資料-8：合同調整委員会議事録等

MINUTES OF MEETING
OF THE SECOND JOINT COORDINATING COMMITTEE
FOR
"The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation Phase 2"

Based on the Record of Discussions (hercinafter referred to as "the R/D") on The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation Phase 2 (hereinafter referred to as "the Project") signed on 12th October 2015 between Ministry of Electricity, Dams, Irrigation and Water Resources (current Ministry of Water Resources and Irrigation (hereinafter referred as "MWRI")) and the Japan International Cooperation Agency (hereinafter referred to as "JICA"), JICA has dispatched the Expert Team (hereinafter referred to as "the JICA Experts") to South Sudan for implementation of the Project since 2nd February 2016.

The 2nd meeting of the Joint Coordinating Committee (hereinafter referred to as "JCC") for the Project chaired by the Minister of MWRI was held on 12th and 13th February, 2018 with participants of South Sudan Urban Water Corporation (hereinafter referred to as "SSUWC"), JICA South Sudan Office, and the JICA Experts. The following agenda was discussed in the JCC meeting.

1. Review of progress of the Project
2. Review of progress of reform action plan of Juba station and headquarters
3. Necessity of revision
4. Revision of Project Design Matrix (PDM) and Plan of Operation (PO)

In the course of discussions, main points discussed and decided are summarized in the attachment.

Kampala, 13th February, 2018

13/02/18

H.E. Sophia Pal Gai Laam
The Minister, Ministry of Water Resources & Irrigation (MWRI)
Republic of South Sudan (RSS)

佐藤弘孝

Mr. Hirotaka Sato
Chief Advisor
The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation Phase 2

内川知美

(Witnessed by)
Ms. Tomomi Uchikawa
Senior Representative
JICA South Sudan Office

Attachment: Main points discussed and decided

1. Progress of the Project

The Project started in South Sudan in February, 2016 for 4 years. However, due to the political crisis, which occurred in South Sudan in July 2016, the JICA Experts evacuated from South Sudan and the Project activities to be implemented in South Sudan have been suspended. Simultaneously, construction of water supply facilities (hereinafter referred to as "the New Facilities") under the project for Improvement of Water Supply System of Juba in South Sudan by Japanese Grant has been suspended. The Project includes a series of activities to operate and maintain the New Facilities.

Under the conditions above, JICA determined to continue the Project activities by the remote training in the neighboring countries such as Uganda and Kenya. The remote training focuses on the activities that can be implemented remotely in the neighboring countries by lecture, drill, OJT, site observation, etc., in cooperation with National Water and Sewerage Corporation (NWSC) of Uganda and Kenya Water Institute (KEWI). The remote training has implemented since October 2016 and the 1st term of the Project was completed in April 2017. The main activities of the 1st term are as follows:

- Baseline survey and capacity assessment
- Design and preparation of tender document of training building
- Remote training
  - 2 times of training in NWSC and KEWI each

The 2nd term started in June 2017. Due to continuous remote training in the 2nd term, project implementation policy was adjusted as follows:

- Basic management capacity of the Juba station will be enhanced.
- Basic management capacity of SSUWC Headquarters will be enhanced before implementation of reform activities.

The main activities of the 2nd term until the end of December 2017 are as follows:

- Remote training
  - 4 times of training in NWSC
  - Training in Japan
  - Training in Cambodia

Due to remote training, many activities in the PDM version 0 cannot be implemented without the operation of the New Facilities at site in Juba.

2. Progress of Reform Action Plan of Juba Station and Headquarters

The progress and contents of the reform action plan of Juba station and headquarters, which is one of the new activities of the Project, were reported by SSUWC. The plan is under the approval process of the Board of Directors.

3. Project Monitoring Sheet

The JCC confirmed the contents of the Project Monitoring Sheet Ver. 2 (covering the period from July 2016 to January 2018), which was presented by the JICA Experts (Refer to Annex 1)

4. Necessity of Revision of PDM

The PDM version 0 of the Project were formulated and agreed in the R/D, assuming that the Project is implemented at site in South Sudan, and construction of the New Facilities completed and start its operation during the period of the Project. However, the conditions of the Project have been changed as stated above. The current version of PDM (version 0) cannot adapt to these changes of the circumstance so that the Project cannot be implemented based on PDM version 0. In addition, the remote trainings, which now have become main activities of the Project, are not included in PDM version 0. Not all activities will be implemented and full outputs will not be achieved at the end of the Project in February 2020. Therefore, the JCC understands the necessity of revision of PDM based on the change of conditions.

