ul style="list-style-type: none"> - Revenue section - Public awareness section | When the construction restarts | |
| | 1-2. Convert flat rate customers to metered connection | <ul style="list-style-type: none"> - List up the flat rate customers and prioritize the commercial & industrial, governmental sectors | <ul style="list-style-type: none"> - Revenue section - Public awareness section | Continuously | |
| 2. | Improve the contract | | | | |
| | 2-1. Introduce the application form <ul style="list-style-type: none"> - Copy of ID - Copy of land document - Photo | <ul style="list-style-type: none"> - Prepare the draft application form - Discuss with area manager - Inform to the public | <ul style="list-style-type: none"> - Revenue section - Area manager - Public awareness section | Within 2017 | |
| | 2-2. Improve the contract form <ul style="list-style-type: none"> - Add customer number - Modify terms & conditions - Transfer information to GIS Section | <ul style="list-style-type: none"> - Prepare the draft contract form and terms & conditions - Discuss with area manager - Inform to the public | <ul style="list-style-type: none"> - Revenue section - Area manager - Public awareness section - GIS section | Within 2017 | |
| 3. | Improve billing & collection | | | | |
| | 3-1. Prepare billing & collection report <ul style="list-style-type: none"> - Report by meter readers <ul style="list-style-type: none"> - After meter reading (30th-2nd of the month) - After bill distribution (7th-10th of the month) - Report by ledger keeper <ul style="list-style-type: none"> - 1 week after the bill distribution (15th of the month) - Organize monthly meeting (16th-20th of the month) - Actions to be taken (20th-24th of the month) | <ul style="list-style-type: none"> - Meter reader prepare the report on meter reading situation - Meter reader prepare the report on bill distribution - Ledger keeper prepare the report on payment - Discuss the necessary actions - Revenue section discuss the further actions to collect unpaid bills | <ul style="list-style-type: none"> - Ag/Director for Revenue - Meter reader - Ledger keeper - Revenue section | Start from the beginning of 2017 | |

| Strategy & Action | | Detail activity | Responsibility (by who) | Time schedule (by when) | Remarks |
|-------------------|---|--|---|----------------------------------|---------|
| | 3-2. Billing & collection database improvement <ul style="list-style-type: none"> - Introduce meter reading sheet - Add customer number - Modify the bills for metered connection - Show the deadline in the bills - Update database based on the survey results | | <ul style="list-style-type: none"> - JICA Expert - Revenue section | By next training in 2017 | |
| | 3-3. Decide and inform the deadline of payment (due date) to the customers <ul style="list-style-type: none"> - For domestic (within 15 days from bill receipt) - For commercial & others (Within 10 days from bill receipt) | <ul style="list-style-type: none"> - Inform the public about due date - Improve the bill to add the deadline in the bill | <ul style="list-style-type: none"> - Revenue section - Public awareness team | Start from the beginning of 2017 | |
| | 3-4. Increase billing ratio | <ul style="list-style-type: none"> - Prepare monthly report - Analyze the billing ratio by the area - Set the priority area to increase billing | <ul style="list-style-type: none"> - Revenue section | Start from the beginning of 2017 | |
| | 3-5. Improve working conditions <ul style="list-style-type: none"> - ID card for all SSUWC staff with constant wearing during working hours - Uniforms (especially for the staff working outside of the utility) - Business cards with contact number | <ul style="list-style-type: none"> - Discuss with area manager, HQs - Update the situation to ministry | <ul style="list-style-type: none"> - Administrative section - Area manager - HQs | Within 2017 | |
| | 3-6. Share the information with Distribution Dept. <ul style="list-style-type: none"> - Pipe replacement - Leakage | <ul style="list-style-type: none"> - Information from meter reader should be reported to area manager and Distribution Dept. for quick action | <ul style="list-style-type: none"> - Revenue section - Area manager - Distribution Dept. | Continuously | |
| | 3-7 Increase the payment option | <ul style="list-style-type: none"> - Consider to install teller's office - Consider to increase the payment options (through bank, mobile money, etc.) | <ul style="list-style-type: none"> - Revenue Section - Area manager | From 2018 | |
| 4. | Reduce the arrears | | | | |
| | 4-1. Analyze the customers and set priority on long and large outstanding customers | <ul style="list-style-type: none"> - Analyze the billing & collection database - List up the long and large outstanding customers | <ul style="list-style-type: none"> - Revenue section - Ledger keeper - Meter reader | Start from the beginning of 2017 | |
| | 4-2. Start the notice for arrears and disconnection for the customers identified by 4-1 activity | <ul style="list-style-type: none"> - Discuss with area manager about the unpaid period till disconnection (for domestic customer: x months, commercial & others: y months) - Set the signboard in office | <ul style="list-style-type: none"> - Revenue section - Public awareness team | Start from the beginning of 2017 | |

| Strategy & Action | | Detail activity | Responsibility (by who) | Time schedule (by when) | Remarks |
|-------------------|---|---|--|----------------------------------|---------|
| | | - Prepare the notice and send to customers to remind the payment and inform disconnection | | | |
| | 4-3. Set up the task committee for arrears <ul style="list-style-type: none"> - Meter reader, revenue, distribution - Area manager, HQ | <ul style="list-style-type: none"> - Discuss and set up the task committee for areas of governmental sector and other difficult customers - Report the situation to Ministry - Start activities to collect areas | <ul style="list-style-type: none"> - Revenue section - Area manager - HQs | Start from the beginning of 2017 | |
| 5. | Improve complaint management | | | | |
| | 5-1. Improve complaint record <ul style="list-style-type: none"> - Add actions taken - Add responsible dept./person | <ul style="list-style-type: none"> - Prepare the improved record book - Inform other sections to report the complaint that they received - Report it in the weekly meeting | <ul style="list-style-type: none"> - Revenue section | Continuously | |
| 6. | Public awareness | | | | |
| | 6-1. Promote the bill/arrears payment (related to action 4-2) | <ul style="list-style-type: none"> - Set the signboard in office for disconnection - Inform the public about disconnection | <ul style="list-style-type: none"> - Revenue section - Public awareness team | Start from the beginning of 2017 | |
| | 6-2. Inform the customer of <ul style="list-style-type: none"> - Prevent water wastage - Care for facility within the house (meter, tap, pipe) - Payment of bill before due date - Change of the tariff - Promotion to install the meters to existing flat customers | <ul style="list-style-type: none"> - Discuss with public awareness team to include these activities to their action plan | <ul style="list-style-type: none"> - Revenue section - Public awareness team | Start from the beginning of 2017 | |

1-7 Implement activities based on the activity plan for improvement of billing and collection in 1-6.

(1) Activities implemented

The progress of the activity plan is confirmed at each remote training, and the progress was described along with the issues for monitoring.

1) Update / progress of activity plan to improve billing / collection status

The Billing & Collection Improvement Action Plan (Action Plan) was developed in Term 1, and the progress was monitored during the training in Uganda. The progress is described in the Action Plan.

In addition, a new goal of finance which is related to public awareness and general affairs has been added to the above action plan.

As one and a half years had passed since the activity plan was prepared, the progress and results were reported to the HQ at remote training in February 2019 in Term 3. As a result, more detail activities for collection improvement and arrears collection were added. Furthermore, it was agreed that the arrears collection would be implemented with the support of the HQ.

2) Calculation and analysis of PIs including billing and collection indicators

Update of the PI datasheet, practice of PI calculation and graph presentation using the graph function of Excel, and analysis of billing and collection ratio based on the graph have been continuously implemented. Some odd figures were found and the instruction to check and correct the numbers were instructed as homework.

Since all the data for FY2018 were collected, the annual report was prepared. Creating a graph from 12 months of data, analyzing trends, and discussion of the trends were implemented. It was a little difficult for C/P to grasp the tendency by looking at the graph and examine the background. After that, C/P made a presentation to the HQ.

3) Preparation of format of Billing & Collection Report

Based on the lecture and the activities of NWSC, the C/P decided to introduce the billing & collection report into their work and the format was prepared in the training. In this report, meter readers fill the number of meters read, findings and difficulty during reading (no reading due to gate lock, rejection by customers, etc.) and complaints. Then ledger keepers fill the number of bills, and meter readers again fill the number of bills delivered and the comments of meter reader, and finally ledger keepers fill the number of bills paid, problems faced and comments. The report is submitted to Ag/Director for Revenue, and he fills the problems to be solved. Actions to be taken would be decided after the monthly meeting to discuss the condition based on the report. The actions also would be filled in the report. The problems cannot always be solved by Revenue Section so that it is circulated to related sections and the staff who received it sign on it.

4) Preparation of a format of Meter Reading sheet

Based on the lecture and the activities of NWSC, the C/P decided to introduce the meter reading sheet into their work and the format was prepared. Each meter reader is to use the format after they input the customer information of their duty area. It started to be used from January 2018.

(2) Outcome

- Strategic Action Plan to Improve Billing & Collection
- Annual report of 2018 (Sales, Accounts)
- PI (Sales, Accounts)
- Billing & Collection Report
- Meter reading sheet

1-8 Take a measure for the customers who haven't paid and monitor these activities

(1) Activities implemented

Based on the Billing & Collection Improvement Action Plan, the countermeasures for the customers in arrears are now in progress. The list of customers in arrear was prepared. Notification letters were prepared and sent to them. The letters notify that the customers should pay the arrear within seven days after receipt of the letter and if the bills are not paid for three months, the service would be disconnected. The letters were sent to 10 to 15 customers every month to encourage payment of unpaid money. As a result, in December 2018, payment of 280,000 SSP was received from the public sector having arrears. Furthermore, in January 2019, an internal committee consisting of revenue section and water distribution section was formed within Juba Station and is focusing on activities to collect unpaid money.

The issue of unpaid money was brought up during the joint training with SSUWC HQ in February 2019 in order to reach out to ministries and religious facilities that are difficult to deal with only by Juba Station, a Task Committee consisting of the HQ, the area manager in Juba Station, and revenue section was requested, and the HQ agreed on its establishment. The activities of the Task Committee are being monitoring. In addition, an announcement is posted in the office of Juba Station visited by customers to encourage payments which informs the public of payment due dates and payments of arrears.

In May 2020, Juba Station launched the "Committee of Inspection and Disconnection", which suspended water supply to non-paying customers and resumed water supply after payment of fees and arrears.

Due to the NRA issue, the activities of the Committee of Inspection and Disconnection were suspended since July 2021, but resumed in January 2022 as per the annual plan. The team members were increased and visited houses one by one in the water supply area to check whether the water

supply is coming or not and whether the bills are paid or not. In addition, a letter requesting payment of outstanding bills and letter of a revised tariff table were handed out and explained to the customers to encourage them to pay the bills.

(2) Outcome

- Notification Letter
- Announcement
- Nonpayers' list

1-9 Promote installation of a meter for large-consumption customers

(1) Activities implemented

- 1) Listing up large-consumption consumers without having water meter and preparation of meter installation plan

In the Billing & Collection Improvement Action Plan prepared in Term 1, it is indicated to take a priority measure on large-consumption customers. In the training of Term 2, the C/P listed up the large consumers without water meters and applied to flat rate charge from the customer database. The information on necessary number of water meters by diameter was compiled in a list and an installation plan of water meter for large-consumption consumers was prepared.

In Term 3, the trainees reviewed the list and revised the meter installation plan. The total installation works was scheduled to complete in 9 weeks. The main activities are notification to the target customers, meter installation works, meter reading and confirmation works of meter functionality.

The outline of large-consumption customer listed up is shown below.

Table 2-20 Outline of large consumption consumers

| By Diameter | | By Customer Category | | By Area | |
|----------------|------------------|----------------------|------------------|-----------|------------------|
| Meter diameter | Customer numbers | Customer category | Customer numbers | Area | Customer numbers |
| 3/4" | 5 | Domestic | 5 | Suk-Juba | 35 |
| 1" | 151 | Commercial | 73 | Cinema | 2 |
| 1.1/2" | 9 | Government | 44 | Prison | 9 |
| 2" | 8 | NGO | 36 | Amarat | 31 |
| | 173 | Church | 3 | Sec-class | 3 |
| | | School | 10 | Buluk | 2 |
| | | Hospital | 2 | MTC | 4 |
| | | | 173 | Mission | 17 |
| | | | | Malakal | 55 |
| | | | | Thoura | 8 |
| | | | | Jallaba | 6 |
| | | | | Munuki | 1 |
| | | | | | 173 |

The meter installation plan was shown as below.

(2) Outcome

| Item | Contents |
|---|--|
| An installation plan of water meter | • A draft of installation plan of water meter is prepared in Term 2. The plan includes a list of large consumers, procurement schedule and installation schedule, procurement costs etc. |
| List of large consumers without water meter | • A priority list of large consumers as flat rate customer for meter installation |

1-10 Overall findings (Capacity Enhanced and Challenges)

- The C/P have willingness to learn about and improve PI, database, actions for billing & collection improvement, and guideline for tariff setting. As for the training which requires some technical skill and knowledge, training once is not enough for full understanding and doing by themselves, so that repeated trainings are required.
- The motivation was low in a certain period due to the delay of salary payment and the limited water supply area. In particular, the NRA issue from July to November 2021, no payment of incentives for activities, shortage of paper and toner for bill printing, and lack of fuel for motorcycles for reading meters and distributing invoices affected C/P's motivation significantly. The activity stagnated.
- The head of the Commercial and Revenue Department of Juba Station has been on leave for one year from February 2021. It is a C/P that was bundling revenue collection and meter reading work for a long period, and it has affected the progress of project activities. Although a successor was appointed, there was a problem in taking over the work and activities. The impact of employee retirement and leave on activities is significant.
- One of the staff members of the accounting department died, but no replacement was assigned and there is a shortage of personnel.
- It depends largely on individual ability, and technology transfer is not carried out to other staff members of the section.
- The C/P independently thought that something had to be done to improve the operation of Juba Station, launched the Committee of Inspection and Disconnection, and voluntarily engaged in meter inspection and arrears collection activities. This is highly commendable.
- Computer skills and operation skills of MS-Excel and MS-Word have been improved but they are still insufficient. More trainings will be required for the C/P to enhance these skill and knowledge further.

2.4.2. Output 2 Activity (Public awareness activities for Juba citizens by Juba Station are enhanced)

2. Output 2. Public awareness activities for Juba citizens by Juba Station are enhanced

2-1 Create customer service (commercial) section at Juba Station.

(1) Activities implemented

A proposal to create customer (commercial) section in Juba Station was prepared (Annex-2). In the

preparation process, the C/P learned the customer service of NWSC in Uganda. The C/P were able to observe and learn from not only the NWSC's HQ but also the customer service counter in the Kampala, Entebbe and Jinja. The C/P also learned by watching a public relations video at the Waterworks Bureau of a Japanese municipalities (Yokohama City and Tokyo metropolitan office) and learned from the pamphlets and service contents for citizens.

In creating the actual customer service manual, a brainstorming was done to understand the scope of customer services, and then prepare the manual. It was necessary to update the information such as latest water tariff and manual, demonstrate how to actually use the customer manuals and achieve improvement.

In fact, in the field activities in Juba in Term 4, the C/P understood that they could not always follow the manual in public awareness extending to the real water supply service and payment situation. The awareness activities were implemented by giving awareness items such as calendars and pamphlet to the customers.

(2) Outcome

Customer service manual

2-2 Develop a public awareness activities plan.

The public awareness activities plan was developed at the beginning of the Project in 2016. However, due to the evacuation of the JICA Expert from Juba, few awareness raising activities could not be conducted in the field. In addition, since the planned activity plan was prepared based on the assumption that the operation of the newly constructed facilities would start, but the facilities would not start within the project period so that the awareness activities on the new facilities were deleted. Furthermore, COVID-19 from 2020 made it difficult to conduct face-to-face awareness activities with people in the field.

Therefore, it was necessary to conduct awareness activities targeting customers of existing facilities in an indirect manner. However, awareness activities could not be effective in a current situation in which the existing facilities were not providing water to customers satisfactorily. In consideration of these circumstances, draft awareness activity plan was prepared, and awareness materials were developed through remote training in Uganda so that awareness activities could be conducted immediately after the water supply situation was improved. Taking this situation into consideration, an awareness activity plan was prepared (Annex-2). Under the theme of "Water is Life," the three-pronged plan consisting of preparation of publicity banners, distribution of pamphlets to household and business customers, and awareness campaigns at markets, etc. was prepared to make the customers understand the SSUWC service, and importance and safety of supplied water.

The current situation of water supply, the implemented activities and the results were discussed with the C/P, and the confirmation of continuation of the activity plan and revision was done. Since awareness activities in the situation of inadequate water supply service could be counterproductive, careful preparations and other efforts to ensure effective public awareness activities were implemented.

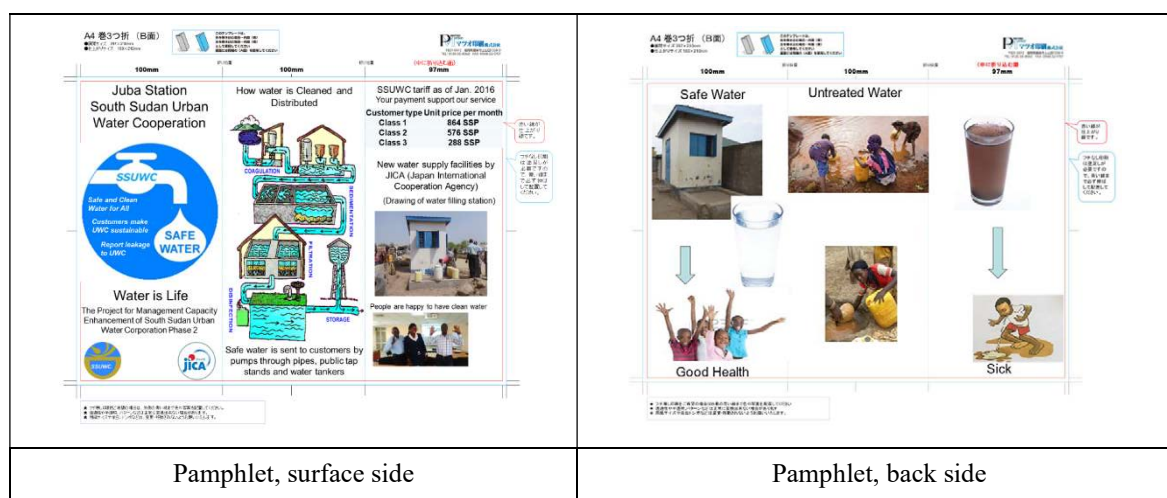
2-3 Develop training materials for public awareness activities.

(1) Activities implemented

PA materials to appeal the importance of water and SSUWC services were developed. Five-hundred (500) copies of the brochure to explain the importance of water and SSUWC services with colorful illustration were prepared and distributed to the customers. Advertisement banners to appeal the importance of water were prepared and will be displayed at the roundabout in the town.

(2) Outcome

- Pamphlets conveying messages of the importance of water and the activities of SSUWC (revised and second edition)
- Big size poster of the “Water is Life” slogan message both in English and Arabic, A2 size 10, and A3 size - 50 Copies
- With the same contents as above, 32 stickers of A5 size for sticking on gasoline tank of motorbikes and the side of the water tank,
- Created 80 T-shirts, 30 caps, and 30 polo shirts for staff, with the logo of SSUWC and the importance of water
- 10 banners, 1 meter x 2 meter size, that can be posted at roundabouts (intersections) on street corners and outdoor facilities.





Design of Shirt and cap

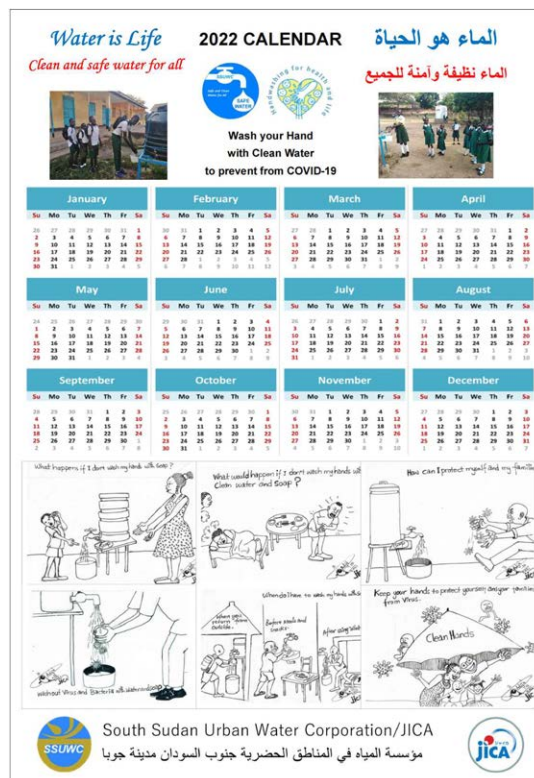
SSUWC staff wear shirts and caps



Design of banner and sticker



Calendar distributed in 2021



Calender distributed in 2022

Figure 2-9 Teaching materials for educational activities

2-4 Conduct public awareness activities on SSUWC service, water tariff, and new water supply facilities.

A baseline survey to understand the knowledge of customers on water and SSUWC services was implemented. The contents of the survey include the knowledge on the importance of water in life and for health, current water supply condition and usage, recognition of SSUWC, and evaluation of SSUWC services. The developed PA materials were distributed nearby areas in SSUWC and the Juba city council. After confirming the activities that emphasize the importance of water and based on the slogan of "Water is life", some limited awareness activities to the customers who are being supplied with water were implemented.

At the end of the year, a pamphlet and a calendar of the year with an awareness message and photos of the activities of the SSUWC were distributed to customers who came to pay the water charges. T-shirts to special customers were also distributed. Customers were pleased with the T-shirts, which are of good quality and rarely available in South Sudan. These T-shirts are often worn on a regular basis, so a high advertising effect has been expected.

The posters and stickers about the importance of water with the word "Water is life" were distributed and awareness activities linked to a good impact in expecting improvement of water supply service near future were implemented.

The banner that can be posted at roundabouts (intersections) on street corners and outdoor facilities were posted at facilities such as school and churches as shown in Photo 2-5. It is displayed in Juba Station at all times, and it was also brought to various events and activities, and the message "Water is life" and activities of SSUWC were displayed in various places. Furthermore, it was displayed in the handover ceremony of equipment to SSUWC.

2-5 Conduct handwashing awareness activity

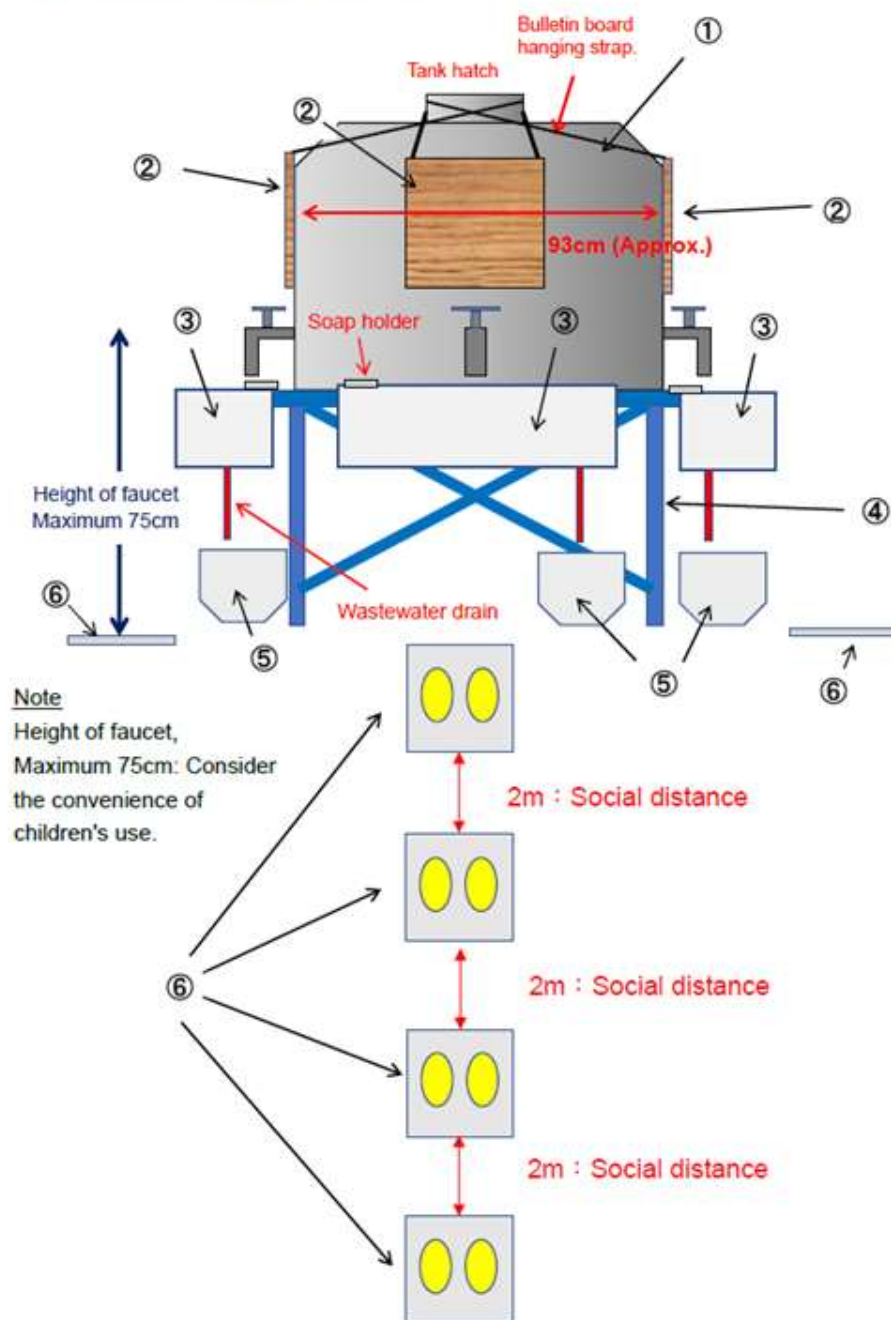
(1) Installation of handwashing station

Hand washing stations were installed in the following 9 facilities in July 2021 to establish the practice of hand washing for the prevention of COVID-19 and other infectious diseases (Table 2-21). The drawings of handwashing station are shown in Figure 2-10 and Figure 2-11. Tanks of 250 L capacity are installed in SSUWC Juba station (No.8) and SSUWC HQ (No.9), and 500 L capacity are installed in other 7 locations.

Table 2-21 Location of handwashing stations

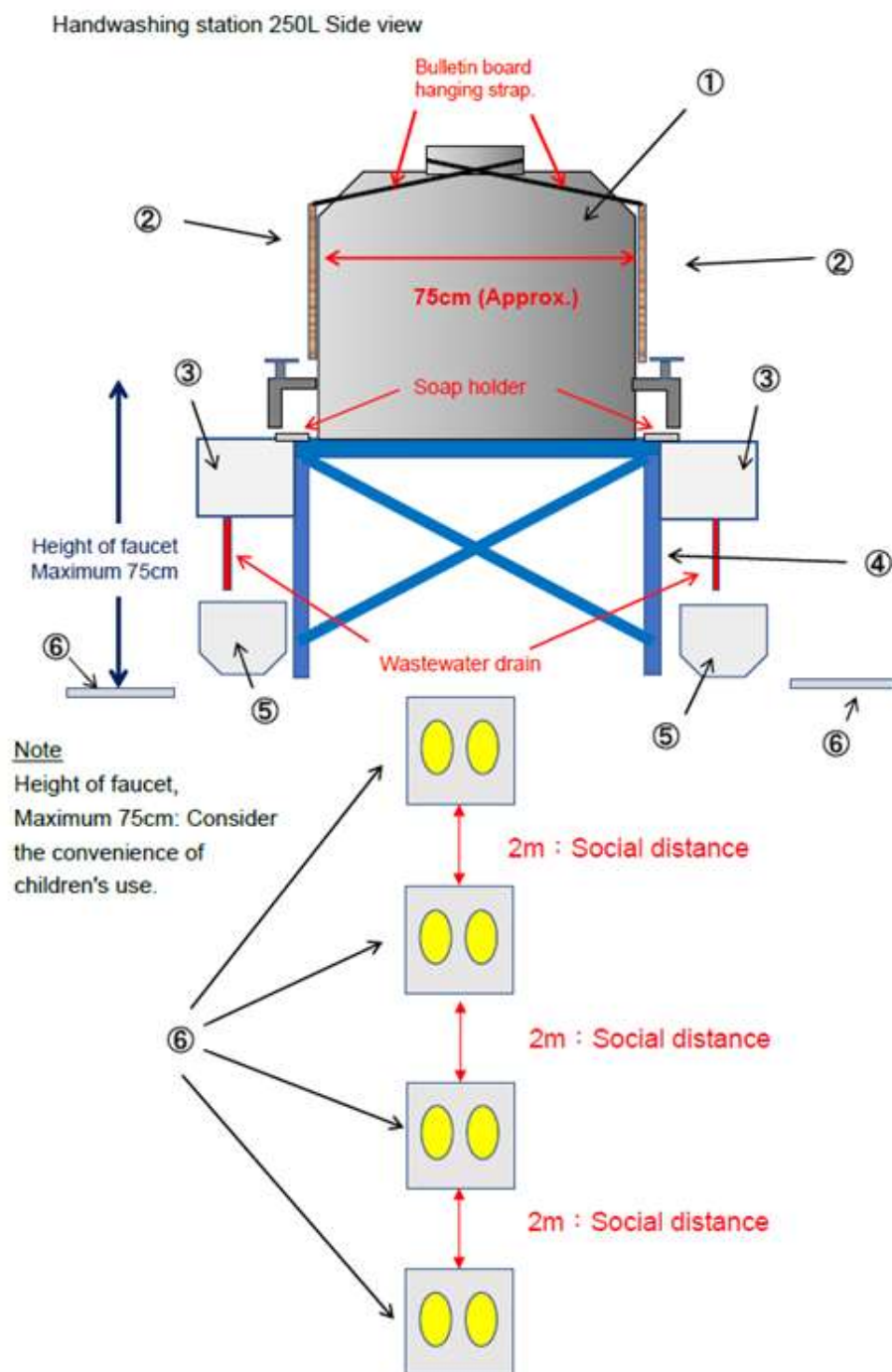
| No. | Location | Address |
|-----|-------------------------------|--|
| 1 | Emmanuel Parish | Hai-Cinema |
| 2 | All Saints Cathedral | Hai-Cinema |
| 3 | Juba One Boys primary school | Hai-Cinema |
| 4 | Juba One Girls primary school | Hai-Cinema |
| 5 | St. Joseph school | Hai-Cinema Opp. Juba Teaching Hospital |
| 6 | Dioceses Secondary School | Juba Stadium |
| 7 | Juba main prison | Juba city |
| 8 | SSUWC Juba Station | SSUWC Juba station |
| 9 | SSUWC HQ | SSUWC Juba station |

Handwashing station 500L Side view



| No. | Item | No. | Item |
|-----|-------------------------|-----|------------------------------------|
| ① | Plastic water tank 500L | ④ | Steel stand |
| ② | Bulletin board | ⑤ | Hand washing drain disposal bucket |
| ③ | Sink | ⑥ | Foot hold |

Figure 2-10 Handwashing station: Tank capacity 500 L



| No. | Item | No. | Item |
|-----|-------------------------|-----|------------------------------------|
| ① | Plastic water tank 500L | ④ | Steel stand |
| ② | Bulletin board | ⑤ | Hand washing drain disposal bucket |
| ③ | Sink | ⑥ | Foot hold |

Figure 2-11 Handwashing station: Tank capacity 250 L

In October 2021, field inspection of handwashing station in 2 churches (No.1 and 2), 4 schools (No.3 - 6) and Juba station / HQ (No. 8 and 9) was done. In this field inspection, handwashing station in Juba central prison (No.7) was excluded because of the security matters.

Photo of field inspection is shown in Photo 2-3. The handwashing station in Juba one boys primary school is installed far from water tap. Therefore, this handwashing station is not utilized because of the difficulty of refilling of water tank. The Expert discussed with school headmaster about this issue, and the headmaster agreed to relocate the handwashing station to near water tap.






| | | |
|---|---|--|
|  |  |  |
| Emmanuel parish | All Saints cathedral | Juba One Boys primary school |
|  |  |  |
| Juba One Girls primary school | St. Joseph school | Dioceses Secondary school |
|  |  | |
| SSUWC Juba station | SSUWC HQ | |

Photo 2-3 Installed hand-washing stations

(2) Preparation of hand washing educational material

Posters and picture story shows to raise awareness, “hand washing with soap”, were prepared and distributed to 2 churches (No.1 and No.2 in Table 2-21) and 4 schools (No.3 to No.6 in Table 2-21). The design of posters and picture story shows are shown in Annex-2.













| | | |
|---|---|---|
|  |  |  |
| Poster: Emmanuel parish | Poster: All Saints cathedral | Poster: St. Joseph school |
|  |  |  |
| Poster: St. Joseph school | Poster: Dioceses secondary school | Picture story show: Juba One Girls primary school |

Photo 2-4 Use of handwashing educational material

(3) Display of “Water is Life” banner

For an activity related to World Handwashing Day, "Water is Life" banner was displayed in 2 churches and 4 schools and Juba station. Photo 2-5 shows the banners displayed in each location.

| | | |
|---|---|--|
|  |  |  |
| Emmanuel parish | All saints cathedral | Juba One Boys primary school |
|  |  |  |
| Juba One Girls primary school | St. Joseph school | Dioceses secondary school |

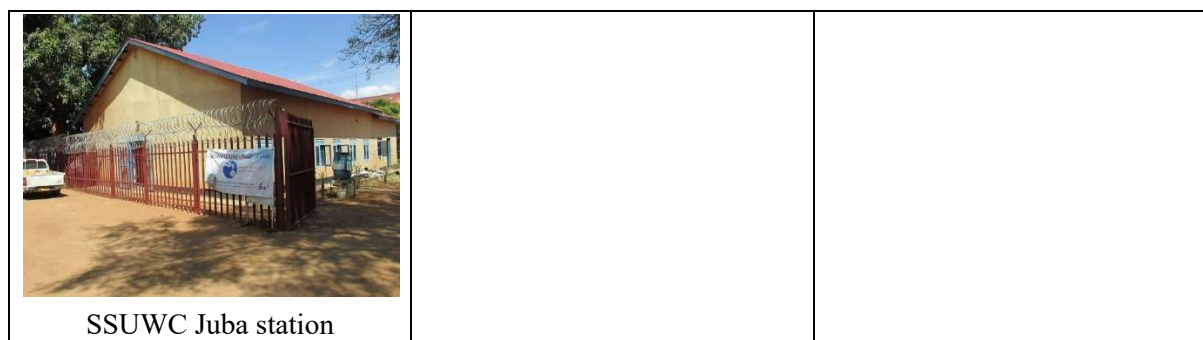


Photo 2-5 Display of “Water is Life” banner

(4) Distribution of hygiene products

Soap bars were procured and delivered to 2 churches, 4 schools and Juba station. Among these, soap bars to the citizens were distributed through 2 churches. The number of soap bars delivered is shown in Table 2-22. The handover of soap bars is shown in Photo 2-6.

Table 2-22 Number of delivered soap bars

| No. | Location | For handwashing station (nos.) | For distribution to public (nos.) |
|-----|-------------------------------|--------------------------------|-----------------------------------|
| 1 | Emmanuel Parish | 125 | 500 |
| 2 | All Saints Cathedral | 125 | 500 |
| 3 | Juba one boys primary school | 125 | - |
| 4 | Juba one girls primary school | 125 | - |
| 5 | St. Joseph school | 125 | - |
| 6 | Dioceses Secondary School | 125 | - |
| 8 | SSUWC Juba Station | 125 | - |

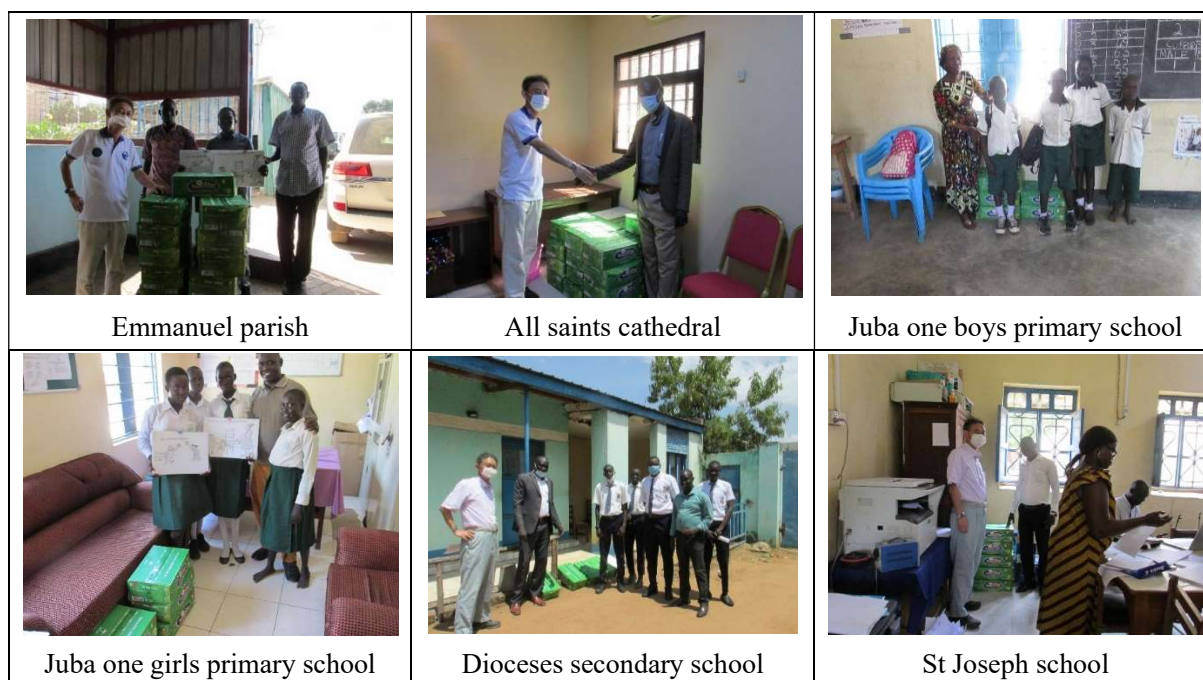


Photo 2-6 Handover of soap bars

2-6 Activity against COVID-19 pandemic

Hygiene products (face mask, soap and hand sanitizer) were procured in 2021 to ensure the safety of SSUWC staff against COVID-19 pandemic. In addition, face mask and soap were delivered to Emmanuel parish, All saints cathedral and St. Joseph parish, and distributed to public. A list of the hygiene products procured is shown in Table 2-23, and photos of procured hygiene products are shown in Photo 2-7.

Table 2-23 List of procured hygiene products

| Hygiene products | For distribution to public | For SSUWC staff use | Total |
|----------------------|----------------------------|---------------------|------------|
| Face mask (Washable) | 1,040 nos. | 40 nos. | 1,080 nos. |
| Soap | 1,040 nos. | 40 nos. | 1,080nos. |
| Hand sanitizer 500mL | - | 60 nos. | 60 nos. |



Photo 2-7 Procured hygiene products

Output:

- Created posters and picture-story shows

2-7 Achievements and challenges related to competence

- The C/P understood the necessity and importance of creating awareness-raising materials and the capacity to create messages that can be used in various PR and awareness-raising activities in the future.
- Through the cooperation work with the C/P for hand washing station installation, educational materials preparation and hygiene products distribution, the C/P' awareness of hygiene educational activity has been raised.
- The C/P are now taking a proactive approach to the operation and maintenance of hand washing stations.
- The importance of maintenance and management of handwashing station have been understood by the C/P. It is necessary to monitor the operation and maintenance work to sustain the facilities in the future.

2.4.3. Output 3 Activity (Non-revenue water management capacity of Juba Station is strengthened.)

3 Activity (Non-revenue water management capacity of Juba Station is strengthened.)

3-1 Formulate a non-revenue water management team at Juba Station and prepare countermeasures

Non-revenue water (NRW) team which was composed of the staff members in Distribution Department was nominated as the C/P. GIS team was also formed.

3-2 Identify customers in GIS and prepare GIS customer database

(1) Activities implemented

The base map of GIS data available with SSUWC was prepared in 2010 when water supply master plan was prepared by JICA and updated in Phase 1. Since then, many new houses and roads have been constructed. Therefore, update of the map including distribution network was required. The map made for the customer database preparation is used as the base map. The map of distribution network (pipe, valves, etc.) was updated using QGIS in the 1st remote training. The existing pipe network diagram is shown in the figure below.

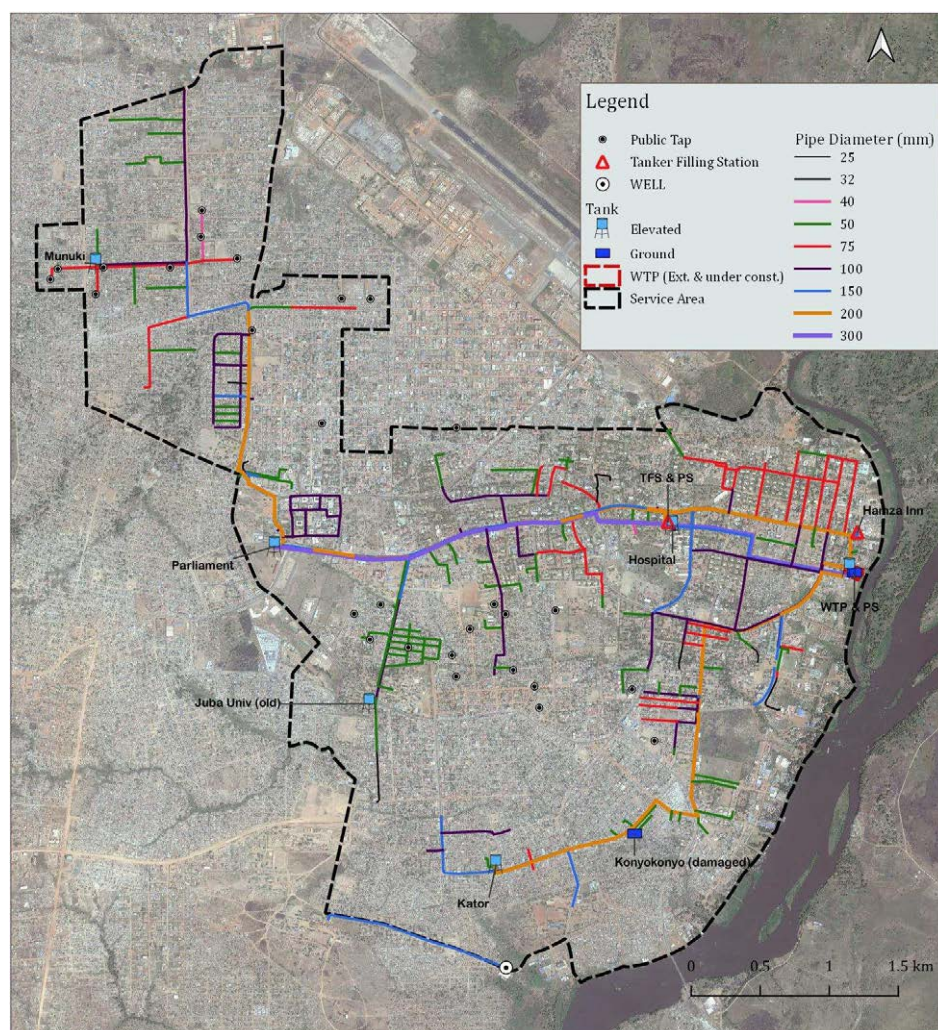


Figure 2-12 Existing water distribution facilities

As the veteran staff members who have worked on site know distribution pipe information well, the

location of the pipeline and valves were confirmed based on their memories, and map was updated in Term 2 and 3. In Term 4, the map was updated by adding newly installed bulk flow meters, installed pipelines, valves, and other equipment and facilities (including AfDB projects). Additional basic QGIS training was provided to four young engineers, and the GIS team was instructed on how to acquire and input location data using smartphones with the QField application.

(2) Output

GIS map of existing water facilities, pipes, valves, etc.

3-3 Identify customers in GIS and prepare GIS customer database

(1) Activities implemented

During Term 1, GPS survey was conducted to mark the location of each customer. A standard survey format was prepared, and three teams were mobilized to do the survey. During the training in Uganda the collected data were transferred into GIS. The training included identifying customers with a particular name, or areas that are still not covered by SSUWC water supply system, or customers that have not paid their bills for last 3 years or longer, etc. The figure below indicates location of customers.

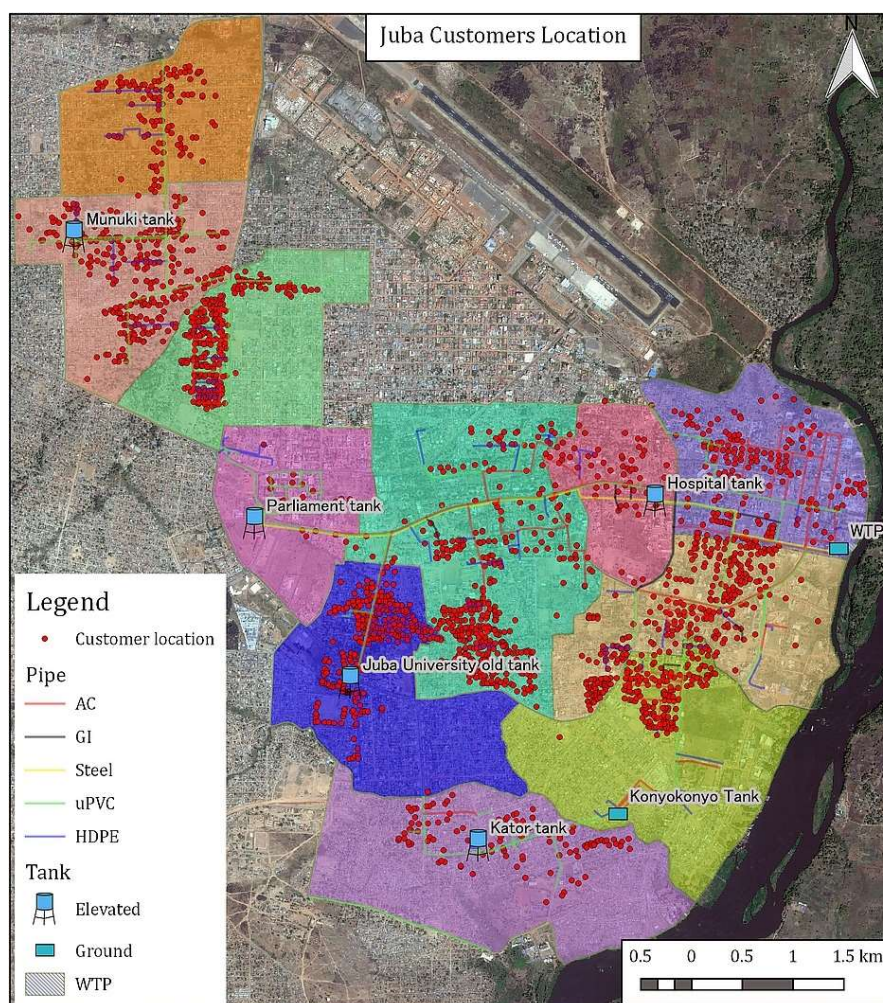


Figure 2-13 Customer location information in Juba city

In the remote training in Term 3, the customer data points collected by the C/P in the field were transferred into GIS maps. The names and addresses of the customers were then verified and corrected with the meter readers in each region. In addition, the GIS data from the survey conducted by the Committee of Inspection and Disconnection (about 40 customers) was reflected in Term 4.

(2) Output

A GIS map showing location of each 2,149 customers and GIS database of customers

3-4 Prepare standard operation procedure (SOP) for updating GIS mapping for facilities and customers

(1) Activities implemented

For easy and better understanding of procedure of updating GIS maps for facilities and customers using QGIS software, standard operation procedure (SOP) has been prepared. In Term 2, considering new version of GIS, the SOP was updated, and lectures and OJT training were conducted to the C/P. In addition, members of the GIS team were trained on how to update facility and customer GIS mapping. Then a comprehensive SOP was created. This SOP details each step for updating GIS mapping for pipe networks, water facilities, and customer data, along with screenshots. (Annex-3)

(2) Output

Comprehensive SOP to update GIS mappings for pipe networks, water facilities, and customer data

3-5 Prepare manuals for non-revenue water management

(1) Activities implemented

A draft manual for NRW management was prepared by the JICA Expert and discussed with the C/P during Term 1. It was revised in Term 2. When the manual was discussed with the C/P during the training it was felt that they had problem in understanding its content. Considering the above, a simplified step-by-step manual was prepared with full participation of the C/P at the last (March 2018) training. In Term 4, the manual was revised based on the experience of on-site leak repair work and compiled as a NRW management manual including the leak management SOP.

(2) Output

Manual on NRW management (Annex-4). (Its level has been adjusted considering the level of the C/P and existing situation of water supply in Juba)

3-6 Prepare a plan of zoning which can be isolated by valve

(1) Activities implemented

Zoning plan separable by valve was prepared during Term 1. The plan was reviewed, and the quantity of valves was estimated and location of required flow meters was confirmed in Term 1. In Term 2, the plan was refined by joint discussion of distribution team and GIS team. The boundaries of refined zones were based on updated pipe network map. As a result, the service area of Juba is divided into 11 distribution zones. Required number and size of bulk meters have been determined. Some of the zones were big, so they were further divided into smaller areas known as District Metered Areas or DMAs. The number of bulk meter and the size are determined.

Currently with funding of AfDB, SSUWC is implementing a project for improvement of storage, transmission, and distribution system. This AfDB project should also consider the zoning system prepared above. GIS map and data of the prepared zoning system have been given to SSUWC counterpart of AfDB project for this purpose.

(2) Output

GIS data and map of zoning plan separable by valve are prepared. A total of 11 distribution zones have been proposed. Conceptual outline of DMAs has also been identified. There are 26 DMAs. The combined zone and DMA map is as shown in Figure 2-14.

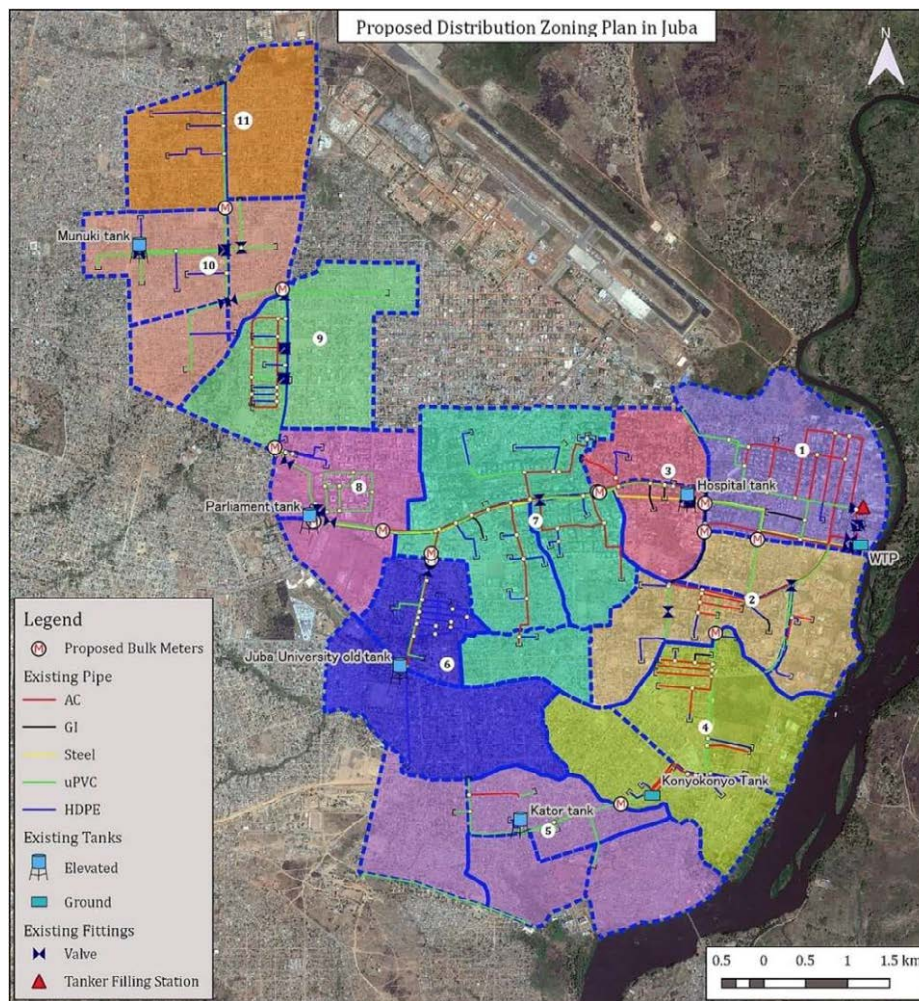


Figure 2-14 Zone and DMAs

3-7 Develop appropriate leakage repair skill

(1) Activities implemented

Lessons were given on correct leak repair methods during Term 1. The C/P were taken to site in Kampala to see and work practically (OJT) to repair leaks and make pipe connections, four times in Term 2. They worked together with the NWSC staff whole days. Lessons were also given on selection of suitable materials for leak repair. Formats for leak report and leak repair report were prepared and explained and practice made on how to fill up these formats properly. In order to expand the trainees, new members were added in Term 3.

In Term 4, the backhoe and other equipment, tools and repair materials procured under the Project were provided to SSUWC, and the C/P used them to carry out leak repair work at the actual site in Juba. The JICA Expert monitored the work of the C/P and provided feedback as needed; the C/P have acquired and practiced proper leak repair techniques. In addition, the GIS team was trained on how to record the location and information of each repaired leak in GIS. The leak reporting format developed was also utilized to keep a record of each leak repaired, and the repair record is also included in the monthly report.

(2) Output

- The SOP mentioned in 3-4 (2) above includes the appropriate methods of leakage repair and required equipment and tools.
- Formats of water leak report and leak repair report. These are also included in the above SOP.
- GIS mapping of each leak repaired was started in the beginning of Term 4 but this is not yet regular.

3-8 Countermeasure implementation for commercial loss

This activity was implemented in Term 4. Juba Station prepared two teams and conducted checking of customer connections in areas where there is water supply. During this work the teams installed meters to unmetered connections, disconnected or rectified any unauthorized connection they found.

3-9 Household connection (supply pipe and meter equipment) implementation

The water meters for large consumption customers were procured in Term 3 and the installation was done in Term 4 as mentioned in 3-7 above. For details, see "1-9 Promoting the installation of large customer meters."

3-10 Meter management

(1) Activities implemented

Theoretical knowledge of the C/P about meters was enhanced by lessons from NWSC and the JICA

Expert during remote training in Uganda. OJT of meter maintenance was provided at NWSC meter workshop in Kampala. Method of correct meter reading was taught, and they were provided many opportunities to practice on how to read meters correctly.

(2) Output

- Handouts: Best practices for customer meter installation and reading (JICA Expert)
- Water meters and reading record (by NWSC).
- Format for bulk flowmeter's reading

3-11 Overall findings (Capacity Enhanced and Challenges)

◆ Overall evaluation of capacity development on Output 3 Non-revenue water management and GIS

(1) Non-revenue water management

- The C/P understand what is NRW, what are its components, and how to calculate the NRW.
- They know what materials are required to repair a leak and how to repair it properly.
- They know the importance of repairing a leak quickly and properly.
- When the water supply situation improves in Juba, the C/P are expected to use their skill and knowledge learned by various trainings in Uganda and Juba.
- The main challenge currently is lack of water supply to public through pipe network. When there is no water supply, the issue of NRW management becomes irrelevant.
- Many existing bulk meters are not working. Even newly installed meters get damaged soon due to water hammer because the supply is intermittent (pumps starting and stopping several times in a day). Sometimes power failures force the pump to stop suddenly causing water hammer.
- Although a zoning plan separable by valves has been prepared, the actual water network of Juba is not yet divided into zones. Calculation of NRW is easier at smaller scale such as at DMA or zone level but calculating it for the whole area is challenging. It needs more effort to collect data and do NRW calculation.

(2) GIS

- GIS training was provided to 3 counterparts in remote training in Uganda. Two of them have developed adequate skills and can prepare and update GIS maps of water supply facilities.
- Open source (free) GIS known as QGIS has been used as the GIS program. This has helped in sustainability.
- Four young engineers of SSUWC Juba station and HQ were additionally provided basic 10-hour course in QGIS. This increased the number of people in SSUWC who can use GIS.
- Updating of pipe network and customer data using Android based mobile devices was introduced. The C/P were trained for this. This makes updating work easy and convenient.
- There is no major challenge. The senior management seems to understand the importance of GIS which is a good sign. The senior management should regularly monitor the work of GIS section

and ask them to prepare maps, update facilities etc. This will not only help to keep the maps updated but also help refresh the GIS skills of the C/P.

2.4.4. Output 4 Activity (Operation and management capability improvement on existing and new water supply Facilities)

4. Output 4. Operation and maintenance capacity for new and existing water supply facilities by Juba Station is strengthened.

4-1 Follow up operation and maintenance for water intake facilities, raw water transmission facilities, water purification facilities and water transmission and distribution facilities

(1) Water intake / transmission / purification (treatment) facility and water quality

During the period at site in Term 1, baseline survey and capacity assessment were conducted, and required improvement was confirmed. Since then, operation and maintenance capacity of water intake transmission / treatment / water distribution facility and capacity of water quality monitoring were enhanced through seminars and practical training in remote training in Term 1 to Term 3. For the mechanical and electrical staff, practical training was conducted by applying the NWSC training program.

Term 1

The main outcomes of remote training in Uganda and Kenya in Term 1 are as follows:

- The C/P understood the importance of safety management and could manage safety in operation.
- By the learning of the theory and technology of water treatment, the capacity of operation and management of water treatment plant was improved.
- To learn various kinds of water treatment technologies, site visit of water treatment plant (WTP) in NWSC was conducted. Obtained knowledge was utilized for the operation and management of water treatment plant of Juba Station.
- The C/P understood the structure of generators, pumps, blowers, electric motors, and valves, and capacity of repair and parts replacing were enhanced through the practical training.
- The C/P understood the process of Jar test and chlorine demand test, and the way to utilize their data.
- Obtained knowledge how to utilize water quality data to improve water treatment plant operation.

Term 2

Same as Term 1, capacity building was conducted by the training in third countries (Uganda). The main outcomes of the training were as follows.

- Seminar and on-site training were conducted by NWSC trainers in Ggaba WTP.
- Site visit of NWSC's water treatment plant (Jinja WTP: Sep. 2017, Masaka WTP: Dec. 2017).
- Practical training in water quality laboratory: Chlorine demand test, Jar test, calibration of analysis equipment (pH meter, EC meter and turbidity meter).

- Joint workshop: Confirm water distribution network in Juba city, chemical injection control and water quality monitoring items.
- The JICA Expert conducted examinations to confirm knowledge and supplementary seminars.
- A joint workshop was held between the water quality analysis team and the water treatment team to strengthen the cooperative relationship between them.
- The trainees were replaced, and the same training was conducted as in Term 1 training.
- Revised water quality monitoring plan was established to coordinate with an actual operation schedule of the water treatment plant.
- Trainees were able to understand the importance of calibration of analytical equipment and SOP. Through this training, trainees obtained knowledge on quality control of measurement data.

Term 3

Same as Term 2, capacity development was conducted in Uganda. The main activities and results of the training are as follows.

- The joint workshop including water treatment team and water quality monitoring team was held. In this workshop, change of water quality in water treatment process was discussed. In addition, the reason of the occurrence of abnormal water quality data was discussed. Through this discussion, the roles of both teams were clarified, and cooperative relationship between them was enhanced.
 - ✧ Analysis of water quality change in water treatment process was conducted and discussed about the occurrence of abnormal water quality data.
 - ✧ Utilization of water quality data to improve WTP operation.
 - ✧ Revision of existing SOP to adjust actual O&M condition of Juba station WTP. (Annex-5)

Table 2-24 Summary of revised SOP (Mar. 2019)

| Modification | Point of modification |
|----------------------------|---|
| 1. General | – Clarify the roll of each department |
| 2. Water Quality team | – Modify water quality monitoring schedule to meet the actual operation condition. – Considering the security in urban area and the lack of transportation measures, water quality monitoring outside of WTP is postponed. – Result of jar test and chlorine demand test by water quality monitoring team is reported to water treatment team to manage WTP operation. |
| 3. Water Purification Team | – O&M procedure of water intake facility was added (3.1 Procedure of Intake Maintenance). – Procedure of raw water tank maintenance; procedure of cleaning and supervision were added. – Chemical injection ratio is decided in accordance with the monitoring data by water quality monitoring team. – Revision of cleaning and operation schedule of bleach (chlorine) solution tank and coagulant tank. |

| Modification | Point of modification |
|---|--|
| 4. Shift Operator 5. Mechanical Maintenance Team 6. Electrical Maintenance Team | <ul style="list-style-type: none"> – Work descriptions of WTP mechanical maintenance team and WTP electrical maintenance team was clarified. – Work schedules of mechanical maintenance team and electrical maintenance team were revised. |

- The same training was conducted as in Term 1 to other trainees.
- Disassemble and assemble training of generator, motors, pumps, blowers and valves were conducted as the O&M training of WTP.
- Through an analysis of chronological water quality data of raw water and treatment process water, trainees understood the seasonal change of raw water quality and water quality change in water treatment process.
- Through the training of data quality management of water quality data, trainees learned the data quality management method by four arithmetic processes.

Term 4

- On-line joint workshops with water quality monitoring team and water treatment team were regularly conducted to enhance knowledge on the data analysis of water quality data and utilize water quality data in WTP operation.
- The JICA Expert stayed in Juba from Sep. to Oct. 2021 and provided on-site guidance.
 - ✧ OJT of repair of generator was implemented. SSUWC asked a local mechanical expert to repair the generator.
 - ✧ OJT of repair of blower was implemented. Repair of blower finished, but repair of valve in backwash air pipeline has still been remaining.
 - ✧ OJT of sand filter maintenance was implemented. The way to remove mud ball was instructed.
 - ✧ Replenish of filter sand was necessary. In this process, the importance of diameter of filter sand was instructed. The sieving method of filter sand to remove large and small diameter sand was trained by OJT. Water treatment team has replenished a certain amount of sieved sand every day. (Sieves for sand sieving were procured in Japan and brought to Juba by the JICA Expert.)
 - ✧ SSUWC accepts interns from the University of Juba. They learned about water quality monitoring from water quality monitoring team in Juba Station. Through this experience, the C/P seems to be more aware of their role as a leader.
- However, due to the deteriorating operating circumstances of the water utility caused by the shortage of generator fuel and chemical, and staff turnover, etc., operational improvement using revised SOP (revised in Term 3) have not been implemented.

(2) Transmission and Distribution Facility

During the JICA Experts' site work in Juba in Term 1, a baseline survey and capacity assessment of staff were conducted to confirm required improvement. Since then, the operation and maintenance ability of the water supply and distribution facilities has been improved through seminars and practical training in remote training in Term 1 to Term 3.

Term 1 and 2

- Acquisition of knowledge about tools and spare parts used for water supply and distribution facilities
- Training for HDPE service pipe connection
- Disassemble and assemble of gate valves
- Water meter accuracy (calibration)
- Type of piping materials and price survey
- Welding training for steel pipe
- Training for leakage repair and repair record reporting
- Understanding PIs
- Preparation of maintenance plan of transmission and distribution pipe

Term 3

- Trainings were provided on pipe materials, fitting parts and valves for maintenance of pipe network both in classroom and workshop.
- Practical trainings were provided on how to repair leaking pipe on site.
- Both classroom lectures and practical training at site were provided on dismantling/assembling bulk flowmeter.
- After confirming existing pipe network, the Water Flow Diagram of Juba including tanker filling station (TFS) and bulk flowmeters was prepared.
- Formats were developed and a SOP was prepared for stock management. OJT was provided to use the SOP and formats.
- The C/P gave a presentation to the JICA Expert using PPT on how the maintenance of water transmission and distribution pipe in Juba was improved comparing with the condition in the civil war three years ago.

Term 4

- The maintenance problems were discussed at Juba Station. In addition, it was claimed that transportation mean is not available for commuting to Juba Station and that it would be an obstacle to maintenance because the staff have to come on foot.
- The format of the monthly report was improved, and progress of activities was confirmed based on the submitted monthly report together with the instruction of improvement.
- Regarding the transmission and distribution pipes in Juba city, the C/P reconfirmed uncertainties

parts of pipeline, investigated route changes, and completed the "diagram of pipes and bulk flow meters".

- The C/P prepared a stock management format and the JICA Expert confirmed that the C/P can record correctly.
- A capacity assessment was conducted at the end of the Project to confirm the degree of capacity enhancement comparing with the first survey in 2016.
- Ten years has passed after the Independence of South Sudan. The C/P gave a presentation to the JICA Expert using PPT, along with a future plan, on how the water facilities and maintenance technology of the Juba Station have evolved during these ten years.

(3) Output

- a) Water quality analysis and monitoring
 - Lecture materials on water quality analysis
 - SOP for water quality monitoring (Annex-5)
- b) Water Purification facility
 - Lecture materials for acquiring basic knowledge of water treatment
 - Lecture materials for disassembling and repairing equipment and electricity
 - Revised SOP (draft) for operation and maintenance of WTP (Annex-5)
 - Lecture materials on safety
- c) Transmission and distribution facility
 - Pipe system diagram for studying equal water distribution method
 - A table summarizing the needs for piping materials, parts, tools, and means of transportation in the future at the Juba Station.
 - Records of leakage occurrence and repair
 - SOP for updating GIS facility maps and customer databases (Annex-3)
 - Main water pipe and bulk meter drawing of Juba Station
 - Diagram of pipe and bulk flow meter for Juba waterworks
- d) Common
 - End-line capacity assessment results
 - PPT for presentation to the JICA Expert prepared by the C/P reviewing 10 years of independence

4-2 Understand the situation of water distribution and develop a plan for promoting equal water distribution regarding existing water supply facilities.

In Term 1 and 2, the JICA Expert and the C/P discussed the importance of equal water distribution and prepared a plan. The water demand of each zone was calculated based on the number of customers, the calculation for allocating the available water amount was carried out, and the map of the water distribution section was created.

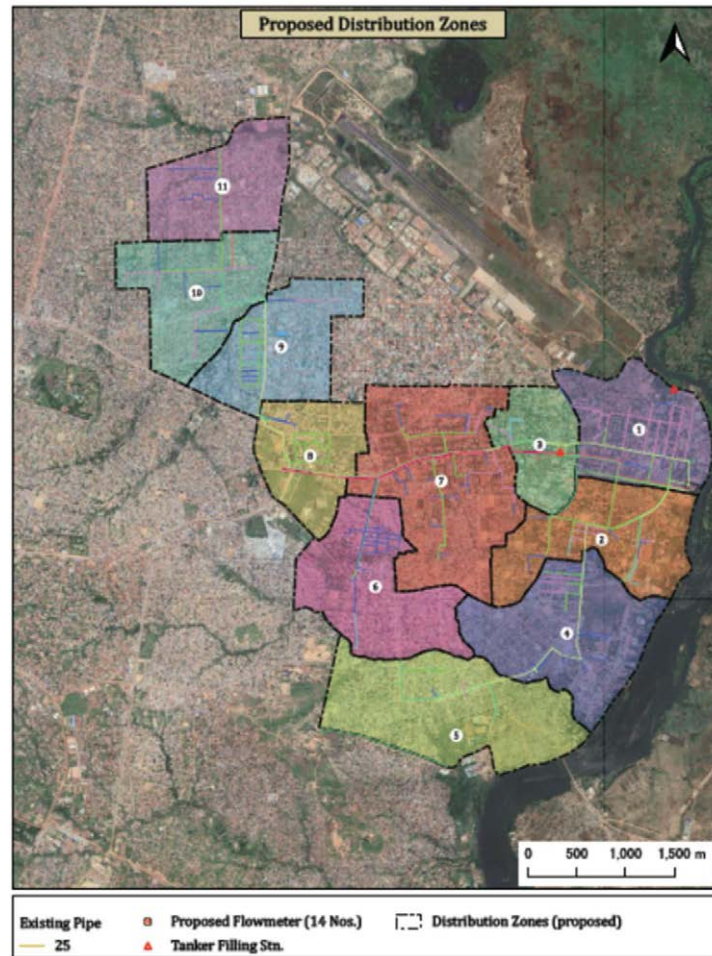


Figure 2-15 Distribution zone for equal water distribution

However, in Term 3 and 4, there was no progress about this activity because the operation hours in Juba Station were decreased. Currently water is distributed to two TFS during daytime and supplied to piped customers during the limited time in the early morning, evening, or nighttime. Thus, only a minor fraction of population is supplied with piped water directly and there is no scope of equal distribution at present. The equal water distribution plan should be promoted when Juba Station operation hours increase.

In December 2021, the Juba Station prepared an annual plan (2022). The plan includes extension of operating time of WTP, extension of water supply time to general customers, and expansion of the water supply area. The plan is shown below.

Table 2-25 Annual Facility Operation Plan 2022 of Juba Station

a) PUMP OPERATION HOURS: 6 am to 11Pm

| Pumping Station | AM | | | | | | | | | | | | PM | | | | | | | | | | | | Total volume /day | Total hours | Total Volume /Month | Total hours per month |
|-------------------------------------|----|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|---|----|----|-------------------------|----------------|---------------------------|-----------------------------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | (m3/day) | (hr/day) | m3/month | (hr/month) |
| Juba Treatment Plant (Raw water) | | | | | | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 5688 | 18 | 170,640 | 540 |
| Juba Treatment Plant (Output) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Juba station Old Pump (Spanicon) | | | | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2700 | 18 | 81,000 | 540 |
| 2. Juba station New Pump (ICRC) | | | | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | | | 2250 | 15 | 67,500 | 450 |
| 3. Hospital Old Pump | | | | | | | | | | | | | | | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1050 | 7 | 31,500 | 210 |
| 4. Hospital New Pump | | | | | | | | | | | | | | | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1050 | 7 | 31,500 | 210 |
| 5. Konyokonyo Pump | | | | | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | | | | | | | | |

b) Water pumping to the Zones

| Day | Station & Time (6 am -11 pm) | Location (6 am- 5 pm) | Zones (5 pm to 11 pm) |
|-----------|------------------------------|-------------------------------|-----------------------|
| Monday | Water pump from WTP | Jit TPS / Juba town Areas/HBS | Munuki A & B |
| Tuesday | Water pump from WTP | Jit TPS / Juba town Areas/HBS | Munuki A & B |
| Wednesday | Water pump from WTP | Jit TPS / Juba town Areas/HBS | Hai Amarat |
| Thursday | Water pump from WTP | Jit TPS / Juba town Areas/HBS | Hai Amarat |
| Friday | Water pump from WTP | Jit TPS / Juba town Areas/HBS | Munuki A & B |
| Saturday | Water pump from WTP | Jit TPS / Juba town Areas/HBS | Munuki A & B |
| Sunday | Water pump from WTP | Jit TPS / Juba town Areas/HBS | Juba Town Areas |

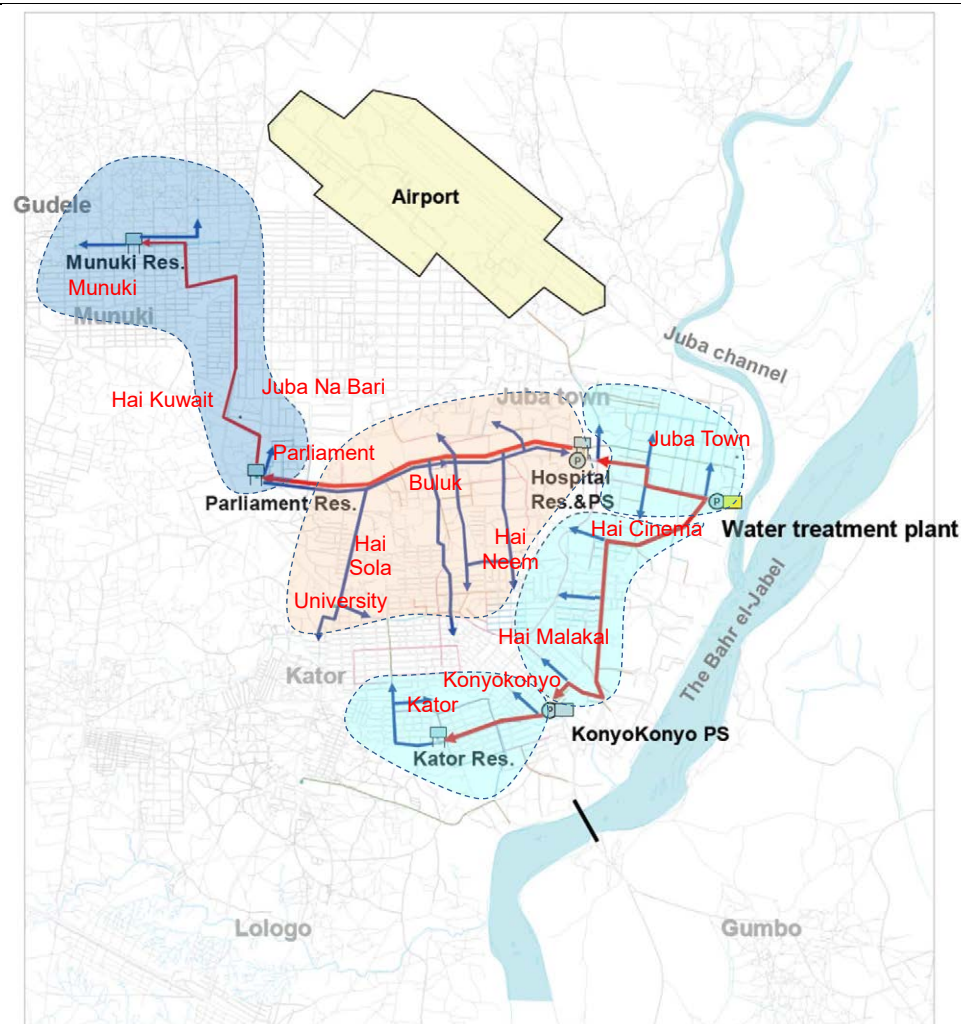
Note:

Juba Town: 1. Juba town, Hospital BPS, Hospital TFS,

2. Hai Cinema, Hai Malaka, KnyoKonyo

Muniki A&B from hospital booster station (HBS) (new) through the parliament elevated tower: Munuki A, Munuki B, Juba Na Bari, Hai Kuwait

Hai Amarat from HBS (old): Hai Amarat, Juba University, Hai Sola, Hai Neem, Part of Buluk



4-3 Operate water distribution facilities based on the plan developed in the activity 4-2

As mentioned in 4-2 above, the equal distribution plan can be applied when the amount of water distribution increases and water is supplied to more areas. The operation of the plan from 2022 is under consideration.

4-4 Study management method of new water filling stations

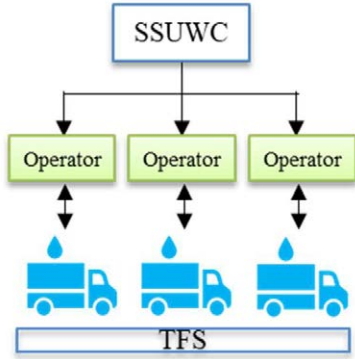
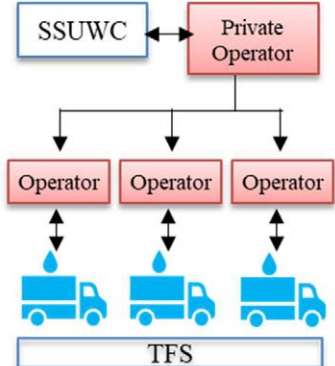
There could be two options for the operation model of TFSs such as direct management of SSUWC and private management. After construction of three TFSs by USAID, the operation was contracted out to a private company in Juba. However, the management style was shifted from the private operation to the direct operation of SSUWC in 2018 once. Then it was backed to a private operation again in December 2021. By looking at a series of past operation status, the main features of both management models can be summarized in the following table.

The average monthly sales amount from TFS in 2021 was in the range of 2-3 million SSP. In December 2021, the operation has been contracted out to private company, and the sales amount of TFS in December is estimated with approximately 8 million SSP. The most important issue is to secure the transparency of reporting the sales revenue. Therefore, private management model is better than direct management model considering above issues, if SSUWC can secure the transparency of sale revenue report from the private operator and manage the actual sales water volume.

The number of TFS will be increased by 8 points by the grant aid project, and it could be not a realistic option for SSUWC to directly operate and manage the TFS considering their capacity and the human resources. The private management model has more advantage than direct management model in various aspects as shown as the following table. Therefore, it is recommended to adopt private management model.

Study Report on Management of Taker Filling Station and Public Tap Stand is given in Annex-7.

Table 2-26 Main Features of Operation and Management Models of TFSs

| | SSUWC Management Model | Private Management Model |
|-------------------------------|---|---|
| Concept |  |  |
| Operation skill and knowledge | - They have a relatively basic knowledge of the operation of the facility. | - Since the operation of the facility is not complicated, it is expected that |

| | SSUWC Management Model | Private Management Model |
|---------------------|--|--|
| | However, since meter readers are often assigned as an operator, it is difficult to see a significant difference from private management. | the necessary knowledge and skills can be acquired by taking a short training course at the beginning. |
| Management capacity | <ul style="list-style-type: none"> - The number of TFSs to be constructed under the grant aid project is eight, for which SSUWC does not have enough capacity to manage by existing human resources of SSUWC. - While, it may be not efficient to employ full-time staffs only to manage the TFS. | <ul style="list-style-type: none"> - In case of private model, it is possible to manage all TFSs by increasing the number of contractors according to the target number of TFSs. - A challenge is that the number and capacity of private operators with sufficient experience and financial capacity may be limited in Juba. |
| Transparency | <ul style="list-style-type: none"> - The appointed staff is required to report the selling water volume and revenue collection amount. - However, the reliability depends on humanity of appointed person. - It is told that false reporting could be occurred by underestimating revenue amount in the past. | <ul style="list-style-type: none"> - By taking a measure to prevent false reporting, transparency can be increased. - To do so, meter installation, double check by SSUWC's monitoring is necessary. - The contract should stipulate penalties for false reports and stolen water. - Once it happens, the company can't enter the market again, therefore the transparency is relatively high. |
| Efficiency | <ul style="list-style-type: none"> - Incentives to work efficiently are difficult to work with because the salary is not changed even if sales is increased. | <ul style="list-style-type: none"> - High efficiency is expected because increase of selling water volume is directly related to revenue increase. |

4-5 Study management method of new water kiosks

4-5-1 Proposed Management Model for PTS

In general, there are three types of models for the operation and management of PTS. The outline of these models of PTS is shown as the following table.

Table 2-27 Management Model and Main Concept

| | A. Payam Management | B. Community Management | C. Private Management |
|----------------------|---|---|---|
| Management Structure | | | |
| Features | <ul style="list-style-type: none"> - Operated by Payam (local municipality). - Management costs are required. - Taking time for maintenance. | <ul style="list-style-type: none"> - Operated by community - Response to maintenance is quick. - Water is allocated even to the poor | <ul style="list-style-type: none"> - Efficient management is possible following market principles - No-response to the poor |

As for the "Payam Management Model", SSUWC enters into a contract with Payam for operation and management, and Payam organizes a water committee for operation and management. In terms of the "Community Management Model", SSUWC enters into a contract with a management committee organized in each community. The water committee will select a caretaker (water seller) to manage the operation of the PTS. With regard to the "Private Operator Management Model", SSUWC enters into a contract with a private company, which will select a caretaker (water seller) to operate and manage the PTS.

The community management model was evaluated as superior among 3 models in Phase 1 partly because there were only 8 conventional PTS. On the other hand, the number of PTS to be constructed under the grant project is as large as 120, and it is judged to be practically difficult for Juba Station, with its limited number of staff and their management capacity, to manage them solely according to the community management approach.

For the operation and management of 3 PTS (kiosk type) constructed in Phase 1, the expert team tried to use a private management approach although they received support from the community in the process of caretaker selection. It was demonstrated that the operation and management could be basically done well with this management model if the water supply from SSUWC was sufficient.

In these connections, the expert team believes that the most appropriate model for the operation and management of PTS (kiosk type) to be constructed under the grant aid project is to use the private sector, and the expert team recommend that this model be adopted as the basic approach.

4-5-2 Group Management of Public Tap Stand (Kiosk Type)

In order to outsource the operation of PTS to the private sector, the expert team proposes to contract out PTS by grouping on the basis of region. The detail of number and scale of the groupings shall be determined by taking into account the number of potential private operators and their management and financial capabilities. A preliminary survey shall be conducted about potential and eligible private operators who have interest to participate in. Then, the appropriate grouping of PTS on the regional basis shall be considered.

For example, if there are more than three potential private operators with the capability and the interest, it is recommended to efficiently make grouping into three. Then, SSUWC will contract out the operation and management of PTS to three private operators. In this grouping, one private operating company will cover around 35-43 PTS.

4-5-3 Issues to be Considered

The following table shows the issues to be considered when outsourcing operation and management to the private sector. The PTS to be constructed by the grant aid are large-scale, and even in neighboring

countries in Africa, these are rare cases and challenging endeavors. Therefore, it is important not to seek for perfection at the beginning, but to gradually improve them as they are put into operation, and to reach to the optimal operation and management model.

Table 2-28 Main Issues to be Considered for Private Management Model

| Item | Remark |
|---|--|
| Selection of Caretaker (water seller) | <ul style="list-style-type: none"> • The caretaker should be a resident as close as possible to the PTS to be constructed. The facility will be operated and manned early in the morning every day. • The caretaker should be a resident as close as possible to PTS that will be constructed. Since the facility will be in operation and stationed early in the morning every day, the closer the physical distance to the PTS is better. • Also, as practiced in Phase 2, a clause could be included in the contract with the private operator that the community will be fully consulted in the selection of personnel, or that they will be hired from the community, and that a manager will be stationed at the facility. • The users of PTS are generally local residents living near the facilities, and a manager with ties to the community is expected to be more morally aware and provide smoother service. We have received advice from the Juba City Council on this matter. |
| Capacity building of operator | <ul style="list-style-type: none"> • Lessons learned from the master plan study show that if the operators are hired from residents living in the area who have no experience working for a company or government agency, the challenge will be that they will not have much knowledge about the operation of the kiosk's equipment and accounting. Therefore, it is necessary to include a clause in the contract that the contractor should provide training to the managers. • It is also desirable to include in the requirements for selecting private sector providers the ability to provide training to operators. • In the initial stage, SSUWC will also need to explain to the contractor the operation of the equipment and, if necessary, the accounting method. |
| Selection of private operator and capacity building | <ul style="list-style-type: none"> • The private operator is judged to be the most appropriate model, but the challenge is that there are few private operators with experience in contracting out the management of large numbers of PTSs. This type of management in Juba is unique and has not been seen in other neighboring countries. • The SSUWC needs to take a medium- to long-term perspective to improve the operation and management of PTSs in a more appropriate manner while fostering private sector operators. For this purpose, it is important to improve the capacity of SSUWC to manage the contract. |
| Attention to poor people | <ul style="list-style-type: none"> • Past analysis has indicated that the management approach by the private sector is worse to the community management approach in terms of consideration for the poor people. In particular, the users of PTSs are relatively poor. In order to compensate for this disadvantage of the private management approach, the selling price of PTSs should be carefully set from the perspective of cross-subsidization so that it satisfies the residents' affordability and is cheaper than other water supply methods. In setting the price, the price setting guideline should be observed. |
| Clear division of repair and rehabilitation between SSUWC and private operators | <ul style="list-style-type: none"> • It is necessary to clearly stipulate in the contract between SSUWC and the private sector on the division of repair and maintenance work. • As for the repair and maintenance, the private operator should be responsible for those that are commonly available materials and equipment in Juba. While SSUWC should purchase and keep in stock special equipment and materials (water meters) and spare parts that require importation, and sell them to the third party contractor when they are needed. |
| Monitoring and inspection of facilities | <ul style="list-style-type: none"> • SSUWC is required to monitor and inspect the condition of the facilities of PTSs on a regular basis. Routine inspections are the responsibility of the private operator and should be included in the terms of the contract. |

| Item | Remark |
|---|--|
| | <ul style="list-style-type: none"> SSUWC should review the inspection records and periodically check the facilities for defects or malfunctions and monitor the facilities to ensure that they are operational at all times. |
| Compliance of selling price and revenue collection management | <ul style="list-style-type: none"> Sales prices should be uniform without exception, and operators should be made aware of this through consignment providers. Manipulation of selling prices may cause inequality and dissatisfaction among customers. The amount of water sold and the revenue amount collected should be matched, and regular reporting to the contractor should be included in the contract as a clause. SSUWC should ensure that the amount of water sold and the fees collected are monitored and confirmed through water meter reading. |
| Reconsideration of revenue collection methods | <ul style="list-style-type: none"> As reported in cases in other countries, the direct exchange of cash is a cause of corruption and stolen money. In all past pilot projects of PTSs, cash collection was used, but to avoid the above-mentioned risks, we propose the trial introduction of token coupon tickets system. The introduction of token coupon tickets will reduce the chances of cash exchange between customers and operators as much as possible, and will also reduce cumbersome operations. It is better to sell token coupon ticket not at the place of PTSs if possible, but at the one place in the center of responsible area. So the cost of this arrangement is included in the bidding price of candidate contractors. The disadvantage of this is the additional cost of producing the coupons is occurred. In order to produce a standard token coupon ticket, it may be better for SSUWC to be responsible for this. |

4-6 Develop manuals for procurement of materials for operation and maintenance for facilities

As for the materials and equipment for maintenance, the JICA Expert procured and provided the materials and equipment from Kanya that cannot be obtained in Juba City. Basic spare parts, tools, and safety equipment for generators and water treatment facilities can be procured locally. Juba Station has purchased the minimum necessary materials and equipment that are urgently needed, but the materials and equipment that are necessary but do not affect the operation of the facility, such as safety equipment, have been postponed. In addition, due to the revenue collection by NRA, even spare parts could not be purchased, and maintenance of the generator was not possible. Therefore, the JICA Expert provided additional support for urgent needs in Term 4.

Although the problem of revenue collection by NRA was temporally solved at the operation level, it was not possible to procure materials and equipment systematically from the revenue, and it was difficult to prepare a procurement manual under such circumstances. Since it is necessary to improve the financial situation, the plan shall be prepared after the financial situation is improved.

On the other hand, the management of the provided materials and equipment was important, and the inventory management manual was prepared with the support of the JICA Expert. When materials and equipment are needed for repairs, etc., request the necessary materials and equipment, obtain the approval of the Area Manager, receive the materials and equipment from the stock manager, report the materials and equipment used after work, and return unused materials and equipment; those procedures are stipulated in the manual (SOP).

(1) Output

- Material and equipment inventory management manual (SOP) (Attachment-6) and records

4-7 Overall findings (Capacity Enhanced and Challenges)

Each team (water distribution, water treatment operation and water quality monitoring) gave a presentation summarizing what they learned from the training over the past five years and future challenges on October 29, 2021. Following the C/P's presentation, the JICA Expert gave a presentation on issues that they would like to be resolved in the future as a message to be left on the C/P. The C/P's and JICA Expert's presentations are shown in Appendix 9-1.



Photo 2-8 Presentation of the Project result by C/P

(1) Operation maintenance and water quality management of water intake, transmission, and purified water

The main results of the remote training in Kenya and Uganda from Term 1 to Term 3, and the field activities in Term 4 are as follows.

- Acquired knowledge about water treatment technology
- Acquired knowledge about safety
- Mutual understanding of the works of the water treatment plant operation management team and the water quality monitoring team, and strengthening of cooperative relationships

- Learn how to experiment with jar tests and chlorine requirements tests, and how to use data
- Acquisition of knowledge to utilize the results of water quality measurement to improve the process of water treatment plants
- Learning how to calibrate analytical equipment
- Understanding the importance of water quality analysis SOP
- Acquisition of knowledge on quality control of measurement data
- Continued water quality monitoring at WTP, report and share as monthly report

On the other hand, the following are issues.

- Generator fuel, flocculants and disinfectants are provided by donors such as JICA and the ICRC. Those procurement by the revenue of Juba Station and HQ is difficult. Without the supports of donors, the operation of the water facility cannot be continued.
- The equipment at the water facilities is frequently out of order. Since the cost of procuring parts cannot be covered by the Juba Station, payment is requested to various donors. Financial improvement is awaited.
- Water quality monitoring at the WTP is continuing, but there is no means of ensuring safety during sampling work (for security reasons because it is night water distribution) and sample transportation for water quality surveys of distribution reservoirs and taps outside the WTP. The activities could not be resumed in the Project.
- The water quality analysis equipment procured in 2019 (pH meter, EC meter, turbidity meter, residual chlorine system and jar tester) is in operation, but the equipment procured before that was unusable.

(2) Water transmission and distribution maintenance

- The C/P knows the main pipelines and water distribution flows in Juba City and has a technical understanding.
- Piping repairs due to water leaks can be performed quickly and accurately and can be recorded as data in a predetermined format.
- The C/P can dismantle and assemble bulk flowmeters correctly and quickly.
- The record of leak and leakage repair can be prepared properly.
- Improved monthly report can be prepared by the C/P.
- The stock management can be done properly and records are made timely.
- PIs can be calculated correctly.
- The C/P can make presentation to the JICA Expert using PPT.

On the other hand, the following are issues.

- Many bulk flowmeters are not working. Even newly installed bulk flowmeters also get damaged soon due to water hammer. This makes it difficult to know how much water is actually produced by the WTP and how much water is distributed where.

- Currently water is distributed through two TFSs during daytime and supplied to piped customers during the limited time in the early morning, evening or night time. Thus, patrolling work for finding leakage and illegal water use is difficult due to security reason.
- Due to extremely low and irregular salary payment, many staff do not attend office regularly. This makes timely leak repair work difficult even though all other things such as equipment, pipe fittings, and vehicles are available.
- Only a few staff can handle computers and make the monthly report and calculate PIs. The stock management report and the leak and repairing report can be made by limited staff. This cannot be helped when considering other staff's educational background.
- Salary and allowance payment is always delayed, so staff motivations are decreasing in these years. Therefore only a few staff are coming to Juba Station regularly. Sometimes leak repair and other plumbing works cannot be implemented due to lack of labors.

2.4.5. Output 5 Activity (Strengthening of support and supervisory function of SSUWC headquarters toward Juba Station)

5. Output 5. Support and supervisory function of SSUWC headquarters toward Juba Station is strengthened.

5-1 Conduct a training needs survey at Juba Station.

Based on the capacity assessment conducted in the Term 1 (see CD1), the current capacity / issues / needs and countermeasures are shown below.

(1) WTP

1) Overview of capacity

- **Organization**

The C/P understand the role of each department of the organization, but no materials related to organization (organization chart, staff list, etc.) are available.

- **Communication**

There are no regular meetings between managers and engineers. Meetings are held when an abnormal situation occurs. For effective water quality management such as proper operation of water treatment facilities, prompt information exchange and appropriate guidance between managers and engineers are important. Regular meetings are recommended.

At the meeting, no records such as minutes are prepared, so information sharing on problems and solutions in the maintenance of waterworks is insufficient.

Information on problems and solutions, and accumulation of related technical information and knowledge are important assets for organizations. Therefore, it is recommended to create and implement rules for keeping records of meetings and discussions.

- **Document management**

The document management status of both technical documents (drawings, SOPs, etc.) and management documents (organization charts, staff lists, etc.) is not clear. A document management

system (such as deciding on a document management staff) is recommended.

Regarding the SOPs created in the Phase 1 Project, some SOPs such as the operation procedure for backwashing were posted on the sand filter tank at the site, but some SOPs have not been utilized or revised.

- Performance Indicators (PIs)

Operational data is recorded on paper and in computer databases. These operating data are calculated and reported in the monthly report. However, since the issuance of the monthly report was stopped in July 2015, it is considered that the operation data and PI are not used for O&M of the waterworks. In addition, the deterioration of the economic situation in South Sudan has made it difficult to operate the waterworks normally (24-hour continuous operation), which may make it difficult to utilize PI from the end of 2015.

- Technical training

At the Juba Station, technical training is conducted only verbally or informally and is not formal. Proper technical training may not have been provided since the Phase 1 Project.

As a result of individual interviews of ability evaluation, it was found that many of the technical staff are highly motivated to learn even though the basic education is insufficient. Therefore, improving the technical training system is an important issue.

- Procurement / Budget

Since procurement and budget are managed by SSUWC HQ, the Juba Station does not have the right to make procurement decisions. Due to the deterioration of the economic situation in South Sudan, the distribution of goods is not sufficient in Juba. At this point, it may be difficult to carry out planned procurement, but the Juba Station needs to create a procurement plan for spare parts and goods / consumables for operation and maintenance.

2) Countermeasures

All of the above items should be improved, but considering the serious economic situation, it seems difficult to utilize PI and improve procurement and budget. First, the following improvements should be made. It is recommended that the remaining items be improved after the national economic situation and the financial situation of the Juba Station are improved.

- Hold regular meetings between the Area Manager and technical staff.
- Regarding technical training, first, training will be conducted to reconstruct the maintenance management system using the existing SOP.
- Re-education of basic water treatment technology.
- Utilization of PI.

(2) Water quality management

1) Overview of capacity

- Organization

The organization of the water quality laboratory is very small (5 staff). In order to ensure the

quality of water quality monitoring sufficiently, it is necessary to increase the number of staff.

- Water quality monitoring

Since 2013, weekly and monthly monitoring has not been carried out in the Juba city area. The most serious problem is that there is no means of transporting water samples from the sampling points. Water quality monitoring is carried out only on the premises of the water treatment plant. From 2015, the water distribution area is limited to the vicinity of the water treatment plant (Juba Town). Considering the water supply to the Juba town area, it is necessary to plan and implement monitoring in the Juba town area (outside the waterworks site).

- Data management

The monitoring data is stored in the database of the PC. These monitoring data are used for daily water quality reporting. At the moment, there are no problems with data management.

- Operation manual / SOP and operation of analytical instruments

No SOP has been created for the operation of water quality monitoring. At present, the monitoring items are limited (pH, EC / TDS, turbidity / turbidity, residual chlorine), and these items are easily measured by specific equipment (pH meter, EC / TDS meter, turbidity meter, chromaticity meter). It is unclear whether these monitoring devices are properly calibrated. Therefore, it is necessary to create and operate SOPs for monitoring equipment (pH, EC / TDS, turbidity, chromaticity, residual chlorine) including capacity development and calibration for the operation of monitoring equipment.

- Performance Indicator (PI)

In calculating the PI, the total number of all monitoring points including the outside of WTP is required. However, water quality monitoring is carried out only within the WTP because there is no means of transporting water samples and the distribution area is shrinking. For this reason, it is difficult to achieve PI using the monitoring results of samples other than the original waterworks.

- Technical training

Laboratory staff are highly motivated to learn but are not given the motivation and opportunity to learn water quality monitoring techniques.

- Response to abnormal water quality data

At present, the turbidity tends to be high in the rainy season. If abnormal water quality occurs, report the information to the Area Manager and discuss countermeasures.

- Procurement and budget

No list of monitoring equipment has been created. In addition, inventory management of equipment reagents and spare parts is not performed. The list of monitoring equipment and the purchase / consumption record of reagents are important and basic information for considering the monthly or annual operation plan in the operation of the laboratory. Therefore, the monitoring equipment list and purchase / consumption records should be created as soon as possible.

2) Countermeasures

Overall, the performance of the water quality laboratory is good. However, the following points

need to be improved.

- Establishment of SOP for monitoring equipment
- Perform regular calibration of monitoring equipment
- Create a list of monitoring equipment and reagent purchase / consumption records
- Re-education of basic water quality test

(3) Water transmission and distribution

1) Overview of capacity

- The staff has never studied hydraulics-based technology and has worked in the field following the example of a colleague.
- The staff has never studied the material and strength of water pipes.
- SSUWC has no standards, training programs or updated plumbing data.
- The staff is not interested in improving the management of PI and SSUWC.
- Since the staff responds on an ad hoc base, when a problem occurs it is possible to solve the problem, but it is not possible to prevent or predict the problem of the facility.

2) Countermeasures

- Conduct technical training based on hydraulics at the workshop.
- Training on water pipe materials and strength will be conducted at the workshop.
- Create / update training programs for acquiring standard skills.
- Training will be conducted with the staff of the finance department on the importance of both PIs and understanding of the management situation.
- Update the SOP.

(4) Finance and accounting

1) Current state of capacity

- Organization and staff

The Finance and Accounting Department recognizes that there is a shortage of meter readers and ledger keepers. In the 2015/2016 strategic plan for accounting, two meter-readers, one ledger keeper, and one accountant are needed, however, it seems staff is sufficient.

- Finance / accounting system

There is a financial and accounting system, which is working. However, many improvements are needed.

- Revision of water tariff

There is no procedure for water tariff revision or policy for setting water tariff. The collection rate of water charges is low, and the procedure for collecting arrears from customers has not been established.

- Customer management

Customer management is implemented using the billing and collection database and contracts. But it is not updated regularly. The billing and collection database is being used well but needs to be

improved.

- Water meter

There are no meter reading, billing, collection, or arrears manuals. The installation rate of water meters is low, which causes a sense of unfairness in water charges. Installation of water meters is one of the goals of the strategic plan, but it is not implemented according to the plan.

- Management of arrears

The accumulated arrears reach 2 to 3 times the monthly average revenue. There is no strategy or plan to collect the arrears.

2) Countermeasures

- Organization and staff

- It is necessary to clarify the roles, responsibilities, and workload of each staff member.
- Analyze the work efficiency of each staff member.
- Clarify how many staff are missing in which section.

- Finance / accounting system

- Analyze and identify problems, identify necessary actions and training, and create a strategic plan.
- Learn the importance of PIs, aggregation and calculation methods, and prepare monthly reports to understand the financial situation.
- Understand the structure of revenue and expenditure and clarify measures for increasing revenue and decreasing expenditure.
- Consider what path should be taken in the future toward the transition to an autonomous organization.

- Revision of water tariff

- Clarify and discuss ways to improve the collection rate of water tariffs.
- Clarify and consider procedures for collecting arrears.
- Create manual /guideline such as procedures and policies for tariff setting.

- Customer management

- Identify problems and improve the billing and collection database.
- Update the database.
- Identify the current grievance system and implement improvement plans.

- Water meter

- Identify, discuss, and prepare an action plan for meter installation, considering the budget.
- Check and replace non-functional meters.
- Strengthen public awareness activities for installing water meters.

- Commercial loss

- Understand NRW and commercial losses.
- Understand how NRW and commercial losses affect your financial position.
- Discuss actions and measures needed to reduce commercial losses.

5-2 Develop a training plan including training materials, manuals and budget based on training needs.

After conducting the capacity assessment in Term 1, the field activities were suspended due to political conflict. The project activities were continued remotely until it was possible to enter the country. The venues were Uganda (NWSC) and Kenya (KEWI). The C/P were invited to these places and provided remote training. The training program consisted of the following items. For detailed training content, refer to "2.2 Outline of remote training".

1. Water tariff / financial management
2. Public Awareness (PA)
3. Leakage investigation (NRW management)
4. GIS / water distribution management
5. Water treatment facility maintenance
6. Water quality monitoring
7. Maintenance of water transmission and distribution facilities
8. TFS/PTS
9. SSUWC HQ management

Although field activities resumed in September 2019, travel was suspended again due to the COVID-19 pandemic. After that, field activities restarted in June 2021. After resuming the field activities, the needs of the training were identified, a training plan was prepared, and the training was conducted according to the plan. The outline of the training tasks is shown below. The detailed plan is shown in Appendix 9.2.

Table 2-29 Issues to be tackled in field activities after June 2021

| Output | Issues to be addressed this time and at the next visit (main issues) |
|--------|---|
| 1. | <ul style="list-style-type: none">● Creation of water tariff setting guideline for cost recovery● Follow-up of activities to improve toll collection so far |
| 2. | <ul style="list-style-type: none">● Awareness-raising activities to help people understand the need for COVID-19 compliance and safe water supply● Enlightenment activities to make customers aware of invoice payment |
| 3. | <ul style="list-style-type: none">● Proper use of created SOPs and formats for NRW● Add pipes and facilities constructed by the AfDB project to the GIS map |
| 4. | <ul style="list-style-type: none">● Understand the current status of the water treatment process● Replacing sand in the filtration pond● Effective backwashing method without using an air purifier● Current status of water quality monitoring and how to improve problems● Appropriately record equipment inventory● Improve report format and PI● Perform appropriate inventory management |
| 5. | <ul style="list-style-type: none">● Restructure the report and plan evaluation process by the headquarters● Restructure the improvement plan monitoring process● Prepare annual reports and plans |

5-3 Conduct remote training for Headquarters and Juba Station.

Please refer to "2.2 Outline of Remote Training" and Annex-8 for the contents of remote training for SSUWC HQ and Juba Station.

5-4 Examine for feedbacks on Juba Station's monthly and annual reports, and annual plans provided by Headquarters

Monthly report (till January 2019) was checked in February 2019. HQ staff members read the report, however, evaluation in designated format and its feedback were not given. Thus, training was conducted again based on the designated format.

In November 2020, a Planning and Database Committee of Juba Station was formed, and the plan preparation and training on database was implemented through workshops. In the workshop, the training for monthly report evaluation was conducted and the evaluation was done on monthly report of October 2020.