5. Revision of PDM and Schedule of Amendment of the R/D

5.1 Revision of PDM and Conditions

The JCC agreed to revise PDM version 0 to PDM version 1 (Annex 2), and confirmed that PDM version 1 is revised based on the following conditions and assumptions.

(1) The Project will end as scheduled in February 2020.
(2) The JICA Experts can enter in South Sudan well before the end of the Project and implement the activities at site during the project period.
(3) The overall goal, project purpose and outputs will be redefined considering the implementation by remote training and remaining project period. Accordingly, objective verifiable indicators are modified.
(4) The activities that can be implemented in the third countries will be continuously implemented.
(5) The activities related to operation and maintenance of the New Facilities are removed from the PDM version 0 or modified if the activities that can be implemented using existing facilities, since it would not be possible to implement and complete these activities during the Project period due to the delay of

ANNEX 1

Project Design Matrix (PDM)

PDM (version 1)
Dated February 13. 2018

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
Overall Goal : Safe and clean water is supplied in a reliable manner in Juba.	- Existing water supply facilities are operated more than ** hours per year. - The number of the days in which treated water meets the water quality standards of turbidity (less than 5 NTU) and free residual chlorine (0.7 mg/l ~1.2 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	- 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 - XX % 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. - 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 ** to **.	- 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 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	2-1 Public awareness raising activities plan is developed. 2-2 Public awareness raising activities are conducted in	- Public awareness raising activities plan	

1

commissioning.

(6) The activities that are not related to the New Facilities but require the JICA Experts staying and implementing the Project at site in South Sudan remain in the PDM version 1 but modified considering the duration of activities at the site.

(7) The activities that currently implemented in remote training but are not included in the PDM version 0 are added to PDM version 1.

(8) Accordingly, Plan of Operation (PO) is modified as version 1 (Annex 3).

Annex 4 indicates the points revised in the PDM comparing PDM version 0 and version 1 with reasons of modification.

5.2 Schedule of Amendment of R/D

The numerical targets of some objectively verifiable indicators shown as X of PDM version 1 will be determined in the early stage of the 3rd term of the Project. The JCC agreed to amend the R/D after setting remaining X of the numerical targets in the 3rd term of the Project.

6. Training Building

The SSUWC reiterated the necessity of construction of training building where SSUWC will provide the On-the-job training for its staff in order to achieve the project purposes. JICA understands the necessity and will try to resume the necessary arrangements for construction of the training building after the JICA Experts are allowed to go back and start their activities in Juba.

7. Consideration of Capacity Development for Operation of the New Facilities

The additional assistance of capacity development for new facilities which would be substituted for the activities removed from the Project will be discussed, taking into consideration the resumption and progress of construction of the new facilities.

(End)

Annex 1: Project Design Matrix (PDM) version 1
Annex 2: Plan of Operation (PO) version 1
Annex 3: Comparison of PDM version 0 and 1
Annex 4: Attendant List

5

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.	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	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	
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. 3-10 Install service pipes and meters for house connections. 3-11 Conduct meter management.			

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3

) enhanced.	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 repor - 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	

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. 1-2 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. Dispatch of Experts 1) Chief advisor / Water Utility management 2) Operation and maintenance on water purification facilities 3) Operation and maintenance on water	1. Assignment of Counterparts 2. Facilities 1) Office space for Japanese experts 2) Necessary facilities for	Security situation in Juba is stable. <Issues and countermeasures>

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ANNEX 3

Comparison of Project Design Matrix (PDM) Version 0 and 1

1. Overall Goal : Safe and clean water is supplied in a reliable manner in Juba.

1.1. Objective Verifiable Indicator

Version 0	Version 1	Reason
1) New and existing water supply facilities are operated more than ** hours per year. 2) 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 3) All of the selected major operational indicators are improved. 4) Customer satisfaction with water services is increased.	1) ~~New and~~ Existing water supply facilities are operated more than ** hours per year. 2) The number of the days in which treated water meets the water quality standards of turbidity (less than 5 NTU) and free residual chlorine (0.7 mg/l ~1.2 mg/l) increases from ** days/year (baseline value) to **days/year 3) All of the selected major operational indicators are improved. 4) Customer satisfaction with water services is increased.	1) "New facilities" is deleted. 2) Due to lack of vehicle, monitoring capacity at taps in the city will not be developed. Therefore, the monitoring point is in water treatment plant only and the residual chlorine concentration is changed for monitoring at WTP. 3) Indicators of Juba reform action plan will be utilized.

1.2. Means of Verification

Version 0	Version 1	Reason
1) SSUWC Annual report / Monthly report 2) Water quality monitoring report 3) Baseline survey report and an ex-post evaluation report	1) SSUWC Annual report / Monthly report 2) Water quality monitoring report 3) Baseline survey report and an ex-post evaluation report	

1.3. Important Assumption

Version 0	Version 1	Reason
	1) Subsidized fuel for generator for water supply facilities or subsidized city power supply is available in Juba 2) Political situation of South Sudan does not affect security of Juba as well as functions of SSUWC.	1) Added. Without power supply, which is unstable in Juba, water supply facilities cannot operate and water supply service is not possible. As a result, Overall Goal cannot be achieved. 2) (It has affected)

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.			

3. Outputs :

3.1. Objective Verifiable Indicator and Means of Verification

Version 0	Version 1	Reasons
1. Juba Station's water charge collection capacity is strengthened.		
Objective Verifiable Indicator		
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 **.	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 ** to **.	1-2 Due to fluctuation of power supply, water sale revenue is not stable and cannot set the values. 1-3 With political situation, we are not sure whether the water tariff is approved by the higher authority. Therefore, at least tariff can be propose.
Means of Verification		
1-1 Customer information database 1-2 Financial statements 1-3 SSUWC Annual report / Monthly report 1-4 Revised tariff system	1-1 Customer information database 1-2 Monthly bill collection report 1-3 Proposed tariff 1-4 SSUWC Annual report / Monthly report	1-2 No financial statement. Instead, monthly bill collection report will be utilized. 1-4 Changed from revised tariff system to proposed tariff.
2. Public awareness activities for Juba citizens by Juba Station are enhanced.		
Objective Verifiable Indicator		
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.	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 The better understanding of the sampled citizens on water supply service provided by SSUWC is improved from the baseline.	2-2 The number will be specified in public awareness raising activities plan. 2-3 (Need the definition of better understanding)
Means of Verification		
2-1 Public awareness raising activities plan 2-2 Public awareness raising activities report 2-3 Baseline / End line survey report (Sampling survey)	2-1 Public awareness raising activities plan 2-2 Public awareness raising activities report 2-3 Baseline / End line survey report (Sampling survey)	2-3 (Need sampling survey)
3. Non-revenue water management capacity of Juba Station is strengthened.		
Objective Verifiable Indicator		
3-1 Non-revenue water management plan is developed.	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.	3-1 To prepare NRW management plan, actual site data related to NRW is required but it is not available. Instead, NRW management manuals will be prepared. (3-2) added.

	3) Economic conditions of South Sudan do not become worse significantly.	3) (It became worse significantly)

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.

2.1. Objective Verifiable Indicator

Version 0	Version 1	Reasons
1) More than 80% of the major operational indicators in the annual operation and maintenance reports are improved from 2016 baseline figures. 2) 100 % of operation and maintenance expenses excluding personnel costs and chemical costs are recovered from water sale revenue.	1) More than 80% of the indicators of the Juba reform action plan are improved from the baseline figures. 2) XX % of operation and maintenance expenses excluding personnel costs and chemical costs are recovered from water sale revenue.	1) Indicators of Juba reform action plan will be utilized. 2) 100 % is figure for new and existing facilities. If the required O&M costs including materials, equipment are included, the revenue may not cover it. At first, it needs calculation and make a plan.