The monthly report is submitted monthly by Juba Station, but there is a lack of evaluation and feedback from the HQ. In 2020, the person in charge of the HQ left the job. A new person in charge was assigned and the monthly report was evaluated (January-June 2021). However, the process has been suspended because the person in charge left the job again in November 2021. SSUWC HQ has not yet established a system for continuously reviewing monthly reports and feeding back.

5-5 Develop a training plan including training materials, manuals and budget based on training needs

From November 2020, the Planning and Database Committee started the activities. Online workshops were held nine times, checking and review of database and PI of Juba Station were done. The database of the Juba Station and major PIs are shown in Appendix 9.3.

5-6 Prepare a remote training report for all outcomes

Annex-8 shows the remote training report for the Term 1, 2 and 3. For the outline of the training, refer to "1.2 Outline of remote training".

5-7 Prepare Juba Station improvement action plan and support the implementation

Action plan for Juba station was developed in the remote trainings in Term 2 (Appendix 9-4). Progress report was presented in the 1st and 2nd remote trainings in Term 3 as well as in the JCC (April 2019). Its progress is shown in the following table.

(1) Technical division

| Dept | Indicator | Baseline in Jan 2019 | Target Value in Jun 2019 | Status to Date | Problem to Achieve Target |
|---------------------------|--|--|--|--|--|
| Technical Services | Operation Hours | 13 hrs/d | (22 – 24 hrs/d) | 13 hrs/d | Uncertainty of availability of subsidized fuel from Nilepet |
| | Cleaning & Improving the Intake | No regular plan for cleaning of the Intake | Intake Area to be cleaned once every 2 month | Achieved | No clear budget for the regular cleaning |
| | Water Quality: Collection of water samples from outside end points for testing | No samples are collected from outside | Frequently testing; at least once a week from different points | Not Achieved | No water supply to the zones during day time |
| | NRW | Almost 45% for physical & commercial NRW | To be reduced to 30% or less | Not known, not possible to measure NRW | Lack of proper metering, several existing meters not functioning |

(2) Costumer

| Dept | Indicator | Baseline in Jan 2019Target | Target Value in Jun 2019 | Status to Date | Problem to Achieve Target |
|---------------------------------|--|------------------------------|--|--------------------------------|--|
| Commercial & Revenue | Increase number of customers | (2186 connections) | (2500 connections) 314 new) | Achieved 30 only 9.5% | Inadequate water supply |
| | Convert 40% of flat rate customers to metered customers. | (1676 flat rate connections) | (670 connections) to be converted to metered | Achieved 99 Customers only 14% | Expensive fittings to install the meters |
| | Reduce Arrears | (1,643,584 SSP) | (60% of 1,643584 SSP) (986,150 SSP) | Paid 837,434 SSP 50.9 % | Low willingness to pay the arrears |

(3) Management, Human resource, Finance division

| Dept | Indicator | Baseline in Jan 2019 | Target Value in Jun 2019 | Status to Date | Problem to Achieve Target |
|---------------------------------|--|--|---|---|---|
| Admin, HRM & Finance | Update of Structure Plan | No training and capacity building for admin & HR staff | To acquire broader knowledge and skills of human resources management | 4 Staff Achieved 50% 2 trained and 2 not | There was no plan and budget for training of admin and HR staff |
| | Communication and coordination between Depts. | There was no proper documentation and database system | Develop and improve departmental database. | Achieved 50% SMEC developed the database but not yet in use | The staff capacity on computer is not enhanced |
| | Update Nominal Roll | The nominal roll is combined for all stations of SSUWC | To control human resources management | Not achieved | Nominal roll is still combined |
| | (Promotion) | Staff stayed longtime in the same grade | To motivate the staff & raise their moral | Not achieved | Lack of clear system for evaluation and promotion of the staff |

The countermeasures against above mentioned progress are as follows.

(1) To increase the operation hours

(1 SSP ÷ 0.72JPY)

| S/No | Item | Unit | QTY/Day | QTY/Month | Cost/Day SSP | | Cost/Month SSP | |
|------|---------------------|-----------------|---------|-----------|-------------------|-------------------|-------------------|-------------------|
| | | | | | Nilepet 22 SSP | Market 220 SSP | Nilepet 22 SSP | Market 220 SSP |
| 1 | Fuel - Diesel | Ltrs | 750 | 22,500 | 16,500 | 165,000 | 495,000 | 4,950,000 |
| 2 | Aluminum Sulphate | Bags 50 kg | 9 | 270 | 94,500 | | 2,835,000 | |
| 3 | Chlorine | Barrel 45 kg | 0.5 | 15 | 25,650 | | 769,500 | |
| * | TOTAL AMOUNT | | | | 136,650 | 285,150 | 4,099,500 | 8,554,500 |

Note : Purchase expenses for generator fuel and chemicals are needed to increase operation hours

(2) To sustain the service

| From – to - | Operation hours | Supply Area | Remarks |
|---------------------|-----------------|---|---|
| 6:00 AM to 12:00 PM | 6 | Hamza Inn & Hospital Booster Pump | From 6:00AM to 12:00 PM, pump the reserve water at hospital booster pump to Munuki kiosks |
| 12:00 PM to 2:00 PM | 2 | Hospital Booster Pump & Munuki Kiosks | To fill the ground tank in HBS, and pump the water to Munuki kiosks |
| 2:00 PM to 7:00 PM | 5 | Hamza Inn & Hospital Booster Pump | |
| 7:00 PM to 4:00 AM | 9 | Zones: Zone (1): Hai Jalaba, Hai Jerusalem, Line Police, Hai Cinema Zone (2): Hai Amarat and Hai Thora Zone (3): Hai Kuwait, Munuki Block A, B and C | |
| 4:00 AM to 6:00 AM | 2 | WTP and HBS | To fill the ground tank at water treatment plant and hospital booster pump to reserve water for the following day |

Note : It is needed to supply water constantly and equally, and send invoice to as many customers as possible to increase revenue.

(3) To sustain the service

| Item | Customer Category | Number of Connections | | Billing & Tariff System | | | Revenue Projection/ Month (SSP) @ 90% Efficiency | |
|------|--------------------------------------|-----------------------|-----------|----------------------------------|--------------------------------------|--------------------------|--|-----------|
| | | Metered | Flat Rate | Metered Cost/ m ³ SSP | Ave. Consumpt m ³ / Month | Flat Rate Cost/Month SSP | Metered | Flat Rate |
| 1 | Domestic Customers | 250 | 920 | 125 | 12 | 1,200 | 337,500 | 1,242,000 |
| 2 | Public Institutions | 30 | 27 | 125 | 57 | 7,200 | 192,375 | 174,960 |
| 3 | Commercial | 18 | 11 | 125 | 484 | 50,000 | 980,100 | 599,197 |
| 4 | Hospital TFS | 1 | - | 125 | 15,000 | - | 1,687,500 | - |
| 5 | Munuki, Lologo and Juba Water Kiosks | 13 | 1 | 125 | 780 | 96,000 | 1,140,750 | 86,400 |
| * | TOTAL SALES (Monthly) | | | | | | 6,440,782 SSP | |

Note : Revenue is needed to supply water continuously.

(4) To achieve the above plan

In order to achieve the above goals, it is necessary to improve the working environment of the staff and make enthusiastic efforts. To promote reforms, SSUWC HQ and the Juba Station jointly prepared the "1st 100-day Performance Contract" (Appendix-9.5) based on the lessons learned in the remote training and expected to start the contract management from April 2019 by signing the agreement by MD and Area Manager. However, due to the delay in salary payment due to the deterioration of the national economy and the difficulty in procuring cheaper subsidized fuel, the Area Manager withheld the contract considering the less possibility to implement the activities to achieve targets of the contract.

After that, due to the change of Area Manager and the occurrence of the COVID-19 pandemic, the monitoring of the reform action plan was suspended. From June 2021 when the JICA Expert started the field activities, the Juba Station established the planning committee and updated the reform action plan.

In December 2021, based on the updated reform action plan, an annual report (2020/21) and an annual plan (2022) were prepared (Appendix 9.6), and a workshop was held with the HQ to explain and share the contents. In the annual plan, the operation and maintenance costs of existing facilities and revenues were forecasted. As a result of raising the water charge from 200SSP/m³ to 300SSP/m³ in November 2021, it was confirmed that the revenue could cover all maintenance costs. The MD of SSWUC was also convinced and indicated that she would operate the water supply business independently of the country and encouraged Juba Station for independent profitability.

5-8 Prepare SSUWC Headquarters reform action plan

Following lessons are learnt in the remote training through interviewing to NWSC HQ, station and branch office.

- Delegation of power for efficient management
- Clear function and target definition by level
- Performance contract management
- Clear reporting and communication system
- Strict and clear financial control
- Motivation and demotivation/punishment system (reward mechanism)
- Appropriate water tariff setting
- Running government enterprise as a commercial enterprise

The SSUWC HQ Reform Action Plan was prepared with lessons learned from the remote training. See Appendix 9.7 for details. The outline is as follows.

(1) Strengthened Institutional Capacity

- Preparation of SOP and manual
- Trial implementation of Performance contract

- Revision of SSUWC Law 2011
- Review and formulation of new corporate plan 2018-2021
- Establishment of Information Management Systems Department (IMS) with competent staff
- Coordination and strengthening of communication between branch offices and HQ
- Recruitment and improvement of staff, productivity and performance
- Preparation of staff composition table for SSUWC 2018/19
- Preparation of a training plan for 2018/19
- Coordination of the effects of urban water supply projects
- Improvement of the efficiency of project implementation among related parties

(2) Improved Financial Sustainability

- Secure funds for the project for water quality stabilization (sewage treatment)
- Integration of planning and budgeting and monitoring of budget execution
- Preparation of SSUWC budget
- Introduction of accounting software to accountant offices
- Revision and setting of new water tariff

(3) Sustainable, Efficient & Equitable Technical Operations

- Expansion of water pipe network at all branch offices
- Supply of chemicals to all branch offices
- Request and procurement of fuel / electricity required for all branches
- Request and procurement of required quantity of equipment and materials for maintenance
- Monitoring / evaluation and feedback of SSUWC projects

The progress of the reform action plan has been confirmed during remote training and at monthly meetings. Furthermore, based on the lessons learned in the remote training, above-mentioned performance contract between the HQ and the Juba station was prepared.

5-9 Prepare SSUWC HQ operation manuals and move on to trial

Outlines for operation manuals (Contents, targets and expected output) were studied in Term 2. In Term 3 and 4, the following manuals were prepared.

- Financial management manual (completed)
- Job description of the core department of the HQ (completed)
- Human resources manual (Draft)
- Procurement manual (Draft)

5-10 Overall findings in HQ management

(1) Capacity enhanced

Those capacity of top management of the HQ and Juba Station are improved through training:

- The ability to understand the necessity of reform, prepare the detail of reform action plan, and

monitor the plans was developed.

- The ability to examine the necessary activities, human resources and cost to implement reform action plan was developed.
- They started to prepare management manuals and gradually its ability is improved
- The ability to prepare job description of main departments through exercise and practice is improved. Job description of all departments should be prepared onward.
- Weekly meeting started in HQ.

(2) Challenges

- The ability to prepare and monitor the action plan are developed and the ability for plan implementation is under development through plan implementation.
- The number of staff and skills are not enough so that not all departments in the HQ are functioning.
- Since budget are not enough, it is difficult to support remote stations except Juba station.
- Improvement of internal communication is the first step and regular meeting are crucial.
- Top management of SSUWC considers that reform will not be implemented smoothly without functioning of the board, and training of governance to board members are required.
- Low motivation due to delay of salary payment and depreciation of salary due to depreciation of the currency is critical. There are many absentees. This situation can cause deterioration of the operation of HQ if this would continue.

5-11 Conduct an end-line survey regarding water works management, facilities operation and maintenance and customer satisfaction of Juba City.

In order to reduce the risk of COVID-19 pandemic, the customer satisfaction survey by social survey was canceled. At the end of the Project, the C/P's capacity of each section was evaluated. The evaluation survey of the capacity was conducted in a face-to-face survey using the questionnaire used at the start of the Project. The radar charts at the beginning (2016) and end of Project (2021-2022) were compared to evaluate the change in capacity.

5-11-1 Organizational core capacity

To confirm the change of the core capacity of Juba station since the start of the Project, the assessment of organization's core capacity was implemented with the Area Manager. The result is shown in the figure below.

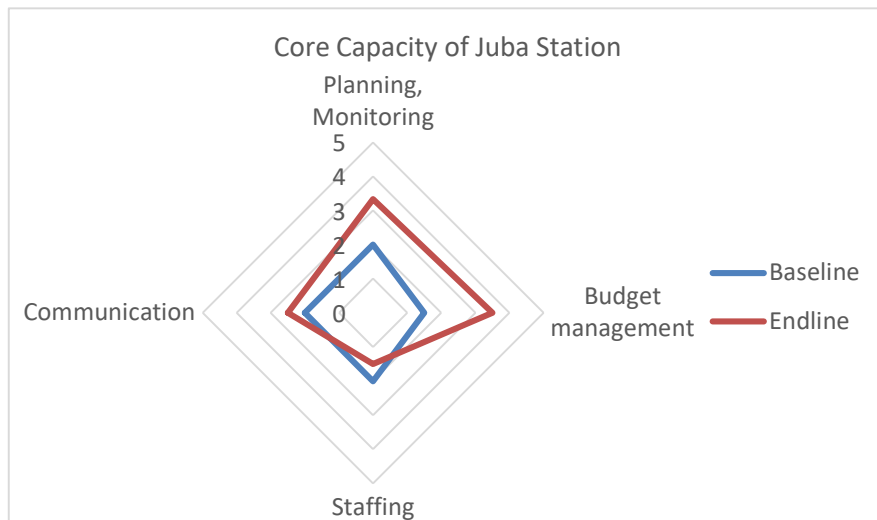


Figure 2-16 Changes in organizational core capacity of Juba Station

Three of the four items have improved compared to the baseline, but one, Staffing, has decreased. The reason is that staff attendance has worsened due to late payment of salaries, which has become common, a significant drop in real wages, which has reduced the incentive to work, and the lack of incentives due to the reactivation of the government block account system. The other three items, especially budget management, have been improved compared to the baseline. The budget was not allocated by the government and Juba Station prepared its own budget in its Annual Plan (2022). From the expert's point of view, implementation of budget is yet to come, and monitoring is also yet to come although the budget plan has been prepared. Therefore, it seems a bit high evaluation point at this stage. On the other hand, in terms of planning and monitoring, the annual plan (2022) was prepared and has been implemented since January 2022, and the monthly reports and PI have been prepared regularly, resulting in an improvement from the baseline. In terms of communication, the annual plan (2022) has been disseminated to the staff, and weekly meetings with the heads of each department have been held, which is improving from the baseline. The issue is that regular meetings with all staff members once a month, which the Area Manager want to implement, is not yet realized.

5-11-2 Capacity for operation and maintenance of treatment plant, transmission and distribution facilities, and water quality analysis and monitoring (organization / individual)

To compare with the results of the 2016 baseline survey, the staff members who have been enrolled since that time were included in the survey. The following tables shows the number of respondents in the baseline survey (2016) and the end-line survey (2021).

**Table 2-30 Number of people surveyed
For organizational core capacity**

| Section name | Baseline survey Y2016 | End line survey Y2021 | Number of respondents to both baseline and end-line surveys |
|--------------------|--------------------------|--------------------------|--|
| Distribution Div. | 1 | 1 | 1 |
| Purification Div. | 2 | 2 | 2 |
| Water Quality Div. | 1 | 4 | 1 |

For individual technical capacity

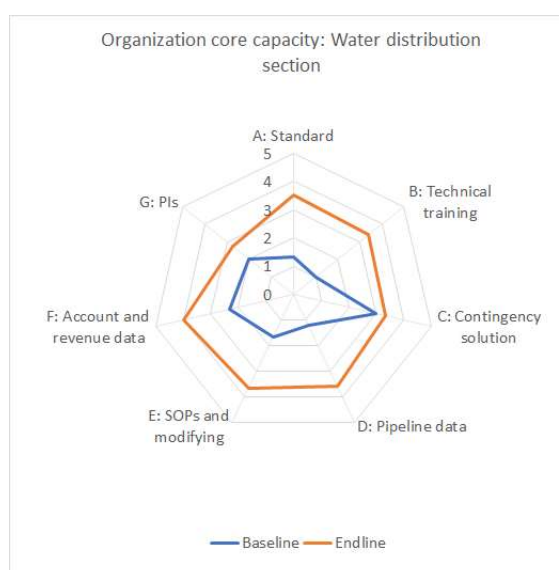
| Section name | Baseline survey Y2016 | End line survey Y2021 | Number of respondents to both baseline and end-line surveys |
|--------------------|--------------------------|--------------------------|--|
| Distribution Div. | 9 | 11 | 5 |
| Purification Div. | 11 | 16 | 10 |
| Water Quality Div. | 4 | 4 | 2 |

Due to the fact that there were employees who were not enrolled in SSUWC due to turnover, etc., it was not possible to compare all results between in 2016 and 2021. Therefore, the average was evaluated between 2016 and 2021. The analysis of individual technical capacity was performed for each group of Engineer / Officer (Classified staff) and Operator (Unclassified staff). The results of the capacity assessment are shown below.

(1) Water distribution section

Organization core capacity

Figure 2-17 shows changes in organizational core capacity. The capacities in A: Knowledge of various regulations and standards, B: Knowledge of technical training and planning, D: Knowledge of piping facility construction data, E: Understanding and revising the meaning of SOP, F: Financial planning and preparation of monthly reports were recognized as improved. From the Expert's point of view, all items have not yet been implemented by the C/P and appear to be in the developing stage, but the C/P seems to think that they are able to understand and implement them at their level.



**Figure 2-17 Water Distribution Section:
Changes in organizational core capacity**

Individual technical capacity

Figure 2-18 shows changes in individual technical capacity. All capacities in A: knowledge of valves, meters, irrigation analysis, B: knowledge of leak detection, measures against non-revenue water, knowledge of pipe laying work, C: preventive maintenance, D: recording and sharing of records have been improved for both Officer (Classified staff) and Operator (Unclassified staff).

In particular, Engineers/Officers (Classified staff) have more opportunities to create and share records such as construction management through the Project, so capacity D: The ability to create and share records has improved significantly.



Figure 2-18 Water Distribution Section: Changes in individual technical capacity

Expert comments

Capacity improvement was observed for both Classified and Unclassified staff, and it was recognized that the repair work for leaks was expedited. In addition, the works of leak repair, stock management, preparation of record tables, etc., are started and implemented systematically. Division of roles within the department was made and the leaders are emerging.

(2) Water Purification Section

Organizational core capacity

Figure 2-19 shows changes in organizational core capacity. The C/P recognizes the improvement of ability in A: organization, B: internal communication, C: document management, D: understanding of PI, E: technical training, F: equipment procurement and budget, and G: emergency response. From an expert's point of view, there are some items that are still in the process of being developed (for example, understanding D: PI, F: procurement of materials and equipment and budget), but the C/P seem to think that they are able to understand and implement them at their level.

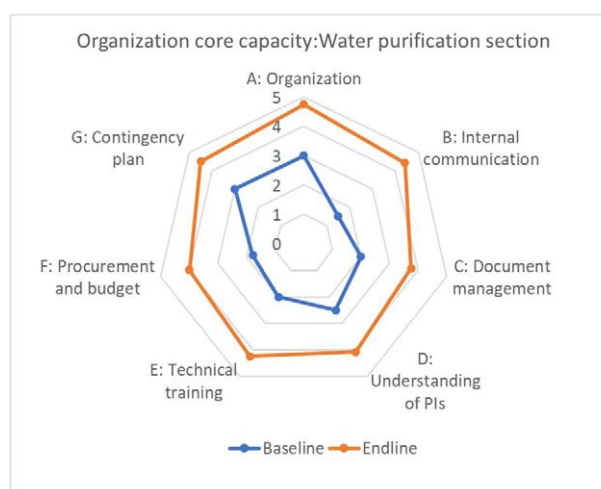


Figure 2-19 Water Purification Section: Changes in organizational core capacity

Individual technical capacity

Figure 2-20 shows changes in individual technical capacity. The C/P recognizes that A: knowledge of waterworks operation management and SOP, B: knowledge of coping with power outages, and knowledge of generator operation have improved. The ability C: The motivation to learn was same as the baseline survey for both Engineer/Officer (Classified staff) and Operator (Unclassified staff), but Engineer/Officer (Classified staff) tended to be more motivated. Increasing the learning motivation of Operators (Unclassified staff) is an issue, but for that purpose, it is necessary to improve the employment situation and salary payment situation and to make SSUWC a stable workplace.

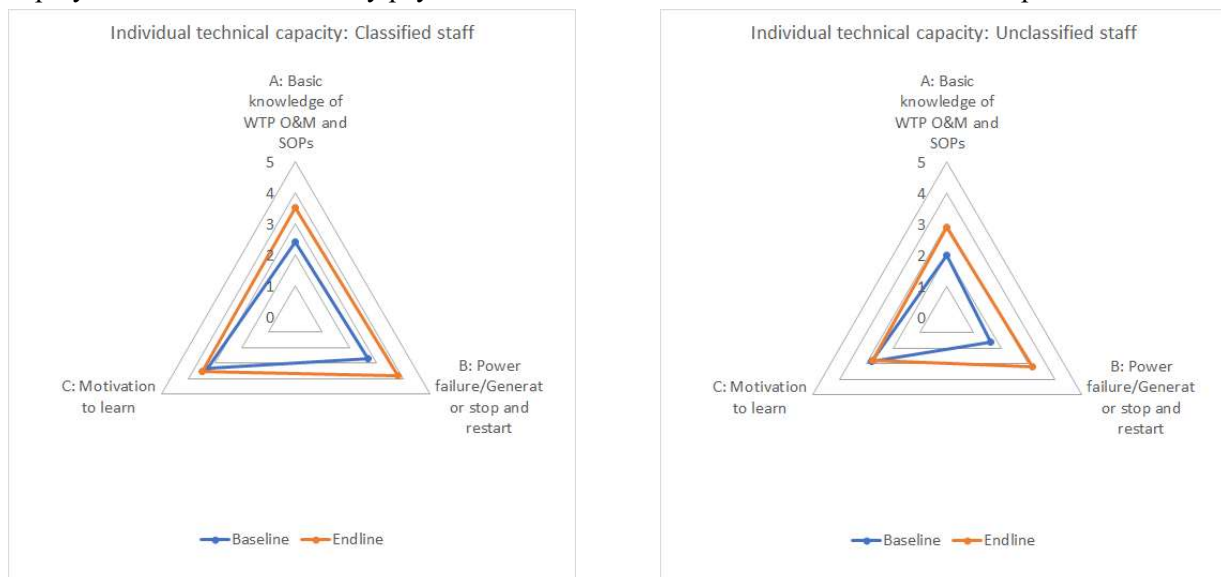


Figure 2-20 Changes in individual technical capacity

Expert comments

The water purification department has important roles within the organization, and it was clear that their skills of operation and report preparation were improved by the Project.

Juba Station continues to operate the water supply facilities by the support of JICA and other donors. For this reason, they do not distinguish difference between own purchase and support. In the future, it is necessary to improve the financial situation so that the necessary materials are purchased from the revenue of Juba Station.

Regarding individual technical capacity, there is no significant difference between classified staff and unclassified staff, but the remote training in Uganda for unclassified staff focused on machinery (generators, pumps, blowers, valves) and electrical equipment so that the capacity of this field has been greatly improved. However, there are some staff members who have improved operation and maintenance capacity for machinery and electrical machinery but who does not have enough knowledge of water treatment. The challenge is that they need to perform maintenance on machinery and electrical equipment with knowledge of water treatment.

(3) Water quality monitoring section

Organizational core capacity

Figure 2-21 shows the changes in organizational core capacity. The C/P recognizes that the knowledge of the D: operation manual and SOP has been greatly improved, and the G: training opportunities have improved. Regarding the D: operation manual and SOP, the knowledge was improved through using the SOP in the work and remote training. Regarding G: training opportunities, the section recently begun to teach internship students in University of Juba so that they are interested in conducting the training by themselves.

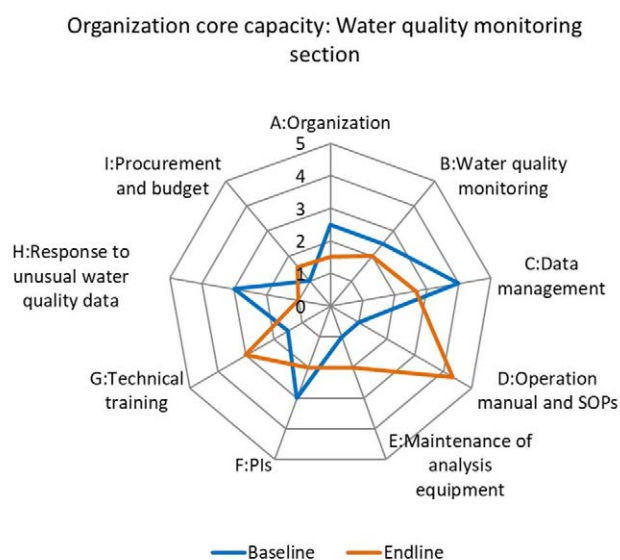


Figure 2-21 Water quality monitoring section: Changes in organizational core capacity

Individual technical capacity

Figure 2-22 shows changes in individual technical capacity. Operator (unclassified staff) scores are increasing in A: basic knowledge of water quality monitoring, B: understanding of SOP, and C: advice to waterworks operators. Since A and B are the items that have been the themes of the remote training and online seminars, it is considered that the C/P recognized the improvement of knowledge through the training. In addition, C: advice to waterworks operators has increased scores for both classified staff and unclassified staff. This is possible due to the establishment of the cooperation between the water quality analysis section and the water purification section through the joint workshops and seminars.

On the other hand, the learning motivation of unclassified staff is declining. Increasing the learning motivation of Unclassified staff is an issue for future project, but for that purpose, it is necessary to improve the employment situation and salary payment situation and to make SSUWC a stable workplace.

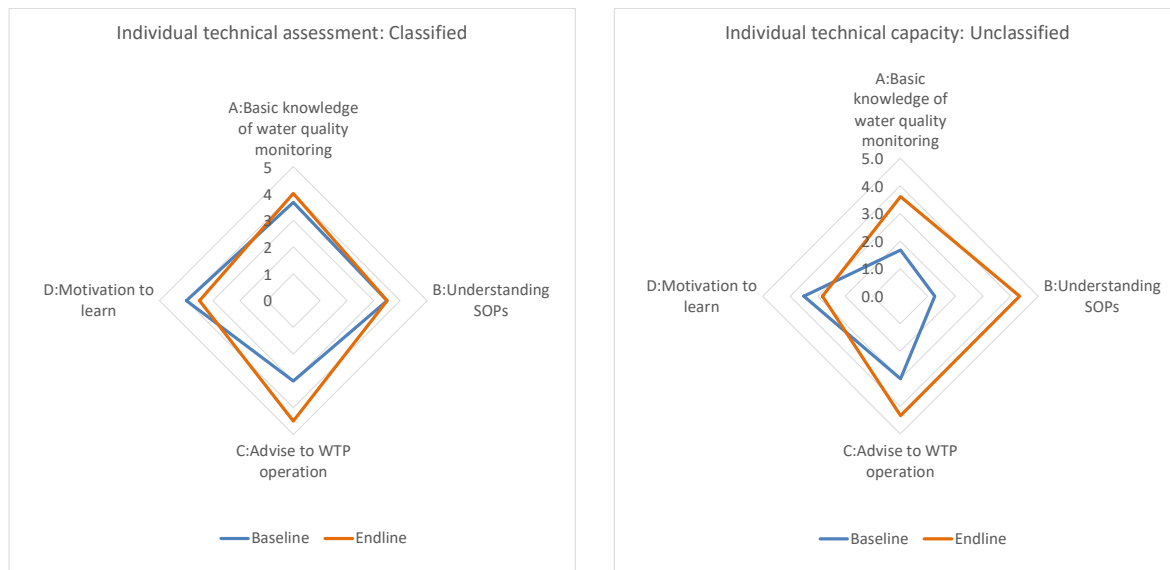


Figure 2-22 Water quality monitoring section: Changes in individual technical capacity

Expert comments

The water quality monitoring section has continued water quality analysis, learned how to use water quality analysis data through the expert seminars, and is giving advice on water treatment plant operation. In addition, the acceptance of internship students from the University of Juba will further improve their technical capacity through teaching to them.

Most of the water quality analysis equipment cannot be used due to failure, and the measurable items are limited. In addition, the space and number of staff in the laboratory are not sufficient considering that the new water treatment plant will start operating in the future.

5-11-3 Charge collection, financial capacity (organization / individual)

Organizational Core Capacity

Changes in organizational core capacity in terms of finance are shown in Figure 2-23. One item (commercial loss) has worsened from the baseline due to an increase in outstanding from customers as a result of the worsening economic situation. There is no change from the baseline in terms of organization and staff, and staff numbers are still inadequate. The other three items have improved, and the expert has same view.

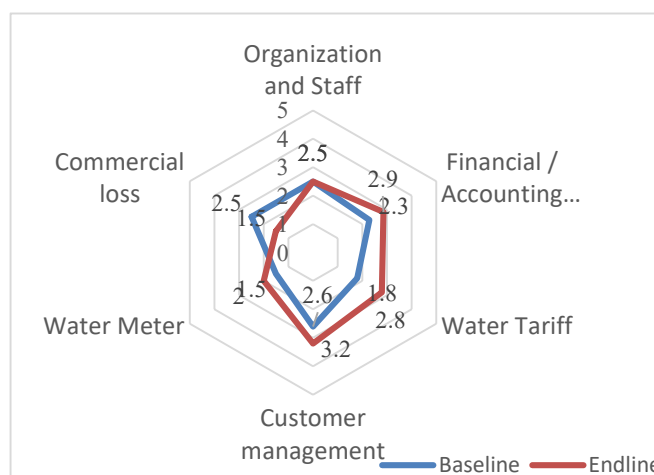


Figure 2-23 Account and Revenue: Changes in Organizational core capacity

Individual technical capacity

The change in individual technical capacity is shown in Figure 2-24. Although the same staff members were not assessed due to the leave of absence or transfer of staff members at the baseline, the assessment was conducted mainly with the staff members who participated in the remote training in Uganda. All of the items have improved compared to the baseline, but some of them, such as customer management and water tariff, have improved to a lesser extent. The Finance and Accounting Department is divided into two sections: accounting and revenue

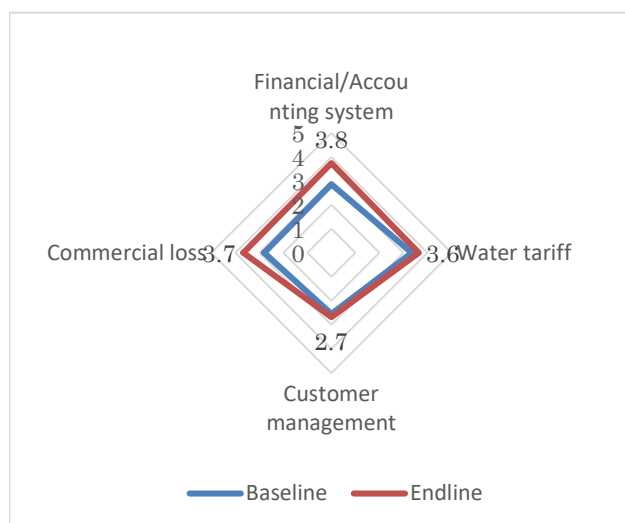


Figure 2-24 Account and Revenue: Changes in individual technical capacity

(customer data management and revenue collection). While each of them has improved from the baseline in the items for which they are responsible, their understanding of the areas for which they are not responsible was similar to the baseline. Therefore, the average for the entire finance section does not see much improvement.

Expert Comments

The Commercial and Revenue Department was greatly affected by the leave of absence of the head of the Revenue Section, who had been implementing the project since the beginning of Phase 1, the loss of the staff member who had been in charge of accounting, the transfer of staff between departments, and the intervention of the NRA. However, the C/P have continued to do what they can do within those constraints, which has led to an increase in the capacity of the organization and individuals. The next step is to promote technology transfer among the C/P, which will hopefully lead to more improvement of the department as a whole.

5-11-4 TSP (Kiosk), TSF capacity (organization / individual)

Organizational Technical Capacity

The change of organizational technical capacity is shown in Figure 2-25. There is no specialized section in the management of Kiosk and TFS, so that this capacity assessment was targeted for the staff of Commercial and Revenue dept. and carried out for organizational capacity. As for the management of TFS, the capacity assessment was out of scope because the management responsibility was transferred to SSUWC HQ in 2018.

In overall, the result of technical capacity is slightly worse. The areas which are getting worse than the baseline are: A. Information management, C. Sales price, F. Reading and collection, G. Supervision. While

the areas which are getting better is B. Manual and E. Facility management. The score of D. Contract Management is same as the results of baseline.

Expert Comments:

The management of Kiosk and TFS has been carried out by the limited staff in Commercial and Revenue dept. since the phase 1 project. The result of capacity assessment is thought to be influenced by the following factors.

- The head of who has been dealing with the management of Kiosk and TFS since the phase 1 project is taking a long-term leave at present.
- The works on the management of Kiosk and TFS is not sufficiently handed over to the succeeding person as the acting head.
- Due to inadequate water distribution and broken distribution pipes, only one of the three kiosks was actually supplied with water, so there was little real management work to be done.
- Meter reading and collection tend to stagnate due to non-payment of allowance to the staff and the intervention of NRA.

Current acting head of Commercial and Revenue dept., however, is proactive to absorb and learn information relevant to Kiosk management, management method, and facility management. It is expected that the knowledge and capacity of the head will be more developed. Also, it is necessary to build up not only individual capacity but also organizational capacity because the number of Kiosk constructed by the grant project becomes large.

2.4.6. Other activities (Monitoring sheet, Training building, Procurement of equipment and materials, etc.)

(1) Submission of monitoring sheet

The progress based on the work plan was reviewed, the plan was revised if necessary, and the monitoring sheet version 6 was submitted to JICA.

(2) Construction of training building

Design and cost estimation of training building was completed in May 2016 and examination of pre-qualification, distribution of tender documents was implemented, and tendering was scheduled for middle of July 2016. However, tendering was suspended due to the civil conflict in July 2016. Plan drawing of training building is shown in the following figure.

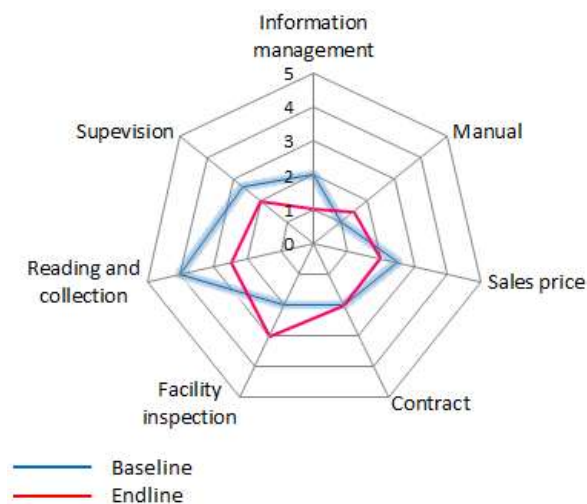


Figure 2-25 Change of Management Capacity Result of Kiosk : Organizational Technical Capacity

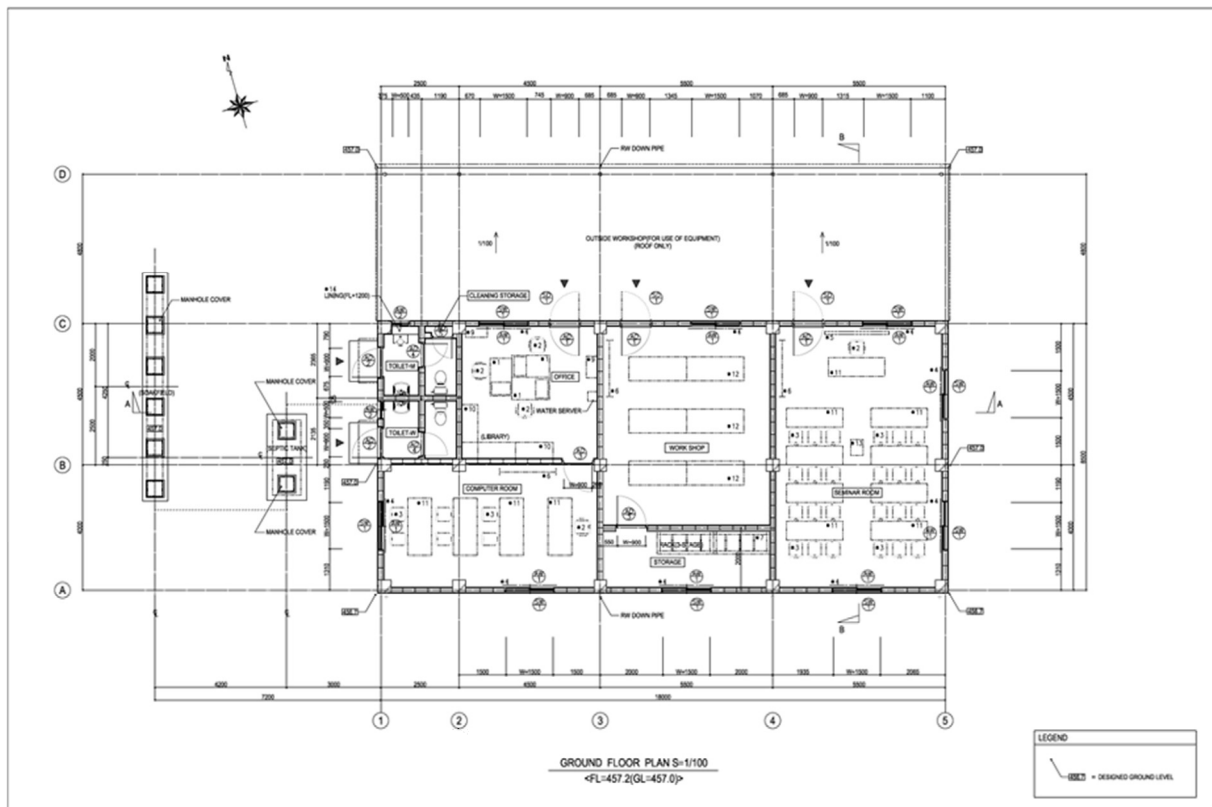


Figure 2-26 Floor plan of the training building

In the 3rd JCC, it was agreed to abandon the construction of the training building in the Project. However, in the successor project, it was decided to consider its construction again.

(3) Procurement of materials and equipment

The materials and equipment described in 2.1.4 were procured.

3. Issues, Countermeasures and lessons learned on Operation

(1) Continuation of project activities in neighboring country with the evacuation from sites due to the civil conflict

1) Issues

Project activities on site were suspended because of evacuation in July 2016 due to civil conflict.

2) Countermeasures

- Remote training programs were implemented twice by summoning the counterparts to the neighboring countries; Uganda and Kenya.
- Thanks to the rapid response of NWSC, joint training was implemented using local resources of NWSC starting within one month from the first visit to NWSC.
- Remote training also became effective using the local resources of KEWI in Kenya.
- Training was conducted not only through classroom lectures, but also by incorporating more practical activities including visit to site and using actual facilities of NWSC, and visits to local factories of pipe materials and chemicals.
- Remote training was implemented in Term 1, 2 and 3.

3) Lessons learned

- After the conflict erupted, all international organizations left the country and the Project was suspended; however, only the technical cooperation project of JICA continued without forgetting SSUWC, and thus received the utmost gratitude from the Managing Director of the SSUWC. In addition, the Area Manager of Juba Station also expressed his gratitude, saying that without JICA support, the water supply in Juba would not have been able to continue. As given in the textbook of JICA's Capacity Development, working together with the counterparts when they are in difficulty is a very important element in enhancing capacity building activities. Relationship of mutual trust with the counterparts has deepened.
- Although trainings used to be held on site in South Sudan, issues arose such as the counterpart was busy at work on site, training hours were limited and participation rate was low. However, the remote training provided opportunity for full time focused training over one to two weeks. Integrated knowledge could be acquired, leading to a meaningful training program.
- The number of staff who were able to participate in the training in Term 1 was 30 out of about 176. The JICA team could see that they were aware of the fact that they were chosen to come to Uganda, that they would be the leaders of the SSUWC, and that they would have to take responsibility for the operation and maintenance in SSUWC.
- On the other hand, many comments were received from the counterpart that the training period was too short. There is no limit to the topics that can be covered in the training; therefore, training should be planned after firmly deciding the objectives.
- The cooperative work with NWSC has built up relationship of mutual trust. Henceforth, together with KEWI, with whom relationship of mutual trust has also been built in the Phase 1 project, NWSC can be effectively utilized for technical cooperation in South Sudan.

(2) Sharing best practices and know-how of NWSC

1) Issues

SSUWC needs reform, but they don't know how to proceed.

2) Countermeasures

After institutional reform, NWSC has been developed as one of the best water supply utilities in Africa. By sharing this reform, JICA Expert assisted SSUWC in initiating the implementation of fundamental reforms. This also leads to improvement in the performance of Juba Station.

3) Lessons learned

The lecture from NWSC, which actually succeeded in the reform, is convincing. The C/P were also listening very enthusiastically. It is effective to continue to strengthen the capabilities of SSUWC through joint training with NWSC. Japan's technology and management methods are so advanced that there is a limited scope for technology transfer directly from Japan to South Sudan. The technology of neighboring countries is similar to that of South Sudan (for example, public tap) and also similar in the way they manage. Therefore, it is easily accepted by SSUWC staff.

(3) Enhance awareness of top management of water administration in the national government by participation in the third country training in PPWSA (Cambodia), which had a civil war like SSUWC and achieved the reform

1) Issues

In order to effectively implement the waterworks reform of SSUWC, active participation and commitment of top management of water administration is essential.

2) Countermeasures

By participation of the Minister of MWRI to the training on HQ reform in Cambodia, successful experience of PPWSA reform was shared with the Minister. This aimed to promote reform of SSUWC and improve understanding of waterworks management. This participation is a proposal by the executive of SSUWC HQ. It was extremely difficult to obtain Minister's visa for Cambodia, whose travel was decided hastily. Finally, the visa was granted by the Embassy of Cambodia in India and Minister participated in the training.

PPWSA had no functioning organization, facilities, or governance after the long civil war, but as a result of rehabilitating its facilities and training its human resources under the former managing director, it was able to significantly improve its water supply coverage and non-revenue water ratio in a short period of time, and its achievements have been called the "Miracle of Phnom Penh. The training was planned with the goal that SSUWC, which has suffered from a similarly long civil war, will be able to emulate the reforms implemented by PPWSA and promote similar reforms. The lectures were very realistic, as they were given by a team of senior officials who had accomplished reforms, led by the former managing director of PPWSA. In particular, he gave a realistic account of how he broke down the problems, prioritized what to do, what initiatives to

take, how to improve staff morale, and how to solve the problems, citing examples. He explained that managers must have the 3Hs (Head, Heart, Hand) in order to accomplish reforms. This is equivalent to thinking with one's head, having a passionate heart, and taking the initiative.

3) Lessons learned

The Minister and SSUWC executives understood that the situation in PPWSA after the civil war was the same as the current situation in SSUWC, and that if reforms could be accomplished, water services could be improved in the same way. They learned that the 3Hs are important to achieve the reform. The significance of this training is that the participants learned that they too can make reforms and improve the waterworks business through concrete explanations from those who have actually accomplished reforms.

After participating in the training, the minister's understanding of the waterworks management increased, and the willingness to participate in waterworks management was also enhanced. The Minister has leadership to coordinate the works like procurement of fuel for generators. Furthermore, even during the busy period of the peace meetings, the Minister left the meeting and participated in the 2nd remote JCC meeting in Uganda with the consent letter of other ministers and requested JICA to resume grant aid projects.

(4) Foster ownership of reform activities by creating a reform action plan respecting initiative of the C/P

1) Issues

In many cases, when preparing a reform action plan, large input from the JICA Expert is required so that the JICA Expert analyze the issues and lead the preparation of plan. As a result, the ownership of the C/P is lost in the prepared plan, and implementation may not proceed.

2) Countermeasures

In preparing this reform action plan, from the beginning to the end, the originality and initiatives of the C/P is respected, and the plan is prepared on their own. The role of the JICA Expert was to assist promoting discussion within the C/P, provide overall comments on prepared documents, and presentation of templates for activities. Following steps were taken to prepare the plan. The planning procedure was carried out as shown below, and their skill of planning was developed under this process.

1. Share the history of reform of NWSC by remote training, and enhance reform mind
2. Create reform agenda (for HQ) in home country and remote training
3. Draft the reform action plan (HQ and Juba Station) at the training in Japan
4. Brush up the draft plan (HQ and Juba Station) at the training in Cambodia
5. Create a template for detailed activity plan of each department
6. Create detailed activity plan as homework for each department
7. Present, discuss by whole and group, and finalize the plan by remote training

3) Lessons learned

The plan was put into practice and a total of three implementation monitoring activities were conducted. The C/P independently measured and monitored the implementation results and presented the results in a remote training. In addition, countermeasures were shown for activities whose performance index values did not improve.

After that, due to the change of the Area Manager, retirement of several department staff, and the occurrence of the COVID-19 pandemic, monitoring of the action plan of Juba Station was suspended. As the COVID-19 pandemic subsided and the JICA Expert began site activities in June 2021, Juba Station established its own planning committee to update the action plan and updated the activity plan. Although the activity was temporarily stopped, it was possible to update the plan based on the planning template and resume its implementation.

The update of the action plan was carried out by the C/P alone, and it was found that they have the ability to formulate the plan. This was done in the midst of the NRA issue. It is unclear from where such motivation was found, but it is possible that this resumption of the plan update process was a factor which strengthened its power to recover revenue collection from the NRA.

- (5) Enhancement of training management using reliable local staff and by addition of official assignment of project coordinator

- 1) Issue

While implementing remote training, it is very difficult to summon 30 or more counterparts from South Sudan, provide lodging and feeding facilities to them, and manage the training program. Especially in Term1, the airplane tickets and insurance were purchased in the South Sudan, the coordination with local staff under the circumstances of bad communication due to no electricity supply was too difficult.

- 2) Countermeasures

Even after the conflict, local staff continued to be employed in Juba. All communications with SSUWC and personnel dispatches were handled locally. This could be realized only because reliable local staff who has been continuously utilized since the preparation of JICA's Water Supply Master Plan in "Juba Urban Water Supply and Capacity Development Study in the Southern Sudan" was available. The Project coordinator as well as local staff were officially assigned, and they managed the logistics required for the training for the C/P. It would have been very difficult for the JICA Expert who were providing training to the C/P to manage more than 30 counterparts without these staff members. Assignment of project coordinator was very helpful.

In Term 1, the coordinating work for dispatching the C/P was basically done locally through the local staff, but there was a problem of effective coordination due to the bad communication situation. For example, to purchase the air tickets, the local staff was dispatched to Uganda and he reserved and paid for the air tickets but coordination took long time. In Term 2, air tickets were

purchased and paid in Japan so that the coordination work was reduced. Other coordination and payments were also made in Japan as much as possible which helped simplify the coordination work. As a result, mistakes in communication and coordination were also reduced. In order to instruct the remote operation mainly from Japan, man-month of project coordinator was shifted from local assignment to home assignment.

3) Lessons learned

Continuous employment of reliable local staff even after occurrence of the civil conflict helps in the event of an emergency and provides effective and efficient support.

To reduce the risk of coordination work at the remote site due to deterioration in communication conditions, etc., the coordination and payments which can be done in Japan should be done in Japan.

(6) Difficulty of working by remote operation (before COVID-19 pandemic)

1) Issues

- The biggest issue of capacity development by remote training is that field training (OJT) at site cannot be implemented.
 - Training or instruction such as proper repair methods of leakage, proper connection method of water supply pipes can only be done at the site, and it is difficult to teach by remote.
 - The method of equal water distribution can be instructed in remote but the result cannot be confirmed by remote.
 - OJT on chemical injection, O&M of filtration, pump and generators was made using the facilities of NWSC, but it is difficult to confirm how those are utilized at site in Juba.
- Since access to the site is not possible, data required for training cannot be collected easily.
 - The match between billing & collection database and GIS database was done as much as possible, however, there are still many unmatched customer information. Those should be confirmed at the site with the C/P.
- It is difficult to manage C/P's homework. Once they face the problems, they stop the exercise of homework because they cannot ask them to JICA Expert timely.
- Due to bad communication situation, it is difficult to take close communication with the C/P as the communication methods are limited.

2) Countermeasures

- Communication with local staff is taken by Skype. Instruction is given to the C/P through the local staff.

3) Lessons learned

- Instruction and obtaining of data by remote control is inefficient and enough data collection or enough communication cannot be achieved by this method.
- It is necessary to improve the situation by finding solutions to the issues of remote

implementation of the Project:

- OJT method
- Method of confirmation of the capacity obtained in remote training
- Effective method of data collection
- Procurement of equipment and materials and OJT using them

(7) Communication method during a COVID-19 pandemic and enhancement of self-initiative (after COVID-19 pandemic)

1) Issue

- It was necessary to remotely carry out the project activities during the COVID-19 pandemic.

2) Countermeasures

The expert team has started regular meetings and seminars on the web. In addition, the expert team started committee work, seminar and workshop according to needs. The contents are as follows.

- Progress meeting with Juba Station every other week (42 times including headquarters meeting)
- Progress and status report meeting with headquarters every other week (later it was changed to every month)
- Meeting of Finance Committee (8 times)
- Meeting of planning and database workshops (7 times)
- Water quality seminars (12 times)

Monthly reports and PI must be submitted by the C/P at every monthly meeting. In addition to bi-weekly meetings to check the progress of project activities, the expert team established task teams (committees, etc.) to respond to needs and issues, had the C/P respond to issues, and had the C/P present the results at seminars and workshops.

3) Lessons learned

Web conferences and seminars have dramatically increased opportunities for communication between all experts and all counterparts. In the case of normal site work, only the experts who participate in the site work can communicate locally with a specific counterpart, but all the experts and the C/P can participate in web meeting. Therefore, information and data could be shared efficiently. In addition, lectures and exercises can be conducted. It is safer and more efficient to carry out regular reports such as monthly meetings on the web, avoiding face-to-face meetings where many people gather.

On the other hand, it is still not possible to respond to activities that are directly instructed in the field by communicating on the web. For example, these include the method of observing the water quality of the water treatment process and instructing the improvement method, the method of maintaining the generator, the method of calibrating the water quality measuring device, and the like.

The expert team believes that the independent work by setting up the committee contributed to the improvement of the C/P's initiative, especially in strengthening the teamwork's ability to respond to the issues. In addition to the task teams created by the expert, the C/P established its own committee for inspection and disconnection to improve its rate revenue. Furthermore, when the experts suggested the resumption of the action plan, the C/P formed its own action plan team and conducted an update of the action plan, which led to the preparation of the annual report and annual plan. Since the plan was prepared by themselves, they are implementing the plan with self-initiative.

(8) Inadequacy of basic knowledge and computer skills of the counterparts

1) Issue

- Their math and language skills are not high; so training using calculations and training involving preparation of reports are difficult.
- Since personal computers are few in SSUWC, the frequency of using computer programs such as Word and Excel is low. The number of persons who can calculate performance indicator or prepare reports is limited.

2) Countermeasures

- In the 1st remote training, high potential C/P in calculation who belongs to public awareness group was transferred to financial group and low potential C/P (meter reader) in calculation who belongs to finance group was transferred to public awareness. Meter readers are always contacting with the residence so that they are appropriate persons for public awareness. Therefore, more effective training was attained in both programs.
- In the 1st remote training, 7 sets of laptop computers were procured by JICA Expert team in Uganda and brought back to Juba by the C/P. By increasing environment of using PC as much as possible, it was tried to enhance the capacity to use PC.
- In the training of water quality analysis, the JICA Expert brings PC, and exercise to prepare the report using the data which the C/P recorded, so that capacity to summarize the water quality data and skill to use Word and Excel are enhanced.

3) Lessons learned

- Although the PC usage capacity of the main C/P has improved, it is still in the beginner's range. There is a need for systematic computer training and practice.
- Other than the main C/P, many staff still can't work using a PC. Systematic training and practice needed to enable more staff to use PC.

(9) Development of improvement plan based on the history and practice of NWSC

1) Issues

SSUWC couldn't recognize what to improve.

2) Countermeasures

SSUWC learnt the history of NWSC in Term 1. The Improvement Action Plan was developed after the lecture. To understand outcomes of reform in NWSC and its current situation, SSUWC visited NWSC HQ, station and branch offices and learnt actual operational methods.

3) Lessons learned

Based on above trainings, Initial 100 days Performance Contract was developed between Juba Station and HQ. Outline was confirmed among the C/P by lecture and interview at site. Then detail contract was made in workshop during the remote training.

It was planned to sign a contract between the Juba Station and the headquarters and start implementation, but the contract has not been signed because the procurement capacity of fuel, chemicals, etc. required to operate WTP has deteriorated due to the deterioration of the national economy.

(10) Conducting remote trainings for new staff members to increase motivation

1) Issues

It is necessary to target an increased number of staff who hasn't attended trainings in order to increase motivation.

2) Countermeasures

Implementing remote trainings for more maintenance staff led to positive motivation.

3) Lessons learned

The remote training was well received by the maintenance staff of the water supply facilities who attended it. The JICA Expert believe that it has expanded the capacity of and increased the motivation of maintenance staff.

4. Achievement Status of the Project

The degree of achievement of the project goals was reviewed based on a 6-item evaluation as follows.

(1) Evaluation viewpoint

| | |
|----------------|---|
| Relevance | <p>Ask the legitimacy and necessity of the project.</p> <ul style="list-style-type: none"> • Is it consistent with the policies of South Sudan? • Does the project goal meet the needs of the beneficiaries? • Is the project approach appropriate as a solution to problems and issues? |
| Coherence | <p>Ask the integrity of the project.</p> <ul style="list-style-type: none"> • Is it consistent with Japan's aid policy? • Is it collaborated with other projects and support within JICA (synergistic effects / synergies)? • Is it consistent with other projects in Japan and support from other donors? |
| Effectiveness | <p>The question is whether the project's goals have been achieved and benefits have been brought to the beneficiaries and target society, mainly through the implementation of the project.</p> |
| Efficiency | <p>Focusing mainly on the relationship between project input and results, ask whether the invested resources are being used effectively.</p> |
| Impact | <p>Ask about the positive and negative changes brought about by the implementation of the project. Includes direct and indirect effects, predicted and unexpected effects.</p> |
| Sustainability | <p>Ask if the effects produced by the project will continue even after the end of cooperation.</p> |

(2) Evaluation

The self-review of the Project based on the 6 viewpoints of evaluation is shown below.

| | |
|-----------|--|
| Relevance | <p>The Project is in line with the development policies and needs of South Sudan and Juba. The validity is evaluated as high.</p> <p>1. Consistency with South Sudanese policy</p> <p>In November 2007, the Southern Sudanese government (at that time) enacted the "Water Policy", in which urban water supply and sanitation were regarded as one of the priority fields along with water resource management and local water supply. "Providing equally safe, payable and reliable urban water and hygiene services to urban residents, including the poor and vulnerable", "Financial sustainability through efficient management practices and effective revenue generation mechanisms", "Promotion of technical and management training for staff working at all levels of urban water and hygiene services for organizational improvement", etc. are set as goals. In addition, in the South Sudanese Government's National Development</p> |
|-----------|--|

| | |
|--|---|
| | <p>Strategy 2018-2021, the restoration and expansion of basic services is positioned as one of the priorities, and the construction and restoration of urban water and sanitation facilities is one of the priority actions within the economic cluster. The goal of the Project is in line with the goal of the government, and the Project can contribute to the achievement of the goal of the national sector plan.</p> <p>2. Relevance for beneficiary needs</p> <p>Due to limited water treatment capacity, distribution network, and the effects of water leaks, the proportion of the population currently supplied with safe water in Juba is roughly estimated to be about 10% of the total population (estimated to be 600,000 to 800,000). Many residents who do not get piped water service rely on shallow wells, private treated water distributors, and water trucks that transport river water as is and sell at high prices. These problems include outbreaks of waterborne diseases due to poor water quality, and pressure on household budgets due to the high purchase cost of water.</p> <p>Due to the fact that water tariffs are set at low prices on a flat-rate (partially metered) basis, and due to insufficient understanding of water tariffs among users, tariffs are not set and collected in a manner that is appropriate and necessary for the operation and maintenance of water services. Furthermore, due to the problem of revenue collection by NRA, SSUWC Juba Station has not been able to generate sufficient revenue. Therefore, sufficient budget for repairing and maintaining aging facilities and pipes has not been secured. Improving the ability to collect water charges and water supply services was an urgent issue. Improving the water service management capacity of SSUWC is in line with the needs of beneficiaries.</p> <p>3. Validity of approach</p> <p>In the development study "The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation" conducted from 2008 to 2009, a master plan was formulated centering on facility development to cope with population growth and facility shortages in Juba City. At the same time, it recommended to strengthen the capacity of SSUWC Juba Station to implement water services in Juba City. In order to achieve the overall goal of "Safe and clean water is supplied in a reliable manner in Juba", it is essential to strengthen the capacity of the Juba Station to provide sustainable services. It includes an approach to strengthen the capacity of water quality management, water distribution management, and to enable SSUWC Juba Station to collect sufficient water revenue for operation and maintenance. To that end, it is also necessary to improve the understanding of Juba citizens, who are consumers</p> |
|--|---|

| | |
|-----------|---|
| | <p>of tap water, regarding safe water, water tariffs, and SSUWC's efforts. Thus, the Project also includes public awareness activities. From the above, it could be evaluated that the approach is appropriate.</p> |
| Coherence | <p>The coherence of the Project is high.</p> <p>The Project is consistent with Japan's aid policy and other projects, as well as with support from other donors. Coherence is evaluated as high.</p> <p>1. Coherence with Japan's aid policy</p> <p>Japan's Development Plan for the Republic of South Sudan (2011) stipulates "support for improving basic living" as a priority area for assistance, and the Project is in line with this plan. In addition, in the TICAD7 Yokohama Action Plan announced in August 2019, Japan has stated that it will work on "support for sustainable urban development." It could be evaluated that by enhancing the access to safe water supply the Project will lead to sustainable economic growth and improvement of living conditions of residents in Juba City.</p> <p>From the above, it could be evaluated that it is consistent with Japan's aid policy.</p> <p>2. Coherent with other projects in Japan and support from other donors</p> <p>In order to improve the inadequate operation and maintenance of water supply facilities and financial condition of SSUWC Juba Station, the Japanese government conducted a development study "The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation" from 2008 to 2009. Based on the master plan formulated in the study, the technical cooperation project "The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation (Phase 1)" was implemented from 2010 to 2013 for Juba City to strengthen the capacity of SSUWC Juba Station. The Project strengthened the operation and maintenance capacity and water quality monitoring capacity of water supply facilities.</p> <p>In addition, the Project planned to collaborate on the implementation of technology transfer for the operation and maintenance of the new facilities to be constructed under the grant aid "The Project for the Improvement of Water Supply System of Juba" scheduled for completion in September 2017. However, the construction was delayed, so the Project could not collaborate with the grant aid construction project, but the improved capacity in operation and maintenance of SSUWC by the Project can be utilized after the facility is constructed.</p> <p>Regarding support of other donors, AfDB is in the process of rehabilitation and</p> |

| | |
|---------------|---|
| | <p>expansion of Juba's existing water distribution network and facilities. There is no overlap with the Project. UNICEF is constructing a water treatment facility (4,600 m³/day) in an internally displaced persons' camp in the southern part of Juba, and ICRC is constructing a water treatment facility (7,200 m³/day) in the Gumbo area on the opposite bank of the Nile River in Juba. GIZ is assisting in establishing water supply utilities, which will implement future operation and maintenance of the facilities constructed by UNICEF and ICRC. KfW is also making financial support to UNICEF project. UNICEF and ICRC are not assisting through the central government. All donors provide the support with priority given to the safe water supply to the residents from a humanitarian point of view, dividing the project areas among the donors, although the approach is slightly different from that of the Japanese side, which supports through the central government.</p> |
| Effectiveness | <p>The effectiveness is generally evaluated to be high although there was a significant unfavorable impact of external factors.</p> <p>In order to achieve the overall goal of “Safe and clean water is supplied in a reliable manner in Juba”, SSUWC Juba Station needs to achieve the project purpose of “The capacity of SSUWC Juba Station regarding sustainable service delivery (financial management, non-revenue water management, facilities operation and maintenance) is strengthened”. It is evaluated that the project purpose has been generally achieved as shown in the achievement status of the outputs although there were issues such as evacuation due to deteriorated security in South Sudan and remote support from Japan due to COVID-19 pandemic. In addition, positive results are seen in each activity.</p> <p>During the period when operations could not be continued on site, remote training was implemented in the successful water services institutions in Uganda and Kenya in Africa. In this training SSUWC could visualize the future image of SSUWC and incorporate activities that can be introduced into SSUWC among the activities needed for improvement at that stage. These activities led to an improvement in C/P's motivation and contributed to the achievement of the outputs.</p> <p>On the other hand, due to the significant impact of the following factors, some indicators related to water tariffs could not be achieved for a period of time. These factors include: a significant depreciation of the exchange rate (down to about 1/50th (2% of the value at the start of the Project)); insufficient procurement of fuel, chemicals, etc. due to the non-allocation of budget from the government for the last two years due to the deterioration of the national economy; late payment of salaries, which became a regular practice; significant decline in real wages (down to about 2%</p> |

| | |
|------------|---|
| | <p>of what they were at the start of the Project, although the average wage doubled in July 2021, the average wage was still as low as \$20 per month), which reduced the motivation to work; and the revival of the block account, which drastically reduced revenue income of SSUWC Juba Station (only 5% of the amount collected was allocated to SSUWC). In addition, due to these factors, the water supply hours fluctuated greatly, and there were many areas where water supply was not available. This situation limited the scope of public awareness activities and updating of customer information for such areas, ultimately limiting the outputs.</p> <p>The project purpose was almost achieved although the impact of these external factors largely affected on the Project, and the capacity was strengthened with remote training in neighboring countries, support by bi-weekly web meetings even in COVID-19 pandemic, and expert guidance at site in Term 4 even though the period was short. Because of these outputs, it can be evaluated that the effectiveness is generally high.</p> |
| Efficiency | <p>The efficiency is evaluated to be moderately high.</p> <p>Shortly after the Project started, the outbreak of internal conflict in South Sudan forced expert's site activities to be suspended for a long time. For two and a half years from October 2016 to April 2019, the JICA Expert were unable to provide guidance at site and called on the C/P to Uganda and Kenya for continuous support in the form of remote training. The training was effective in increasing the motivation of SSUWC by exposing them to examples of successful water utility in African countries, and in providing them with a concentrated, full-time training program for one to two weeks at a time to acquire comprehensive knowledge. On the other hand, it was a big restriction that on-the-job training (OJT) could not be done remotely. When they put what they learned in the training into practice in Juba, it was not an environment where they could immediately consult an expert even if there was a problem. The JICA Expert communicated with SSUWC staff and provided guidance by contact and instructions through local staff, but the efficiency of such activities was not high. The JICA Expert could finally enter the site from Term 4 (September 2019), but it became impossible to enter the site again due to COVID-19 pandemic from March 2020. It must be said that the efficiency has dropped considerably because it is limited to support only by web conferences from Japan and information sharing from monthly reports and the C/P.</p> <p>On the other hand, the JICA Expert provided many training opportunities: 13 times of remote trainings in neighboring countries, a total of 310 trainees, training in Japan and third countries (Cambodia), 42 regular web meetings, and 30 webinars, committees,</p> |

| | |
|--------|--|
| | <p>and workshops. Although the amount of expert's M/M input during remote training and web-based meetings was small, these trainings and meetings contributed to maintaining C/P's motivation remotely and improving their capacity despite the impact of many unfavorable external factors. Therefore, the efficiency is not low.</p> <p>There were also major changes in the input of SSUWC, which affected efficiency. The changes include the replacement of the area manager (project manager) of Juba Station twice. It also included permanent and temporal leaves of several employees who were the main C/P and who have acquired skills through remote training due to low wages, and irregular attendance due to late payment of salaries. However, many staff members who participated in the remote training continue to work and operate water facilities despite late payment of salaries, extremely low salaries, and high commuting costs.</p> <p>On the other hand, materials and equipment that are difficult to cover by the budget of SSUWC and Juba Station (water supply equipment, water quality test equipment, backhoe, concrete cutter, engine pump, fuel, chemicals, etc., which were procured by the Project) are fully utilized and contributed to the achievement of outputs and the project purpose.</p> <p>In terms of efficiency, it may seem low at first glance, but many of the significant unfavorable external factors listed above have had a severe impact. If the Project did not exist, it is not difficult to imagine that external factors would have forced the water treatment plant to stop the operation long before, the water supply to the citizen to stop, and the water utility management to stop. The area manager has repeatedly expressed his gratitude to JICA that the operation of waterworks would have been suspended without JICA's support. As pointed by the area manager, most likely, the operation of waterworks would have been suspended, but it is continuing to operate due to the input of the Project. This fact is the evidence that the Project contributed a lot to the continuous operation of the waterworks. In that sense, it can be said that the efficiency is high.</p> <p>Based on the above and judging from a comprehensive point of view, it is evaluated that the efficiency is moderately high.</p> |
| Impact | <p>The impact of the Project is rated as moderate.</p> <p>The water quality target of the overall goal "Safe and clean water is supplied in a reliable manner in Juba" has already been achieved. Regarding the target of water</p> |

| | |
|--|--|
| | <p>treatment plant operating hours, in the annual plan for 2022 prepared in December 2021, it was calculated that the maintenance cost could be covered by the revenue income with the 18-hour operation of the water treatment plant assuming increase of revenue collection by 2 times, thanks to the return of water charge revenue collection to SSUWC by the resolution of the NRA issue and the increase in water tariff. By further increasing revenue income, it would be possible to further increase the operating hours of the water treatment plant, and it is expected that the overall goal will be achieved. Many of the selected key business indicators have been improved, and it is expected that the target will be achieved. On the other hand, the water supply hours are limited, and the water supply area is small in the current situation, so that the customer satisfaction regarding the water supply utility operation is not high.</p> <p>The ripple effects include the following. In particular, the effect of SSUWC executives and top water administrator (minister) on changing awareness of water services can be mentioned.</p> <ul style="list-style-type: none"> (2) Remote training was conducted with the support of NWSC. NWSC is said to be the most successful water utility in Africa with reforms. SSUWC executives learned the details of the reform. SSUWC was interested in their performance contract system, and they actually went to the stage of creating a performance contract between the managing director and the area manager and putting it into practice. In this way, the will to implement the reform of SSUWC has sprung up among the executives. The managing director intends to put this system into practice in the successor project of the Project. (3) By learning from the above-mentioned NWSC business operation method and reform of Phnom Penh Water Supply Authority in Cambodia from the third country training, the managing director of SSUWC decided to aim at enhancing the business operation by independent accounting system and the human and financial independence of the corporation. She intends to implement this initiative in the successor project. (4) The Minister of Water Resources and Irrigation, who is the head of the water supply administration in the country, was invited to participate in the Cambodia training program to learn from the experience of PPWSA's water supply business, which has been successfully reformed. After participating in the training, the Minister's understanding of the water supply management increased and her sense of participation in the management of the water supply improved. She began to take the initiative in coordinating such matters as securing generator fuel. Furthermore, even in the midst of her busy schedule during the implementation of the Peace Conference in Ethiopia, the Minister took time out |
|--|--|

| | |
|----------------|--|
| | <p>of the conference to participate in the 2nd JCC held in Uganda, and actively requested JICA to resume the grant aid project with letters of cooperation from other relevant ministers (Ministry of Road and Transport and Ministry of Internal Affairs). This contributed greatly to the resumption of the grant aid project.</p> |
| Sustainability | <p>The sustainability of the project outcomes is rated as moderate.</p> <p><Institutional / policy aspects></p> <p>The water policy enacted in 2007, "Providing equal, safe, affordable and reliable urban water and sanitation services, improving financial structure by practicing efficient management and establishing a mechanism for effective income generation, promotion of technical and management training of SSUWC staff, etc. " will continue in the future. However, there is a possibility that it will be affected by the intervention from the central government such as sudden start of revenue collection by NRA, and the lack of legislation regarding the establishment of indicators on the performance of water supply services, water utilities, and their monitoring agencies.</p> <p><Organizational aspect></p> <p>Major challenges remain in terms of human resources for stable business operations, such as retirements, leaves, absence of key personnel and irregular attendance of staff due to extremely low salary and late payment of salaries.</p> <p><Technical aspect></p> <p>Overall, the staff's capacity of facility operation and maintenance, water quality monitoring, and revenue collection has improved, and a foundation for continuous operation and maintenance, record management, and regular information sharing has been established.</p> <p><Financial aspect></p> <p>The financial situation of SSUWC is not stable. The deterioration of the national economy after the conflict in July 2016 and the significant depreciation of SSP have resulted in fluctuations in the operating hours of the water treatment plant due to shortages in generator fuel and chemicals. The fluctuation of operating hours as well as the NRA intervention in 2021 has impacted on water bill collection activities. On the other hand, water tariff has been increased since 2018, and the increase in November 2021 for metered rate and February 2022 for fixed rate is a positive sign from a financial perspective which will contribute to increasing the sustainability of the project outcomes.</p> |

| | |
|--|---|
| | <p>Since November 2021, when the NRA issue ended, the revenue has been on a recovery trend and the situation is now as it was before the NRA issue. Revenue and expenditure are in balance and maintenance is being done within revenue limits, and revenue is expected to be 7 million SSP in January 2022, as the station was able to collect a large amount of arrear (SSP 4 million from the jail). Once the water treatment plant is operating 18 hours a day and can supply water to more customers, these rate increase and the continued collection of arrears will stabilize the management of Juba Station based on the annual plan for 2022 prepared in December 2021.</p> |
|--|---|

5. Recommendations to Achieve Overall Goal

5.1. Prospect of Achieving Overall Goal

Overall goal: Safe and clean water is supplied in a reliable manner in Juba

- **Indicator 1: Existing water supply facilities are operated more than 22 hours per day on average.**

The average operation hours of the water treatment plant in the first half of 2021 are about 13 hours. With the resolution of the NRA issue, the water charges collected from December 2021 can be used to procure fuel and chemicals. It is also estimated that the increase in water tariff from December 2021 will make it possible to procure the fuel and chemicals needed for 18-hour operation. Once the 18-hour operation is established, the next goal is to achieve 20-hour operation and 22-hour operation. The achievement of this goal depends mainly on whether the revenue collection will be achieved as planned.

- **Indicator 2: The number of the total samples that treated water meets the water quality standards of turbidity (less than 5 NTU) and free residual chlorine (1.5 mg/l ~2.0 mg/l) achieve 90% of the sampling.**

This indicator regarding the quality of treated water at water treatment plant has already been achieved in the Project.

- **Indicator 3: All of the selected major operational indicators are improved.**

The table below shows the current evaluation of the main indicators. Of the 14 indicators, there are 2 items that have not been improved and 2 items that have not changed since the activities related to these indicators has not been implemented from the inception of the Project. It is necessary to improve these unachieved indicators in the future. To improve these, it is necessary to operate the water treatment plant for 18 hours or more.

Table 5-1 Current status of evaluation of major indicators

| No. | Reference number | Indicator | Unit | Baseline | Ave, Y2020 | First half of Y2021 | Dec.2021 | Result | Theme |
|------------------|------------------|---|----------|-------------|------------|---------------------|----------|----------|---|
| Treatment | | | | | | | | | |
| 1 | P1 | Average daily production volume (estimated) | m3/day | 1,160 *1 | 3,769 | 3,201 | 5,466 | Improved | City power is not connected since July 2015. In Term 2 fuel procurement is insufficient for generator operation. The operating time was secured while the |
| 2 | P2 | Plant average operating hour per day | hrs/day, | 11.9 *1 | 15.5 | 12.7 | 17.3 | Improved | |

| No. | Reference number | Indicator | Unit | Baseline | Ave, Y2020 | First half of Y2021 | Dec.2021 | Result | Theme |
|---------------|---|--|----------|-----------|------------|---------------------|----------|------------------------------------|--|
| | | (estimated) | | | | | | | subsidized fuel could be procured, but after it became unavailable, the operating hours have been shortened. |
| Distribution | | | | | | | | | |
| 3 | D1 | Average daily pump operation hours of Hospital PS | hrs/day | 2.5 *1 | 12 | 0.15 | 3 | Unimproved (Improved in Dec. 2021) | In the first half of 2021, the operating hours of WTP decreased, limiting the amount of time that water could be stored in the reservoirs in hospital pumping station. |
| 4 | D2 | Average daily pump operation hours of Konyokonyo PS | hrs /day | 0 *1 | 0 | 0 | 0 | Not changed | The pumping station has been suspended for a long time because the distribution reservoir is damaged. Will be repaired by AfDB project. |
| 5 | D4 | Percentage of No. of leakage repaired in No. of leakage reported | % | 0 *1 | 89 | 36 | 80 | Improved | |
| Water quality | | | | | | | | | |
| | Daily sampling (WTP) | | | | | | | | |
| 6 | W1 | Compliance ratio of turbidity | % | 100 *2 | 100 | 100 | (87) | Continuously 100% | The ratio was decreased in Dec. 2021 due to experimental decrease of injection rate of chemicals. |
| 7 | W2 | Compliance ratio of residual chlorine | % | 100 *2 | 100 | 100 | 100 | Continuously 100% | |
| 8 | Weekly sampling (reservoir in the city) | | | Not done | Not done | Not done | Not done | No change, not implemented | No sampling vehicle, water supply to the city is at night, so night sampling is not possible. |
| 9 | Monthly sampling (city tap)) | | | Not done | Not done | Not done | Not done | No change, not implemented | |
| Billing and | | | | | | | | | |

| No. | Reference number | Indicator | Unit | Baseline | Ave, Y2020 | First half of Y2021 | Dec.2021 | Result | Theme |
|-------------------|------------------|----------------------------------|-----------|---------------|------------|---------------------|---|------------|---|
| collection | | | | | | | | | |
| 10 | S1 | Number of bills | num | 1,061 *3 | 345 | 177 | 112 | Unimproved | During 12-hour operation of WTP, water supply to TFS is prioritized, and water supply to individual customers is reduced, so the number of bills decreased. |
| 11 | S2 | Amount of bills delivered | SSP/month | 968,333 *3 | 2,859,378 | 2,235,639 | 33,289,654 (increase of arrear collection) | Improved | Increased due to strengthened revenue collection and increase in water tariff due to inflation |
| 12 | S3 | Amount of bills collected | SSP/month | 159,178 *3 | 2,099,887 | 1,424,355 | 1,946,250 | Improved | |
| 13 | S4 | Collection ratio by number | % | 11.8 *3 | 52.9 | 54.4 | 41 | Improved | |
| 14 | S5 | Collection ratio by amount (SSP) | % | 16.4 *3 | 75.1 | 88.8 | 28 | Improved | |

* 1: Average between February-November 2016

* 2: Average between July-November 2016

* 3: Average between January-March 2015

● **Indicator 4: Customer satisfaction with water services is increased.**

As the water supply hours change, so does the water supply area. Until December 2021, the water was only distributed to a few areas near the water treatment plant. This has not helped to improve customer satisfaction, as there have been complaints from areas that were supplied water the previous month but not receiving water the current month. However, if the operation hours of the water treatment plant are improved to 18 hours in the future, it is expected that the water supply area will be expanded and the level of customer satisfaction will improve.

As mentioned above, there are still some issues that need to be addressed and further capacity building is necessary in order to achieve the overall goal.

5.2. Recommendations toward Achieving Overall Goal

The following are recommended to achieve the overall goals.

(1) Implementation of the annual plan (Y2022)

The SSUWC Juba Station prepared an annual plan for 2022 in December 2021. This plan aims to improve the sustainability of the water utility by operating the water treatment plant for 18 hours a day to supply water to a larger area, increase revenue collection, and cover maintenance costs. It is necessary to implement this plan and further improve the water supply management in order to achieve the overall goals.

(2) Building a system for independent profitability

If water treatment plant operates stably and for long periods of time, the area served by safe and clean water can be expanded, key indicators can be improved, and customer satisfaction can be improved. In order to achieve this, it is important to eliminate external conditions such as dependence on the national budget for fuel and chemical procurement and staff salaries. It is necessary to develop and implement a business plan to manage the business on a commercial basis, develop a financial management system, and establish a system for monitoring and auditing the business to ensure independent profitability. A salary structure should also be considered to secure the necessary qualified personnel.

(3) Implementation of planned maintenance of facilities

Although the Juba Station is currently maintaining the facilities using the materials and equipment that are available in stock and they can procure within their budget, it is not maintained in a planned nor proactive manner. There are many issues that need to be addressed in order to properly maintain the facilities, such as the need for a comprehensive overhaul due to the aging of the water treatment plant, prompt response to the treatment of leaks in the transmission and distribution pipes, water quality management, and proactive procurement of materials. It is necessary to formulate and implement a systematic maintenance and management plan for the facilities, including procurement of necessary materials and equipment, securing of budget, and development of procurement system.

(4) Development of operation and management system for facilities constructed by the Grant Aid Project

The operation and management system for the existing facilities has been developed, and by implementing the planned operation and maintenance described above, it is expected that the new water treatment plant, distribution reservoirs/elevated tanks, pumping stations, and other facilities currently under construction could be operated and maintained. On the other hand, new 8 TFSs and 120 public tap stands will require a new operation system (SSUWC direct management, subcontract of management to a third party, private companies, or payams, etc.), and new management and monitoring systems, which will need to be established before the completion of the facilities in February 2023.

5.3. External conditions

The following are external conditions which may have an impact on achieving the overall goals.

- Water resources do not decrease drastically.
- Water source and water quality does not deteriorate drastically.
- The political situation in South Sudan does not affect the security of Juba and the activities of SSUWC.
- The economic situation in South Sudan will not deteriorate significantly.
- Funds for the operation and maintenance of water supply facilities are continuously available.

Appendices

Appendix-1: PDM (the latest version, and transition)

Appendix-2: Work Flowchart

Appendix-3: JICA Expert Dispatch Schedule (Final version)

Appendix-4: Remote Training and Seminar (Training program)

Appendix-5: Trainings Program in Japan and Third Country

Appendix-6: Participants in Trainings

Appendix-7: Record of Equipment Procured

Appendix-8: Minutes of Meeting of JCC

Appendix-9: Other Materials

9.1: Final presentation of C/P on maintenance

9.2: Field training plan at Term 4

9.3: Juba Station database and major PIs

9.4: Juba Station Improvement Action Plan

9.5: Performance Contract (between SSUWC Headquarters and Juba Station)

9.6: Juba Station Annual Report (2020/21) and Annual Plan (2022)

9.7: SSUWC Headquarters Reform Action Plan

Appendix-1: PDM (the latest version, and transition)

Project Design Matrix (PDM)

PDM (version 4)

Dated June 22, 2021

Project Title : The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation Phase 2

Implementing agency: South Sudan Urban Water Corporation (SSUWC) Headquarters and Juba Station

Target Group: Staff of SSUWC Headquarters and Juba Station

Period of Project: 5 years and 11 months

Target site: Juba, Republic of South Sudan

Model site:

| Narrative Summary | Objective Verifiable Indicator | Means of Verification | Important Assumption |
|--|--|--|--|
| <p>Overall Goal :</p> <p>Safe and clean water is supplied in a reliable manner in Juba.</p> | <ul style="list-style-type: none"> - Existing water supply facilities are operated more than 22 hours per day on average. - The number of the days of the total samples that treated water meets the water quality standards of turbidity (less than 5 NTU) and free residual chlorine (1.5 mg/l ~2.0 mg/l) achieve 90% of the sampling. - All of the selected major operational indicators are improved. - Customer satisfaction with water services is increased. | <ul style="list-style-type: none"> - SSUWC Annual report / Monthly report - Water quality monitoring report - Baseline survey report and an ex-post evaluation report | <ul style="list-style-type: none"> - Subsidized fuel for generator for water supply facilities or subsidized city power supply is available in Juba - Political situation of South Sudan does not affect security of Juba as well as functions of SSUWC. - Economic conditions of South Sudan do not become worse significantly. |
| <p>Project purpose:</p> <p>The capacity of SSUWC Juba Station regarding sustainable service delivery (financial management, non-revenue water management, facilities operation and maintenance) is strengthened.</p> | <ul style="list-style-type: none"> - More than 80% of the indicators of the Juba reform action plan are improved from the baseline figures - 100 % of operation and maintenance expenses excluding personnel costs and chemical costs are recovered from water sale revenue. (Assumption: more than 70% of fuel for generator will be procured from subsidized fuel and the rest from market fuel or 100% of power supply of water supply facilities will be provided form city power supply.) | <ul style="list-style-type: none"> - SSUWC Annual report / Monthly report - Financial documents (including bank statement and internally audited account) | <ul style="list-style-type: none"> - Quality of raw water is not deteriorated significantly. - Quantity of raw water is not reduced significantly. - Subsidized fuel for generator for water supply facilities or subsidized city power supply is available in Juba - Political situation of South Sudan does not affect security of Juba as well as functions of SSUWC - Economic conditions of South Sudan do not become worse significantly. |
| <p>Outputs :</p> | | | |
| <p>1. Juba Station's water charge collection capacity is strengthened.</p> | <p>1-1 Customer information is updated.</p> <p>1-2 Water sale revenue has an increasing trend.</p> <p>1-3 Water tariff is proposed based on the principles and guideline to be developed in the Project.</p> <p>1-4 The number of water meters installed at large-consumption customers is increased from 45 to 220.</p> | <ul style="list-style-type: none"> - Customer information database - Monthly bill collection report - Proposed tariff - SSUWC Annual report / Monthly report | <ul style="list-style-type: none"> - Subsidized fuel for generator for water supply facilities or subsidized city power supply for operation of facilities for minimum 12 hours/day is available in Juba. - Government budget for SSUWC will not be decreased significantly. - Serious damage on water supply facilities does |

| | | | |
|---|---|--|--|
| 2. Public awareness activities for Juba citizens by Juba Station are enhanced. | 2-1 Public awareness raising activities plan is developed. 2-2 Public awareness raising activities are conducted in accordance with the plan 2-3 The better understanding of the sampled citizens on water supply service provided by SSUWC is improved from the baseline. | <ul style="list-style-type: none"> - Public awareness raising activities plan - Public awareness raising activities repor - Baseline / End line survey report (Sampling survey) | not occur. - Personnel of counterparts do not leave the job and are not transferred considerably. |
| 3. Non-revenue water management capacity of Juba Station is strengthened. | 3-1 Non-revenue water management manuals are prepared. 3-2 GIS map for existing water supply facilities, pipes and valves are prepared. 3-3 GIS customer database is prepared. 3-4 SOP of leakage repair is prepared. 3-5 Leakage monitoring report is prepared. | <ul style="list-style-type: none"> - Non-revenue water management manuals - SSUWC Annual report / Monthly report | |
| 4. Operation and maintenance capacity for existing water supply facilities by Juba Station is strengthened. | 4-1 Study report of management method of new water filling stations is prepared. 4-2 Study report of management method of new water kiosks is prepared. 4-3 Operation and maintenance data of existing water supply facilities are compiled in monthly and annual reports and shared among the concerned persons. | <ul style="list-style-type: none"> - SSUWC Annual report / Monthly report - Management method study report for new tanker filling stations and water kiosks - Water quality monitoring report | |
| 5. Support and supervisory function of SSUWC headquarters toward Juba Station is strengthened. | 5-1 Training plan for Juba Station is developed by SSUWC Headquarters. 5-2 Remote training report including all outputs of the project is prepared by the headquarters. 5-3 Annual report, annual plan, and monthly report of Juba Station are examined for feedbacks provided by SSUWC Headquarters to Juba Station for more than one year. 5-4 Juba Station improvement action plan is prepared. 5-5 SSUWC Headquarters reform action plan is prepared. 5-6 SSUWC headquarters operation manuals are prepared. | <ul style="list-style-type: none"> - Training plan of SSUWC Headquarters for Juba Station - Remote training report - Records of checking of annual and monthly reports and plans - Juba Station improvement action plan - SSUWC Headquarters reform action plan - SSUWC headquarters operation manuals | |
| Activities | | Inputs | |
| 1-1 Conduct a baseline survey regarding water works management, facilities operation and maintenance and customer satisfaction. | The Japanese side The South Sudan Side | The South Sudan Side | Pre-Conditions |
| 1-2 Understand the latest cost structure and review of the current water tariff. | | | |
| 1-3 Update the customer information. | | | |
| 1-4 Visualize the customer information utilizing GIS and to | | | |
| | 1. Dispatch of Experts 1) Chief advisor / Water Utility management 2) Operation and | 1. Assignment of Counterparts 2. Facilities | Security situation in Juba is stable. <Issues and countermeasures> |

| | | | |
|--|--|--|--|
| <p>understand actual situation of water bill collection.</p> <p>1-5 Develop a guideline for appropriate water pricing for Juba Station and the guideline is approved by the Headquarters.</p> <p>1-6 Based on the guideline developed in the activity 1-5, develop a revenue and expenditure plan.</p> <p>1-7 Develop an activity plan for improvement of billing and bill collection.</p> <p>1-8 Conduct bill collection based on the activity plan developed in the activity 1-7 and monitor the bill collection activities.</p> <p>1-9 Take a measure for the customers without payments and to monitor these activities.</p> <p>1-10 Promote installation of a meter for large-consumption customers.</p> <p>1-11 Conduct the support activities in response to the COVID-19 emergency</p> | <p>maintenance on water purification facilities</p> <p>3) Operation and maintenance on water distribution facilities</p> <p>4) Water quality management</p> <p>5) Water tariff / financial management</p> <p>6) Management of water filling station and water kiosks</p> <p>7) Hygiene education/ public awareness raising</p> <p>8) GIS expert</p> <p>9) Project coordinator</p> <p>2. Training in Japan and third countries</p> <p>3. Machinery and equipment</p> <p>1) Equipment for water leakage detection</p> <p>2) Equipment for water leakage repair</p> <p>3) Equipment for training (equipment for installation of service connection, etc.)</p> <p>4) Training materials and equipment</p> <p>4. Other administrative cost for the Project</p> <p>5. Project vehicle for JICA experts</p> | <p>1) Office space for Japanese experts</p> <p>2) Necessary facilities for training.</p> <p>3. Proper operation and maintenance of machinery and equipment provided by the Project</p> <p>4. Administrative cost and other expense</p> <p>5. Personnel cost for counterparts and other running expenses (daily allowance and transportation expense)</p> <p>6. Operation and maintenance costs for machinery and equipment provided by the Project</p> | |
| <p>2-1 Create a customer (commercial) section at Juba Station.</p> <p>2-2 Develop a public awareness activities plan.</p> <p>2-3 Develop training materials for public awareness activities.</p> <p>2-4 Conduct public awareness activities on SSUWC activities.</p> <p>2-4-1 Conduct public awareness activities for public in collaboration with relevant organization (such as MWRI, Juba city, payam, schools, churches and media)</p> <p>2-4- 2 Conduct public awareness activities for existing customers.</p> | | | |
| <p>3-1 Formulate a non-revenue water management task force team at Juba Station.</p> <p>3-2 Prepare GIS map for existing water supply facilities, pipes and valves.</p> <p>3-3 Identify customers in GIS and prepare GIS customer database.</p> <p>3-4 Prepare standard operation procedure (SOP) for updating GIS mapping for facilities and customers.</p> <p>3-5 Prepare manuals for non-revenue management.</p> <p>3-6 Prepare a plan of zoning which can be isolated by valve.</p> <p>3-7 Prepare leakage report.</p> <p>3-8 Conduct leakage repair.</p> <p>3-9 Conduct commercial loss management activities.</p> <p>3-10 Install service pipes and meters for house connections.</p> <p>3-11 Conduct meter management.</p> | | | |

| | | | |
|--|--|--|--|
| <p>4-1 Follow up operation and maintenance for existing water intake facilities, raw water transmission facilities, water purification facilities and water transmission and distribution facilities.</p> <p>4-2 Understand the situation of water distribution and develop a plan for promoting equal water distribution regarding existing water supply facilities.</p> <p>4-3 Operate water distribution facilities based on the plan developed in the activity 4-2.</p> <p>4-4 Study management method of new water filling stations.</p> <p>4-5 Study management method of new water kiosks.</p> <p>4-6 Develop manuals for procurement of materials for operation and maintenance for facilities.</p> | | | |
| <p>5-1 Conduct an assessment for training needs of Juba Station.</p> <p>5-2 Develop a training plan including training materials, manuals and budget based on training needs.</p> <p>5-3 Conduct remote training for Headquarters and Juba Station.</p> <p>5-4 Examine for feedbacks on Juba Station's monthly and annual reports, and annual plans provided by Headquarters.</p> <p>5-5 Develop management database for Juba Station and update the data regularly.</p> <p>5-6 Prepare remote training report including all outputs of the project.</p> <p>5-7 Prepare Juba Station improvement action plan.</p> <p>5-8 Prepare SSUWC Headquarters reform action plan.</p> <p>5-9 Prepare SSUWC headquarters operation manuals.</p> <p>5-10 Conduct an end line survey regarding water works management, facilities operation and maintenance and customer satisfaction of Juba City.</p> | | | |

MINUTES OF MEETINGS

BETWEEN

JAPAN INTERNATIONAL COOPERATION AGENCY

AND

AUTHORITIES CONCERNED OF THE GOVERNMENT OF

REPUBLIC OF SOUTH SUDAN

FOR

AMENDMENT OF THE RECORD OF DISCUSSIONS

ON

THE PROJECT FOR MANAGEMENT CAPACITY ENHANCEMENT OF SOUTH SUDAN
URBAN WATER CORPORATION PHASE 2 IN THE REPUBLIC OF SOUTH SUDAN

The Japan International Cooperation Agency (hereinafter referred to as "JICA") and Ministry of Water Resources and Irrigation (MWRI) hereby agree that the Record of Discussions on the Project for Management Capacity Enhancement of South Sudan Urban Water Corporation Phase 2 in the Republic of South Sudan (hereinafter referred to as "the Project") signed on October 12, 2015, first amended on August 6, 2019 (hereinafter referred to as "the first amended R/D"), and second amended on July 15, 2020 (hereinafter referred to as "the second amended R/D"), is further amended as follows;

1. Project Description

| Before | Amended Version |
|--|--|
| 4. Duration 5 years and 5 months from the arrival of the first JICA expert: i.e. till the end of July 2021. | 4. Duration 5 years and 11 months from the arrival of the first JICA expert: i.e. till the end of January 2022. |
| Reason: Because of the global spread of the coronavirus disease 2019 (COVID-19), some of the project activities have been suspended. In order to achieve the project purpose after the project team resume the activities, the project duration needs to be extended. The duration may be further amended (shortened or extended) depending on the COVID-19 situation. | |

This amendment will become effective as of 22nd, June, 2021.

Annex 1 : Record of Discussions (signed on 12th, Oct, 2015)

Annex 2 : Record of Discussions (first amended, signed on 6th, Aug, 2019)

Annex 3 : Record of Discussions (second amended, signed on 15th, July, 2020)

Juba, 22nd, June, 2021

相良 冬木

Mr. SAGARA Fuyuki
Chief Representative
South Sudan Office
Japan International Cooperation Agency

Hon. Manawa Peter Galkuoth
Minister
Ministry of Water Resources and Irrigation
Republic of South Sudan



RECORD OF DISCUSSIONS

ON

THE PROJECT FOR MANAGEMENT CAPACITY ENHANCEMENT OF SOUTH SOUDAN URBAN WATER CORPORATION PHASE 2

IN

THE REPUBLIC OF SOUTH SUDAN

AGREED UPON BETWEEN

AUTHORITIES CONCERNED
OF THE GOVERNMENT OF REPUBLIC OF SOUTH SUDAN

AND

JAPAN INTERNATIONAL COOPERATION AGENCY

Juba, 12 October 2015

古川 文明

Dr. Mitsuaki FURUKAWA
Chief Representative,
JICA South Sudan Office



Hon. Jemima Nunu Kumba
Minister
Ministry of Electricity, Dams, Irrigation
and Water Resources
Republic of South Sudan

Based on the minutes of meetings on the Detailed Planning Survey on the Project for Management Capacity Enhancement of South Sudan Urban Water Corporation Phase 2 (hereinafter referred to as "the Project") signed on May 26th, 2015 between Ministry of Electricity, Dams, Irrigation and Water Resources (MEDIWR), South Sudan Urban Water Corporation (hereinafter referred to as "SSUWC") and the Japan International Cooperation Agency (hereinafter referred to as "JICA"), JICA held a series of discussions with SSUWC and relevant organizations to develop a detailed plan of the Project.

Both parties agreed the details of the Project and the main points discussed as described in the Appendix 1.

Both parties also agreed that SSUWC, the counterpart to JICA, will be responsible for the implementation of the Project in cooperation with JICA, coordinate with other relevant organizations and ensure that the self-reliant operation of the Project is sustained during and after the implementation period in order to contribute toward social and economic development of South Sudan.

The Project will be implemented within the framework of the Note Verbales exchanged on December 13th, 2013 between the Government of Japan (hereinafter referred to as "GOJ") and the Government of Republic of South Sudan (hereinafter referred to as "GRSS") as shown in the Appendix 2.

Appendix 1: Project Description

Appendix 2: Note Verbales

Appendix 3: Minutes of Meetings on the Detailed Planning Survey

JICA

2

10

10

MO

3

MO

4

II. OUTLINE OF THE PROJECT

Details of the Project are described in the [Logical Framework (Project Design Matrix: PDM) (Annex 1) and the Plan of Operation (Annex 2).]

PROJECT DESCRIPTION

Both parties confirmed that there is no change in the Project Description in the minutes of meetings for Preparatory Survey on the Project signed on May 26th, 2015 (Appendix 3).

I. BACKGROUND

After the end of the decades-long conflict and the realization of the peace agreement, South Sudan became independent from Sudan in July 2011. Its capital, Juba, now functions as political and economic center. The population in Juba is estimated around 600,000 to 800,000. Due to the drastic population growth and deteriorated infrastructure, it is difficult for the Government of Republic of South Sudan to extend good quality public services to the residents.

Water supply and sanitation improvement is recognized as one of the priority issues to be solved in the South Sudan. However, similar to the other sectors, the government has difficulty in meeting increasing demand of water, and as a result, for the Juba residents' access to safe water is quite limited. A water treatment plant has been constructed by the Multi Donor Trust Fund in 2009, which is in operation now. However, South Sudan Urban Water Corporation (SSUWC) Juba Station faced difficulties in distributing safe water in an efficient manner due to the absence of the knowledge and skills for the proper operation and maintenance of water facilities. In this connection, SSUWC requested Government of Japan to support for capacity development of SSUWC staff. Then, Government of Japan through JICA has been conducting technical assistance project titled 'The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation' from October 2010 to September 2013. It was evaluated during terminal evaluation conducted from May to June 2013 that most of the project objectives were achieved. However, there were 5 recommendations as follows: 1) to ensure procedures and management system in each department, 2) to plan a structured internal training system, 3) to extend support to area stations, 4) to increase bill collection, 5) to recruit qualified staff.

In order to tackle these challenges, SSUWC officially requested Government of Japan to continue the support to SSUWC so that the achievement done by the previous project will be ensured in terms of sustainability.

1. Input

(1) Input by JICA

(a) Dispatch of Experts

- Chief advisor / Water utility management
- Operation and maintenance on water distribution facilities
- Operation and maintenance on water purification facilities
- Water quality management
- Water tariff / financial management
- Management of water filling stations and water kiosks
- Hygiene education/ public awareness raising
- GIS
- Design, cost estimate and construction supervision
- Project coordinator
- Other experts if necessary

(b) Training

Training of counterpart personnel in Japan and /or in the third countries

(c) Machinery and Equipment

- Vehicle(s) for JICA experts
- Equipment for water leakage detection
- Equipment for water leakage repair
- Equipment for training (equipment for installation of service connection, etc.)
- Other materials necessary for the implementation of the Project

In case of importation, the machinery, equipment and other materials under II-5 (1) (c) above will become the property of the GRSS upon being delivered C.I.F. (cost, insurance and freight) to the South Sudan authorities concerned at the ports and/or airports of disembarkation.

(d) Construction of a training facility

Input other than indicated above will be determined through mutual consultations between JICA and SSUWC during the implementation of the Project, as necessary.

(2) Input by SSUWC

SSUWC will take necessary measures to provide at its own expense:

- (a) Services of SSUWC's counterpart personnel and administrative personnel as referred to in II-2;
- (b) Suitable office space with necessary equipment;

- (c) Supply of machinery and equipment necessary for the implementation of the Project other than the equipment provided by JICA;
- (d) Information as well as support in obtaining medical service for JICA experts;
- (e) Credentials or identification cards for JICA experts;
- (f) Available data (including maps and photographs) and information related to the Project;
- (g) Running expenses necessary for the implementation of the Project;
- (h) Expenses necessary for transportation within South Sudan of the equipment referred to in II-1 (1) as well as for the installation, operation and maintenance thereof; and
- (i) Necessary facilities to the JICA experts for the remittance as well as utilization of the funds introduced into South Sudan from Japan in connection with the implementation of the Project

2. Implementation Structure

The project organization chart is given in the Annex 3. The roles and assignments of relevant organizations are as follows:

(1) SSUWC

- (a) Project Director
Managing Director of SSUWC will be responsible for overall administration and implementation of the Project.
- (b) Project Manager
<For Outputs 1-4> Area Manager of SSUWC Juba Station will be responsible for the managerial matters in the implementation of the Project as the Project Manager.
- <For Output 5> Representative of Planning & Project Directorate SSUWC Headquarters will be responsible for the managerial matters in the implementation of the Project as the Project Manager.
- (c) Other counterpart staff

| | |
|----------|--|
| Output 1 | Representative of Account & Revenue Dept, SSUWC Juba Station |
| Output 2 | Representative of Account Section, Acct & Rev Dept, SSUWC Juba station |
| Output 3 | Representative of Distribution Dept, SSUWC Juba Station |
| Output 4 | (Facility O&M) Representative of Purification Dept, SSUWC Juba Station (Management of WK and TFS) Representative of Acct & Rev Dept, SSUWC Juba Station |
| Output 5 | Representative of Planning & Project Directorate SSUWC HQs |

Note: WK (Water Kiosk), TFS (Tanker Filling Station)

(2) JICA Experts

The JICA experts will give necessary technical guidance, advice and recommendations to SSUWC on any matters pertaining to the implementation of the Project.

(3) Joint Coordinating Committee

Joint Coordinating Committee (hereinafter referred to as "JCC") will be established in order to facilitate inter-organizational coordination. JCC will be held at least once a year and whenever deems it necessary. JCC will review the progress, revise the overall plan when necessary, approve an annual work plan, conduct evaluation of the Project, and exchange opinions on major issues that arise during the implementation of the Project. A list of proposed members of JCC is shown in the Annex 4.

3. Project Site(s) and Beneficiaries

Project Site: Juba

Beneficiaries: Staff of SSUWC Juba Station and SSUWC Headquarters

4. Duration

4 years from the arrival of the first JICA expert.

5. Reports

SSUWC and JICA experts will jointly prepare the following reports.

(1) Monitoring Sheet on bi-annual basis until the project completion (every six (6) months)

(2) Project Completion Report at the time of the project completion

6. Environmental and Social Considerations

(1) SSUWC will abide by 'JICA Guidelines for Environmental and Social Considerations' in order to ensure that appropriate considerations will be made for the environmental and social impacts of the Project.

7. Management of Safety for Construction Works

For construction works which will be carried out in the Project, SSUWC and JICA will assure the management of safety in accordance with the "Safety Plan" and "Method Statements of Safety" submitted by contractors based on the Guidance for the Management of Safety for Construction Works in Japanese ODA Projects.

III. UNDERTAKINGS OF SSUWC AND GRSS

1. SSUWC and GRSS will take necessary measures to:

- (1) ensure that the technologies and knowledge acquired by the South Sudan nationals as a result of Japanese technical cooperation contributes to the economic and social development of South Sudan, and that the knowledge and experience acquired by the personnel of South Sudan from technical training as well as the equipment provided by JICA will be utilized effectively in the implementation of the Project; and

2A

JICA

5

MP

2A

JICA

6

MP

7

MP

8

MP

VII. MUTUAL CONSULTATION

JICA and SSUWC will consult each other whenever any major issues arise in the course of Project implementation.

VIII. AMENDMENTS

The record of discussions may be amended by the minutes of meetings between JICA and SSUWC. However, PO may be amended in the Monitoring Sheets. The minutes of meetings will be signed by authorized persons of each side who may be different from the signers of the record of discussions.

- Annex 1 Logical Framework (Project Design Matrix:PDM)
- Annex 2 Tentative Plan of Operation
- Annex 3 Project Organization Chart
- Annex 4 A List of Proposed Members of Joint Coordinating Committee

- (2) Grant privileges, exemptions and benefits to the JICA experts referred to in II-1 (1) above and their families, which are no less favorable than those granted to experts and members of the missions and their families of third countries or international organizations performing similar missions in South Sudan.

2. SSUWC and GRSS will take necessary measures to:

- (1) provide security-related information as well as measures to ensure the safety of the JICA experts;
- (2) Permit the JICA experts to enter, sojourn and leave in South Sudan for the duration of their assignments.

Other privileges, exemptions and benefits will be provided in accordance with the Note Verbales exchanged on December 13th, 2013 between the Government of Japan and the GRSS.

IV. MONITORING AND EVALUATION

JICA and the SSUWC will jointly and regularly monitor the progress of the Project through the Monitoring Sheets based on the Project Design Matrix (PDM) and Plan of Operation (PO). The Monitoring Sheets will be reviewed every six (6) months.

Also, Project Completion Report will be drawn up one (1) month before the termination of the Project.

JICA will conduct the following evaluations and surveys to verify sustainability and impact of the Project and draw lessons. The SSUWC is required to provide necessary support for them.

1. Ex-post evaluation three (3) years after the project completion, in principle
2. Follow-up surveys on necessity basis

V. PROMOTION OF PUBLIC SUPPORT

For the purpose of promoting support for the Project, SSUWC will take appropriate measures to make the Project widely known to the people of South Sudan.

VI. Misconduct

If JICA receives information related to suspected corrupt or fraudulent practices in the implementation of the Project, SSUWC and relevant organizations will provide JICA with such information as JICA may reasonably request, including information related to any concerned official of the government and/or public organizations of the Republic of South Sudan.

SSUWC and relevant organizations will not, unfairly or unfavorably treat the person and/or company which provided the information related to suspected corrupt or fraudulent practices in the implementation of the Project.

| | | | | | |
|---|--|---|--|--|--|
| Outputs : | 1-1 Customer information is updated. 1-2 Water sale revenue is increased from **SSP to ** SSP. 1-3 Water tariff is set up based on the principles and guideline to be developed in the Project. 1-4 The number of water meters installed at large consumption customers is increased from ** to **. | - Customer information database - Financial statements - SSUWC Annual report / Monthly report - Revised tariff system | - Serious damage on water supply facilities does not occur because of civil war. | | |
| 1. Juba Station's water charge collection capacity is strengthened. | | | | | |
| 2. Public awareness activities for Juba citizens by Juba Station are enhanced. | 2-1 Public awareness raising activities plan is developed. 2-2 Public awareness raising activities are conducted ** times/year in accordance with the plan. 2-3 More than **% of the sampled citizens show better understanding on water supply service provided by SSUWC. | - Public awareness raising activities plan - Public awareness raising activities report - Baseline / End line survey report (Sampling survey) | | | |
| 3. Non-revenue water management capacity of Juba Station is strengthened. | 3-1 Non-revenue water management plan is developed. 3-2 Number of leakages detected and reported is increased from ** / year (baseline figure) to ** / year. 3-3 Average time detected leak is left unattended is shortened from ** days (baseline figure) to ** days. | - SSUWC Annual report / Monthly report - Non-revenue water management report | | | |
| 4. Operation and maintenance capacity for new and existing water supply facilities by Juba Station is strengthened. | 4-1 Water filling stations are managed in accordance with the manuals to be developed in the Project. 4-2 Water kiosks are managed in accordance with the manuals. 4-3 Operation and maintenance data of new and existing water supply facilities are compiled in monthly and annual reports and shared among the concerned persons. | - SSUWC Annual report / Monthly report - Management data of water supply facilities - Water quality monitoring report | | | |
| 5. Support and supervisory function of SSUWC headquarters toward Juba Station is strengthened. | 5-1 Training plan for Juba Station is developed by SSUWC Headquarters. 5-2 More than ** trainings organized by SSUWC HQs are provided based on the training plan and *** trainees in total participate. 5-3 Annual report, annual plan, and | - SSUWC Annual report / Monthly report - Data in operational database. - Training plan of SSUWC Headquarters for Juba Station | | | |

12

ANNEX 1

Project Design Matrix (PDM)

PDM (version 0)
Dated August 10, 2015**Project Title :** The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation Phase 2**Implementing agency:** South Sudan Urban Water Corporation (SSUWC) Headquarters and Juba Station**Target Group:** Staff of SSUWC Headquarters and Juba Station**Period of Project:** 4 years**Target site:** Juba, Republic of South Sudan**Model site:**

| Narrative Summary | Objective Verifiable Indicator | Means of Verification | Important Assumption | Achievement | Remarks |
|---|--|--|--|-------------|---------|
| Overall Goal : Safe and clean water is supplied in a reliable manner in Juba. | - New and existing water supply facilities are operated more than ** hours per year. - The number of the days in which supplied water at observation points meets the water quality standards of turbidity (less than 5 NTU) and free residual chlorine (0.2 mg/l ~1.0 mg/l) increases from ** days/year (baseline value) to **days/year - All of the selected major operational indicators are improved. - Customer satisfaction with water services is increased. | - SSUWC Annual report / Monthly report - Water quality monitoring report - Baseline survey report and an ex-post evaluation report | | | |
| Project purpose: The capacity of SSUWC Juba Station regarding sustainable service delivery (financial management, non-revenue water management, facilities operation and maintenance) is strengthened. | - More than 80% of the major operational indicators in the annual operation and maintenance reports are improved from 2016 baseline figures. - 100 % of operation and maintenance expenses excluding personnel costs and chemical costs are recovered from water sale revenue. | - SSUWC Annual report / Monthly report - Financial documents (including bank statement and internally audited account) | - Quality of raw water is not deteriorated significantly. - Quantity of raw water is not reduced significantly. - The number of days that supplies commercial power to water supply facilities is not less than 90 days per year. - Political situation of South Sudan does not affect security of Juba as well as functions of SSUWC. - Economic conditions of South Sudan do not become worse significantly. | | |

11

customers.

| | | | | | |
|---|--|--|--|--|--|
| 1-12 Review financial, revenue and expenditure plan and revise, and update it every year. | | | | | |
| 2-1 Create a customer (commercial) section at Juba Station. | | | | | |
| 2-2 Develop a public awareness activities plan. | | | | | |
| 2-3 Develop training materials for public awareness activities. | | | | | |
| 2-4 Conduct public awareness activities on SSUWC activities, water tariff and new water supply facilities. | | | | | |
| 2-4-1 Conduct public awareness activities for public in collaboration with relevant organization (such as MEDIWR, Juba city, payam, schools, churches and media). | | | | | |
| 2-4-2 Conduct public awareness activities for potential customers (on water supply through water kiosks and water filling stations). | | | | | |
| 2-4-3 Conduct public awareness activities for existing customers. | | | | | |
| 3-1 Formulate a non-revenue water management team at Juba Station. | | | | | |
| 3-2 Prepare GIS map for existing water supply facilities, pipes and valves. | | | | | |
| 3-3 Identify customers in GIS and prepare GIS customer database. | | | | | |
| 3-4 Prepare standard operation procedure (SOP) for updating GIS mapping for facilities and customers. | | | | | |
| 3-5 Prepare manuals for non-revenue management. | | | | | |
| 3-6 Prepare a plan of zoning which can be isolated by valve. | | | | | |

14

| | monthly report of Juba Station are examined for feedbacks provided by SSUWC Headquarters to Juba Station for more than three years. | - Records and reports of SSUWC Headquarters about training sessions for Juba Station | | | |
|--|--|--|---------------------------------------|--|--|
| Activities | Inputs | | | | |
| | The Japanese side | The South Sudan Side | Pre-Conditions | | |
| 1-1 Conduct a baseline survey regarding water works management, facilities operation and maintenance and customer satisfaction. | 1. Dispatch of Experts 1) Chief advisor / Water Utility management 2) Operation and maintenance on water purification facilities 3) Operation and maintenance on water distribution facilities 4) Water quality management 5) Water tariff / financial management 6) Management of water filling station and water kiosks 7) Hygiene education/ public awareness raising 8) GIS expert 9) Design, cost estimate and construction supervision Project coordinator | 1. Assignment of Counterparts 2. Facilities 1) Office space for Japanese experts 2) Necessary facilities for training. | Security situation in Juba is stable. | | |
| 1-2 Understand the latest cost structure and review of the current water tariff. | | | <Issues and countermeasures> | | |
| 1-3 Update the customer information. | | | | | |
| 1-4 Visualize the customer information utilizing GIS and to understand actual situation of water bill collection. | | | | | |
| 1-5 Develop a guideline for appropriate water pricing for Juba Station and the guideline is approved by the Headquarters. | | | | | |
| 1-6 Based on the guideline developed in the activity 1-5, develop a (3 year) financial, revenue and expenditure plan. | 2. Training in Japan and third countries 3. Construction of Training Facility 4. Machinery and equipment 1) Equipment for water leakage detection 2) Equipment for water leakage repair 3) Equipment for training (equipment for installation of service connection, etc.) 4) Training materials and equipment 5. Other administrative cost for the Project 6. Project vehicle for JICA experts | 3. Proper operation and maintenance of machinery and equipment provided by the Project 4. Administrative cost and other expense 5. Personnel cost for counterparts and other running expenses (daily allowance and transportation expense) 6. Operation and maintenance costs for machinery and equipment provided by the Project | | | |
| 1-7 Develop an activity plan for improvement of billing and bill collection. | | | | | |
| 1-8 Develop bill collection plan including a new water supply facilities. | | | | | |
| 1-9 Conduct bill collection based on the activity plan developed in the activity 1-5 and fee collection plan developed in the activity 1-7 and monitor the bill collection activities. | | | | | |
| 1-10 Take a measure for the customers without payments and to monitor these activities. | | | | | |
| 1-11 Promote installation of a meter for large-consumption | | | | | |

13

WA
N/P

| | | | | | |
|--|--|--|--|--|--|
| 4-9 Review and revise two operation and maintenance manuals developed in the activity 4-4, and 4-6. | | | | | |
| 5-1 Conduct an assessment for training needs of Juba Station. 5-2 Develop a training plan including training materials, manuals and budget based on training needs. 5-3 Select training leaders from staff at Juba Station who have participated in the training and develop a system to support other staff by those leaders. 5-4 Conduct training for Juba Station staff based on the plan. 5-5 Keep training records by the Headquarters. 5-6 Examine for feedbacks on Juba Station's monthly and annual reports, and annual plans provided by Headquarters. 5-7 Develop management database for Juba Station and update the data regularly. 5-8 Conduct an end line survey regarding water works management, facilities operation and maintenance and customer satisfaction of Juba City. | | | | | |

16

WA
N/P

THC

| | | | | | |
|--|--|--|--|--|--|
| 3-7 Conduct leakage detection. 3-8 Conduct leakage repair. 3-9 Conduct commercial loss management activities. 3-10 Install service pipes and meters for house connections. 3-11 Conduct meter management. 3-12 Review and update manuals for non-revenue management and SOP. | | | | | |
| 4-1 Follow up operation and maintenance for existing water intake facilities, raw water transmission facilities, water purification facilities and water transmission and distribution facilities. 4-2 Understand the situation of water distribution and develop a plan for promoting equal water distribution regarding existing water supply facilities. 4-3 Operate water distribution facilities based on the plan developed in the activity 4-2. 4-4 Develop a manual for operation and maintenance of water filling stations. 4-5 Establish a management structure for new water filling stations based on the manual developed in the activity 4-4 and operate them. 4-6 Develop a manual for operation and maintenance of new water kiosks. 4-7 Establish a management structure for water kiosks based on the manual developed in the activity 4-6 and to operate them. 4-8 Develop a plan for procurement of materials for operation and maintenance for facilities including new water supply facilities. | | | | | |

15

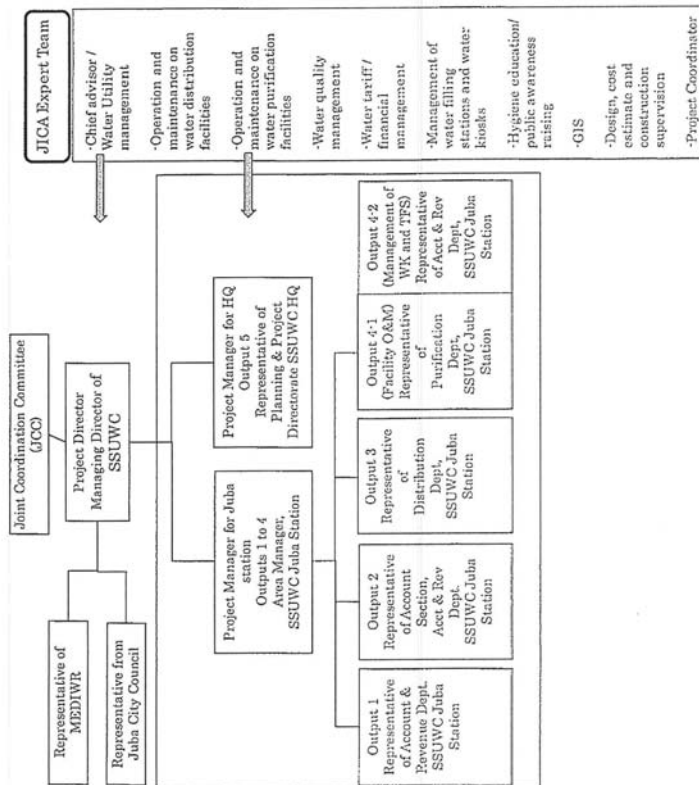
| | | | | | | | | | | | | |
|--|------|--------|------|----------|----------|----------|----------|----------|----------|-----------|------------------------------|---|
| Output 2: Public awareness activities for Juba citizens by Juba Station are enhanced. | | | | | | | | | | | | |
| 2-1 Create a customer (commercial) section at Juba Station. | Plan | Actual | | | | | | | | HEPAR, PC | Account & Revenue Department | |
| 2-2 Develop a public awareness activities plan. | Plan | Actual | | | | | | | | HEPAR, PC | Account & Revenue Department | |
| 2-3 Develop training materials for public awareness activities. | Plan | Actual | | | | | | | | HEPAR, PC | Account & Revenue Department | |
| 2-4 Conduct public awareness activities on SSUVG activities, water tariff and new water supply facilities. | Plan | Actual | | | | | | | | HEPAR, PC | Account & Revenue Department | |
| 2-4-1 Conduct public awareness activities for public in collaboration with relevant organization (such as MEDWAR, Juba city, payam, schools, churches and media). | Plan | Actual | | | | | | | | HEPAR, PC | Account & Revenue Department | |
| 2-4-2 Conduct public awareness activities for potential customers (on water supply through water kiosks and water filling stations). | Plan | Actual | | | | | | | | HEPAR, PC | Account & Revenue Department | |
| 2-4-3 Conduct public awareness activities for existing customers. | Plan | Actual | | | | | | | | HEPAR, PC | Account & Revenue Department | |
| Activities | | | | | | | | | | | | |
| Sub-Activities | | | Year | 1st Year | 2nd Year | 3rd Year | 4th Year | 5th Year | 6th Year | 7th Year | Responsible Organization | |
| | | | | I | II | III | I | II | III | I | II | GRSS |
| Output 3: Non-revenue water management capacity of Juba Station is strengthened. | | | | | | | | | | | | |
| 3-1 Formulate a non-revenue water management team at Juba Station. | Plan | Actual | | | | | | | | | QND, WTRM | Distribution Department |
| 3-2 Prepare GIS map for existing water supply facilities, pipes and valves. | Plan | Actual | | | | | | | | | QND, GIS | Distribution Department |
| 3-3 Identify customers in GIS and prepare GIS customer database. | Plan | Actual | | | | | | | | | QND, GIS | Distribution Department |
| 3-4 Prepare standard operation procedure (SOP) for updating GIS mapping for facilities and customers. | Plan | Actual | | | | | | | | | QND, GIS | Distribution Department |
| 3-5 Prepare manuals for non-revenue management. | Plan | Actual | | | | | | | | | QND, WTRM | Distribution Department |
| 3-6 Prepare a plan of zoning which can be isolated by valve. | Plan | Actual | | | | | | | | | QND, GIS | Distribution Department |
| 3-7 Conduct leakage detection. | Plan | Actual | | | | | | | | | QND | Distribution Department |
| 3-8 Conduct leakage repair. | Plan | Actual | | | | | | | | | QND | Distribution Department |
| 3-9 Conduct commercial loss management activities. | Plan | Actual | | | | | | | | | QND, WTRM | Distribution Department |
| 3-10 Install service pipes and meters for house connections. | Plan | Actual | | | | | | | | | QND, WTRM | Distribution Department |
| 3-11 Conduct meter management. | Plan | Actual | | | | | | | | | QND, WTRM | Account & Revenue Distribution Dept. |
| 3-12 Review and update manuals for non-revenue management and SOP. | Plan | Actual | | | | | | | | | QND, WTRM | Distribution Department |
| Output 4: Operation and maintenance capacity for new and existing water supply facilities by Juba Station is strengthened. | | | | | | | | | | | | |
| 4-1 Follow up operation and maintenance for existing water intake facilities, raw water transmission facilities, water purification facilities and water transmission and distribution facilities. | Plan | Actual | | | | | | | | | QND, QND | Purification/Distribution Dept. |
| 4-2 Understand the situation of water distribution and develop a plan for promoting equal water distribution regarding existing water supply facilities. | Plan | Actual | | | | | | | | | QND, QND | Purification/Distribution Dept. |
| 4-3 Operate water distribution facilities based on the plan developed in the activity 4-2. | Plan | Actual | | | | | | | | | QND, QND | Purification/Distribution Dept. |
| 4-4 Develop a manual for operation and maintenance of water filling stations. | Plan | Actual | | | | | | | | | QND, WTRM | Account & Revenue Department |
| 4-5 Establish a management structure for new water filling stations based on the manual developed in the activity 4-4 and operate them. | Plan | Actual | | | | | | | | | QND, WTRM | Account & Revenue Department |
| 4-6 Develop a manual for operation and maintenance of new water kiosks. | Plan | Actual | | | | | | | | | QND, WTRM | Account & Revenue Department |
| 4-7 Establish a management structure for water kiosks based on the manual developed in the activity 4-6 and to operate them. | Plan | Actual | | | | | | | | | QND, WTRM | Account & Revenue Department |
| 4-8 Develop a plan for procurement of materials for operation and maintenance for facilities including new water supply facilities. | Plan | Actual | | | | | | | | | QND, QND | Account/Purification Distribution Dept. |
| 4-9 Review and revise two operation and maintenance manuals developed in the activity 4-4, and 4-6. | Plan | Actual | | | | | | | | | QND, WTRM | Account & Revenue Department |

Annex 2

Tentative Plan of Operation

| Project Title: The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation Phase 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|------|--------|----------|----|-----|----|----------|----|-----|----|----------|----|-----|----|----------|----|-----|----|----------|----|-----|----|----------|----|-----|----|----------|----|---------|----|-------------|------------------------------|
| Inputs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Remarks | | | |
| Expert | | Year | | 1st Year | | | | 2nd Year | | | | 3rd Year | | | | 4th Year | | | | 5th Year | | | | 6th Year | | | | 7th Year | | | | | |
| | | | | I | II | III | IV | I | II | III | IV | I | II | III | IV | I | II | III | IV | I | II | III | IV | I | II | III | IV | I | II | III | IV | | |
| 1) Chief advisor / Water utility management (CAWUM) | | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2) Operation and maintenance on water purification facilities (OMP) | | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3) Operation and maintenance on water distribution facilities (OMD) | | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4) Water quality management (WQM) | | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5) Water tariff / financial management (WTFM) | | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6) Management of water filling station and water kiosks (WFSWK) | | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7) Hygiene education/ public awareness raising (HEPAR) | | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8) GIS (GIS) | | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9) Design, cost estimate and construction supervision | | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10) Project coordinator (PC) | | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Equipment | | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Equipment for water leakage detection | | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Equipment for water leakage repair | | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Equipment for training (equipment for installation of service connection, etc.) | | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Training materials and equipment | | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Training in Japan | | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| In-country/Third country Training | | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Activities | | Year | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sub-Activities | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | I | II | III | IV | I | II | III | IV | I | II | III | IV | I | II | III | IV | I | II | III | IV | I | II | III | IV | I | II | III | IV | Japan | GRSS |
| Output 1: Juba Station's water charge collection capacity is strengthened. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-1 Conduct a baseline survey regarding water works management, facilities operation and maintenance and customer satisfaction. | | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | | | | | All members | All Departments/ HQ |
| 1-2 Understand the latest cost structure and review of the current water tariff. | | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CAWUM, WTFM | Account & Revenue Department |
| 1-3 Update the customer information. | | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTFM, GIS | Account & Revenue Department |
| 1-4 Visualize the customer information utilizing GIS and to understand actual situation of water bill collection. | | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTFM, GIS | Account & Revenue Department |
| 1-5 Develop a guideline for appropriate water pricing for Juba Station and the guideline is approved by the Headquarters. | | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CAWUM, WTFM | Account & Revenue Department |
| 1-6 Based on the guideline developed in the activity 1-5, develop a (3 year) financial, revenue and expenditure plan. | | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CAWUM, WTFM | Account & Revenue Department |
| 1-7 Develop an activity plan for improvement of billing and bill collection. | | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CAWUM, WTFM | Account & Revenue Department |
| 1-8 Develop bill collection plan including a new water supply facilities. | | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CAWUM, WTFM | Account & Revenue Department |
| 1-9 Conduct bill collection based on the activity plan developed in the activity 1-5 and fee collection plan developed in the activity 1-7 and monitor the bill collection activities. | | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTFM, GIS | Account & Revenue Department |
| 1-10 Take a measure for the customers without payments and to monitor these activities. | | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTFM, GIS | Account & Revenue Department |
| 1-11 Promote installation of a meter for large-consumption customers. | | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | | | | | QND, WTFM | Account & Revenue Department |
| 1-12 Review financial, revenue and expenditure plan and revise, and update it every year. | | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CAWUM, WTFM | Account & Revenue Department |

Project Organization Chart



Note: WK (Water Kiosk), TFS (Tanker Filling Station)

| | | | | | | | | | | | | | | |
|--|------|----------|----------|----------|----------|----------|----------|----------|---------|--------|------|--------|-------------|--------------|
| Output 5: Support and supervisory function of SSUWC headquarters toward Juba Stations is strengthened. | | | | | | | | | | | | | | |
| 5-1 Conduct an assessment for training needs of Juba Station. | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | All members | All Deputies |
| 5-2 Develop a training plan including training materials, manuals and budget based on training needs. | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | All members | All Deputies |
| 5-3 Select training leaders from staff at Juba Station who have participated in the training and develop a system to support other staff by these leaders. | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | All members | All Deputies |
| 5-4 Conduct training for Juba Station staff based on the plan. | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | All members | All Deputies |
| 5-5 Keep training records by the Headquarters. | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | PC | Headquarters |
| 5-6 Examine for feedbacks on Juba Station's monthly and annual reports, and annual plans provided by Headquarters. | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | CAW/JGA | Headquarters |
| 5-7 Develop management database for Juba Station and update the data regularly. | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | All members | Headquarters |
| 5-8 Conduct an end line survey regarding water works management, facilities operation and maintenance and customer satisfaction of Juba City. | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | CAW/JGA, PC | All Deputies |
| Duration / Phasing | | | | | | | | | | | | | | |
| Monitoring Plan | | | | | | | | | | | | | | |
| Monitoring | Year | 1st Year | 2nd Year | 3rd Year | 4th Year | 5th Year | 6th Year | 7th Year | Remarks | | | | | |
| Joint Coordinating Committee | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | | | | | | |
| Set-up the Detailed Plan of Operation | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | | | | | | |
| Submission of Monitoring Sheet | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | | | | | | |
| Monitoring Mission from Japan | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | | | | | | |
| Joint Monitoring | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | | | | | | |
| Post Monitoring | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | | | | | | |
| Monitoring Plan | | | | | | | | | | | | | | |
| Reports/Documents | Year | 1st Year | 2nd Year | 3rd Year | 4th Year | 5th Year | 6th Year | 7th Year | Remarks | | | | | |
| Inception Report | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | | | | | | |
| Progress Report | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | | | | | | |
| Project Completion Report | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | | | | | | |
| Public Relations | | | | | | | | | | | | | | |
| Newsletters | Plan | Actual | Plan | Actual | Plan | Actual | Plan | Actual | | | | | | |

New water supply facilities will assumed to be started operation.

*Embassy of Japan
Juba – South Sudan*

*Interim Free Report, No. 705,
3-11 South Sudan's 1st Chief,
Juba, Central Equatoria State,
Republic of South Sudan*

Annex 4

A List of Proposed Members of Joint Coordinating Committee

The members of Joint Coordination Committee (JCC) are as follows.

1. Chairperson: Minister of Electricity, Dams, Irrigation and Water Resources (MEDIWR)
2. Members of South Sudan side
 - Project Director
 - Project Managers
 - Counterpart personnel of SSUWC appointed in the Project
 - Representative of the MEDIWR
 - Persons who are appointed by the South Sudan side
3. Members of Japanese side
 - Resident Representative of JICA South Sudan Office
 - Chief Advisor
 - JICA Experts assigned in the Project
 - Persons who are appointed by the Japanese side
4. Observers
 - Embassy of Japan
 - Representatives from concerned organizations of South Sudanese side can attend as observers based on invitation from chairperson of JCC

MP

Note Verbale

No: NV/11/13

The Embassy of Japan in the Republic of South Sudan presents its compliments to the Ministry of Foreign Affairs and International Cooperation of the Republic of South Sudan, and has the honour to refer to the recent discussions held between the representatives of the Government of Japan and the Government of the Republic of South Sudan responding to the Ministry's Note Verbale No. RSS/MFA&IC/ETC/161-13 and to propose the following arrangements:

1. The Japan International Cooperation Agency (hereinafter referred to as "JICA") will carry out technical cooperation for implementing the project of "Management Capacity Enhancement of South Sudan Urban Water Corporation Phase Two" (hereinafter referred to as the "Project") at its own expense in accordance with the relevant laws and regulations of Japan.
2. The technical cooperation for the Project will be dispatching expert(s) to the Republic of South Sudan, and may also include:
 - (a) providing technical training to South Sudanese nationals;
 - (b) providing the Government of the Republic of South Sudan with equipment, machinery and materials.

3. (1) The Government of the Republic of South Sudan shall accord the expert(s) and his/her (their) families such privileges, exemptions and benefits as are no less favourable than those accorded to experts and their families of any third country or of any international organization performing a similar mission in the Republic of South Sudan. In particular, the Government of the Republic of South Sudan shall:

- (a) exempt the expert(s) from income tax and fiscal charges imposed on or in connection with salaries and any allowances remitted to them from abroad;
- (b) exempt the expert(s) and his/her (their) families from customs duties and fiscal charges in respect of the importation of personal and household effects belonging to the expert(s) and his/her (their) families as well as the equipment, machinery and materials, prepared by JICA, necessary for the performance of the duties of the expert(s);
- (c) bear claims, if any arises, against the expert(s) resulting from, occurring in the course of, or otherwise connected with, the performance of his/her (their) duties, except when the two Governments agree that such claims arise from gross negligence or wilful misconduct on the part of the expert(s).

(2) The Government of the Republic of South Sudan shall exempt the provided equipment,

JICA

MA

MP

machinery and materials from customs duties and fiscal charges.

4. Separate arrangements which govern the details and procedures of the technical cooperation will be decided upon between JICA and a competent agency of the Government of the Republic of South Sudan.

5. The Government of the Republic of South Sudan shall ensure that the techniques and knowledge acquired by South Sudanese nationals as well as the equipment, machinery and materials provided as a result of the Japanese technical cooperation mentioned in paragraph 1. contribute to the economic and social development of the Republic of South Sudan, and are not utilized for military purposes.

6. The Government of Japan and the Government of the Republic of South Sudan shall consult with each other in respect of any matter that may arise from or in connection with the present arrangements.

The Embassy of Japan in the Republic of South Sudan has further the honour to propose that the present Note Verbale and the Ministry's Note Verbale in reply accepting on behalf of the Government of the Republic of South Sudan the foregoing arrangements shall constitute an agreement between the two Governments, which shall enter into force on the date of the Ministry's Note Verbale in reply.

The Embassy of Japan in the Republic of South Sudan avails itself of this opportunity to renew to the Ministry of Foreign Affairs and International Cooperation of the Republic of South Sudan the assurance of its highest consideration.

3 September, 2013

To: Ministry of Foreign Affairs and International Cooperation of the Republic of South Sudan
Cc: Ministry of Electricity, Dams, Irrigation and Water Resources
JICA South Sudan Office



THE REPUBLIC OF SOUTH SUDAN
MINISTRY OF FOREIGN AFFAIRS AND INTERNATIONAL COOPERATION
Office of the Undersecretary

Ref: RSS/WEA&C/ETC/462-13

Date: _____

The Ministry of Foreign Affairs and International Cooperation of the Republic of South Sudan presents its compliments to the Embassy of Japan in the Republic of South Sudan, and has the honor to acknowledge the receipt of the Embassy's Note Verbal No. NV/147/13 (dated 3rd September, 2013).

The Ministry of Foreign Affairs and International Cooperation of the Republic of South Sudan has further the honor to accept on behalf of the Government of the Republic of South Sudan the proposal described in the Note Verbal Mentioned above and to agree that the Embassy's Note Verbal and this Note Verbal in reply shall constitute an agreement between the two Governments, which shall enter into force on the date of this note verbal in reply.

The Ministry of Foreign Affairs and International Cooperation of the Republic of South Sudan avails itself of this opportunity to renew to the Embassy of Japan in the Republic of South Sudan the assurance of its highest consideration.

13th December, 2013



The Embassy of Japan
RSS/Juba

Project Title : The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation Phase 2

Implementing agency: South Sudan Urban Water Corporation (SSUWC) Headquarters and Juba Station

Target Group: Staff of SSUWC Headquarters and Juba Station

Period of Project: 4 years and 5 months

Target site: Juba, Republic of South Sudan

Model site:

| Narrative Summary | Objective Verifiable Indicator | Means of Verification | Important Assumption |
|---|--|--|--|
| Overall Goal : Safe and clean water is supplied in a reliable manner in Juba. | <ul style="list-style-type: none"> - Existing water supply facilities are operated more than 22 hours per day on average. - The number of the days of the total samples that treated water meets the water quality standards of turbidity (less than 5 NTU) and free residual chlorine (1.5 mg/l ~2.0 mg/l) achieve 90% of the sampling. - All of the selected major operational indicators are improved. - Customer satisfaction with water services is increased. | <ul style="list-style-type: none"> - SSUWC Annual report / Monthly report - Water quality monitoring report - Baseline survey report and an ex-post evaluation report | <ul style="list-style-type: none"> - Subsidized fuel for generator for water supply facilities or subsidized city power supply is available in Juba - Political situation of South Sudan does not affect security of Juba as well as functions of SSUWC. - Economic conditions of South Sudan do not become worse significantly. |
| Project purpose: The capacity of SSUWC Juba Station regarding sustainable service delivery (financial management, non-revenue water management, facilities operation and maintenance) is strengthened. | <ul style="list-style-type: none"> - More than 80% of the indicators of the Juba reform action plan are improved from the baseline figures - 100 % of operation and maintenance expenses excluding personnel costs and chemical costs are recovered from water sale revenue. (Assumption: more than 70% of fuel for generator will be procured from subsidized fuel and the rest from market fuel or 100% of power supply of water supply facilities will be provided from city power supply.) | <ul style="list-style-type: none"> - SSUWC Annual report / Monthly report - Financial documents (including bank statement and internally audited account) | <ul style="list-style-type: none"> - Quality of raw water is not deteriorated significantly. - Quantity of raw water is not reduced significantly. - Subsidized fuel for generator for water supply facilities or subsidized city power supply is available in Juba - Political situation of South Sudan does not affect security of Juba as well as functions of SSUWC - Economic conditions of South Sudan do not become worse significantly. |
| Outputs : | | | |
| 1. Juba Station's water charge collection capacity is strengthened. | 1-1 Customer information is updated. 1-2 Water sale revenue has an increasing trend. 1-3 Water tariff is proposed based on the principles and guideline to be developed in the Project. 1-4 The number of water meters installed at large | <ul style="list-style-type: none"> - Customer information database - Monthly bill collection report - Proposed tariff - SSUWC Annual report / | <ul style="list-style-type: none"> - Subsidized fuel for generator for water supply facilities or subsidized city power supply for operation of facilities for minimum 12 hours/day is available in Juba. - Government budget for SSUWC will not be |

1

CPG


MINUTES OF MEETINGS
BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY
AND
AUTHORITIES CONCERNED
OF THE GOVERNMENT OF REPUBLIC OF SOUTH SUDAN
FOR

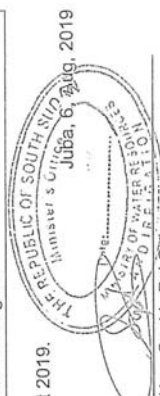
AMENDMENT OF THE RECORD OF DISCUSSIONS ON
THE PROJECT FOR MANAGEMENT CAPACITY ENHANCEMENT OF SOUTH SUDAN
URBAN WATER CORPORATION PHASE 2 IN THE REPUBLIC OF SOUTH SUDAN

The Japan International Cooperation Agency (hereinafter referred to as "JICA") and Ministry of Irrigation and Water Resources (MIWR) hereby agree that the Record of Discussions on Project for Management Capacity Enhancement of South Sudan Urban Water Corporation Phase 2 (hereinafter referred to as "the Project") in the Republic of South Sudan (hereinafter referred to as "the Project") signed on October 12, 2015 will be amended as follows;

| 1. Duration | Before | Amended Version |
|--|---|-----------------|
| 4 years from the arrival of the first JICA expert. | 4 years and 5 months from the arrival of the first JICA expert: i.e. till the end of July 2020. | |
| Reason: Since July 2016, JICA experts had conducted technical cooperation from outside of South Sudan due to the security situation. As the situation improved, JICA experts resumed cooperation in Juba since April 2019. South Sudanese side and Japanese side agreed to extend the Project's duration to take time to implement activities in Juba. | | |
| 2. PDM revision (to set the numerical values of Objective Verifiable Indicators) | Before | Amended Version |
| As attached (PDM ver. 1). | As attached (PDM ver.2). | |
| Reason: Enough information is now collected to set suitable targets. | | |

This amendment will become effective as of 6, August 2019.


 Mr. Shinya TOMONARI
 Chief Representative
 South Sudan Office
 Japan International Cooperation Agency


 Hon. Sophia Pal Gal
 Minister
 Ministry of Water Resources and Irrigation
 Republic of South Sudan

Annex 1 : PDM ver.2
 Annex 2 : Plan of Operation (PO)
 Annex 3 : PDM ver.1 (previous version, for reference)
 Annex 4 : Record of Discussions (signed on May 12, 2016)

TAK

NIP

| Activities | Inputs | | Pre-Conditions |
|--|---|---|---------------------------------------|
| | The Japanese side | The South Sudan Side | |
| 1-1 Conduct a baseline survey regarding water works management, facilities operation and maintenance and customer satisfaction. | 1. Dispatch of Experts 1) Chief advisor / Water Utility management 2) Operation and maintenance on water purification facilities 3) Operation and maintenance on water distribution facilities 4) Water quality management 5) Water tariff / financial management 6) Management of water filling station and water kiosks 7) Hygiene education/ public awareness raising 8) GIS expert 9) Project coordinator 2. Training in Japan and third countries 3. Machinery and equipment 1) Equipment for water leakage detection 2) Equipment for water leakage repair 3) Equipment for training (equipment for installation of service connection, etc.) 4) Training materials and equipment 4. Other administrative cost for the Project 5. Project vehicle for JICA experts | 1. Assignment of Counterparts 2. Facilities 1) Office space for Japanese experts 2) Necessary facilities for training. 3. Proper operation and maintenance of machinery and equipment provided by the Project 4. Administrative cost and other expense 5. Personnel cost for counterparts and other running expenses (daily allowance and transportation expense) 6. Operation and maintenance costs for machinery and equipment provided by the Project | Security situation in Juba is stable. |
| 1-2 Understand the latest cost structure and review of the current water tariff. | | | <Issues and countermeasures> |
| 1-3 Update the customer information. | | | |
| 1-4 Visualize the customer information utilizing GIS and to understand actual situation of water bill collection. | | | |
| 1-5 Develop a guideline for appropriate water pricing for Juba Station and the guideline is approved by the Headquarters. | | | |
| 1-6 Based on the guideline developed in the activity 1-5, develop a revenue and expenditure plan. | | | |
| 1-7 Develop an activity plan for improvement of billing and bill collection. | | | |
| 1-8 Conduct bill collection based on the activity plan developed in the activity 1-7 and monitor the bill collection activities. | | | |
| 1-9 Take a measure for the customers without payments and to monitor these activities. | | | |
| 1-10 Promote installation of a meter for large-consumption customers. | | | |
| 2-1 Create a customer (commercial) section at Juba Station. | | | |
| 2-2 Develop a public awareness activities plan. | | | |
| 2-3 Develop training materials for public awareness activities. | | | |
| 2-4 Conduct public awareness activities on SSUWC activities. | | | |
| 2-4-1 Conduct public awareness activities for public in collaboration with relevant organization (such as MWRI, Juba city, payam, schools, churches and media) | | | |
| 2-4-2 Conduct public awareness activities for existing customers. | | | |
| 3-1 Formulate a non-revenue water management task force team at Juba Station. | | | |
| 3-2 Prepare GIS map for existing water supply facilities, pipes and valves. | | | |
| 3-3 Identify customers in GIS and prepare GIS customer database. | | | |
| 3-4 Prepare standard operation procedure (SOP) for updating GIS mapping for facilities and customers. | | | |
| 3-5 Prepare manuals for non-revenue management. | | | |
| 3-6 Prepare a plan of zoning which can be isolated by valve. | | | |
| 3-7 Prepare leakage report. | | | |
| 3-8 Conduct leakage repair. | | | |
| 3-9 Conduct commercial loss management activities. | | | |

3

SP4

| | | | |
|---|---|--|---|
| | consumption customers is increased from 45 to 220. | Monthly report | decreased significantly. - Serious damage on water supply facilities does not occur. - Personnel of counterparts do not leave the job and are not transferred considerably. |
| 2. Public awareness activities for Juba citizens by Juba Station are enhanced. | 2-1 Public awareness raising activities plan is developed. 2-2 Public awareness raising activities are conducted in accordance with the plan 2-3 The better understanding of the sampled citizens on water supply service provided by SSUWC is improved from the baseline. | - Public awareness raising activities plan - Public awareness raising activities report - Baseline / End line survey report (Sampling survey) | |
| 3. Non-revenue water management capacity of Juba Station is strengthened. | 3-1 Non-revenue water management manuals are prepared. 3-2 GIS map for existing water supply facilities, pipes and valves are prepared. 3-3 GIS customer database is prepared. 3-4 SOP of leakage repair is prepared. 3-5 Leakage monitoring report is prepared. | - Non-revenue water management manuals - SSUWC Annual report / Monthly report | |
| 4. Operation and maintenance capacity for existing water supply facilities by Juba Station is strengthened. | 4-1 Study report of management method of new water filling stations is prepared. 4-2 Study report of management method of new water kiosks is prepared. 4-3 Operation and maintenance data of existing water supply facilities are compiled in monthly and annual reports and shared among the concerned persons. | - SSUWC Annual report / Monthly report - Management method study report for new tanker filling stations and water kiosks - Water quality monitoring report | |
| 5. Support and supervisory function of SSUWC headquarters toward Juba Station is strengthened. | 5-1 Training plan for Juba Station is developed by SSUWC Headquarters. 5-2 Remote training report including all outputs of the project is prepared by the headquarters. 5-3 Annual report, annual plan, and monthly report of Juba Station are examined for feedbacks provided by SSUWC Headquarters to Juba Station for more than one year. 5-4 Juba Station improvement action plan is prepared. 5-5 SSUWC Headquarters reform action plan is prepared. 5-6 SSUWC headquarters operation manuals are prepared. | - Training plan of SSUWC Headquarters for Juba Station - Remote training report - Records of checking of annual and monthly reports and plans - Juba Station improvement action plan - SSUWC Headquarters reform action plan - SSUWC headquarters operation manuals | |

2

SP4

[illegible]

| | | | | |
|--|--|--|--|--|
| 3-10 Install service pipes and meters for house connections. | | | | |
| 3-11 Conduct meter management. | | | | |
| 4-1 Follow up operation and maintenance for existing water intake facilities, raw water transmission facilities, water purification facilities and water transmission and distribution facilities. | | | | |
| 4-2 Understand the situation of water distribution and develop a plan for promoting equal water distribution regarding existing water supply facilities. | | | | |
| 4-3 Operate water distribution facilities based on the plan developed in the activity 4-2. | | | | |
| 4-4 Study management method of new water filling stations. | | | | |
| 4-5 Study management method of new water kiosks. | | | | |
| 4-6 Develop manuals for procurement of materials for operation and maintenance for facilities. | | | | |
| 5-1 Conduct an assessment for training needs of Juba Station. | | | | |
| 5-2 Develop a training plan including training materials, manuals and budget based on training needs. | | | | |
| 5-3 Conduct remote training for Headquarters and Juba Station. | | | | |
| 5-4 Examine for feedbacks on Juba Station's monthly and annual reports, and annual plans provided by Headquarters. | | | | |
| 5-5 Develop management database for Juba Station and update the data regularly. | | | | |
| 5-6 Prepare remote training report including all outputs of the project. | | | | |
| 5-7 Prepare Juba Station improvement action plan. | | | | |
| 5-8 Prepare SSUWC Headquarters reform action plan. | | | | |
| 5-9 Prepare SSUWC headquarters operation manuals. | | | | |
| 5-10 Conduct an end line survey regarding water works management, facilities operation and maintenance and customer satisfaction of Juba City. | | | | |

| Activities | Sub-Activities | Year | 2016 | | | | 2017 | | | | 2018 | | | | 2019 | | | | 2020 | | | | Responsible Organization | | Achievements | Issue & Countermeasures | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|----------------|------|------|-----|-----|-------|------|-----|-----|-------|------|-----|-----|-------|------|-----|-----|-------|------|-----|-----|-------|--------------------------|------|--------------|-------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | 1-3 | 4-6 | 7-9 | 10-12 | 1-3 | 4-6 | 7-9 | 10-12 | 1-3 | 4-6 | 7-9 | 10-12 | 1-3 | 4-6 | 7-9 | 10-12 | 1-3 | 4-6 | 7-9 | 10-12 | Japan | GRSS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Output 3: Non-Revenue Water Management Capacity of Juba Station is strengthened. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3-1 Formulate a non-revenue water management task force team at Juba Station. | | Plan | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Activities | Year | 2016 | | | | 2017 | | | | 2018 | | | | 2019 | | | | 2020 | | | | Responsible Organization | | Achievements | Issue & Countermeasures |
|---|--------|------|-----|-----|-------|------|-----|-----|-------|------|-----|-----|-------|------|-----|-----|-------|------|-----|-----|-------|--------------------------|--|--------------|-------------------------|
| | | 1-3 | 4-6 | 7-9 | 10-12 | 1-3 | 4-6 | 7-9 | 10-12 | 1-3 | 4-6 | 7-9 | 10-12 | 1-3 | 4-6 | 7-9 | 10-12 | 1-3 | 4-6 | 7-9 | 10-12 | Japan | GRSS | | |
| Output 1: Juba Station's water charge collection capacity is strengthened. | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-1 Conduct a baseline survey regarding water works management, facilities operation and maintenance and customer satisfaction | Plan | | | | | | | | | | | | | | | | | | | | | All members | All Department/ HDs | | |
| 1-2 Understand the latest cost structure and review of the current water tariff. | Plan | | | | | | | | | | | | | | | | | | | | | CANWUA, WTFM | Account & Revenue Department | | |
| | Actual | | | | | | | | | | | | | | | | | | | | | WTFM, GIS | Account & Revenue Department | | |
| 1-3 Update the customer information. | Plan | | | | | | | | | | | | | | | | | | | | | WTFM, GIS | Account & Revenue Department | | |
| 1-4 Visualize the customer information utilizing GIS and to understand actual situation of water bill collection. | Plan | | | | | | | | | | | | | | | | | | | | | CANWUA, WTFM | Account & Revenue Department | | |
| 1-5 Develop a guideline for appropriate water pricing for Juba Station and the guideline is approved by the Headquarters. | Actual | | | | | | | | | | | | | | | | | | | | | WTFM | Account & Revenue Department | | |
| 1-6 Based on the guideline developed in the activity 1.5, develop a revenue and expenditure plan | Plan | | | | | | | | | | | | | | | | | | | | | CANWUA, WTFM | Account & Revenue Department | | |
| 1-7 Develop an activity plan for improvement of billing and bill collection. | Actual | | | | | | | | | | | | | | | | | | | | | CANWUA, WTFM | Account & Revenue Department | | |
| | Plan | | | | | | | | | | | | | | | | | | | | | WTFM, GIS | Account & Revenue Department | | |
| 1-8 Conduct bill collection based on the activity plan developed in the activity 1-7 and monitor the bill collection activities. | Actual | | | | | | | | | | | | | | | | | | | | | WTFM, GIS | Account & Revenue Department | | |
| 1-9 Take a measure for the customers without payments and to monitor these activities. | Plan | | | | | | | | | | | | | | | | | | | | | WTFM, GIS | Account & Revenue Department | | |
| 1-10 Promote installation of a meter for large-consumption customers. | Actual | | | | | | | | | | | | | | | | | | | | | QMD, WTFM | Account & Revenue Department | | |
| Output 2: Public awareness activities for Juba citizens by Juba Station are enhanced. | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-1 Create a customer (commercial) section at Juba Station. | Plan | | | | | | | | | | | | | | | | | | | | | HEPAR, PC | Distribution/Account & Revenue Depart. | | |
| | Actual | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-2 Develop a public awareness activities plan. | Plan | | | | | | | | | | | | | | | | | | | | | HEPAR, PC | Distribution/Account & Revenue Depart. | | |
| | Actual | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-3 Develop training materials for public awareness activities. | Plan | | | | | | | | | | | | | | | | | | | | | HEPAR, PC | Distribution/Account & Revenue Depart. | | |
| | Actual | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-4 Conduct public awareness activities on SSUWC activities. | Plan | | | | | | | | | | | | | | | | | | | | | HEPAR, PC | Distribution/Account & Revenue Depart. | | |
| | Actual | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-4-1 Conduct public awareness activities for public in collaboration with relevant organization (such as MWRL, Juba city, sayam, schools, churches and media). | Plan | | | | | | | | | | | | | | | | | | | | | HEPAR, PC | Distribution/Account & Revenue Depart. | | |
| | Actual | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-4-2 Conduct public awareness activities for existing customers. | Plan | | | | | | | | | | | | | | | | | | | | | HEPAR, PC | Distribution/Account & Revenue Depart. | | |
| | Actual | | | | | | | | | | | | | | | | | | | | | | | | |

Implementing agency: South Sudan Urban Water Corporation (SSUWC) Headquarters and Juba Station

Period of Project: 4 years

Model site:

22

1

204

15

12/19

| Activities | Inputs | | Pre-Conditions |
|--|---|---|---------------------------------------|
| | The Japanese side | The South Sudan Side | |
| 1-1 Conduct a baseline survey regarding water works management, facilities operation and maintenance and customer satisfaction. | 1. Dispatch of Experts 1) Chief advisor / Water Utility management 2) Operation and maintenance on water purification facilities 3) Operation and maintenance on water distribution facilities 4) Water quality management 5) Water tariff / financial management 6) Management of water filling station and water kiosks 7) Hygiene education/ public awareness raising 8) GIS expert 9) Project coordinator 2. Training in Japan and third countries 3. Machinery and equipment 1) Equipment for water leakage detection 2) Equipment for water leakage repair 3) Equipment for training (equipment for installation of service connection, etc.) 4) Training materials and equipment 4. Other administrative cost for the Project 5. Project vehicle for JICA experts | 1. Assignment of Counterparts 2. Facilities 1) Office space for Japanese experts 2) Necessary facilities for training. 3. Proper operation and maintenance of machinery and equipment provided by the Project 4. Administrative cost and other expense 5. Personnel cost for counterparts and other running expenses (daily allowance and transportation expense) 6. Operation and maintenance costs for machinery and equipment provided by the Project | Security situation in Juba is stable. |
| 1-2 Understand the latest cost structure and review of the current water tariff. | | | <Issues and countermeasures> |
| 1-3 Update the customer information. | | | |
| 1-4 Visualize the customer information utilizing GIS and to understand actual situation of water bill collection. | | | |
| 1-5 Develop a guideline for appropriate water pricing for Juba Station and the guideline is approved by the Headquarters. | | | |
| 1-6 Based on the guideline developed in the activity 1-5, develop a revenue and expenditure plan. | | | |
| 1-7 Develop an activity plan for improvement of billing and bill collection. | | | |
| 1-8 Conduct bill collection based on the activity plan developed in the activity 1-7 and monitor the bill collection activities. | | | |
| 1-9 Take a measure for the customers without payments and to monitor these activities. | | | |
| 1-10 Promote installation of a meter for large-consumption customers. | | | |
| 2-1 Create a customer (commercial) section at Juba Station. | | | |
| 2-2 Develop a public awareness activities plan. | | | |
| 2-3 Develop training materials for public awareness activities. | | | |
| 2-4 Conduct public awareness activities on SSUWC activities. | | | |
| 2-4-1 Conduct public awareness activities for public in collaboration with relevant organization (such as MWRI, Juba city, payam, schools, churches and media) | | | |
| 2-4-2 Conduct public awareness activities for existing customers. | | | |
| 3-1 Formulate a non-revenue water management task force team at Juba Station. | | | |
| 3-2 Prepare GIS map for existing water supply facilities, pipes and valves. | | | |
| 3-3 Identify customers in GIS and prepare GIS customer database. | | | |
| 3-4 Prepare standard operation procedure (SOP) for updating GIS mapping for facilities and customers. | | | |
| 3-5 Prepare manuals for non-revenue management. | | | |
| 3-6 Prepare a plan of zoning which can be isolated by valve. | | | |
| 3-7 Prepare leakage report. | | | |
| 3-8 Conduct leakage repair. | | | |
| 3-9 Conduct commercial loss management activities. | | | |

3

506

| | | | |
|---|---|--|---|
| | consumption customers is increased from ** to **. | Monthly report | decreased significantly. - Serious damage on water supply facilities does not occur. - Personnel of counterparts do not leave the job and are not transferred considerably. |
| 2. Public awareness activities for Juba citizens by Juba Station are enhanced. | 2-1 Public awareness raising activities plan is developed. 2-2 Public awareness raising activities are conducted in accordance with the plan 2-3 The better understanding of the sampled citizens on water supply service provided by SSUWC is improved from the baseline. | - Public awareness raising activities plan - Public awareness raising activities report - Baseline / End line survey report (Sampling survey) | |
| 3. Non-revenue water management capacity of Juba Station is strengthened. | 3-1 Non-revenue water management manuals are prepared. 3-2 GIS map for existing water supply facilities, pipes and valves are prepared. 3-3 GIS customer database is prepared. 3-4 SOP of leakage repair is prepared. 3-5 Leakage monitoring report is prepared. | - Non-revenue water management manuals - SSUWC Annual report / Monthly report | |
| 4. Operation and maintenance capacity for existing water supply facilities by Juba Station is strengthened. | 4-1 Study report of management method of new water filling stations is prepared. 4-2 Study report of management method of new water kiosks is prepared. 4-3 Operation and maintenance data of existing water supply facilities are compiled in monthly and annual reports and shared among the concerned persons. | - SSUWC Annual report / Monthly report - Management method study report for new tanker filling stations and water kiosks - Water quality monitoring report | |
| 5. Support and supervisory function of SSUWC headquarters toward Juba Station is strengthened. | 5-1 Training plan for Juba Station is developed by SSUWC Headquarters. 5-2 Remote training report including all outputs of the project is prepared by the headquarters. 5-3 Annual report, annual plan, and monthly report of Juba Station are examined for feedbacks provided by SSUWC Headquarters to Juba Station for more than one year. 5-4 Juba Station improvement action plan is prepared. 5-5 SSUWC Headquarters reform action plan is prepared. 5-6 SSUWC headquarters operation manuals are prepared. | - Training plan of SSUWC Headquarters for Juba Station - Remote training report - Records of checking of annual and monthly reports and plans - Juba Station improvement action plan - SSUWC Headquarters reform action plan - SSUWC headquarters operation manuals | |

2

RECORD OF DISCUSSIONS

ON

THE PROJECT FOR MANAGEMENT CAPACITY ENHANCEMENT
OF SOUTH SUDAN URBAN WATER CORPORATION
PHASE 2

IN

THE REPUBLIC OF SOUTH SUDAN

AGREED UPON BETWEEN

AUTHORITIES CONCERNED
OF THE GOVERNMENT OF REPUBLIC OF SOUTH SUDAN

AND

JAPAN INTERNATIONAL COOPERATION AGENCY

Juba, 12 October 2015

Dr. Mitsuaki FURUKAWA
Chief Representative,
JICA South Sudan Office

Hon. Jomima Nuh Kumba
Minister
Ministry of Electricity, Dams, Irrigation
and Water Resources
Republic of South Sudan

Based on the minutes of meetings on the Detailed Planning Survey on the Project for Management Capacity Enhancement of South Sudan Urban Water Corporation Phase 2 (hereinafter referred to as "the Project") signed on May 26th, 2015 between Ministry of Electricity, Dams, Irrigation and Water Resources (MEDIWR), South Sudan Urban Water Corporation (hereinafter referred to as "SSUWC") and the Japan International Cooperation Agency (hereinafter referred to as "JICA"), JICA held a series of discussions with SSUWC and relevant organizations to develop a detailed plan of the Project.

Both parties agreed the details of the Project and the main points discussed as described in the Appendix 1.

Both parties also agreed that SSUWC, the counterpart to JICA, will be responsible for the implementation of the Project in cooperation with JICA, coordinate with other relevant organizations and ensure that the self-reliant operation of the Project is sustained during and after the implementation period in order to contribute toward social and economic development of South Sudan.

The Project will be implemented within the framework of the Note Verbales exchanged on December 13th, 2013 between the Government of Japan (hereinafter referred to as "GOJ") and the Government of Republic of South Sudan (hereinafter referred to as "GRSS") as shown in the Appendix 2.

Appendix 1: Project Description

Appendix 2: Note Verbales

Appendix 3: Minutes of Meetings on the Detailed Planning Survey

| | | | |
|--|--|--|--|
| 3-10 Install service pipes and meters for house connections. | | | |
| 3-11 Conduct meter management. | | | |
| 4-1 Follow up operation and maintenance for existing water intake facilities, raw water transmission facilities, water purification facilities and water transmission and distribution facilities. | | | |
| 4-2 Understand the situation of water distribution and develop a plan for promoting equal water distribution regarding existing water supply facilities. | | | |
| 4-3 Operate water distribution facilities based on the plan developed in the activity 4-2. | | | |
| 4-4 Study management method of new water filling stations. | | | |
| 4-5 Study management method of new water kiosks. | | | |
| 4-6 Develop manuals for procurement of materials for operation and maintenance for facilities. | | | |
| 5-1 Conduct an assessment for training needs of Juba Station. | | | |
| 5-2 Develop a training plan including training materials, manuals and budget based on training needs. | | | |
| 5-3 Conduct remote training for Headquarters and Juba Station. | | | |
| 5-4 Examine for feedbacks on Juba Station's monthly and annual reports, and annual plans provided by Headquarters. | | | |
| 5-5 Develop management database for Juba Station and update the data regularly. | | | |
| 5-6 Prepare remote training report including all outputs of the project. | | | |
| 5-7 Prepare Juba Station improvement action plan. | | | |
| 5-8 Prepare SSUWC Headquarters reform action plan. | | | |
| 5-9 Prepare SSUWC headquarters operation manuals. | | | |
| 5-10 Conduct an end line survey regarding water works management, facilities operation and maintenance and customer satisfaction of Juba City. | | | |

- (c) Supply of machinery and equipment necessary for the implementation of the Project other than the equipment provided by JICA;
 (d) Information as well as support in obtaining medical service for JICA experts;
 (e) Credentials or identification cards for JICA experts;
 (f) Available data (including maps and photographs) and information related to the Project;
 (g) Running expenses necessary for the implementation of the Project;
 (h) Expenses necessary for transportation within South Sudan of the equipment referred to in II-1 (1) as well as for the installation, operation and maintenance thereof; and
 (i) Necessary facilities to the JICA experts for the remittance as well as utilization of the funds introduced into South Sudan from Japan in connection with the implementation of the Project.

2. Implementation Structure

The project organization chart is given in the Annex 3. The roles and assignments of relevant organizations are as follows:

(1) SSUWC

(a) Project Director
 Managing Director of SSUWC will be responsible for overall administration and implementation of the Project.

(b) Project Manager

<For Outputs 1-4> Area Manager of SSUWC Juba Station will be responsible for the managerial matters in the implementation of the Project as the Project Manager.

<For Output 5> Representative of Planning & Project Directorate SSUWC Headquarters will be responsible for the managerial matters in the implementation of the Project as the Project Manager.

(c) Other counterpart staff

| | |
|----------|--|
| Output 1 | Representative of Account & Revenue Dept. SSUWC Juba Station |
| Output 2 | Representative of Account Section, Acct & Rev Dept. SSUWC Juba station |
| Output 3 | Representative of Distribution Dept. SSUWC Juba Station |
| Output 4 | (Facility O&M) Representative of Purification Dept. SSUWC Juba Station (Management of WK and TFS) Representative of Acct & Rev Dept. SSUWC Juba Station |
| Output 5 | Representative of Planning & Project Directorate SSUWC HQs |

Note: WK (Water Kiosk), TFS (Tanker Filling Station)

(2) JICA Experts

The JICA experts will give necessary technical guidance, advice and recommendations to SSUWC on any matters pertaining to the implementation of the Project.

(3) Joint Coordinating Committee

Joint Coordinating Committee (hereinafter referred to as "JCC") will be established in order to facilitate inter-organizational coordination. JCC will be held at least once a year and whenever deems it necessary. JCC will review the progress, revise the overall plan when necessary, approve an annual work plan, conduct evaluation of the Project, and exchange opinions on major issues that arise during the implementation of the Project. A list of proposed members of JCC is shown in the Annex 4.

3. Project Site(s) and Beneficiaries

Project Site: Juba

Beneficiaries: Staff of SSUWC Juba Station and SSUWC Headquarters

4. Duration

4 years from the arrival of the first JICA expert.

5. Reports

SSUWC and JICA experts will jointly prepare the following reports.

(1) Monitoring Sheet on bi-annual basis until the project completion (every six (6) months).

(2) Project Completion Report at the time of the project completion

6. Environmental and Social Considerations

(1) SSUWC will abide by 'JICA Guidelines for Environmental and Social Considerations' in order to ensure that appropriate considerations will be made for the environmental and social impacts of the Project.

7. Management of Safety for Construction Works

For construction works which will be carried out in the Project, SSUWC and JICA will assure the management of safety in accordance with the "Safety Plan" and "Method Statements of Safety" submitted by contractors based on the Guidance for the Management of Safety for Construction Works in Japanese ODA Projects.

III. UNDERTAKINGS OF SSUWC AND GRSS

1. SSUWC and GRSS will take necessary measures to:

(1) ensure that the technologies and knowledge acquired by the South Sudan nationals as a result of Japanese technical cooperation contributes to the economic and social development of South Sudan, and that the knowledge and experience acquired by the personnel of South Sudan from technical training as well as the equipment provided by JICA will be utilized effectively in the implementation of the Project; and

Appendix 1

PROJECT DESCRIPTION

Both parties confirmed that there is no change in the Project Description in the minutes of meetings for Preparatory Survey on the Project signed on May 26th, 2015 (Appendix 3).

I. BACKGROUND

After the end of the decades-long conflict and the realization of the peace agreement, South Sudan became independent from Sudan in July 2011. Its capital, Juba, now functions as political and economic center. The population in Juba is estimated around 600,000 to 800,000. Due to the drastic population growth and deteriorated infrastructure, it is difficult for the Government of Republic of South Sudan to extend good quality public services to the residents.

Water supply and sanitation improvement is recognized as one of the priority issues to be solved in the South Sudan. However, similar to the other sectors, the government has difficulty in meeting increasing demand of water, and as a result, for the Juba residents' access to safe water is quite limited. A water treatment plant has been constructed by the Multi Donor Trust Fund in 2009, which is in operation now. However, South Sudan Urban Water Corporation (SSUWC) Juba Station faced difficulties in distributing safe water in an efficient manner due to the absence of the knowledge and skills for the proper operation and maintenance of water facilities. In this connection, SSUWC requested Government of Japan to support for capacity development of SSUWC staff. Then, Government of Japan through JICA has been conducting technical assistance project titled 'The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation' from October 2010 to September 2013. It was evaluated during terminal evaluation conducted from May to June 2013 that most of the project objectives were achieved. However, there were 5 recommendations as follows: 1) to ensure procedures and management system in each department, 2) to plan a structured internal training system, 3) to extend support to area stations, 4) to increase bill collection, 5) to recruit qualified staff.

In order to tackle these challenges, SSUWC officially requested Government of Japan to continue the support to SSUWC so that the achievement done by the previous project will be ensured in terms of sustainability.

II. OUTLINE OF THE PROJECT

Details of the Project are described in the [Logical Framework (Project Design Matrix: PDM) (Annex 1) and the Plan of Operation (Annex 2).]

1. Input

(1) Input by JICA

(a) Dispatch of Experts

- Chief advisor / Water utility management
- Operation and maintenance on water distribution facilities
- Operation and maintenance on water purification facilities
- Water quality management
- Water tariff / financial management
- Management of water filling stations and water kiosks
- Hygiene education/ public awareness raising
- GIS
- Design, cost estimate and construction supervision
- Project coordinator
- Other experts if necessary

(b) Training

Training of counterpart personnel in Japan and /or in the third countries

(c) Machinery and Equipment

- Vehicle(s) for JICA experts
- Equipment for water leakage detection
- Equipment for water leakage repair
- Equipment for training (equipment for installation of service connection, etc.)
- Other materials necessary for the implementation of the Project

In case of importation, the machinery, equipment and other materials under II-5 (1) (c) above will become the property of the GRSS upon being delivered C.I.F. (cost, insurance and freight) to the South Sudan authorities concerned at the ports and/or airports of disembarkation.

(d) Construction of a training facility

Input other than indicated above will be determined through mutual consultations between JICA and SSUWC during the implementation of the Project, as necessary.

(2) Input by SSUWC

SSUWC will take necessary measures to provide at its own expense:

- (a) Services of SSUWC's counterpart personnel and administrative personnel as referred to in II-2;
- (b) Suitable office space with necessary equipment;

Project Title: The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation Phase 2
Implementation Location: South Sudan Urban Water Corporation (SSUWC) Headquarters and Juba Station
Target Output: Staff of SSUWC Headquarters and Juba Station
Period of Project: 4 years
Target City: Juba, Republic of South Sudan

| Narrative Summary | | Model/Indicator | Means of Verification | Important Assumption | Achievement | Remarks |
|---|--|---|---|--|-------------|---------|
| Overall Goal: Safe and clean water is supplied in a reliable manner in Juba. | Objective Verifiable Indicator: - New and existing water supply facilities are operated more than ** hours per year. - The number of the days in which supply of water is uninterrupted exceeds the water quality standards of turbidity less than 5 NTU and free residual chlorine (0.2 mg/l - 1.0 mg/l) increase from ** day/year baseline to ** day/year. | - SSUWC Annual report / Monthly report - Water quality monitoring report - Baseline survey report and an expert evaluation report | - SSUWC Annual report / Monthly report - Water quality monitoring report - Baseline survey report and an expert evaluation report | - Quality of raw water is not deteriorated significantly. - Quantity of new water is not reduced significantly. - The number of days that supply commercial power to water supply facilities is not less than 30 days per year. - Political situation of South Sudan does not affect security of Juba as well as functions of SSUWC. - Economic conditions of South Sudan do not become worse significantly. | | |
| Project purpose: The capacity of SSUWC Juba Station (providing sustainable service delivery for water supply, water management, water management, facilities operation and maintenance) is strengthened. | Overall Goal: - Juba Station's water supply capacity is increased from 2016 baseline figures. - 100 % of operation and maintenance expenses including personnel costs and chemical costs are recovered from water sales revenue. | - SSUWC Annual report / Monthly report - Financial statements - SSUWC Annual report / Monthly report - Revised tariff system | - SSUWC Annual report / Monthly report - Financial statements - SSUWC Annual report / Monthly report - Revised tariff system | - Quality of raw water is not deteriorated significantly. - Quantity of new water is not reduced significantly. - The number of days that supply commercial power to water supply facilities is not less than 30 days per year. - Political situation of South Sudan does not affect security of Juba as well as functions of SSUWC. - Economic conditions of South Sudan do not become worse significantly. | | |

- (2) Grant privileges, exemptions and benefits to the JICA experts referred to in II-1 (1) above and their families, which are no less favorable than those granted to experts and members of the missions and their families of third countries or international organizations performing similar missions in South Sudan.
2. SSUWC and GRSS will take necessary measures to:
- (1) provide security-related information as well as measures to ensure the safety of the JICA experts;
 - (2) Permit the JICA experts to enter, sojourn and leave in South Sudan for the duration of their assignments.

Other privileges, exemptions and benefits will be provided in accordance with the Note Verbales exchanged on December 13th, 2013 between the Government of Japan and the GRSS.

IV. MONITORING AND EVALUATION

JICA and the SSUWC will jointly and regularly monitor the progress of the Project through the Monitoring Sheets based on the Project Design Matrix (PDM) and Plan of Operation (PO). The Monitoring Sheets will be reviewed every six (6) months.

Also, Project Completion Report will be drawn up one (1) month before the termination of the Project.

JICA will conduct the following evaluations and surveys to verify sustainability and impact of the Project and draw lessons. The SSUWC is required to provide necessary support for them.

1. Ex-post evaluation three (3) years after the project completion, in principle
2. Follow-up surveys on necessity basis

V. PROMOTION OF PUBLIC SUPPORT

For the purpose of promoting support for the Project, SSUWC will take appropriate measures to make the Project widely known to the people of South Sudan.

VI. MISCONDUCT

If JICA receives information related to suspected corrupt or fraudulent practices in the implementation of the Project, SSUWC and relevant organizations will provide JICA with such information as JICA may reasonably request, including information related to any concerned official of the government and/or public organizations of the Republic of South Sudan.

SSUWC and relevant organizations will not, unfairly or unfavorably treat the person and/or company which provided the information related to suspected corrupt or fraudulent practices in the implementation of the Project.

| | | | | | | |
|---|--|---|---|--|--|--|
| 1. Juba Station's water charge collection capacity is strengthened. | 1-1 Customer information is updated. 1-2 Water sale revenue is increased from ** SSP to ** SSE. 1-3 Water tariff is set up based on the actual cost of water supply to be developed in the Project. 1-4 The number of water meters installed at large consumption customers is increased from ** to **. | - Customer information database - Financial statements - SSUWC Annual report / Monthly report - Revised tariff system | - SSUWC Annual report / Monthly report - Financial statements - SSUWC Annual report / Monthly report - Revised tariff system | - Serious damage to water supply facilities does not occur because of civil war. | | |
| 2. Public awareness activities for Juba Station are strengthened. | 2-1 Public awareness raising activities plan is developed. 2-2 Public awareness raising activities are conducted on a regular basis in accordance with the plan. 2-3 More than **% of the sampled citizens show better understanding on water supply service provided by SSUWC. 2-4 The number of water meters installed at large consumption customers is increased from ** to **. | - Public awareness raising activities plan - Public awareness raising activities report - Baseline (End line survey report (Sampling survey)) | - SSUWC Annual report / Monthly report - Survey water management report | - Serious damage to water supply facilities does not occur because of civil war. | | |
| 3. Water supply management capacity of Juba Station is strengthened. | 3-1 Water supply management plan is developed. 3-2 Number of packages detected and reported is increased from ** / year. 3-3 Average time detected leak is fixed is shortened from ** days to ** days. 3-4 Water filling stations are managed in accordance with the manuals to be developed in the Project. | - SSUWC Annual report / Monthly report - Water supply management report | - SSUWC Annual report / Monthly report - Water supply management report | - Serious damage to water supply facilities does not occur because of civil war. | | |
| 4. Operation and maintenance capacity for new and existing water supply facilities by Juba Station is strengthened. | 4-1 Water filling stations are managed in accordance with the manuals to be developed in the Project. 4-2 Water kiosks are managed in accordance with the manuals. 4-3 Operation and maintenance plan of facilities and equipment is developed and implemented. 4-4 Facilities are completed in smoothly and annual reports are shared among the concerned persons. | - SSUWC Annual report / Monthly report - Management data of water supply facilities - Water quality monitoring report | - SSUWC Annual report / Monthly report - Management data of water supply facilities - Water quality monitoring report | - Serious damage to water supply facilities does not occur because of civil war. | | |
| 5. Support and supervisory functions of SSUWC headquarters and Juba Station is strengthened. | 5-1 Training for JICA Station by JICA and SSUWC Headquarters. 5-2 More than ** trainees organized by SSUWC HQ are provided based on the training plan and ** trainees in total participate. 5-3 Annual report, annual plan, and | - SSUWC Annual report / Monthly report - Data is operational database - Training plan of SSUWC Headquarters for Juba Station | - SSUWC Annual report / Monthly report - Data is operational database - Training plan of SSUWC Headquarters for Juba Station | - Serious damage to water supply facilities does not occur because of civil war. | | |

VII. MUTUAL CONSULTATION

JICA and SSUWC will consult each other whenever any major issues arise in the course of Project implementation.

VIII. AMENDMENTS

The record of discussions may be amended by the minutes of meetings between JICA and SSUWC. However, PO may be amended in the Monitoring Sheets. The minutes of meetings will be signed by authorized persons of each side who may be different from the signers of the record of discussions.

Annex 1 Logical Framework (Project Design Matrix:PDM)

Annex 2 Tentative Plan of Operation

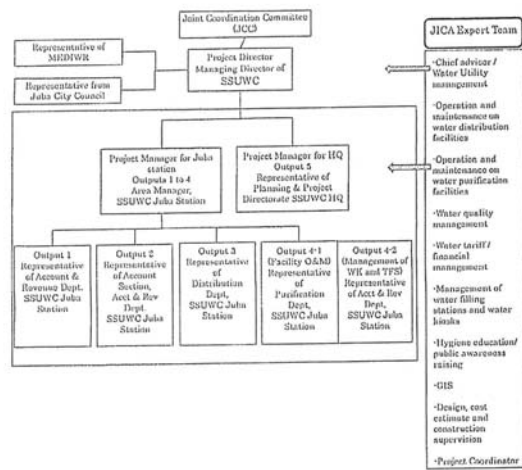
Annex 3 Project Organization Chart

Annex 4 A List of Proposed Members of Joint Coordinating Committee

Table with multiple columns and rows, likely a schedule or timeline. Includes a header row with dates and a main body with various entries.

JNC

Project Organization Chart



Note: WIC (Water Kiosk), TFS (Tanner Filling Station)

JNC

MP

Table with multiple columns and rows, likely a schedule or timeline. Includes a header row with dates and a main body with various entries.

JNC

Table with multiple columns and rows, likely a schedule or timeline. Includes a header row with dates and a main body with various entries.

JNC

MP

machinery and materials from customs duties and fiscal charges.

4. Separate arrangements which govern the details and procedures of the technical cooperation will be decided upon between JICA and a competent agency of the Government of the Republic of South Sudan.

5. The Government of the Republic of South Sudan shall ensure that the techniques and knowledge acquired by South Sudanese nationals as well as the equipment, machinery and materials provided as a result of the Japanese technical cooperation mentioned in paragraph 1, contribute to the economic and social development of the Republic of South Sudan, and are not utilized for military purposes.

6. The Government of Japan and the Government of the Republic of South Sudan shall consult with each other in respect of any matter that may arise from or in connection with the present arrangements.

The Embassy of Japan in the Republic of South Sudan has further the honour to propose that the present Note Verbale and the Ministry's Note Verbale in reply accepting on behalf of the Government of the Republic of South Sudan the foregoing arrangements shall constitute an agreement between the two Governments, which shall enter into force on the date of the Ministry's Note Verbale in reply.

The Embassy of Japan in the Republic of South Sudan avails itself of this opportunity to renew to the Ministry of Foreign Affairs and International Cooperation of the Republic of South Sudan the assurance of its highest consideration.

3 September, 2013

To: Ministry of Foreign Affairs and International Cooperation of the Republic of South Sudan
Cc: Ministry of Electricity, Dams, Irrigation and Water Resources
JICA South Sudan Office

Annex 4

A List of Proposed Members of Joint Coordinating Committee

The members of Joint Coordination Committee (JCC) are as follows.

1. Chairperson: Minister of Electricity, Dams, Irrigation and Water Resources (MEDIVR)
2. Members of South Sudan side
 - Project Director
 - Project Managers
 - Counterpart personnel of SSUWC appointed in the Project
 - Representative of the MEDIVR
 - Persons who are appointed by the South Sudan side
3. Members of Japanese side
 - Resident Representative of JICA South Sudan Office
 - Chief Advisor
 - JICA Experts assigned in the Project
 - Persons who are appointed by the Japanese side
4. Observers
 - Embassy of Japan
 - Representatives from concerned organizations of South Sudanese side can attend as observers based on invitation from chairperson of JCC



THE REPUBLIC OF SOUTH SUDAN MINISTRY OF FOREIGN AFFAIRS AND INTERNATIONAL COOPERATION Office of the Undersecretary

Ref: RSS/MPA/ETC/462-13

Date:

The Ministry of Foreign Affairs and International Cooperation of the Republic of South Sudan presents its compliments to the Embassy of Japan in the Republic of South Sudan, and has the honour to acknowledge the receipt of the Embassy's Note Verbal No. NV1974 dated 3rd September, 2013.

The Ministry of Foreign Affairs and International Cooperation of the Republic of South Sudan has further the honour to accept on behalf of the Government of the Republic of South Sudan the proposal described in the Note Verbal Mentioned above and to agree that the Embassy's Note Verbal and this Note Verbal in reply shall constitute an agreement between the two Governments, which shall enter into force on the date of this note verbal in reply.

The Ministry of Foreign Affairs and International Cooperation of the Republic of South Sudan avails itself of this opportunity to renew to the Embassy of Japan in the Republic of South Sudan the assurances of its highest consideration.

13th December, 2013

The Embassy of Japan
RSS/Juba



Embassy of Japan Juba - South Sudan

Juba Free Report, No. 165,
J. K. South Shopping 1st Class,
Juba, Central Equatoria State,
Republic of South Sudan

Note Verbale

No: NV117/13

The Embassy of Japan in the Republic of South Sudan presents its compliments to the Ministry of Foreign Affairs and International Cooperation of the Republic of South Sudan, and has the honour to refer to the recent discussions held between the representatives of the Government of Japan and the Government of the Republic of South Sudan responding to the Ministry's Note Verbale No. RSS/MPA/IC/ETC/161-13 and to propose the following arrangements:

1. The Japan International Cooperation Agency (hereinafter referred to as "JICA") will carry out technical cooperation for implementing the project of "Management Capacity Enhancement of South Sudan Urban Water Cooperation Phase Two" (hereinafter referred to as the "Project") at its own expense in accordance with the relevant laws and regulations of Japan.
2. The technical cooperation for the Project will be dispatching expert(s) to the Republic of South Sudan, and may also include:
 - (a) providing technical training to South Sudanese nationals;
 - (b) providing the Government of the Republic of South Sudan with equipment, machinery and materials.
3. (1) The Government of the Republic of South Sudan shall accord the expert(s) and his/her (their) families such privileges, exemptions and benefits as are no less favourable than those accorded to experts and their families of any third country or of any international organization performing a similar mission in the Republic of South Sudan. In particular, the Government of the Republic of South Sudan shall:
 - (a) exempt the expert(s) from income tax and fiscal charges imposed on or in connection with salaries and any allowances remitted to them from abroad;
 - (b) exempt the expert(s) and his/her (their) families from customs duties and fiscal charges in respect of the importation of personal and household effects belonging to the expert(s) and his/her (their) families as well as the equipment, machinery and materials, prepared by JICA, necessary for the performance of the duties of the expert(s);
 - (c) bear claims, if any arises, against the expert(s) resulting from, occurring in the course of, or otherwise connected with, the performance of his/her (their) duties, except when the two Governments agree that such claims arise from gross negligence or wilful misconduct on the part of the expert(s).(2) The Government of the Republic of South Sudan shall exempt the provided equipment,

MINUTES OF MEETINGS
BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY
AND
AUTHORITIES CONCERNED OF
THE GOVERNMENT OF REPUBLIC OF SOUTH SUDAN
FOR
AMENDMENT OF THE RECORD OF DISCUSSIONS
ON
THE PROJECT FOR MANAGEMENT CAPACITY ENHANCEMENT OF SOUTH SUDAN
URBAN WATER CORPORATION PHASE 2 IN THE REPUBLIC OF SOUTH SUDAN

The Japan International Cooperation Agency (hereinafter referred to as "JICA") and Ministry of Water Resources and Irrigation (MWRI) hereby agree that the Record of Discussions on the Project for Management Capacity Enhancement of South Sudan Urban Water Corporation Phase 2 in the Republic of South Sudan (hereinafter referred to as "the Project") signed on October 12, 2015 and first amended on August 6, 2019 (hereinafter referred to as "the first amended R/D"), is further amended as follows:

1. Project Description

| Before | Amended Version |
|--|--|
| 4. Duration 4 years and 5 months from the arrival of the first JICA expert: i.e. till the end of July 2020. | 4. Duration 5 years and 5 months from the arrival of the first JICA expert: i.e. till the end of July 2021. |
| Reason: Because of the global spread of the coronavirus disease 2019 (COVID-19), some of the project activities have been suspended. In order to achieve the project purpose after the project team resume the activities, project duration needs to be extended. The duration may be further amended (shortened or extended) depending on the COVID-19 situation. | |

TA

TA

n-p

M

2. Annex 1 Project Design Matrix (PDM)

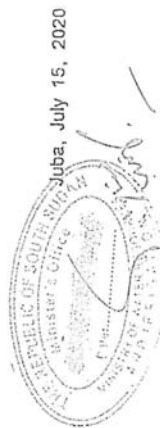
| Section | Before | Amended Version |
|-------------------------|--------|---|
| Activities for Output 1 | - | Add: 1-11 Conduct the support activities in response to the COVID-19 emergency |
| | | Reason: Because of the global spread of the coronavirus disease 2019 (COVID-19), revenue of SSUWC is reducing, which will affect a continuous supply of water to the citizen. To mitigate the impact of COVID-19, support activities will be carried out. |

The parties acknowledge and agree that this Minutes of Meetings may be executed by electronic signature, which is considered as an original signature for all purposes and has the same force and effect as an original signature. "Electronic signature" includes faxed versions of an original signature or electronically scanned and transmitted versions (e.g., via pdf) of an original signature.

This amendment will become effective as of July 15, 2020.

Annex 1 : Amended Project Design Matrix

Annex 2 : Record of Discussions (signed on 6th, Aug, 2019)



本良冬木

Mr. SAGARA Fuyuki
Chief Representative
South Sudan Office
Japan International Cooperation Agency

Hon. Manoah Peter Gattuoth
Minister
Ministry of Water Resources and Irrigation
Republic of South Sudan

TA

MIP

| | | | |
|--|---|--|--|
| 2. Public awareness activities for Juba citizens by Juba Station are enhanced. | 2-1 Public awareness raising activities plan is developed. 2-2 Public awareness raising activities are conducted in accordance with the plan 2-3 The better understanding of the sampled citizens on water supply service provided by SSUWC is improved from the baseline. | - Public awareness raising activities plan - Public awareness raising activities report - Baseline / End line survey report (Sampling survey) | not occur. - Personnel of counterparts do not leave the job and are not transferred considerably. |
| 3. Non-revenue water management capacity of Juba Station is strengthened. | 3-1 Non-revenue water management manuals are prepared. 3-2 GIS map for existing water supply facilities, pipes and valves are prepared. 3-3 GIS customer database is prepared. 3-4 SOP of leakage repair is prepared. 3-5 Leakage monitoring report is prepared. | - Non-revenue water management manuals - SSUWC Annual report / Monthly report | |
| 4. Operation and maintenance capacity for existing water supply facilities by Juba Station is strengthened. | 4-1 Study report of management method of new water filling stations is prepared. 4-2 Study report of management method of new water kiosks is prepared. 4-3 Operation and maintenance data of existing water supply facilities are compiled in monthly and annual reports and shared among the concerned persons. | - SSUWC Annual report / Monthly report - Management method study report for new tanker filling stations and water kiosks - Water quality monitoring report | |
| 5. Support and supervisory function of SSUWC headquarters toward Juba Station is strengthened. | 5-1 Training plan for Juba Station is developed by SSUWC Headquarters. 5-2 Remote training report including all outputs of the project is prepared by the headquarters. 5-3 Annual report, annual plan, and monthly report of Juba Station are examined for feedbacks provided by SSUWC Headquarters to Juba Station for more than one year. 5-4 Juba Station improvement action plan is prepared. 5-5 SSUWC Headquarters reform action plan is prepared. 5-6 SSUWC headquarters operation manuals are prepared. | - Training plan of SSUWC Headquarters for Juba Station - Remote training report - Records of checking of annual and monthly reports and plans - Juba Station improvement action plan - SSUWC Headquarters reform action plan - SSUWC headquarters operation manuals | |
| Activities | | Inputs | |
| 1-1 Conduct a baseline survey regarding water works management, facilities operation and maintenance and customer satisfaction | The Japanese side | The South Sudan Side | Pre-Conditions |
| 1-2 Understand the latest cost structure and review of the current water tariff. | 1. Dispatch of Experts 1) Chief advisor / Water Utility management 2) Operation and maintenance on water purification facilities | 1. Assignment of Counterparts 2. Facilities 1) Office space for Japanese experts | Security situation in Juba is stable. -Issues and countermeasures- |
| 1-3 Update the customer information. | | | |
| 1-4 Visualize the customer information utilizing GIS and to understand actual situation of water bill collection. | | | |

ANNEX 1

Project Design Matrix (PDM)

PDM (version 3)
Dated July 15, 2020

Project Title : The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation Phase 2
Implementing agency: South Sudan Urban Water Corporation (SSUWC) Headquarters and Juba Station
Target Group: Staff of SSUWC Headquarters and Juba Station
Period of Project: 5 years and 6 months
Target site: Juba, Republic of South Sudan

Model site:

| Narrative Summary | Objective Verifiable Indicator | Means of Verification | Important Assumption |
|---|---|--|--|
| Overall Goal : Safe and clean water is supplied in a reliable manner in Juba. | - Existing water supply facilities are operated more than 22 hours per day on average. - The number of the days of the total samples that treated water meets the water quality standards of turbidity (less than 5 NTU) and free residual chlorine (1.5 mg/l ~2.0 mg/l) achieve 90% of the sampling. - All of the selected major operational indicators are improved. - Customer satisfaction with water services is increased. | - SSUWC Annual report / Monthly report - Water quality monitoring report - Baseline survey report and an ex-post evaluation report | - Subsidized fuel for generator for water supply facilities or subsidized city power supply is available in Juba - Political situation of South Sudan does not affect security of Juba as well as functions of SSUWC. - Economic conditions of South Sudan do not become worse significantly. |
| Project purpose: The capacity of SSUWC Juba Station regarding sustainable service delivery (financial management, non-revenue water management, facilities operation and maintenance) is strengthened. | - More than 80% of the indicators of the Juba reform action plan are improved from the baseline figures - 100 % of operation and maintenance expenses excluding personnel costs and chemical costs are recovered from water sale revenue. (Assumption: more than 70% of fuel for generator will be procured from subsidized fuel and the rest from market fuel or 100% of power supply of water supply facilities will be provided from city power supply.) | - SSUWC Annual report / Monthly report - Financial documents (including bank statement and internally audited account) | - Quality of raw water is not deteriorated significantly. - Quantity of raw water is not reduced significantly. - Subsidized fuel for generator for water supply facilities or subsidized city power supply is available in Juba - Political situation of South Sudan does not affect security of Juba as well as functions of SSUWC - Economic conditions of South Sudan do not become worse significantly. |
| Outputs : | | | |
| 1. Juba Station's water charge collection capacity is strengthened. | 1-1 Customer information is updated. 1-2 Water sale revenue has an increasing trend. 1-3 Water tariff is proposed based on the principles and guideline to be developed in the Project. 1-4 The number of water meters installed at large-consumption customers is increased from 45 to 220. | - Customer information database - Monthly bill collection report - Proposed tariff - SSUWC Annual report / Monthly report | - Subsidized fuel for generator for water supply facilities or subsidized city power supply for operation of facilities for minimum 12 hours/day is available in Juba. - Government budget for SSUWC will not be decreased significantly. - Serious damage on water supply facilities does |

| | | | |
|--|--|--|--|
| <p>4-1 Follow up operation and maintenance for existing water intake facilities, raw water transmission facilities, water purification facilities and water transmission and distribution facilities.</p> <p>4-2 Understand the situation of water distribution and develop a plan for promoting equal water distribution regarding existing water supply facilities.</p> <p>4-3 Operate water distribution facilities based on the plan developed in the activity 4-2.</p> <p>4-4 Study management method of new water filling stations.</p> <p>4-5 Study management method of new water kiosks.</p> <p>4-6 Develop manuals for procurement of materials for operation and maintenance for facilities.</p> | | | |
| <p>5-1 Conduct an assessment for training needs of Juba Station.</p> <p>5-2 Develop a training plan including training materials, manuals and budget based on training needs.</p> <p>5-3 Conduct remote training for Headquarters and Juba Station.</p> <p>5-4 Examine for feedbacks on Juba Station's monthly and annual reports, and annual plans provided by Headquarters.</p> <p>5-5 Develop management database for Juba Station and update the data regularly.</p> <p>5-6 Prepare remote training report including all outputs of the project.</p> <p>5-7 Prepare Juba Station improvement action plan.</p> <p>5-8 Prepare SSUWC Headquarters reform action plan.</p> <p>5-9 Prepare SSUWC headquarters operation manuals.</p> <p>5-10 Conduct an end line survey regarding water works management, facilities operation and maintenance and customer satisfaction of Juba City.</p> | | | |

54

| | | | |
|--|---|--|--|
| <p>1-5 Develop a guideline for appropriate water pricing for Juba Station and the guideline is approved by the Headquarters.</p> <p>1-6 Based on the guideline developed in the activity 1-5, develop a revenue and expenditure plan.</p> <p>1-7 Develop an activity plan for improvement of billing and bill collection.</p> <p>1-8 Conduct bill collection based on the activity plan developed in the activity 1-7 and monitor the bill collection activities.</p> <p>1-9 Take a measure for the customers without payments and to monitor these activities.</p> <p>1-10 Promote installation of a meter for large-consumption customers.</p> <p>1-11 Conduct the support activities in response to the COVID-19 emergency.</p> | <p>3) Operation and maintenance on water distribution facilities</p> <p>4) Water quality management</p> <p>5) Water tariff / financial management</p> <p>6) Management of water filling station and water kiosks</p> <p>7) Hygiene education/ public awareness raising</p> <p>8) GIS expert</p> <p>9) Project coordinator</p> | <p>2) Necessary facilities for training.</p> <p>3) Proper operation and maintenance of machinery and equipment provided by the Project</p> <p>4) Administrative cost and other expense</p> <p>5) Personnel cost for counterparts and other running expenses (daily allowance and transportation expense)</p> <p>6) Operation and maintenance costs for machinery and equipment provided by the Project</p> | |
| <p>2-1 Create a customer (commercial) section at Juba Station.</p> <p>2-2 Develop a public awareness activities plan.</p> <p>2-3 Develop training materials for public awareness activities.</p> <p>2-4 Conduct public awareness activities on SSUWC activities.</p> <p>2-4-1 Conduct public awareness activities for public in collaboration with relevant organization (such as MWRI, Juba city, pnyam, schools, churches and media)</p> <p>2-4-2 Conduct public awareness activities for existing customers.</p> | <p>2) Training in Japan and third countries</p> <p>3) Machinery and equipment</p> <p>1) Equipment for water leakage detection</p> <p>2) Equipment for water leakage repair</p> | | |
| <p>3-1 Formulate a non-revenue water management task force team at Juba Station.</p> <p>3-2 Prepare GIS map for existing water supply facilities, pipes and valves.</p> <p>3-3 Identify customers in GIS and prepare GIS customer database.</p> <p>3-4 Prepare standard operation procedure (SOP) for updating GIS mapping for facilities and customers.</p> <p>3-5 Prepare manuals for non-revenue management.</p> <p>3-6 Prepare a plan of zoning which can be isolated by valve.</p> <p>3-7 Prepare leakage report.</p> <p>3-8 Conduct leakage repair.</p> <p>3-9 Conduct commercial loss management activities.</p> <p>3-10 Install service pipes and meters for house connections.</p> <p>3-11 Conduct meter management.</p> | <p>3) Equipment for training (equipment for installation of service connection, etc.)</p> <p>4) Training materials and equipment</p> <p>4) Other administrative cost for the Project</p> <p>5) Project vehicle for JICA experts</p> | | |

53

Appendix-2: Work Flowchart
























































































| | | 2016 | | | | | | | | | | | | 2017 | | | | | | | | | | | | 2018 | | | | | | | | | | | | 2019 | | | | | | | | | | | | 2020 | | | | | | | | | | | | 2021 | | | | | | | | | | | | 2022 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------|--|--------|---|---|---|---|---|---|---|---|----|----|----|--------|---|---|---|---|---|---|---|---|----|----|----|--------|---|---|---|---|---|---|---|---|----|----|----|--------|---|---|---|---|---|---|---|---|----|----|----|------|---|---|---|---|---|---|---|---|----|----|----|------|---|---|---|---|---|---|---|---|----|----|----|------|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|
| Year | | Term 1 | | | | | | | | | | | | Term 2 | | | | | | | | | | | | Term 3 | | | | | | | | | | | | Term 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Activity | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Appendix-3: JICA Expert Dispatch Schedule (Final version)

Plan and Actual Assignment Schedule

Title: The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation Phase 2 (Term 1)

1. Field work in South Sudan

| Name of member (Responsibility) | | 2016 | | | | | | | | | | | | 2017 | | | Man/month | |
|---|--------|---|---|---|---|---|--|---|---|---|---|---|---|---|---|-------|-----------|------|
| | | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | days | MM | |
| Hiroaki Sato (Chief Advisor / Water Utility Management) | Plan |  | | |  |  |  | | | |  |  |  | | | 103 | 3.43 | |
| | Actual |  | | |  |  |  | | | |  |  |  | | | 103 | 3.43 | |
| Naohide Matsumoto (Operation and Maintenance on Water Treatment Facilities) | Plan | | | | |  | | | | |  |  |  | | | 49 | 1.63 | |
| | Actual | | | | |  | | | |  |  |  | | | 50 | 1.67 | | |
| Yasui Sato (Operation and Maintenance on Water Distribution Facilities) | Plan | |  | | | | | | | | |  | | | | 41 | 1.37 | |
| | Actual | |  | | | | | | | | |  |  |  | | | 41 | 1.37 |
| Thapa Phatta Bahadur (Water Leakage Survey/GIS/Water Distribution Management) | Plan | | | | | | | | | |  |  |  | | | 28 | 0.93 | |
| | Actual | | | | | | | | |  |  |  |  | | | 36 | 1.20 | |
| Yasuhiko Morita (Water Quality Management) | Plan | |  | | | | | | | | |  | | | | 61 | 2.03 | |
| | Actual | |  | | | | | | | | |  |  |  |  | | 62 | 2.07 |
| Shoko Yamada (Water Tariff Financial Management 1) | Plan | |  | | | | | | | | |  |  | | | 52 | 1.73 | |
| | Actual | |  | | | | | | | | |  |  |  |  | | 53 | 1.77 |
| Atsuo Ohno (Deputy Chief Advisor/ Management of Tanker Filling Station and Kiosks/ Water Tariff Financial Management2) | Plan | |  | | | | | | | |  |  | | | | 63 | 2.10 | |
| | Actual | |  | | | | | | |  |  |  |  | | | 56 | 1.93 | |
| Keiji Mochida / Yasushi Sawazaki (Hygiene Education/ Public Awareness Raising) | Plan | |  | | | | | | | | |  |  | | | 44 | 1.47 | |
| | Actual | |  | | | | | | | | |  |  |  |  | | 43 | 1.43 |
| Katayama Alok Kumar (GIS Expert/ Water Distribution Management) | Plan | |  | | |  | | | | | |  |  | | | 79 | 2.63 | |
| | Actual | |  | | |  | | | | | |  |  | | | 72 | 2.40 | |
| Takao Ishiwada (Design/ Cost Estimation) | Plan | |  | | | | | | | | | | | | | 15 | 0.50 | |
| | Actual | |  | | | | | | | | | | | | | 15 | 0.50 | |
| Akira Yamazaki (Construction Supervision) | Plan | | | | | | | | | | | | | | | 0 | 0.00 | |
| | Actual | | | | | | | | | | | | | | | 0 | 0.00 | |
| Tomoki Matsui (Training Management/ Project Coordinator) | Plan | | | | | | | | | |  |  |  | | | 28 | 0.93 | |
| | Actual |  |  | | |  |  | | |  |  |  |  | | | 30 | 1.00 | |
| Sub-total | | | | | | | | | | | | | | Plan | 563 | 18.75 | | |
| | | | | | | | | | | | | | | Actual | 563 | 18.77 | | |

2. Work in Japan

| Name of member (Responsibility) | | 2016 | | | | | | | | | | | | 2017 | | | Man/month | |
|--|--------|------|----------------|---|---|---|------------------|------------------|----------------------|-----------------|--------------------------|-----------------|----------------|------|---|--------|-----------|------|
| | | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | days | MM | |
| Hirohika Sato (Chief Advisor / Water Utility Management) | Plan | | | | | | | | | | | | | | | | 16 | 0.80 |
| | Actual | | | | | | 7/27-7/28 (2) | 8/15-8/16 (2) | 9/19-9/26 (1) (1) | 10/18-19 (2) | 11/16-19 (4) | 12/26-27 (2) | 1/6-7 (2) | | | 16 | 0.80 | |
| Naohide Matsumoto (Operation and Maintenance on Water Treatment Facilities) | Plan | | | | | | | | | | | | | | | | 7 | 0.35 |
| | Actual | | | | | | | 8/24 (1) | | | 11/15-18 (4) | 12/13-14 (2) | | | | 7 | 0.35 | |
| Yasui Sato (Operation and Maintenance on Water Distribution Facilities) | Plan | | | | | | | | | | | | | | | | 7 | 0.35 |
| | Actual | | | | | | | 8/24 (1) | | | 11/15-17 (4) | 12/7-8 (2) | | | | 7 | 0.35 | |
| Thapa Phatta Bahadur (Water Leakage Survey/GIS/Water Distribution Management) | Plan | | | | | | | | | | | | | | | | 7 | 0.35 |
| | Actual | | | | | | | | | | 11/15-18 (4) | 12/5-7 (3) | | | | 7 | 0.35 | |
| Yasuhiko Morita (Water Quality Management) | Plan | | | | | | | | | | | | | | | | 7 | 0.35 |
| | Actual | | | | | | | 8/24 (1) | | | 11/15-18 (4) | | 1/4-6 (2) | | | 7 | 0.35 | |
| Shoko Yamada (Water Tariff Financial Management 1) | Plan | | | | | | | | | | | | | | | | 9 | 0.45 |
| | Actual | | | | | | | 8/24 (1) | | | 11/4-5, 18-19 (2) (2) | 12/26-28 (3) | 1/5-1/5 (1) | | | 9 | 0.45 | |
| Atsuo Ohno (Deputy Chief Advisor/ Management of Tanker Filling Station and Kiosks/ Water Tariff Financial Management 2) | Plan | | | | | | | | | | | | | | | | 19 | 0.95 |
| | Actual | | 2/1-2/3 (3) | | | | | 8/24-8/25 (2) | 9/30 (1) | 10/17-19 (8) | 11/7-10 (4) | 12/26-28 (3) | 1/4-6 (3) | | | 19 | 0.95 | |
| Keiji Mochida/ Yasushi Sawazaki (Hygiene Education/ Public Awareness Raising) | Plan | | | | | | | | | | | | | | | | 5 | 0.25 |
| | Actual | | | | | | | 8/9 (1) | | | 10/18-19 (2) | 12/26-27 (2) | | | | 5 | 0.25 | |
| Katayama Alok Kumar (GIS Expert/ Water Distribution Management) | Plan | | | | | | | | | | | | | | | | 9 | 0.45 |
| | Actual | | | | | | | 8/23 (1) | | | 11/14-18 (5) | 12/20-21 (2) | | | | 8 | 0.40 | |
| Takao Ishiwada (Design/Cost Estimation) | Plan | | | | | | | | | | | | | | | | 45 | 2.25 |
| | Actual | | | | | | | | | | | | | | | | 45 | 2.25 |
| Akira Yamazaki (Construction Supervision) | Plan | | | | | | | | | | | | | | | | 0 | 0.00 |
| | Actual | | | | | | | | | | | | | | | | 0 | 0.00 |
| Sub-total | | | | | | | | | | | | | | | | Plan | 131 | 6.55 |
| | | | | | | | | | | | | | | | | Actual | 130 | 6.50 |
| Total | | | | | | | | | | | | | | | | Plan | 25.30 | |
| | | | | | | | | | | | | | | | | Actual | 25.27 | |

| | | | | | | | | | | | | | | | | | | |
|--|------------------|------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|-----------------|--|--|
| Joint Coordination Committee Meeting (JCC) | | | | | | | | | | | | | | | | | | |
| Construction of training building | | Design/cost estimation | | | | | | | | | | | | | | | | |
| Report | Work plan | Ver.1 draft | | | | | | | | | | | | | | | | |
| | Monitoring Sheet | Ver.1 | | | | | | | | | | | | | | | | |
| | Report | Work plan (Japanese) | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | Progress Report | | |

Title: The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation Phase 2 (Term 2)

Name of memb

2. Work in Japan

Joint Coordination Committee Meeting (JCC)

Plan and Actual Assignment Schedule

Title: The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation Phase 2 (Term 3)

1. Field work in South Sudan

| Name of member (Responsibility) | | 2018 | | | | 2019 | | | | | Man/month | |
|---|--------|------|--------------------|--------------------|--------------------|------------------|------------------|---|------------------|---|-----------|----------|
| | | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | days | MM |
| Hirotaka Sato (Chief Advisor / Water Utility Management) | Plan | | | | | | | | | | 26 | 0.87 |
| | Actual | | 10/28-11/4 (8) | | | 2/10-2/17 (8) | | | 4/14-4/21 (8) | | 24 | 0.80 |
| Naohide Matsumoto (Operation and Maintenance on Water Treatment Facilities) | Plan | | | | | | | | | | 28 | 0.93 |
| | Actual | | | | 12/2-12/15 (14) | | 2/24-3/9 (14) | | | | 28 | 0.93 |
| Yasui Sato (Operation and Maintenance on Water Distribution Facilities) | Plan | | | | | | | | | | 16 | 0.53 |
| | Actual | | 10/28-11/4 (8) | | | 2/10-2/17 (8) | | | | | 16 | 0.53 |
| Thapa Phatta Bahadur (Water Leakage Survey/GIS/Water Distribution Management) | Plan | | | | | | | | | | 20 | 0.67 |
| | Actual | | 10/28-11/8 (12) | | | | | | 4/14-4/21 (8) | | 20 | 0.67 |
| Yasuhiko Morita (Water Quality Management) | Plan | | | | | | | | | | 16 | 0.53 |
| | Actual | | | 12/8-12/15 (8) | | | 3/2-3/9 (8) | | | | 16 | 0.53 |
| Shoko Yamada (Water Tariff Financial Management 1) | Plan | | | | | | | | | | 18 | 0.60 |
| | Actual | | | 12/8-12/16 (9) | | 2/9-2/17 (9) | | | | | 18 | 0.60 |
| Atsuo Ohno (Deputy Chief Advisor/ Management of Tanker Filling Station and Kiosks/ Water Tariff Financial Management2) | Plan | | | | | | | | | | 24 | 0.80 |
| | Actual | | 10/29-11/7 (10) | | | | | | 4/7-4/20 (14) | | 24 | 0.80 |
| Yasushi Sawazaki (Hygiene Education/ Public Awareness Raising) | Plan | | | | | | | | | | 17 | 0.57 |
| | Actual | | | 11/11-11/18 (8) | | | | | 4/13-4/21 (9) | | 17 | 0.57 |
| Thapa Phatta Bahadur (GIS Expert/ Water Distribution Management) | Plan | | | | | | | | | | 14 | 0.47 |
| | Actual | | | | | 1/27-2/9 (5) | (9) | | | | 14 | 0.47 |
| Tomoaki Matsui (Training Management/ Project Coordinator) | Plan | | | | | | | | | | 16 | 0.53 |
| | Actual | | 10/28-11/4 (8) | | | | 3/2-3/9 (8) | | | | 16 | 0.53 |
| Sub-total | | | | | | | | | | | Plan | 195 6.50 |
| | | | | | | | | | | | Actual | 193 6.43 |

2. Work in Japan

| Name of member (Responsibility) | | 2018 | | | | 2019 | | | | | Man/month | |
|---|--------|------|-----------------|--------------------|----|----------------|-----------------|----------------|----------------|----------------|-----------|-----------|
| | | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | days | MM |
| Hirotaka Sato (Chief Advisor / Water Utility Management) | Plan | | | | | | | | | | 8 | 0.40 |
| | Actual | | 10/25-26 (2) | | | 1/15-16 (2) | | 3/11-12 (2) | 4/24-25 (2) | 5/7-8 (1.3) | 9.30 | 0.47 |
| Naohide Matsumoto (Operation and Maintenance on Water Treatment Facilities) | Plan | | | | | | | | | | 6 | 0.30 |
| | Actual | | | 11/20-22 (3) | | | 2/20-22 (3) | | | | 6 | 0.30 |
| Yasui Sato (Operation and Maintenance on Water Distribution Facilities) | Plan | | | | | | | | | | 4 | 0.20 |
| | Actual | | 10/15-16 (2) | | | 1/29-30 (2) | | | | | 4 | 0.20 |
| Thapa Phatta Bahadur (Water Leakage Survey/GIS/Water Distribution Management) | Plan | | | | | | | | | | 6 | 0.30 |
| | Actual | | 10/28 (1) | | | | | | 4/22-23 (2) | 5/13 (1) | 4 | 0.20 |
| Yasuhiko Morita (Water Quality Management) | Plan | | | | | | | | | | 6 | 0.30 |
| | Actual | | | 11/2-7,8 (1)(2) | | | | | 4/4-5,8 (3) | | 6 | 0.30 |
| Shoko Yamada (Water Tariff Financial Management 1) | Plan | | | | | | | | | | 6 | 0.30 |
| | Actual | | | 11/29 (1) | | | 2/6-2/18 (1) | | 4/24 (1) | | 4 | 0.20 |
| Atsuo Ohno (Deputy Chief Advisor/ Management of Tanker Filling Station and Kiosks/ Water Tariff Financial Management2) | Plan | | | | | | | | | | 9 | 0.45 |
| | Actual | | 10/22-25 (4) | | | 1/9-11 (3) | 2/1-12 (2) | 3/27 (1) | 4/23- (1) | 5/16-17 (2) | 13 | 0.65 |
| Yasushi Sawazaki (Hygiene Education/ Public Awareness Raising) | Plan | | | | | | | | | | 4 | 0.20 |
| | Actual | | | 11/7-8 (2) | | | | | 4/23-24 (2) | | 4 | 0.20 |
| Thapa Phatta Bahadur (GIS Expert/ Water Distribution Management) | Plan | | | | | | | | | | 4 | 0.20 |
| | Actual | | | | | 2/12-13 (2) | | 3/19-20 (2) | | | 4 | 0.20 |
| Tomoaki Matsui (Training Management/ Project Coordinator) | Plan | | | | | | | | | | 12 | 0.60 |
| | Actual | | 10/15-17 (3) | 11/3-5 (3) | | 1/23-25 (3) | 2/25-27 (3) | | | | 12 | 0.60 |
| Sub-total | | | | | | | | | | | Plan | 65.0 3.25 |
| | | | | | | | | | | | Actual | 66.3 3.32 |
| Total | | | | | | | | | | | Plan | 9.75 |
| | | | | | | | | | | | Actual | 9.75 |

| | | | | | | | | | | | | |
|--|------------------|--|--|--|--|--|--|--|--|--|-----------------|--|
| Joint Coordination Committee Meeting (JCC) | | | | | | | | | | | | |
| Construction of training building | | | | | | | | | | | | |
| Report | Work plan | | | | | | | | | | | |
| | Monitoring Sheet | | | | | | | | | | | |
| | Report | | | | | | | | | | | |
| | | | | | | | | | | | Ver.3 | |
| | | | | | | | | | | | Progress Report | |

Assignment Schedule and Actual Record

[illegible]

2. Domestic assignment

[illegible]

| | | | |
|--|--|--|------------|
| Joint Coordination Committee Meeting (JCC) | | | Workplan |
| Construction of training building | | | Monitoring |
| Report | | | Report |

Note: Actual records of MM as on 7th February 2022

Appendix-4: Remote Training and Seminar (Training program)

1. Remote Training

1.1. Training period and schedule

The period and schedule of training by term is shown in the table below.

Table 1 Period and schedule of training by term

| Term | No. | Period | Content |
|------|-----|--|---|
| 1 | 0 | 31 st October 2016 – 5 th November 2016 | Preparation work (Discussion with SSUWC on remote training in Uganda and visiting NWSC and their training facilities and discussion with NWSC) |
| | 1 | 20 th November 2016– 3 rd December 2016 | 1 st training in Uganda and Kenya |
| | 2 | 8 th January 2017 – 21 st January 2017 | 2 nd training in Uganda and Kenya |
| 2 | 3 | 6 th June 2017 – 15 th July 2017 | 1 st training in Uganda |
| | J | 28 th June 2017 – 7 th July 2017 | Training in Japan |
| | C | 10 th July 2017 – 14 th July 2017 | Training in Cambodia |
| | 4 | 4 th September 2017 – 28 th September 2017 | 2 nd training in Uganda |
| | 5 | 1 st November 2017 – 9 th November 2017 | 3 rd training in Uganda |
| | 6 | 28 th November 2017 – 22 nd December 2017 | 4 th training in Uganda |
| | 7 | 1 st February 2018- 10 th March 2018 | 5 th training in Uganda |
| | 8 | 16 th April 2018 – 21 st April 2018 | 6 th training in Uganda |
| 3 | 9 | 30 th October 2018 – 6 th November 2018 | 1 st training in Uganda |
| | 10 | 4 th December 2018 – 15 th December 2018 | 2 nd training in Uganda |
| | 11 | 29 th January 2018 – 7 th March 2018 | 3 rd training in Uganda |
| | 12 | 9 th April 2019 – 13 rd April 2019 | 4 th training in Uganda |

1.2. Number of trainings by subject

The number of trainings by subject is shown in table below.

Table 2 Number of trainings by subject

| Item | Term 1(2016/2017) | | | Term 2 (2017/2018) | | | | | | Term 3 (2018/2019) | | | |
|---|-------------------|------|------|--------------------|------|------|---------------|---------------|------|---------------------|------|---------------|------|
| | Prep. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| | Oct. | Nov. | Jan. | Jun.- Jul. | Sep. | Nov. | Nov.- Dec. | Feb.- Mar. | Apr. | Oct.- Nov. | Dec. | Jan.- Mar. | Apr. |
| 1. Financial Management/ Management of tanker filling station (TFS) and public tap stand (PTS) | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | 8 | 9 | 10 | 11 |
| 2. Public Awareness | | 1 | 2 | | 3 | 4 | 5 | 6 | | 7 | | | |
| 3. O&M of Distribution Pipeline Network | | 1 | 2 | 3 | 4 | | 5 | 6 | | 7 | | 8 | |
| 4. Non-Revenue Water Management | | 1 | 2 | 3 | 4 | | 5 | 6 | | 7 | | 8 | |
| 5. GIS | | 1 | 2 | 3 | | | 4 | 5 | | | | 6 | |
| 6.1 O&M of Purification Plant (Elc&Mech) | | 1 | 2 | 3 | 4 | | 5 | | | | 6 | 7 | |
| 6.2. O&M of Purification Plant (Elc&Mech) (Water Treatment) | | 1 | 2 | 3 | 4 | | 5 | | | | 6 | 7 | |
| 7. Water Quality Management | | 1 | 2 | 3 | 4 | | 5 | | | | 6 | 7 | |
| 8. Headquarters (HQ) Management | ○ | 1 | 2 | 3 | | | 4 | 5 | 6 | 7 | | 8 | |

1.3. Topics of Training in Uganda and Kenya

The detail topics that C/P learned in the remote training are shown below.

(1) Financial management/Water tariff setting

| Items | Term 1 |
|-------|--|
| 1 | <ul style="list-style-type: none"> - Meaning, definition and calculation method of PIs on finance, billing and collection, PI calculation by calculator - Calculation of PIs on finance, billing and collection by calculator and Excel - Action plan and strategy of NWSC for improvement of billing and collection - Management of financial and budget management, accounting of cash flow |
| 2 | <ul style="list-style-type: none"> - Check of the homework (monthly report and PIs) - Progress of strategy action plan for billing & collection improvement - Training for MS Access, water tariff collection database - Review of preliminary list of large outstanding customers and discussion of arrears collection - Preparation on meter installation plan - Water meter utilized in NWSC, Specification and Procurement - Identification of challenges on billing & collection and updating of the action plan for improvement - Billing & collection practice of NWSC - Site visit (Teller's office, meter reading practice etc.) - Modification of Customer Management Database (MS Access) - Joint discussion with PR Team on cooperation of arrear collection and meter installation - Check of the draft water meter installation plan and modification, as necessary - Check and review of draft contract form, terms & conditions - Discussion on billing & collection report format based on the draft idea - Analysis of billing ratio by area (MS Access and Excel) - Working together with GIS team. Linkage between customer database and GIS information - Tariff setting principle and guideline |
| 3 | <ul style="list-style-type: none"> - Checking homework (monthly report, PI data sheet) - Implementation monitoring of action plan about tariff billing and collection - Update customer list (especially institutional customer) - Survey of water supply equipment and meter procurement (Uganda, Kenya) - Visit supplier and ask for quotation - Find issues of tariff collection and update action plan - Plan and implementation of NWSC asset management training - Site visit (HQ, Asset management system) - Revise water meter installation plan (draft) - Demonstration of water tariff calculation (considering operation hours and NRW rate) - Trainings and presentation about water tariff calculation with SSUWC HQ - Review of tariff setting guideline (Draft) |

Management of tanker filling station (TFS) and public tap stand (PTS)

| Term | Term 1 |
|------|---|
| 1 | <ul style="list-style-type: none"> - Lecture on sustainable operation and management of PTS & TFS in African countries - Case study: Management of PTS & TFS of NWSC - Lecture on financial management for financial situation, budget management, accountant and cash flow - Operation cost estimation for ten years in Juba branch. Worksheet preparation - Outline of the 1st guideline of tariff setting and discussion on water tariff - Site visit at PTS & TFS of NWSC - Selection of core problems through PCM workshop and objective analysis |
| 2 | - No implementation. |
| 3 | - No implementation. |

(2)Public awareness (PA)

| Term | Contents |
|------|---|
| 1 | <ul style="list-style-type: none"> - Brainstorming on meaning, importance of PA and why it is required. - Preparation of detail PA activity plan, finalizing a proposal and estimation sheet. - Confirmation of contents of PA pamphlet. |
| 2 | <ul style="list-style-type: none"> - Establishing a customer section at Juba Station - Discussion on establishment of the customer section in Juba with staff in charge of customers section in NWSC - Learning of PA reporting system from Uganda example - Discussion on PA for clean water provision to citizens and bill payment - Workshop: Planning and budgeting for PA - Finalization of the detailed plan of the PA activities - Practice of evaluation and feedback of PA activities (Report writing) - Recording of data and analysis to evaluative PA activities - Joint discussion on cooperation of arrear collection and meter installation - Field observation for the customer care services of NWSC in Kampala town |
| 3 | <ul style="list-style-type: none"> - To Review the Monitoring and Evaluation for Public Awareness Activities - To plan Customer section Planning: Aim and method - learn the experience and examples in Japan (Tokyo metropolitan government, (Yokohama city) - Field Observation of front line for the customer care services in Kampala town NWSC to drafting the manual for plan Customer section |

(1) Operation and maintenance of distribution pipe network

| Term | Contents |
|------|---|
| 1 | <ul style="list-style-type: none"> - Basic mathematics (Addition, subtraction, multiplication and division, common fraction, unit conversion, square and cubic) - Maintenance of pipe network (Pipe material, corroding and corrosion proof, pipe washing, durable years) - Distribution pipe information and pipe material inspection - Hydraulics-1 (Kind of flow, supply amount and current velocity, water pressure, principle of Archimedes and friction loss) - Management method of water distribution network (How to control pipe network) - Hydraulics-2 (Supply amount, current velocity, cross section, and supply amount formula) - Running management (Customer satisfaction, water tariff, NRW and asset management) - Lecture on PIs (Necessity and meaning of PI) - Review (Basic mathematics and hydraulics) - Service pipe connection (Meaning, method, procedure, and type of service connection) - Stock management - Learning PC for the monthly report - Lecture for NRW calculation, monitoring plan, NRW calculation and NRW prevention |
| 2 | <ul style="list-style-type: none"> - Discuss with WTP team how to increase water volume in Juba Station - Install house connection using HDPE - Training on pipe fitting and jointing at VSDF workshop - Maintain mechanical flow meters and valves and meter reading at NWSC - Visit pipe material supply companies and collect price data - Weld pipes and fittings conducted at VSDF - Study monthly report and PIs at IREC - Practice on reporting O&M and pipe plumbing works |
| 3 | <ul style="list-style-type: none"> - Lecture on pipe materials, parts and valves for maintenance of pipe network both in classroom and workshop - Learn actual works for repairing leakage pipe on sites conducted by NWSC - Lecture on how to use leak detection equipment at NWSC workshop - Lecture on dismantling and assembling bulk flowmeter both in classroom and sites - Practical training on connecting/ dismantling different pipe materials, valve, flowmeter using fitting parts at the VSDF demonstration field. |

| | |
|--|---|
| | <ul style="list-style-type: none"> - Discuss what kinds of pipe materials, parts, tools and vehicles needed in Juba Station - Trainees gave JICA expert the presentation regarding the current operational situation of Juba Station using PPT. |
|--|---|

(2) NRW management

| Term | Contents |
|------|---|
| 1 | <ul style="list-style-type: none"> - Lecture and practical training IWA criteria, water balance and Non-Revenue water - Lecture on reduction approach for commercial loss and physical loss - Group discussion on water leak detection method in Juba - Concept of a water supply division plan separable by valves - Finding method of buried pipe and introduction on flow and pressure measurement - Lecture on water leakage mechanism, water leakage prevention and effective water leakage detection - A water supply division plan separable on GIS by valves is drawn up - Buried pipe, leakage detection, flow meter and pressure gauge in NWSC branch was visited - Gentex factory in Kampala was visited and understood on pipe fittings and connection method - Outline explanation on operation and management index and its importance - Lecture on data collection for monthly report - Safety management (labor hygiene/health safety) - Stockyard management and the record - Leak repair method for various pipe materials - Lecture on detection method of high potential of NRW - Water leakage prevention method in planning and design phase - Updating of water supply division plan of Juba city with C/Ps - Discussion on the contents of NRW management manual draft |
| 2 | <ul style="list-style-type: none"> - Training as below; <ul style="list-style-type: none"> ➢ Repairing leaks ➢ Preparing reports of leak repair at site ➢ Pipes installment and connection ➢ House connection ➢ Selecting tools and equipment required for pipe repair and plumbing ➢ Maintenance of valves, change parts, stop leakage, mechanical flow meter ➢ Welding pipes and fittings - Select pipe repair and plumbing tools required for Juba Station - Select pipe, saddle snap tap, and fitting materials and their specifications required for Juba Station - Visit pipe, fitting and tools companies and collect data such as specifications, price, etc. - Following items were prepared <ul style="list-style-type: none"> ➢ Report format of pipe repairs ➢ Leakage repair action plan ➢ Plan of pipe connection and house connection work ➢ List of tools and equipment for leakage repair and pipe connection - Review of causes and countermeasures of NRW - Practice for disassembling, repairing and assembling mechanical bulk meter and meter - Updating of DMA plan, pipe network and customer information - Estimate of valve and DMA meters - To report and grasp the current operation situation and distribution network in Juba WTP by SSUWC distribution and WTP staffs - To make the plan for supplying water to consumers equally in Juba Station - Practical training on how to calculate Performance Indicators - To learn about NRW reduction and DMA management of Entebbe branch of NWSC - Drafting of action plan for leakage reduction - Explanation of zoning system in Juba - Monitoring format preparation for water sales by tanker - Exercise on equitable supply and water distribution management in Juba - Preparation of a draft manual on leakage reduction, and equitable water distribution - Exercise on meter reading |

| | |
|---|--|
| | <ul style="list-style-type: none"> - Practice on recording leakage report and leak repair report |
| 3 | <ul style="list-style-type: none"> - Lecture on overall maintenance procedure of distribution by NWSC; maintenance process, leak detection process, and leak repair process - Explanation and demonstration of equipment and materials of leak detection and distribution management in NWSC - OJT of leak repair at 3 sites; Muyanga, Nakawa, and Salama road - Practical training on maintenance of bulk meters; how to open, clean, and repair - Practical training on connecting various types of pipe materials at Ggaba training site - Exercise on preparation of leak repair report - Exercise on preparation of monthly report of distribution, review of report prepared by SSUWC counterparts - OJT on making new branch and installation of house connection at two sites; Markandya area and Bunga area |

(3) GIS

| Term | Contents |
|------|--|
| 1 | <ul style="list-style-type: none"> - Water treatment plan, water distribution and customer information update - Potential customer visualization by GIS in water supply area - Customer who are not enrolled in water supply services, searching by GIS - Linking to customer location information on GIS and customer information in financial department |
| 2 | <ul style="list-style-type: none"> - Review of data and information brought from Juba - Update of GIS manuals - Updating of pipe network and water facilities map and map for customer survey data on GIS. - Installation and updating of QGIS software in new computers - Basic GIS skills (editing layer, creating new layers, coordinate reference system, symbolizing etc.) - Medium level GIS skills (labelling, querying etc.) - Advanced GIS skills (map and map book preparation, new symbol preparation with Inkscape software etc.) - Update of pipe network, valve, flowmeter, tank, and WTP information - Review of final result of customer mapping - Lessons and practice on linking customer data (MS Access) to customer points in GIS |
| 3 | <ul style="list-style-type: none"> - Refresher training on GIS using QGIS; basic, intermediate, and advance level skills - Updating GIS map of Juba pipe network and water facilities - Practice on preparation of GIS basemap and mapping of customers of Wau city - Preparation of draft SOP for updating pipe network and customer data |

(4) Operation and maintenance on water purification facilities

| Term | Contents |
|------|--|
| 1 | <ul style="list-style-type: none"> - Organization and duties of purification department - Countermeasure in case of accident - Water treatment theory and equipment for sedimentation - Preparation of operation and maintenance manuals and comparison with current situation - Confirmation of content of Monthly Report - Site visit at Ggaba WTP and explanation of operation and maintenance - Lecture and practical lesson on the generator - Lecture of water treatment plant operation - Lecture on procurement of chemicals, materials and spare parts - Discussion on current problem of water treatment O&M - Cleaning for recovering of function of sand in filtration - Lecture and practical lesson on pump - Basic knowledge on procurement method including inventory management - DAVIS & SHIRTLIFF (INTL) LTD, electrical equipment supplier visiting - Equitable water distribution plan preparation for each area in Juba by pump operation - O&M fee (fuel cost) calculation method |

| Term | Contents |
|------|---|
| 2 | <ul style="list-style-type: none"> - Generator: practice (repair and inspection) - Practice at Ggaba WTP with NWSC operation team (intake, sedimentation, filter, distribution pump, chemical, waste water, control) - Equipment list, spare parts list, expendable list - Lecture for safety management and storage management - Visit at supplier of generator, pumps, electrical parts - Pump, blower and valve: practice (repair and inspection) - Chemical feeding equipment: practice (repair and inspection) - Electrical equipment (Panel, wiring, instrument): practice (repair and inspection) - Practice of electrical equipment, panel wiring - Repair and inspection (wiring, panels, change over switch, contactor, meter, cable, tool etc.) - Visit at manufacturer of electric panel - Lecture for maintenance procedure - Practice of generator (overhauling, trouble shooting, Generator panel electrical wiring) - Equipment spare parts consumable list - Equitable water supply and water quality monitoring - Training of electrical (flow meter, motor, panel, wiring, protection system). |
| 3 | <ul style="list-style-type: none"> - Organization and duties of purification department - Countermeasure in case of accident - Water treatment theory and equipment for sedimentation - Preparation of operation and maintenance manuals and comparison with current situation - Confirmation of content of Monthly Report - Site visit at Ggaba WTP, - Lecture and Practice of operation and maintenance - Lecture and practical lesson on the generator, motor, pump, blower, valve. - Lecture of water treatment plant operation - Lecture on procurement of chemicals, materials and spare parts - Discussion on current problem of water treatment O&M - Cleaning for recovering of function of sand in filtration - Lecture and practical lesson on pump - Basic knowledge on procurement method including inventory management - Equitable water distribution plan preparation for each area in Juba by pump operation - O&M fee (fuel cost) calculation method |

(5) Water quality management

| Item | Term 1 |
|------|--|
| 1 | <ul style="list-style-type: none"> - Unit for water quality analysis and unit conversion - Theory and process management of coagulation, sedimentation, sand filtration and chlorination - Introduction of biological test - Laboratory training of Jar test - Laboratory training of chlorine demand test - Calculation of coagulant injection ratio using Jar test data - Calculation of chlorine injection ratio using chlorine demand test data - Water quality data review and monthly report preparation including water quality data analysis training using Excel - Jar test data review and monthly report preparation - Site visit at National Water Quality Laboratory (Nairobi city) - Site visit at Nairobi Water Kabete WTP and water quality analysis company - Site visit at Ticka water and sewerage company (THIWASCO) - Visit to water quality monitoring equipment / reagent distributors in Nairobi (Aqua treat solutions, Aqua tech industries) |

| | |
|---|---|
| 2 | <ul style="list-style-type: none"> - Interview and discussion about actual water quality condition and issue in Juba City - Theory of water treatment - Water quality data review and monthly report preparation - Jar test data review and monthly report preparation - Calculation of coagulant and chlorine injection - Quality control of water quality monitoring data (Lecturer: NWSC) - Introduction of Ggaba WTP I, II and III (Lecturer: NWSC) - Preparation of SOPs for pH meter calibration and EC meter calibration - Training about water quality monitoring data quality and accuracy management - Joint workshop with SSUWC WTP C/P: Improvement of water treatment process - Joint workshop with SSUWC WTP C/P: Calculation of coagulant and chlorine injection - Proficiency test and follow up - Laboratory training of pH and EC meter calibration and analysis - Laboratory training of turbidity and residual chlorine meter calibration and analysis - Laboratory training of chlorine demand test - Practical training at Ggaba WTP with SSUWC WTP C/P - Site visit at Ggaba WTP (Water quality laboratory and water monitoring system) - Site visit at WWTP in Kampala - Site visit at Jinja WTP with SSUWC WTP C/P - Site visit at Masaka WTP with SSUWC WTP C/P - Visit to water quality monitoring equipment / reagent distributors in Kampala (Palin test, Mulago hill, Vision scientific) |
| 3 | <ul style="list-style-type: none"> - Water quality data review and monthly report preparation - Quality and accuracy control of water quality monitoring data - Joint workshop with SSUWC WTP C/P: Rapid sand filtration - Joint workshop with SSUWC WTP C/P: Revision of existing SOP for WTP operation and WQ monitoring - Training of occupation health and workplace safety (Instructor: NWSC) - Training of water quality data analysis - Site visit at service reservoir in Kampala city - Visit to water quality monitoring equipment / reagent distributor in Kampala (Palin test) |

(6) SSUWC Headquarters (HQ) management

| Term | Contents |
|------|--|
| 1 | <ul style="list-style-type: none"> - Review of problem analysis for Juba Station - Review of baseline survey result on Juba Station - Review of capacity assessment result on Juba branch - Preparation of report, plan and evaluation manuals - Performance indicators and record format - Role of SSUWC headquarters and duties of sections - Reform history of NWSC, Implementation of improvement program and the result - Brainstorming for improvement plan - Water tariff policy and guideline - Plan preparation method and budget estimation method in Juba branch - SWOT analysis and action plan preparation |
| 2 | <ul style="list-style-type: none"> - Progress of action plan by SSUWC HQ and discussion on issues for implementation - How to establish communication system between JICA Team and SSUWC HQ/Juba Station - Whole structure of standards, guidelines, manuals, and standard operation procedure (SOPs) of NWSC - How to prepare manuals and SOPs - Organization structure of NWSC and functions of sections/departments and Stations / Areas and job description |

| | |
|---|---|
| | <ul style="list-style-type: none"> - How to prepare job descriptions - Exercise of preparation of job description - How to strengthen leadership and problem-solving capacity - Update of action plan by SSUWC HQ - Preparation on table of contents of operation manuals of HQ - Presentation of problem analysis by newly appointed area manager of Juba - Communication method between HQ and Juba Station/ other stations - Progress of Juba Station improvement plan and challenges for implementation - Progress of SSUWC reform plan and discussion on challenges for implementation - Governance of water utilities, experience from Cambodia training - Meeting with JICA on PDM function of Board of Directors and Headquarters - Responsibility of Headquarters and Stations - Evaluation of monthly report of Juba Station - Preparation of Responsibility and duties of Directorates in HQ - Progress of evaluation of Monthly report of Juba Station by SSUWC HQ - Action plan presentation by each department - Follow up presentation of action plans after improvement by Juba Station - Follow up presentation of action plans after improvement by HQs |
| 3 | <ul style="list-style-type: none"> - Progress report and monitoring of HQ action plan - Progress report and monitoring of Juba Station action plan - Visit to NWSC branch office (Kampala Water Corporation, Kampala Water Corporation Branch) and NWSC HQ to interview of operation management - Evaluation of presentation by finance management team about water tariff at Juba Station - Development of Performance Contract between SUWC HQ and Juba Station - Evaluation and feedback from HQ regarding monthly report by Juba Station |

2. Seminar and Workshop

2.1. Financial Committee Meeting

Type: Remote training through web conference

Participants: Members of Financial Committee in Juba Station and HQ

| No. | Date | Contents |
|-----|--|---|
| 1 | 30 th Oct. 2020 | <ul style="list-style-type: none"> - Confirmation of TOR of Financial Committee - Confirmation of current financial situation and water tariff structure - Explanation of financial balance of whole water supply services of Juba station |
| 2 | 19 th Nov. 2020 | <ul style="list-style-type: none"> - Updating of the missing data of previous meeting - Confirm the water tariff by TFS, water venders - Explanation of possibility to realize financial sustainability (self-supporting finance) by improving NRW ratio and collection ratio, even if fuel and chemicals are procured by Juba station |
| 3 | 8 th & 18 th Nov. 2020 | <ul style="list-style-type: none"> - Explanation of necessary revenue to cover all expenditure (including fuel and chemicals) - Analysis of the effect by meter installation on billed amounts - Discussion on measures to improve revenue collection - Request to confirm and update the action plan to improve billing & collection |
| 4 | 14 th Jan. 2021 | <ul style="list-style-type: none"> - Update of the action plan to improve billing & collection - Preparation of budget of each department of Juba Station - Analysis of the effect by meter installation on billed amounts |
| 5 | 29 th Jan. 2021 | <ul style="list-style-type: none"> - Compilation of the budget of each department and scrutinizing the contents - Confirmation of the initial cost of commercial electricity |
| 6 | 16 th Feb. 2021 | <ul style="list-style-type: none"> - Analysis of expenditure of Juba station when using both generator and commercial electricity |
| 7 | 4 th Mar. 2021 | <ul style="list-style-type: none"> - Analysis and explanation of the trends of revenue increasing by meter installation - Request for missing data |

| | | |
|---|----------------------------|---|
| 8 | 19 th Mar. 2021 | <ul style="list-style-type: none"> - Analysis of the revenue increasing trend and effective ness of meter installation - Assist of preparation of presentation of the activities in the regular meeting of Juba Station |
|---|----------------------------|---|

2.2. Planning and Database Workshop

Type: Remote training through web conference

Participants: Planning and Database Team in Juba Station and HQ

| No. | Date | Contents |
|-----|---------------------------|--|
| 1. | 26 th Nov 2020 | <ul style="list-style-type: none"> - About the project - Goal of workshop - Reporting and planning system - Database of Juba station |
| 2. | 10 th Dec 2020 | <ul style="list-style-type: none"> - Performance Indicators |
| 3. | 21 st Dec 2020 | <ul style="list-style-type: none"> - How to prepare plan |
| 4. | 15 th Jan 2021 | <ul style="list-style-type: none"> - Homework presentation by SSUWC members <ul style="list-style-type: none"> ➤ Database of Juba Station |
| 5. | 1 st Feb 2021 | <ul style="list-style-type: none"> - Homework presentation by SSUWC members <ul style="list-style-type: none"> ➤ Monthly report Evaluation Nov and Dec |
| 6. | 8 th Mar 2021 | <ul style="list-style-type: none"> - Organization chart of Juba station and HQ - Homework presentation by SSUWC members <ul style="list-style-type: none"> ➤ Collection PI and summary |
| 7. | 22 nd Mar 2021 | <ul style="list-style-type: none"> - PI Monitoring System |

2.3. Water Quality Management Seminar

Type: Remote training through web conference

Participants: Water quality Monitoring Section, Purification Plant Section

| No. | Date | Contents |
|-----|----------------------------|--|
| 1. | 22 nd Jan 2021 | <ul style="list-style-type: none"> - Agenda and schedule of seminar - Introduction new water quality monitoring equipment (pH meter, EC/TDS meter, Residual chlorine meter and Turbidity meter) - How to obtain correct water quality data - Issue on chemical consumption in Juba station |
| 2. | 25 th Jan. 2021 | <ul style="list-style-type: none"> - Chlorine injection - Coagulant injection - Jar test and chlorine demand test (SOPs) |
| 3. | 8 th Feb. 2021 | <ul style="list-style-type: none"> - Coagulant injection (Part2) |
| 4. | 10 th Mar. 2021 | <ul style="list-style-type: none"> - Calculation of alum injection ratio |
| 5. | 17 th Mar. 2021 | <ul style="list-style-type: none"> - Review and discussion: Raw water, treated water and Jar test data by SSUWC |
| 6. | 30 th Mar. 2021 | <ul style="list-style-type: none"> - Water quality data review - Alum (coagulant) injection |
| 7. | 7 th Apr. 2021 | <ul style="list-style-type: none"> - Review and discussion: Raw water, treated water and Jar test data by SSUWC |
| 8. | 5 th Mar. 2021 | <ul style="list-style-type: none"> - Review and discussion: Raw water, treated water and Jar test data by SSUWC |
| 9. | 3 rd Aug. 2021 | <ul style="list-style-type: none"> - Review and discussion: Raw water, treated water and Jar test data by SSUWC |
| 10. | 17 th Aug. 2021 | <ul style="list-style-type: none"> - Review and discussion: Raw water, treated water and Jar test data by SSUWC |
| 11. | 7 th Sep. 2021 | <ul style="list-style-type: none"> - Preparation of filter sand |
| 12. | 14 th Sep. 2021 | <ul style="list-style-type: none"> - Training schedule in Juba (Y. Sato, Matsumoto and Morita) |

2.4. Water Quality and Treatment Seminar at Juba station

Type: At site in Juba

Participant: Water Purification Section, Water Quality Monitoring Section (Joint seminar with guest (Interns from Juba university))

| No. | Date | Contents |
|-----|--------------|---|
| 1. | 13 Oct. 2021 | – Water treatment process (coagulation, sand filtration and chlorination) |
| 2. | 15 Oct. 2021 | – Water treatment process (coagulation, sand filtration and chlorination) Part2 |
| 3. | 26 Oct. 2021 | – Water quality monitoring item – Closing speech by area manager |

2.5. Final Technical Seminar (Juba)

Type: At site in Juba

Participants: Water Distribution Section, Water Purification Plant Section and Water Quality Monitoring Section

| No. | Date | Contents |
|-----|--------------|--|
| 1. | 29 Oct. 2021 | – Progress and challenges by water distribution team – Progress and challenges by water purification team – Progress and challenges by water quality monitoring team – Activity report in Sep.21 – Oct.29 and message from expert |

2.6. Annual Report and Plan Workshop

Type: At site in Juba

Participants: Directors in Juba statin, MD and Deputy MD of Headquarters

| No. | Date | Contents |
|-----|----------------------------|--|
| 1. | 8 th Dec. 2021 | – Presentation of Juba Station Action Plan and feedback – How to prepare annual report and plan |
| 2. | 16 th Dec. 2021 | – Presentation of annual report and plan and feedback |
| 3. | 20 th Dec. 2021 | – Rap up the annual report and plan |
| 4. | 22 nd Dec. 2021 | – Workshop presentation to SSSUWC HQ and feedback |

Appendix-5: Trainings Program in Japan and Third Country

A. Training in Japan

TRAINING PROGRAM IN JAPAN FOR THE PROJECT FOR MANAGEMENT CAPACITY ENHANCEMENT OF SOUTH SUDAN URBAN WATER CORPORATION PHASE 2 IN SOUTH SUDAN (TERM 2)

1. Background

South Sudan became independent in July, 2011 through Comprehensive Peace Agreement (CPA) in January, 2005. The population of Juba, capital of South Sudan, increased rapidly due to returnees from other areas in South Sudan and outside countries. The current population is estimated as 600,000-800,000. The infrastructure in Juba has been damaged because of its aging and inappropriate operation and maintenance owing to the long conflict.

Juba Station (with 164 staff members) of South Sudan Urban Water Corporation (SSUWC) under the Ministry of Water Resources and Irrigation (MWRI) operates and maintains water supply facilities consisting of water treatment plants and distribution facilities and collects water charges in Juba. However, it is difficult for Juba Station to distribute water in planned and efficient manners because of a) aged facilities, b) its lack of knowledge on operation and maintenance of water supply facilities, c) absence of water quality monitoring system, d) absence of updated customer database, e) insufficient equipment for operation and maintenance, and f) lack of budget. Additionally, its revenue is not sufficient to operate and maintain water facilities, since fixed water tariff system is applied without evaluation of financial situations or water tariff policy and tariff collection system is far from efficient. SSUWC Headquarters (HQ) with 38 staff members has a role to find the solutions to technical problems encountered by Juba and other Stations and to appropriate the budget necessary for O&M of their water facilities. However, the HQ cannot provide suitable support for them because of the absence of institutional framework to grasp their actual conditions and lack of adequate information exchange system between them.

The Government of Japan implemented “The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation” in the period between October 2010 and September 2013. Terminal evaluation conducted in May to June 2013 concluded that some issues related to the financial and technical sustainability in O&M are yet to be solved and the technical assistance is required to continue while their capacity was improved to a certain level until their operation and maintenance are in shape. Additionally, the evaluation pointed out that there are needs to systematize training, increase water revenue and enhance SSUWC HQ’s capacity. Besides, technical assistance on operation and maintenance of the facilities currently under construction by Japan’s grant aid, “the Project for the Improvement of Water Supply System of Juba in Southern Sudan”, will be needed. In this situation, JICA conducted detail planning survey for the Phase 2 project for Management Capacity Enhancement of South Sudan Urban Water Corporation in May 2015 and both sides agreed to project framework. The

Project commenced in February 2016. However, due to civil conflict in July in South Sudan, the project in South Sudan was suspended. Thereafter, the project has been implemented in Uganda and Kenya by the method that SSUWC staff and JICA expert comes to these neighboring countries for training.

2. Purpose of Project

(1) Overall Goal

Safe and clean water is supplied in a reliable manner in Juba.

(2) Project Purpose

The capacity of SSUWC Juba Station regarding sustainable service delivery (financial management, non-revenue water management, facilities operation and maintenance) is strengthened.

(3) Expected Outputs

- 1) Juba Station's water charge collection capacity is strengthened.
- 2) Public awareness activities for Juba citizens by Juba Station are enhanced.
- 3) Non-revenue water management capacity of Juba Station is strengthened.
- 4) Operation and maintenance capacity for new and existing water supply facilities by Juba Station is strengthened.
- 5) Support and supervisory function of SSUWC headquarters toward Juba Station is strengthened.

(4) Target Area

Juba, Republic of South Sudan

(5) Related Institutes

Implementing agency: SSUWC HQ and Juba Station

Cooperative agency: Ministry of Water Resources and Irrigation (MWRI), the former Ministry of Electricity, Dam, Irrigation, and Water Resources (MEDIWR)

3. Result of activities in Term 1 of Phase 2

The Term 2 of Phase 2 project was completed in February 2017. Regarding HQ management, firstly, the training content on Head quarter (HQ) management which was implemented in Phase 1 of the Project was reviewed. Secondly, HQ staff learned the reform history and process of Uganda National Water and Sewerage Corporation (NWSC). Finally, problems of SSUWC HQ were analyzed and the reform draft was prepared. The outline of reform agenda is shown below;

- Define SSUWC Structure and system / procedures at HQs and Stations,
- Define Clear Functions and Job Descriptions
- Define Reporting, Delegation and Communication system
- Assign responsibilities on reporting and planning system at SSUWC HQs
- Reform implementation by reform team
- Monitoring of branch office performance by HQ and establishment of evaluation framework
- Preparation and implementation for car management
- Establishment on material procurement method

- Account management on station's revenue
- Preparation of investment plan

4. Proposed activities in Term 2 for HQ management

According to the above reform agenda, operation manual will be prepared and support by HQ to Stations will be implemented based on the manuals. The following contents of manuals will be assumed.

- Definition of role of HQ and Stations
- Definition of responsibilities in each department in HQ
- Definition of reporting, delegation and communication system
- Manuals for preparation, submission and evaluation of reporting and planning
- Monitoring and evaluation framework of performance of Stations by HQ
- Preparation of guideline for vehicle management
- Preparation of guideline for material procurement
- Preparation of guideline for revenue management of Stations

5. Outline of training in Japan

Outline on training in Japan was shown as below.

| | Content |
|--|--|
| a. Training course name | English name : Training on water supply administration and utility management for South Sudan Urban Water Corporation |
| b. Orientation of the course in this project | <p>The purpose of the Project for Management Capacity Enhancement of South Sudan Urban Water Corporation Phase 2 is “The capacity of SSUWC Juba Station regarding sustainable service delivery (financial management, non-revenue water management, facilities operation and maintenance) is strengthened.” One of the outputs is ‘Support and supervisory function of SSUWC headquarters toward Juba Station is strengthened’.</p> <p>The objectives of the training course are as follows: trainees understand legal, administrative and financial system and development of human resources by water utilities in local government and they can prepare their future vision on water utilities management, and they can prepare future facilities development plan through the understanding facilities development history and observation of modern water supply facilities in Japan.</p> |

| | |
|---|---|
| c. Training attendance and its occupation | (1) Awar Yar Paul Kuol Managing Director, SSUWC Headquarters (HQ) (2) Diu Simon Koak Kuay Director General of Finance and Administration, SSUWC HQ (3) Muludyang Lawrence Lopula Busuk Director General of Planning and Project, SSUWC HQ (4) Bekhit Osama Mahdi Mohamed Acting Area Manager of SSUWC Juba Station |
| d. Module output | <ul style="list-style-type: none"> • To be able to prepare action plan on SSUWC HQ reform • To be able to understand administrative, financial system and regal system in Japan • To be able to understand method of facilities development by local government |

6. Tentative schedule draft

The tentative schedule draft was shown as under the table;

Table 1

| No | Date | | Place | Content |
|----|--------------------------|-----|------------------|--|
| 1 | 28 th June | Wed | JICA Yokohama | <ul style="list-style-type: none"> • Orientation in JICA Yokohama • Courtesy Call to Head of Bureau of Yokohama City • Confirmation of progress of reform of SSUWC HQ • Confirmation of progress of progress of each output implementation by SSUWC |
| | 29 th | Thu | TECI | <ul style="list-style-type: none"> • Visit at Tokyo Waterworks Historical Museum • Approach to Capacity Assessment • Countermeasure of Non-Revenue Water |
| 3 | 30 th | Fri | TECI | <ul style="list-style-type: none"> • Preparation of Operation Manual of HQ • Review and revision of Action plan of SSUWC |
| 4 | 1 st July | Sat | | • Holiday |
| 5 | 2 nd | Sun | | • Holiday |
| 6 | 3 rd | Mon | JWRC | <ul style="list-style-type: none"> • History of waterworks in Japan • Administration of waterworks in Japan (Central and local governments) • Financial system of waterworks in Japan • Management evaluation of waterworks in Japan by performance indicators • Approach to human resources development in Japan |
| 7 | 4 th | Tus | YWWB | <ul style="list-style-type: none"> • Outline of Yokohama Waterworks (History, existing water supply system, NRW, HRD) • Independent accounting system • Management plan • Water Tariff |
| 8 | 5 th | Wed | YWWB | • Site observation |
| 9 | 6 th | Thu | YWWB | <ul style="list-style-type: none"> • Water distribution management, drawing management • Visit water plaza |

| No | Date | | Place | Content |
|----|-----------------|-----|------------------|--|
| | | | | • Visit water treatment plant at Kosuzume |
| 10 | 7 th | Fri | JICA Yokohama | <ul style="list-style-type: none"> • Wrap-up meeting • Preparation of operation manuals and improvement action plan • Country situation report • Presentation by SSUWC |
| 11 | 8 th | Sat | Cambodia | • Depart to Phnom Penh, Cambodia |

JWRC: Japan Water Resource Center

YWWB: City of Yokohama, Water Works Bureau

B. Third Country Training in Cambodia

The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation (SSUWC) Phase 2 Training in Cambodia

1. Current Situation and Issues of SSUWC

South Sudan became independent in July, 2011 through Comprehensive Peace Agreement (CPA) in January, 2005. The population of Juba, capital of South Sudan, increased rapidly due to returnees from other areas in South Sudan and outside countries. The current population is estimated as 600,000-800,000 from 250,000 at the independent. The infrastructure in Juba has been damaged since its aging and inadequate operation and maintenance owing to the long conflict and remains undeveloped.

Juba Station (with 164 staff members) of South Sudan Urban Water Corporation (SSUWC) under the Ministry of Water Resources and Irrigation (MWRI) operates and maintains water supply facilities consisting of water treatment plants and distribution facilities and collect revenue. It is difficult for Juba Station to distribute water in planned and efficient manners because of:

- a) aged and insufficient capacity of existing water supply facilities,
- b) its lack of knowledge on operation and maintenance of water supply facilities,
- c) unestablished water quality monitoring system,
- d) absence of updated customer database,
- e) insufficient equipment for operation and maintenance
- f) lack of human resource capacity
- g) lack of budget for O&M

Revenue collection covers only a small fraction of O&M costs and all salary and chemicals are covered by subsidy from central government. In tariff system, fixed water tariff system is dominant without evaluation of financial situations of utility. Tariff revision is influenced by the central government. It is far from financially autonomous utility.

SSUWC Headquarters (HQ) with 38 staff members has a role to supervise 6 stations including Juba station and to appropriate the budget necessary for O&M of their water facilities. However, the HQ cannot implement appropriate support for stations because of the absence of institutional framework such as job description, capacity to grasp actual conditions of stations, planning and evaluation system, and information exchange and communication system.

Therefore, South Sudan Government requested the Government of Japan to implement a capacity development project for Juba Station and the Government of Japan implemented **“The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation”** in the period between October 2010 and September 2013. Final evaluation in May 2013 concluded:

- Some issues related to the financial and technical sustainability in O&M are yet to be solved
- The technical assistance is required to continue while their capacity was improved to a certain level until their operation and maintenance are in shape.
- There are needs to systematize training, increase water revenue and enhance SSUWC HQ capacity.
- Technical assistance on operation and maintenance of the facilities currently under construction by grant aid project will be needed. The facility under construction includes: water treatment plant (10,800 m³/day), transmission mains, service reservoir, distribution mains, 120 water kiosks, and 8 tanker stations.
- In this situation, South Sudan Government requested **“The Phase 2 Project for Management Capacity Enhancement of South Sudan Urban Water Corporation”** (“the Project”) and the Project started January 2016.

However, all JICA project experts forced to evacuate from South Sudan since a civil conflict occurred in July 2016, and the Project have not been resumed in South Sudan. Instead, the Project is now being implemented in the neighboring countries such as Uganda and Kenya, inviting SSUWC staff to these countries.

2. Purpose of training in PPWSA

South Sudan was independent in 2011 after prolonged civil war. Due to the war, the water supply infrastructure has not yet developed and water supply service and management system of SSUWC are still very weak. This situation may be very similar to the situation of PPWSA in the early 1990’s just after the end of the civil war. SSUWC management would like to learn from the experience of PPWSA, especially of its initial stage of development.

Key question of SSUWC is “How we should initiate the development of water supply?” “What should we do at the initial stage of development?” “What measure or reform is required for SSUWC to start development?” “What management system (human resource, motivation, administrative, planning, communication, etc.) is required and how we establish management system?”

SSUWC would like to know the change of the conditions of PPWSA before and after the

development and what measures brought these changes.

Technically, SSUWC would like to learn the followings from the experience of PPWSA.

- General water supply facility management (water treatment, water quality management, distribution management).
- Non-revenue water management, including billing and collection
- Interaction with existing and potential customers

Finally, SSUWC will prepare action plan based on the experience of PPWSA for implementation in South Sudan.

3. Concept of training

- Aiming more practical training.
- More proactive or research to apply and utilize the results for solving problems in SSUWC
- Requirements for Participants:
 - Before the training.
 - To have aware of the concerned problems. Prepare research questions
 - To prepare presentation on existing situation of SSUWC
 - After training:
 - Submit research reports or improvement plans on concrete achievement; including comparison with SSUWC, proposals for current works, proposals for improvement, etc.
 - The report is evaluated by JICA experts and comments for finalization will be given.
 - Report or plans will be submitted and made presentation to Board of Directors

4. Participants

| No. | Name / | Title |
|-----|---------------------------------------|--|
| 1 | Sophia Pal Gai Laam (Ms.) | Minister, Water Resources and Irrigation (MWRI), South Sudan |
| 2 | Alex Liki Ruben Lomundu (Mr.) | Director General, Planning, MWRI |
| 3 | Yar Paul Kuol Awar (Ms.) | Managing Director, South Sudan Urban Water Corporation (SSUWC) |
| 4 | Lawrence Lopula Busuk Muludyang (Mr.) | Director General, Planning and Projects, SSUWC |
| 5 | Simon Koak Kuay Diu (Mr.) | Director General, Admin and Finance, SSUWC |
| 6 | Osama Mahdi Mohamed Bekhit (Mr.) | Ag Area Manager, Juba Water Treatment , SSUWC |
| | Japanese Attendant | |
| 7 | Izumi Shoji (Ms.) | Deputy Director, Water Resources Group, Global Environment Dept., JICA |
| 8 | Hiroataka Sato (Mr.) | Chief Advisor of the Project TEC International Co., Ltd. |

| | | |
|---|----------------------|---|
| 9 | Tomoaki Matsui (Mr.) | Coordinator of the Project TEC International Co., Ltd. |
|---|----------------------|---|

5. Timing of Implementation

10th to 14th July 2017

6. Duration

5 days (including 0.5 days lecture by H.E. EK SONN CHAN)

7. Outline of Training Courses

- (1) Introduction and Presentation by SSUWC (1 hours)
 - Technical and Grand Aid Cooperation by JICA
 - Current situation and issues
 - Reform agenda and progress
- (2) Lecture by H.E. EK SONN CHAN, Secretary of State, MIH on Overall Reform for PPWSA and discussion on reform for SSUWC (0.5 day)
- (3) Field trip (0.5 day)
 - Presentation by PPWSA on water supply system
 - PPWSA office facilities, Bill collection counters/teller office, DMA monitoring center, meter test bench, NRW management equipment, training center, workshop
 - Phum Prek WTP, Water Laboratory
 - Public awareness activities
 - Others (please recommend others for site observation)
- (4) Reform history of PPWSA after the civil war
 - Overall changes and key factors/mechanisms for changes
 - Governance and organizational set-up of water utility
 - Human resource development/training
 - Actions for problem solving and improvement
- (5) Overall management activities
 - Business plan of water supply utility
 - Whole structure of standards, guidelines, and manual, SOPs
- (6) Non-revenue water management
 - Commercial loss
 - Physical loss
- (7) Coverage expansion including water supply to urban poor
- (8) Public awareness for existing and potential customers
- (9) Wrap-up Discussions and preparation of Action Plan toward application to SSUWC (1 day)
 - Self-study by SSUWC and preparation of action plan
 - Wrap-up discussion with PPWSA

(3 days)

8. Training Programs

| Date | Time | Activities (Tentative) | Trainers | Place |
|--------------------|-------------------|--|----------------------------|-------------------------|
| 10/07/2017, Mon | 8:30-8:50 | Courtesy Call to HE Sim Sitha, Director General of PPWSA | HE Sim Sitha, All Trainers | Director General Office |
| | 9:00-10:30 | Reform History of PPWSA | Mr. Long Naro | TC |
| | 10:30-10:40 | Coffee Break | | |
| | 10:40-12:00 | Action for Problem Solving | Mr. Long Naro | TC |
| | Lunch Time | | | |
| | 13:30-15:00 | Institutional Governance and Organization of Water Utility | Mr. Long Naro | TC |
| | 15:00-15:15 | Coffee break | | |
| | 15:15-16:30 | Institutional Governance and Organization of Water Utility | Mr. Long Naro | TC |
| 11/07/2017, Tue | 8:30-10:00 | Whole structure of standards, guidelines, and manual, SOPs. | Mr. Long Naro | TC |
| | 10:00-10:15 | Coffee break | | |
| | 10:15-12:00 | Whole structure of standards, guidelines, and manual, SOPs. | Mr. Long Naro | TC |
| | Lunch Time | | | |
| | 13:30-15:00 | Business plan of water supply utility | Mr. Reing Chanphirum | TC |
| | 15:00-15:15 | Coffee break | | |
| | 15:15-16:30 | Business plan of water supply utility | Mr. Reing Chanphirum | TC |
| 12/07/2017, Wed | 8:30-10:00 | NRW Management (Commercial Loss) | Mr. Pheng Ty | TC |
| | 10:00-10:15 | Coffee break | | |
| | 10:15-12:00 | NRW Management (Physical loss) | Mr Pheng TY | TC |
| | Lunch Time | | | |
| | 13:30-15:00 | NRW Management (Physical loss) | Mr. Pheng Ty | TC |
| | 15:00-15:15 | Coffee break | | |
| | 15:15-16:30 | Public awareness for existing and potential customers | Mr. Som Sovann | TC |
| 13/07/2017, Thu | 9:00-10:00 | Overall Reform for PPWSA and on-going Country's water supply sector | H.E. Ek Sonn Chan | Sunway Hotel |
| | 10:00-10:15 | Coffee break | | |
| | 10:15-12:00 | Overall Reform for PPWSA, on-going Country's water supply sector, and Discussion of reform for SSUWC | H.E. Ek Sonn Chan | Sunway Hotel |

| Date | Time | Activities (Tentative) | Trainers | Place |
|--------------------|-------------------|--|-----------------|---------------|
| | Lunch Time | | | |
| | 13:30-15:00 | Visit Phum Prek WTP | to be confirmed | Phum Prek WTP |
| | 15:00-15:15 | Coffe break | | |
| | 15:15-16:30 | Visit Phum Prek WTP | to be confirmed | Phum Prek WTP |
| 14/07/2017, Fri | 13:30-15:00 | Human Resource Development | Mrs. Reoun Nary | TC |
| | 15:00-15:15 | Coffee break | | |
| | 15:15-16:30 | Human Resource Development | Mrs. Reoun Nary | TC |
| | Lunch Time | | | |
| | 13:30-15:00 | Wrap-up Discussion and preparation of Action plan of SSUWC | All Trainers | TC |
| | 15:00-15:15 | Coffe break | | |
| | 15:15-16:30 | Wrap-up Discussion and preparation of Action plan of SSUWC | All Trainers | TC |

Appendix-6: Participants in Trainings

1. Remote Training in Uganda and Kenya

1.1. Attendance of trainees

A list of attendance of trainees/counterparts (C/P) in remote training is given in Table 2 and, and a summary of the number of attendees by output are shown below.

Table 1 Summary of the number of attendees by output

| Subject | Term 1 | Term 2 | Term 3 |
|--|--------|--------|--------|
| 1. Financial Management/ Management of tanker filling station (TFS) and public tap stand (PTS) | 11 | 29 | 22 |
| 2. Public Awareness | 10 | 20 | 5 |
| 3. Distribution Pipeline Network | 10 | 27 | 14 |
| 4. Non-Revenue Water Management | | | |
| 5. GIS | 6 | 9 | 3 |
| 6. O&M of Purification Plant (Elc&Mech) (Water Treatment) | 12 | 20 | 20 |
| 7. Water Quality Management | 6 | 9 | 6 |
| 8. Headquarters (HQ) Management | 12 | 22 | 37 |
| Total | 67 | 136 | 107 |

Remarks: the number indicates cumulative total numbers.

Table 2 List of Attendees in Remote Training in Uganda and Kenya

| Item | No. | Tranee's Name | Term 1(2016/2017) | | | | Term 2 (2017/2018) | | | | Term 3 (2018/2019) | | | |
|--|-----|-------------------------------------|-------------------|------|------|---------------|--------------------|------|---------------|---------------|---------------------|---------------|------|---------------|
| | | | Initial | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| | | | Oct. | Nov. | Jan. | Jun.- Jul. | Sep. | Nov. | Nov.- Dec. | Feb.- Mar. | Apr. | Oct.- Nov. | Dec. | Jan.- Mar. |
| 1.Financial Management and Tariff Setting/ Management of tanker filling station (TFS) and public tap stand (PTS) | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | 8 | 9 | 10 |
| | 1 | Keneeth Gideon Dayaka | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | ○ | ○ | ○ |
| | 2 | Simon Boss Yoasa | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | ○ | ○ | ○ |
| | 3 | Diana Umjuma | | ○ | ○ | ○ | | | | | | | | |
| | 4 | Jennifer Achiro Peter | | | ○ | ○ | | ○ | ○ | | | ○ | | |
| | 5 | Lona Wani | | | | | ○ | | ○ | ○ | | | ○ | ○ |
| | 6 | Peter Loro | | | | | ○ | ○ | ○ | ○ | | ○ | ○ | ○ |
| | 7 | William Lokuji | | ○ | ○ | ○ | | | | | | | | |
| | 8 | Hakim Emmanuel | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | ○ | ○ | ○ |
| | 9 | Geoge Okee Salvator | | | | | | | ○ | | | | | |
| | 10 | Primo Joseph Logalle | | | | | | | | | | | | |
| | 11 | Taban Peter Agellam | | | | | | | | | | | ○ | |
| | 12 | Kongs Towaro Ononga | | | | | | | ○ | | | | ○ | |
| 2.Public Awareness | | | | 1 | 2 | | 3 | 4 | 5 | 6 | | 7 | | |
| | 13 | Jonathan Winston (same as No.35) | | ○ | ○ | | ○ | ○ | ○ | ○ | | ○ | | |
| | 14 | Christopher Phillip | | ○ | ○ | | ○ | ○ | ○ | ○ | | ○ | | |
| | 15 | Geoge Okee Salvator (same as No.9) | | ○ | ○ | | ○ | ○ | ○ | ○ | | ○ | | |
| | 16 | Kongs Towaro Ononga (same as No.12) | | ○ | ○ | | ○ | ○ | ○ | ○ | | ○ | | |
| | 17 | Peter Loro (same as No.6) | | ○ | ○ | | ○ | ○ | ○ | ○ | | ○ | | |
| 3.O&M of Distribution Pipeline Network | | | | 1 | 2 | 3 | 4 | | 5 | 6 | | 7 | | 8 |
| | 18 | Peter Garbino | | ○ | ○ | ○ | ○ | | ○ | ○ | | | | |
| | 19 | Angelo Appollo | | ○ | ○ | ○ | ○ | | ○ | ○ | | | | |
| | 20 | Macok Idris Dominic Michael | | | | | | | | | | ○ | | |
| | 21 | Abate Francis Simon Stephen | | | | | | | | | | ○ | | |
| | 22 | Rume Nancy Eluzai Manasseh | | | | | | | | | | | | ○ |
| | 23 | Abdu Adam Sarfadin | | | | | | | | | | | | ○ |
| | 24 | Modi Francis Taban | | | | | | | | | | | | ○ |
| | 25 | Primo Joseph Logalle | | | | | | | | | | ○ | | |
| | 26 | Ceaser Lado | | ○ | ○ | ○ | | | ○ | ○ | | | | |
| 4.Non-Revenue Water Management | | | | ○ | ○ | ○ | ○ | | ○ | ○ | | | | |
| | 27 | Douse Joseph | | ○ | ○ | ○ | ○ | | ○ | ○ | | | | |
| | 28 | Joseph Oniek Salvator | | ○ | ○ | ○ | ○ | | ○ | ○ | | | | |
| | 29 | Cieggen Mading | | | | ○ | ○ | | ○ | ○ | | ○ | | |
| | 30 | Phillimona Luka Malis | | | | | | | | | | ○ | | |
| | 31 | Ladu Christopher Pitta | | | | | | | | | | | | ○ |
| | 32 | Ladu Zakaria Wani | | | | | | | | | | | | ○ |
| | 33 | Jada Clement Swaka | | | | | | | | | | | | ○ |
| | 34 | Lado Christopher Philip | | | | | | | | | | ○ | | |
| | 35 | Jonathan Winston | | | | ○ | ○ | | ○ | ○ | | ○ | | ○ |
| 5.GIS | | | | 1 | 2 | 3 | | | 4 | 5 | | | | 6 |
| | 36 | Cieggen Mading (same as No.29) | | ○ | ○ | ○ | | | ○ | ○ | | | | ○ |
| | 37 | Peter Pisa | | ○ | ○ | ○ | | | ○ | ○ | | | | ○ |
| | 38 | Daniel Antasio | | | | | | | ○ | ○ | | | | ○ |
| | 39 | Duku David Anyansio | | ○ | ○ | ○ | | | | | | | | |
| 6.1.O&M of Purification Plant (Elc&Mech) | | | | 1 | 2 | 3 | 4 | | 5 | | | | 6 | 7 |
| | 40 | Julius Moberuk | | ○ | ○ | ○ | ○ | | ○ | | | | ○ | ○ |
| | 41 | Martin Rume Olimpico | | ○ | ○ | ○ | ○ | | ○ | | | | | |
| | 42 | Anjello Peter Iggye | | | ○ | ○ | ○ | | ○ | | | | | |
| | 43 | Mulai Lucky Eluzai | | | | | | | | | | | ○ | |
| | 44 | Jada Stephen Lako | | | | | | | | | | | ○ | |
| | 45 | Loro David Wani Kolombo | | | | | | | | | | | ○ | |
| | 46 | Sule Marchelo Tombe Lado | | | | | | | | | | | ○ | |
| | 47 | Kiringa James John Badi | | | | | | | | | | | ○ | |
| | 48 | Latyu Emmanuel Khamis Ayobu | | | | | | | | | | | ○ | |
| | 49 | Yengoa Fham Kapip Maleri | | | | | | | | | | | | ○ |
| | 50 | Kiringa James John Badi | | | | | | | | | | | | ○ |
| | 51 | Agata Mario Yanga Cirilo | | | | | | | | | | | | ○ |

| Item | No. | Tranee's Name | Term 1(2016/2017) | | | Term 2 (2017/2018) | | | | | | Term 3 (2018/2019) | | | | |
|---|-----|--------------------------------------|-------------------|------|------|--------------------|------|------|---------------|---------------|-----|---------------------|------|---------------|------|---|
| | | | Initial | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | |
| | | | Oct. | Nov. | Jan. | Jun.- Jul. | Sep. | Nov. | Nov.- Dec. | Feb.- Mar. | Apr | Oct.- Nov. | Dec. | Jan.- Mar. | Apr. | |
| | 52 | Logoro Charles Mogga Laku | | | | | | | | | | | | | ○ | |
| | 53 | Elsapana Robert Daya | | | | | | | | | | | | | ○ | |
| | 54 | Kenyi Hillary Laku Loro | | | | | | | | | | | | | ○ | |
| | 55 | Manase Lokule Wani | | | ○ | ○ | ○ | | ○ | | | | | | | |
| 6.2.O&M of Purification Plant (Water Treatment) | | | | 1 | 2 | 3 | 4 | | 5 | | | | | 6 | 7 | |
| | 56 | Peter Tabura | | ○ | ○ | ○ | | | ○ | | | | | | | |
| | 57 | El-Fateh Rihan | | ○ | ○ | ○ | ○ | | ○ | | | | | ○ | ○ | |
| | 58 | Wani George Wani Marcello Pitia | | | | | | | | | | | | ○ | ○ | |
| | 59 | Emmanuel Lado | | ○ | ○ | ○ | ○ | | ○ | | | | | ○ | ○ | |
| 7.Water Quality Management | | | | 1 | 2 | 3 | 4 | | 5 | | | | | 6 | 7 | |
| | 60 | Sebit Lado Silvano | | ○ | ○ | ○ | ○ | | ○ | | | | | ○ | ○ | |
| | 61 | Tivo Abowro | | ○ | ○ | ○ | ○ | | ○ | | | | | ○ | ○ | |
| | 62 | Emmanuel Frazer | | ○ | ○ | ○ | ○ | | ○ | | | | | ○ | ○ | |
| 8.Headquarters (HQ) Management | | | | 1 | 2 | 3 | | | 4 | 5 | 6 | 7 | | | 8 | |
| | 63 | Laam Sophia Pal Gai | | | | | | | | | ○ | | | | | |
| | 64 | Yar Paul Kuol Awar | ○ | | ○ | | | | ○ | ○ | ○ | ○ | | ○ | | ○ |
| | 65 | Lawrence Busuk Lopula Muludyang | ○ | ○ | ○ | ○ | | | ○ | ○ | | | ○ | | | |
| | 66 | Simon Koak Kuay | ○ | | ○ | ○ | | | ○ | ○ | ○ | ○ | ○ | | ○ | |
| | 67 | Samuel Taban Longa | | | | ○ | | | | ○ | | | | | | |
| | 68 | Joseph Ebere Amosa | ○ | | | | | | ○ | ○ | ○ | ○ | ○ | | ○ | |
| | 69 | Joseph El Nur Sule | | ○ | ○ | | | | | | | | | | | |
| | 70 | Osama Mahdi Mohammed | | | | | | | ○ | | ○ | ○ | ○ | | | |
| | 71 | Aleer Philips Leek | | | | ○ | | | | ○ | ○ | ○ | ○ | | ○ | |
| | 72 | Yenky Santurino Tongun Rubin | | | | ○ | | | ○ | ○ | | | | | | |
| | 73 | Chrisphine Abugo Paul | | | | | | | ○ | ○ | ○ | ○ | ○ | | ○ | |
| | 74 | Gabriel Magol Alueth | | | ○ | | | | | | | | | | | |
| | 75 | Wanga Ben Mgbamborigbe | | ○ | | | | | | | | | | | | |
| | 76 | John Duom Warabeck Ayuel | | | | | | | | | | | | | | ○ |
| | 77 | Richard Legge Modi Subek | | | | | | | | | | | | | | ○ |
| | 78 | Natale Albert Dak Deng | | | | | | | | | | | | | | ○ |
| | 79 | Okongo Wilson Daniel | | | | | | | | | | | | ○ | | ○ |
| | 80 | Cep Madol Cuot | | | | | | | | | | | | ○ | | |
| | 81 | Ubaa Peter Akulino Ukok | | | | | | | | | | ○ | | | | |
| | 82 | Keneeth Gideon Dayaka (same as No.1) | | | | | | | | | | ○ | | | | ○ |
| | 83 | El-Fateh Rihan (same as No.57) | | | | | | | | | | | | ○ | | |
| | 84 | William Lokuji (same as No.7) | | | | | | | | | | ○ | ○ | | | ○ |
| | 85 | Peter Tabura (same as No.56) | | | | ○ | | | | | | ○ | | | | |

2. Biweekly and Monthly Meeting by Web Conference

| No. | Meeting | Number of participants | No. | Meeting | Number of participants |
|-----|--------------------------------------|------------------------|-----|-----------------------------------|------------------------|
| 1 | HQ (6 th Jun. 2020) | 11 | 22 | HQ (12 th Apr.2021) | 12 |
| 2 | HQ (14 th Jul. 2020) | 10 | 23 | Juba (27 th Apr. 2021) | 14 |
| 3 | HQ (28 th Jul. 2020) | 10 | 24 | Juba (25 th May 2021) | 5 |
| 4 | HQ+Juba (11 th Aug. 2020) | 11 | 25 | HQ (26 th May 2021) | 9 |
| 5 | HQ+Juba (25 th Aug. 2020) | 13 | 26 | Juba (10 th Jun. 2021) | 9 |
| 6 | HQ+Juba (9 th Sep. 2020) | 10 | 27 | HQ (23 rd Jun. 2021) | 9 |
| 7 | HQ+Juba (23 rd Sep. 2020) | 9 | 28 | Juba (24 th Jun. 2021) | 8 |
| 8 | HQ+Juba (13 th Oct. 2020) | 7 | 29 | Juba (15 th Jul. 2021) | 9 |
| 9 | Juba (21 st Oct. 2020) | 11 | 30 | HQ (28 th Jul. 2021) | 14 |
| 10 | HQ (10 th Nov. 2020) | 6 | 31 | Juba (29 th Jul. 2021) | 7 |
| 11 | HQ (13 rd Nov. 2020) | 9 | 32 | Juba (19 th Aug. 2021) | 8 |
| 12 | Juba (17 th Nov. 2020) | 8 | 33 | HQ (26 th Aug. 2021) | 6 |
| 13 | Juba (1 st Dec. 2020) | 9 | 34 | Juba (10 th Sep. 2021) | |
| 14 | HQ (9 th Dec. 2020) | 9 | 35 | Juba (28 th Sep. 2021) | 10 |
| 15 | Juba (15 th Dec. 2020) | 9 | 36 | HQ (30 th Sep. 2021) | 6 |
| 16 | Juba (19 th Jan. 2021) | 10 | 37 | Juba (11 th Oct. 2021) | 7 |
| 17 | Juba (3 rd Feb. 2021) | 11 | 38 | Juba (4 th Nov. 2021) | 11 |
| 18 | Juba (25 th Feb. 2021) | 9 | 39 | Juba (24 th Nov. 2021) | 8 |
| 19 | Juba (15 th Mar. 2021) | 12 | 40 | Juba (10 th Dec. 2021) | 10 |
| 20 | HQ (23 rd Mar. 2021) | 10 | 41 | Juba (14 th Jan. 2022) | 10 |
| 21 | Juba (9 th Apr. 2021) | 10 | 42 | Juba (27 th Jan. 2022) | 10 |
| | Sub-total | 204 | | | 72 |
| | Total | | | | 276 |

(This will be updated in January 2022.)

3. Seminar and Workshop

| No. | Title | Number of seminar and workshop | Total number of participants |
|-----|---|--------------------------------|------------------------------|
| 1. | Financial Committee Meeting | 8 | 32 |
| 2. | Planning and Database Workshop | 7 | 29 |
| 3. | Water Quality Management Seminar | 12 | 72 |
| 4. | Water Quality and Treatment Seminar at Juba station | 3 | 18 |
| 5. | Final Technical Seminar | 1 | 20 |
| 6. | Annual Report and Plan Workshop | 4 | 40 |
| | | Total | 211 |

Appendix-7: Record of Equipment Procured

1. Summary List of Equipment procured

| Category | Content | Quantity | | | | | |
|--|--|---------------|------|---|---|---|-------|
| | | Original Plan | Term | | | | Total |
| | | | 1 | 2 | 3 | 4 | |
| 1. Equipment for training building | Computer | 7 | 7 | 0 | 0 | 5 | 12 |
| | UPS | 7 | 0 | 0 | 0 | 5 | 5 |
| | UPS (big) | 1 | 1 | 0 | 0 | 0 | 1 |
| | Printer (color) | 1 | 0 | 2 | 0 | 5 | 7 |
| | Printer (block and white) | 1 | 0 | 0 | 0 | 0 | 0 |
| 2. Copy machine | Copy machine | 1 | 1 | 0 | 0 | 0 | 1 |
| 2. Stabilizer | For copy machine | 1 | 1 | 0 | 0 | 0 | 1 |
| 3. GIS software | | 1 | 0 | 0 | 0 | 1 | 0 |
| 4. GPS | | 2 | 2 | 0 | 0 | 0 | 2 |
| 5. Equipment for leakage survey | Metal detector | 1 | 0 | 0 | 0 | 0 | 0 |
| | Metal pipe location detector | 1 | 0 | 0 | 0 | 0 | 0 |
| | Reduced plastic pipe water leakage detector | 1 | 0 | 0 | 0 | 0 | 0 |
| | Ultra-sonic sound wave flowmeter | 1 | 0 | 0 | 0 | 0 | 0 |
| | Water leakage detector | 1 | 0 | 0 | 0 | 0 | 0 |
| | High sensitivity sound hearing stick | 2 | 0 | 0 | 0 | 0 | 0 |
| | Water leakage detector | 1 | 0 | 0 | 0 | 0 | 0 |
| | Water leakage detector | 1 | 0 | 0 | 0 | 0 | 0 |
| | Portable water meter | 1 | 0 | 0 | 0 | 1 | 1 |
| 6. Machinery for leakage repair | Medium sized wheel type backhoe | 1 | 0 | 0 | 0 | 1 | 1 |
| | Asphalt cutter | 1 | 0 | 0 | 0 | 1 | 1 |
| 7. Equipment for piping | Plumbing tool, water meter and plumbing tool, service pipe, valve and pipe accessory | 1 | 0 | 0 | 1 | 1 | 2 |
| 8. Flow meter | Electromagnetic flow meter | 1 | 0 | 0 | 0 | 1 | 1 |
| | Bladed wheel water supply amount meter | 3 | 0 | 0 | 0 | 2 | 2 |
| 9. Sluice valve | | 25 | 0 | 0 | 0 | 5 | 5 |
| 10. Water quality test | Bacillus coli test kit and reagent, test kit | 1 | 1 | 0 | 0 | 1 | 3 |
| 11. Web conference set for remote work | | - | - | - | - | 1 | 1 |
| 12. Equipment for piping for COVID19 measure | Plumbing tool, water meter and plumbing tool, service pipe, valve and pipe accessory | - | - | - | - | 1 | 1 |
| 13. Chemicals for COVID19 measure | Aluminum sulfate: 105,000 kg | - | - | - | - | 1 | 1 |
| | Calcium hypochlorite: 2,000 kg | - | - | - | - | 1 | 1 |
| 14. Fuel for COVID19 measure | 126,000 Liters | - | - | - | - | 1 | 1 |
| 15. Motor bicycle | (JICA South Sudan office procurement) | - | - | - | - | 9 | 9 |

2. Equipment procured

(1) Term 1

1-1: PC

| Category number | Item | Specifications | Unit | Quantity | Country | Hand over |
|-----------------|--------------------------------|---------------------------------------|------|----------|-------------|-------------|
| 1 | Computer (laptop) for training | Dell Celerane Laptop (4GB x 4, 8GBx3) | No. | 7 | South Sudan | 25 Nov 2016 |
| 1 | UPS(large) | | No. | 1 | | |

| Category number | Item | Specifications | Unit | Quantity | Country | Hand over |
|-----------------|----------------------------------|---|------|----------|---------|-----------|
| 2 | Photocopy machine | Kyocera Taskalfa 3051i, A3 Copier/printer/scanner | No. | 1 | | |
| 2 | Stabilizer for photocopy machine | 3 KVA stabilizer | No. | 1 | | |
| 4 | GPS | Garmin GPS, eTrex 30x | No. | 2 | Japan | |

1-2: Water quality reagent

Procured country: Uganda

| Category number | Item | HACH No. | Quantity |
|-----------------|------------------------------------|----------|----------|
| 10 | DPD free residual chlorine 100 pks | 2105569 | 1 |
| | Mn LR (0.02-0.7) | 2651700 | 4 |
| | Mn HR (0.2-20) | 2430000 | 2 |
| | Fe | 2105769 | 2 |
| | Zn | 2429300 | 2 |
| | Cu | 2105869 | 2 |
| | Nitrate LR | 2429800 | 2 |
| | Nitrate HR | 2106169 | 2 |
| | Total hardness | 2319900 | 2 |

(2) Term 2

2: Printer

Procured country: Uganda

| Category number | Item | Specification | Unit | Quantity |
|-----------------|-----------------|-----------------|------|----------|
| 1 | Printer (Color) | Hewlett Packard | No. | 2 |

(3) Term 3

3: Pipe fitting

Procured country: Kenya

| Category number | Item | Unit | Quantity |
|-----------------|--|------|----------|
| 7 | 1. DI couplings set complete with nuts, bolts and rubber rings | | |
| | DN 8" | set | 4 |
| | DN 6" | set | 4 |
| | DN 4" | set | 4 |
| | DN 3" | set | 4 |
| 7 | 2. Leak repair clamps - DI | | |
| | DN 8" | nr | |
| | DN 6" | nr | 6 |
| | DN 4" | nr | 6 |
| | DN 3" | nr | 6 |
| 7 | 3. uPVC pipe PN16 DN 3" | m | 36 |

| Category number | Item | Unit | Quantity |
|-----------------|---|------|----------|
| 7 | 4. Water meter (accuracy class R=100) along with connector pieces | | |
| | 3/4" (inch) water meter including strainer*1 | nr | 5 |
| | 3/4" (inch) - accessories (stop valve and union, if necessary flanged kit) | nr | 5 |
| | 1" (inch) water meter including strainer*1 | nr | 151 |
| | 1" (inch) - accessories (stop valve and union, if necessary flanged kit) | nr | 151 |
| | 1 1/2" (inch) water meter including strainer*1 | nr | 9 |
| | 1 1/2" (inch) -accessories (stop valve and union, if necessary flanged kit) | nr | 9 |
| | 2" (inch) water meter including strainer*1 | nr | 8 |
| | 2" (inch) -accessories (stop valve and union, if necessary flanged kit) | nr | 8 |

(4) Term 4

4-1: PC, Equipment, and Motor Bicycle

Procured country: Kenya

Handover: February 18th, 2020

| Category number | Item | Specifications | Unit | Quantity |
|-----------------|--|--|------|----------|
| 1 | 1. Desktop Personal Computer 2. (Main+Monitor+Mouse+Keyboard) | HP Desktop Intel Core i3 Windows 10 pro | No. | 5 |
| 1 | 3. UPS | APC 650 | No. | 5 |
| 1 | 4. Printer (color) | HP laser jet printer Pro MFP 177fw | No. | 5 |
| 1 | 5. Anti-virus software | Kaspersky (single use) | No. | 15 |
| 6 | 6. Concrete/Asphalt cutter | Floor Saw 18" Robin Gasoline MCD 218VDX with an extra standard blade | No. | 1 |
| 7 | 7. Engine (drain) pump | Koshin SEV-50X | No. | 1 |
| 7 | 8. Welding machine with generator | Kingmax KM7GFLEW | No. | 1 |
| 7 | 9. Set of Die Thread machine | 1/2", 3/4", 1", 1 1/4", 1 1/2", 2" | No. | 1 |
| - | 10. Motor bike | Senke Tembo CG 125 cc Helmet | No. | 9 |

4-2: Fittings

Procured country: South Sudan

Handover: February 18th, 2020

| Category number | Description | Unit | Quantity |
|-----------------|--|------|----------|
| 7 | Fittings for domestic customer meters | | |
| | GI pipes: 2 nos. of 3/4", 4 nos. of 1", 1 no. of 1 2/1", 1 no. of 2" | No. | 1 |
| | GI elbow: 24 nos. of 3/4", 180 nos. of 1", 4 nos. of 2", 12 nos. of 1 2/1" | No. | 1 |
| | GI socket: 12 nos. of 3/4", 90 nos. of 1", 9 nos. of 1 2/1", 3 nos. of 2" | No. | 1 |
| | GI union: 12 nos. of 3/4" | No. | 1 |

4-3: Backhoe

Procured country: Kenya

Handover: April 21st, 2020

| Category number | Equipment | Model | Quantity |
|-----------------|---------------------------|---|----------|
| 6 | Wheel Type Backhoe Loader | Model CAT426F2 | 1 |
| | Spare parts | Element filter | 12 |
| | | Filter A Pkg12 | 12 |
| | | Enoc Verron MP Grease 3-15kg Pail | 3 |
| | | Enoc VULCAN770X SUPER 15W-40-4X5 LIT LB ENL | 24 |
| | Tools | Wheel spanner | 1 |
| | | Grease gun | 1 |
| | Manuals: | Manuals (English) | 1 |

4-4: Water supply equipment

Procurement: Kenya

Handover: 26th August 2020

| Category number | No. | Items | Brand name and model | Unit | Qty. |
|-----------------|-----|--------------------------------------|--------------------------------|------|------|
| 5 | 1 | Portable water meter test bench | Honeywell Elster DN15 | set | 1 |
| 7 | 2 | GI Union 3/4" | | num. | 200 |
| | 3 | GI Union 1" | | num. | 50 |
| | 4 | Cast iron valve | Brass gate valve (Pegler 1065) | num. | 200 |
| | 5 | Cast iron valve | Brass gate valve (Pegler 1065) | num. | 50 |
| | 6 | GI pipe | | m | 180 |
| | 7 | GI pipe | | m | 180 |
| | 8 | GI elbow | | num. | 800 |
| | 9 | GI elbow | | num. | 200 |
| | 10 | GI nipple | | num. | 400 |
| | 11 | GI nipple | | num. | 100 |
| | 12 | Plumbing tape | | m | 200 |
| | 13* | Manual pipe threading machine | REMS eva | set | 1 |
| | 14 | Pipe wrench (medium duty) | | num. | 2 |
| 8 | 15* | Electromagnetic flow meter | SOMAG Flowiz ML255 | num. | 1 |
| | 16* | Mechanical flow meter (Bladed wheel) | Elster Kent HelixH4000 | num. | 2 |
| 9 | 17* | Sluice valve & Flange adapter | HAWLE E3 | num. | 3 |
| | 18* | Sluice valve & Flange adapter | HAWLE E3 | num. | 2 |

4-5 Water supply equipment (additional)

Procurement: Kenya

Handover: 26th August 2020

| Category number | Items | Brand name and model | Qty. | Unit |
|-----------------|--|--------------------------|------|------|
| 7 | 1. Mechanical flow meter | 12" (Dia 300mm) , 16 bar | 1 | No |
| 7 | 2. DI couplings set complete with nuts, bolts and rubber rings | | | set |
| | DN 8" | | 6 | set |
| | DN 6" | | 6 | set |
| | DN 4" | | 6 | set |
| | DN 3" | | 6 | set |
| 7 | 3. uPVC pipe PN16 | | | |
| | DN 8" | | 18 | m |
| | DN 4" | | 18 | m |
| | DN 3" | | 18 | m |

4-6: Water quality equipment

Procurement: Kenya

Handover: 15th Jan 2021

| Category number | Item | Unit | Quantity |
|-----------------|---|------|----------|
| 10 | HACH 2100Q Portable Turbidity Meter Kit with USB and Power Module | No. | 1 |
| | HACH HQ40D Portable pH and Conductivity/TDS Meter | No. | 1 |
| | pH buffer, pH 4.01, 500 ml (1 pint) | No. | 2 |
| | pH buffer, pH 7.00, 500 ml (1 pint) | No. | 2 |
| | pH buffer, pH 10.01, 500 ml (1 pint) | No. | 2 |
| | Conductivity Standard Solution, 1000 µS/cm, NaCl, 50 mL | No. | 20 |
| | HACH DR300 Pocket Colorimeter, Chlorine, Free + Total, with Box | No. | 1 |
| | DPD Free Chlorine 10mL, pk/100 Powder Pillows | No. | 4 |

4-7: Water supply equipment for Covid-19

Procurement: Kenya

Lot 1

Handover: December 15th, 2021

| Category number | No | Description | Unit. | Qty. |
|-----------------|-----|---|-------|------|
| 12 | 1. | uPVC pipe DN200 (8") | M | 100 |
| | 2. | uPVC pipe DN100 (4") | M | 200 |
| | 3. | uPVC pipe DN75 (3") | M | 300 |
| | 4. | GI pipe DN20 (3/4") | M | 200 |
| | 5. | GI pipe DN25 (1") | M | 200 |
| | 6. | DI Coupling DN200 (8") | Nos | 30 |
| | 7. | DI Coupling DN150 (6") | Nos | 30 |
| | 8. | DI Coupling DN100 (4") | Nos | 100 |
| | 9. | DI Coupling DN75 (3") | Nos | 100 |
| | 10. | Leak repair clamps stainless steel DN200 (8") | Nos | 5 |
| | 11. | Leak repair clamps stainless steel DN150 (6") | Nos | 10 |
| | 12. | Leak repair clamps stainless steel DN100 (4") | Nos | 25 |
| | 13. | Leak repair clamps stainless steel DN75 (3") | Nos | 67 |
| | 14. | GI Union 3/4" | Nos | 300 |
| | 15. | GI Union 1" | Nos | 300 |
| | 16. | Gate Valve 3/4" (brass) | Nos | 300 |

| Category number | No | Description | Unit. | Qty. |
|-----------------|-----|--|-------|------|
| | 17. | Gate Valve 1" (brass) | Nos | 300 |
| | 18. | GI Elbow 3/4" | Nos | 300 |
| | 19. | GI Elbow 1" | Nos | 300 |
| | 20. | GI Nipple 3/4" | Nos | 300 |
| | 21. | GI Nipple 1" | Nos | 300 |
| | 22. | Plumbing Tape | m | 500 |
| | | Cold water meter Honeywell Kent HELIX Vane type meter H 4000 Flanged Type | | |
| | 23. | Mechanical flow meter DN300 (12") PN16 | Nos | 1 |
| | 24. | Mechanical flow meter DN200 (8") PN16 | Nos | 3 |
| | 25. | Mechanical flow meter DN150 (6") PN16 | Nos | 1 |
| | 26. | Mechanical flow meter DN100 (4") PN16 | Nos | 1 |
| | 27. | 3/4" water meter Honeywell KENT Single Jet meter s150 C/W Brass liner | Pcs | 200 |
| | 28. | 3/4" Valve* | Pcs | 200 |
| | 29. | 3/4" Union | Pcs | 400 |
| | 30. | 1" (inch) water meter Honeywell KENT Multi Jet meter M 120 C/W Brass liner | Pcs | 200 |
| | 31. | 1" Valve* | Pcs | 200 |
| | 32. | 1" Union | Pcs | 400 |
| | 33. | 1 1/2" (inch) water meter Honeywell KENT Multi Jet meter M 120 C/W Brass liner | Pcs | 100 |
| | 34. | 1 1/2" Valve* | Pcs | 100 |
| | 35. | 1 1/2" Union | Pcs | 200 |
| | 36. | 2" (inch) water meter Honeywell KENT Multi Jet meter M 120 C/W Brass liner | Pcs | 20 |
| | 37. | 2" Valve* | Pcs | 20 |
| | 38. | 2" Union | Pcs | 40 |
| | 39. | 4" (inch) water meter Honeywell Kent HELIX Vane type meter H 4000 Flanged Type | Pcs | 5 |
| | 40. | 4" Valve* flange Sluice valve BS 5163 PN 16 double | Pcs | 5 |
| | 41. | 4" Flanged Adaptor | Pcs | 5 |
| | 42. | 4" Union | Pcs | 10 |

Lot 2

Handover: Delivered on 1st Feb. 2022 but not yet handed over as on 4th Feb. 2022

| Category number | No | Description | Unit. | Qty. |
|-----------------|----|--|-------|------|
| 12 | 1. | 1 1/2" (inch) water meter Honeywell KENT Multi Jet meter M 120 C/W Brass liner | Nos | 80 |
| | 2. | 2" (inch) water meter Honeywell KENT Multi Jet meter M 120 C/W Brass liner | Nos | 7 |

4-8: Fuel and Chemicals

Procured Country: South Sudan

Handover: December 15th, 2021

| Category number | Items | Unit | Qty. |
|-----------------|--|------|------|
| 13 | Aluminum sulfate: 105,000 kg Calcium hypochlorite: 2,000 kg | set | 1 |
| 14 | Diesel fuel 126,000 Liters | set | 1 |

3. Handover Certificates

1-1: Equipment for training building (PC)

1-2: Water Quality test

REPUBLIC OF SUDAN
SOUTH SUDAN URBAN WATER CORPORATION
(CENTRAL EQUATORIA STATE-JUBA)



Office of the Area Manager

Ref: Date, 25/11/2016.

The Project for Management Capacity
Enhancement of South Sudan Urban Water Corporation
JICA Expert.

Subject, Commitment Letter.

The Management of SSUWC-Juba Water Station is hereby committed to take responsibility of Seven (7) Computers (Laptops) donated by Japan International Cooperation Agency (JICA) as from the date of received and in case of any loss Or damage, investigation should be taken for compensation.

Thanks.

Area Manager, SSUWC, Juba Water Station

CC.

- Hon. Managing Director, RSS- HQ.s-Juba
- Director General for State Affairs-HQ.s-Juba
- Area Manager, SSUWC- Juba W/Station
- Ag/Director for Administration and HRM- Juba W/Station
- Ag/Director for Project and Planning - Juba W/Station
- File

CERTIFICATE OF HANDOVER

To: Mr. SAGARA Fuyuki
Chief Representative of JICA South Sudan Office

Re: The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation (Phase 2)

This certificate of handover is to certify that the equipment, fuel, and chemicals in the attached list, which shall be utilized for the Project for Management Capacity Enhancement of South Sudan Urban Water Corporation (Phase 2), have been handed over properly to South Sudan Urban Water Corporation (SSUWC), as of January 24th, 2022.

Attached: List of Equipment

January, 31st, 2022

(Signature)

Hon. Yar Paul Kuol,
Managing Director, SSUWC

for witness

(Signature)

Mr. Ohno Atsuo
Deputy Chief Advisor, JICA Expert Team
The Project for Management Capacity Enhancement
of South Sudan Urban Water Corporation (Phase 2)

- 2: Printer
3: Pipe fittings

CERTIFICATE OF HANDOVER

To: Mr. Sagara Fuyuki
Chief Representative of JICA South Sudan Office

Re: The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation (Phase 2)

This certificate of handover is to certify that the equipment in the attached list, which shall be utilized for the Project for Management Capacity Enhancement of South Sudan Urban Water Corporation (Phase 2), have been handed over properly to South Sudan Urban Water Corporation (SSUWC), as of January 31st, 2022.

Attached: List of Equipment

January 31st, 2022

(Signature)

Hon. Yar Paul Kuol,
Managing Director, SSUWC

for witness

(Signature)

Mr. Atsuo Ohno
Deputy Chief Advisor, JICA Expert Team
The Project for Management Capacity Enhancement
of South Sudan Urban Water Corporation (Phase 2)

1. List of Equipment

1. Copy machine and other equipment

| Category number | Item | Specifications | Unit | Quantity | Country | Remarks |
|-----------------|----------------------------------|---|---------|----------|-------------|-----------------|
| 1 | UPS (large) | | No. | 1 | | |
| 2 | Photocopy machine | Kyocera Taskalfa 3051i, A3 Copier/printer/scanner | No. | 1 | South Sudan | In Expert Room |
| 2 | Stabilizer for photocopy machine | 3 KVA stabilizer | No. | 1 | | |
| 4 | GPS | Garmin eTrex 30x | GPS No. | 2 | Japan | In Juba Station |

2. Water quality reagent

Procured country: Uganda
Handover to Laboratory

| Category number | Item | HACH No. | Quantity |
|-----------------|------------------------------------|----------|----------|
| 10 | DPD free residual chlorine 100 pks | 2105569 | 1 |
| | Mn LR (0.02-0.7) | 2651700 | 4 |
| | Mn HR (0.2-20) | 2430000 | 2 |
| | Fe | 2105789 | 2 |
| | Zn | 2429300 | 2 |
| | Cu | 2105869 | 2 |
| | Nitrate LR | 2429800 | 2 |
| | Nitrate HR | 2106169 | 2 |
| | Total hardness | 2319900 | 2 |
| | | | |

4-1: PC, Equipment, and Motor Bicycle
4-2: Fittings


CERTIFICATE OF HANDOVER

To: Mr. Tomonari Shinya
Representative of JICA South Sudan Office

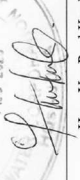
Re: The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation (Phase 2)

This certificate of handover is to certify that the equipment in the attached list, which shall be utilized for the Project for Management Capacity Enhancement of South Sudan Urban Water Corporation (Phase 2), have been handed over properly to South Sudan Urban Water Corporation (SSUWC), as of February 18th, 2020.

Attached: List of Equipment




February 18th, 2020

(Signature) 

Hon. Yar Paul Kuol,
Managing Director, SSUWC

for witness

(Signature) 

Mr. Sato Hiroaki
Chief Advisor, JICA Expert Team
The Project for Management Capacity Enhancement
of South Sudan Urban Water Corporation (Phase 2)

(List of Equipment: Summary Sheet)

Water supply equipment procured in Term3

Contract dated on 21st Feb. 2019

| Category number | Item | Unit | Quantity |
|-----------------|--|------|----------|
| 7 | 1. DI couplings set complete with nuts, bolts and rubber rings DN 8" | set | 4 |
| | DN 6" | set | 4 |
| | DN 4" | set | 4 |
| | DN 3" | set | 4 |
| 7 | 2. Leak repair clamps - DI DN 8" | nr | 6 |
| | DN 6" | nr | 6 |
| | DN 4" | nr | 6 |
| | DN 3" | nr | 6 |
| 7 | 3. uPVC pipe PN16 DN 3" | m | 36 |
| | 4. Water meter (accuracy class R=100) along with connector pieces | | |
| | 3/4" (inch) water meter including strainer*1 | nr | 5 |
| | 3/4" (inch) - accessories (stop valve and union, if necessary flanged kit) | nr | 5 |
| 7 | 1" (inch) water meter including strainer*1 | nr | 151 |
| | 1" (inch) - accessories (stop valve and union, if necessary flanged kit) | nr | 151 |
| | 1 1/2" (inch) water meter including strainer*1 | nr | 9 |
| | 1 1/2" (inch) - accessories (stop valve and union, if necessary flanged kit) | nr | 9 |
| 7 | 2" (inch) water meter including strainer*1 | nr | 8 |
| | 2" (inch) - accessories (stop valve and union, if necessary flanged kit) | nr | 8 |

Printer procured in the Training of Uganda in Term4

| Category number | Item | Specification | Unit | Quantity |
|-----------------|-----------------|-----------------|------|----------|
| 1 | Printer (Color) | Hewlett Packard | No. | 2 |

CERTIFICATE OF HANDOVER

To: Mr. Tomonari Shinya
Representative of JICA South Sudan Office

Re: The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation (Phase 2)

This certificate of handover is to certify that the equipment in the attached list, which shall be utilized for the Project for Management Capacity Enhancement of South Sudan Urban Water Corporation (Phase 2), have been handed over property to South Sudan Urban Water Corporation (SSUWC), as of April 21st, 2020.

Attached: List of Equipment


 (Signature) _____
 Hon. Yar Paul Kuol
 Managing Director, SSUWC

for witness

(Signature) 佐藤弘孝
 Mr. Sato Hirotsuka
 Chief Advisor, JICA Expert Team
 The Project for Management Capacity Enhancement
 of South Sudan Urban Water Corporation (Phase 2)

(List of Equipment Summary Sheet)

| Equipment | Model | Quantity |
|--|--|----------|
| 1. Desktop Computer | HP Desktop Intel Core i3 Windows 10 pro | 5 |
| 2. (Main+Monitor+Mouse+Keyboard) | | |
| 3. UPS | APC 650 | 5 |
| 4. Printer (color) | HP laser jet printer Pro MFP 177fw | 5 |
| 5. Anti-virus software | Kaspersky (single use) | 15 |
| 6. Concrete/Asphalt cutter | Floor Saw 18" Robin Gasoline MCD 218VDC with an extra standard blade | 1 |
| 7. Engine (drain) pump | Koshin SEV-50X | 1 |
| 8. Welding machine with generator | Kingmax KM7GFLEW | 1 |
| 9. Fittings for domestic customer meters | 1. GI Pipes 2 nos. of 3/4", 4 nos. of 1", 1 no. of 1 1/2", 1 no. of 2" 2. GI elbow 24 nos. of 3/4", 180 nos. of 1", 4 nos. of 2", 12 nos. of 1 1/2" 3. GI socket 12 nos. of 3/4", 90 nos. of 1", 9 nos. of 1 1/2", 3 nos. of 2" 4. GI union 12 nos. of 3/4" 5. Jet valve 6 nos. of 3/4" | 1 |
| 10. Motor bike | Serke Tembo CG 125 cc | 9 |
| 11. Set of Die Thread machine | Helmet 1/2", 3/4", 1", 1 1/4", 1 1/2", 2" | 1 |


 (Signature) _____
 (Signature) _____

4-4 and 4-5

(List of Equipment: Summary Sheet)

| Equipment | Type | Backhoe | Model | Quantity |
|-----------------|------|---------|--|----------|
| 1. Wheel Loader | | | Model CAT420F2 | 1 |
| Spare parts | | | Element filter | 12 |
| | | | Filter A Pkg12 | 12 |
| | | | Ericc Veron MP Grease 3-15kg Pail | 3 |
| Tools | | | Ericc VULCAN770X SUPER 15W-40-4X5 LIT LB ENL | 24 |
| | | | Wheel spanner | 1 |
| | | | Grease gun | 1 |
| Manuals: | | | Manuals (English) | 1 |

CERTIFICATE OF HANDOVER

To: Mr. Tomonari Shinya
Representative of JICA South Sudan Office

Re: The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation (Phase 2)

This certificate of handover is to certify that the equipment in the attached list, which shall be utilized for the Project for Management Capacity Enhancement of South Sudan Urban Water Corporation (Phase 2), have been handed over properly to South Sudan Urban Water Corporation (SSUWC), as of August 26th, 2020.

Attached: List of Equipment

(Signature)
August 26th, 2020
Hon. Yar Paul Kuol,
Managing Director, SSUWC

for witness

(Signature)
Mr. Atsuo Ohno
Deputy Chief Advisor, JICA Expert Team
The Project for Management Capacity Enhancement
of South Sudan Urban Water Corporation (Phase 2)

CERTIFICATE OF HANDOVER

To: Mr. Sagara Fuyuki
Chief Representative of JICA South Sudan Office

Re: The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation (Phase 2)

This certificate of handover is to certify that the equipment in the attached list, which shall be utilized for the Project for Management Capacity Enhancement of South Sudan Urban Water Corporation (Phase 2), have been handed over properly to South Sudan Urban Water Corporation (SSUWC), as of January 15th, 2021.

Attached: List of Equipment

January 15th, 2021

(Signature)

Hon. Yar Paul Kuol,
Managing Director, SSUWC

for witness

(Signature)

Mr. Atsuo Ohno
Deputy Chief Advisor, JICA Expert Team
The Project for Management Capacity Enhancement
of South Sudan Urban Water Corporation (Phase 2)

(List of Equipment: Summary Sheet)
1st Contract dated on 20th Nov. 2019

| Category | No. | Items | Qty. | Unit |
|------------------------------|-----|---|------|------|
| Equipment for leakage survey | 1 | Portable water meter test bench (Honeywell Elster DN15) | 1 | set |
| | 2 | GI Union 3/4" | 200 | num. |
| Equipment for piping | 3 | GI Union 1" | 50 | num. |
| | 4 | Brass gate valve (PEGLER 1065) | 200 | num. |
| | 5 | Brass gate valve (PEGLER 1065) | 50 | num. |
| | 6 | GI pipe | 180 | m |
| | 7 | GI elbow | 800 | num. |
| | 8 | GI elbow | 200 | num. |
| | 9 | GI nipple | 400 | num. |
| | 10 | Plumbing tape | 100 | num. |
| | 11 | Manual pipe threading machine (REIMS eva) | 200 | m |
| | 12 | Pipe wrench (medium duty) | 2 | num. |
| Flow meter | 13 | Electronic magnetic flow meter (SONAG Flowz ML255) | 1 | num. |
| | 14 | Mechanical flow meter (Bladed wheel) (Elster Kent) | 2 | num. |
| Valve | 15 | Sluice valve & Flange adapter (HAWLE ES) | 3 | num. |
| | 16 | Sluice valve & Flange adapter (HAWLE ES) | 2 | num. |

Additional Equipment dated on 1st Mar. 2020

| No. | Description | Qty. | Unit |
|-----|---|------|------|
| 1 | Mechanical flow meter 12" (Dia. 300mm), 16 bar | 1 | No |
| 2 | DI couplings set complete with nuts, bolts and rubber rings | 6 | set |
| | DN 8" | 6 | set |
| | DN 6" | 6 | set |
| | DN 4" | 6 | set |
| | DN 3" | 6 | set |
| 3 | uPVC pipe PN16 | 18 | m |
| | DN 8" | 18 | m |
| | DN 4" | 18 | m |
| | DN 3" | 18 | m |

CERTIFICATE OF HANDOVER

To: Mr. SAGARA Fuyuki
Chief Representative of JICA South Sudan Office

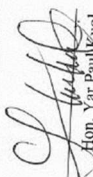
Re: The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation (Phase 2)

This certificate of handover is to certify that the equipment, fuel, and chemicals in the attached list, which shall be utilized for the Project for Management Capacity Enhancement of South Sudan Urban Water Corporation (Phase 2), have been handed over properly to South Sudan Urban Water Corporation (SSUWC), as of December 15th, 2021.

Attached: List of Equipment


December 15th, 2021

(Signature)


Hon. Yar Paul Kuol,
Managing Director, SSUWC

for witness

(Signature)


Mr. Sato Hirotsuka
Chief Advisor, JICA Expert Team
The Project for Management Capacity Enhancement
of South Sudan Urban Water Corporation (Phase 2)

(List of Equipment Summary Sheet)
1st Contract dated on 16th Jan. 2020

| Items | Qty |
|---|-----|
| HACH 2100Q Portable Turbidity Meter Kit with USB and Power Module | 1 |
| HACH HQ40D Portable pH and Conductivity/TDS Meter | 1 |
| pH buffer, pH 4.01, 500 ml (1 pint) | 2 |
| pH buffer, pH 7.00, 500 ml (1 pint) | 2 |
| pH buffer, pH 10.01, 500 ml (1 pint) | 2 |
| Conductivity Standard Solution, 1000 µS/cm, NaCl, 50 mL | 20 |
| HACH DR300 Pocket Colorimeter, Chlorine, Free + Total, with Box | 1 |
| DPD Free Chlorine 10mL, pk/100 Powder Pillows | 4 |

4-7 and 4-8

| | | | | |
|----|--|--|-----|-----|
| 21 | GI Nipple 1" | | Nos | 300 |
| 22 | Plumbing Tape | | M | 500 |
| 23 | Cold water meter Honeywell Kent HELIX Vane type meter H 4000 Flanged Type | | | |
| 24 | Mechanical flow meter DN300 (12") PN16 | | Nos | 1 |
| 25 | Mechanical flow meter DN200 (8") PN16 | | Nos | 3 |
| 26 | Mechanical flow meter DN150 (6") PN16 | | Nos | 1 |
| 27 | 3/4" water meter Honeywell KENT Single Jet meter | | Pcs | 200 |
| 28 | 150 C/W Brass liner | | Pcs | 200 |
| 29 | 3/4" Valve | | Pcs | 400 |
| 30 | 1" (inch) water meter Honeywell KENT Multi Jet meter | | Pcs | 200 |
| 31 | M 120 C/W Brass liner | | Pcs | 200 |
| 32 | 1" Valve | | Pcs | 200 |
| 33 | 1 1/2" (inch) water meter Honeywell KENT Multi Jet | | Pcs | 400 |
| 34 | 1 1/2" Valve | | Pcs | 100 |
| 35 | 1 1/2" Union | | Pcs | 100 |
| 36 | 2" (inch) water meter Honeywell KENT Multi Jet meter M | | Pcs | 200 |
| 37 | 2" Valve | | Pcs | 20 |
| 38 | 2" Union | | Pcs | 20 |
| 39 | 4" (inch) water meter Honeywell Kent HELIX Vane type meter H 4000 Flanged Type | | Pcs | 40 |
| 40 | 4" Valve | | Pcs | 5 |
| 41 | 4" flange Sluice valve BS 5163 pn 16 double | | Pcs | 5 |
| 42 | 4" Flanged Adaptor | | Pcs | 5 |
| | | | Pcs | 10 |

2. Fuel and Chemicals

- (1) Fuel: 126,000 Liters for Juba Water Treatment Plant
- (2) Aluminum sulfate: 105,000 kg for Juba Water Treatment Plant
- (3) Calcium hypochlorite: 2,000 kg for Juba Water Treatment Plant

1. List of Equipment

| No | Description | Unit | Qty |
|----|---|------|-----|
| 1 | uPVC pipe DN200 (8") | M | 100 |
| 2 | uPVC pipe DN100 (4") | M | 200 |
| 3 | uPVC pipe DN75 (3") | M | 300 |
| 4 | GI pipe DN20 (3/4") | M | 200 |
| 5 | GI pipe DN25 (1") | M | 200 |
| 6 | DI Coupling DN200 (8") | Nos | 30 |
| 7 | DI Coupling DN150 (6") | Nos | 30 |
| 8 | DI Coupling DN100 (4") | Nos | 100 |
| 9 | DI Coupling DN75 (3") | Nos | 100 |
| 10 | Leak repair clamps stainless steel DN200 (8") | Nos | 5 |
| 11 | Leak repair clamps stainless steel DN150 (6") | Nos | 10 |
| 12 | Leak repair clamps stainless steel DN100 (4") | Nos | 25 |
| 13 | Leak repair clamps stainless steel DN75 (3") | Nos | 67 |
| 14 | GI Union 3/4" | Nos | 300 |
| 15 | GI Union 1" | Nos | 300 |
| 16 | Gate Valve 3/4" (brass) | Nos | 300 |
| 17 | Gate Valve 1" (brass) | Nos | 300 |
| 18 | GI Elbow 3/4" | Nos | 300 |
| 19 | GI Elbow 1" | Nos | 300 |
| 20 | GI Nipple 3/4" | Nos | 300 |