2.2. Means of Verification

Version 0	Version 1	Reasons
1) SSUWC Annual report / Monthly report 2) Financial documents (including bank statement and internally audited account)	1) SSUWC Annual report / Monthly report 2) Financial documents (including bank statement and internally audited account)	

2.3. Important Assumption

Version 0	Version 1	Reasons
1) Quality of raw water is not deteriorated significantly. 2) Quantity of raw water is not reduced significantly. 3) The number of days that supplies commercial power to water supply facilities is not less than 90 days per year. 4) Political situation of South Sudan does not affect security of Juba as well as functions of SSUWC. 5) Economic conditions of South Sudan do not become worse significantly.	1) Quality of raw water is not deteriorated significantly. 2) Quantity of raw water is not reduced significantly. 3) Subsidized fuel for generator for water supply facilities or subsidized city power supply is available in Juba 4) Political situation of South Sudan does not affect security of Juba as well as functions of SSUWC. 5) Economic conditions of South Sudan do not become worse significantly.	3) Added. Without power supply, which is unstable in Juba, water supply facilities cannot operate and water supply service is not possible. As a result, the project purpose cannot be achieved.

than three years.	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.	(5-4) added. (5-5) added. (5-6) added.
Means of Verification		
5-1 SSUWC Annual report / Monthly report 5-2 Data in operational database. 5-3 Training plan of SSUWC Headquarters for Juba Station 5-4 Records and reports of SSUWC Headquarters about training sessions for Juba Station	5-1 Training plan of SSUWC Headquarters for Juba Station 5-2 Remote training report 5-3 Records of checking of annual and monthly reports and plans 5-4 Juba Station improvement action plan 5-5 SSUWC Headquarters reform action plan 5-6 SSUWC headquarters operation manuals	5-1 replaced. 5-2 replaced. 5-4 Deleted (5-3) added. (5-4) added. (5-5) added. (5-6) added.

3.2. Important Assumption

Version 0	Version 1	Reasons
1) Government budget for SSUWC will not be decreased significantly. 2) Serious damage on water supply facilities does not occur. 3) Personnel of counterparts do not leave the job and are not transferred considerably.	1) Subsidized fuel for generator or subsidized city power supply for operation of facilities for minimum 12 hours/day is available in Juba. 2) Government budget for SSUWC will not be decreased significantly. 3) Serious damage on water supply facilities does not occur. 4) Personnel of counterparts do not leave the job and are not transferred considerably.	(1)) added. Without power supply, which is unstable in Juba, water supply facilities cannot operate and water supply service is not possible. As a result, the outputs cannot be achieved.

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.	3-4 SOP of leakage repair is prepared. 3-5 Leakage monitoring report is prepared.	(3-3) added (3-4) added 3-2 Deleted. Leakage detection is not possible in the short period of site activities including equipment procurement. In addition, night leakage detection survey is not possible. At this stage, surface leakage should be found and repaired by appropriate method. 3-3 Deleted. For a prompt leakage repair, vehicles, tools, and materials are required. Most of these will be not available and will affect the repair activities. At first, at this stage, adequate repair method should be established.
Means of Verification		
3-1 SSUWC Annual report / Monthly report 3-2 Non-revenue water management report	3-1 Non-revenue water management manuals 3-2 SSUWC Annual report / Monthly report	
4. Operation and maintenance capacity for new and existing water supply facilities by Juba Station is strengthened.	4. Operation and maintenance capacity for ~~new and~~ existing water supply facilities by Juba Station is strengthened.	"Deleted "new and"
Objective Verifiable Indicator		
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.	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 ~~new and~~ existing water supply facilities are compiled in monthly and annual reports and shared among the concerned persons.	4-1 Study report can be prepared assuming new facilities operation. 4-2 Study report can be prepared assuming new facilities operation. 4-3 "new facilities" is deleted.
Means of Verification		
4-1 SSUWC Annual report / Monthly report 4-2 Management data of water supply facilities 4-3 Water quality monitoring report	4-1 SSUWC Annual report / Monthly report 4-2 Management method study report for new tanker filling stations and water kiosks 4-3 Water quality monitoring report	
5. Support and supervisory function of SSUWC headquarters toward Juba Station is strengthened.		
Objective Verifiable Indicator		
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 monthly report of Juba Station are examined for feedbacks provided by SSUWC Headquarters to Juba Station for more	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	5-2 Replaced. Not enough time at site to implement training for trainees (TOT). Instead, remote training report will be prepared by HQ.

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.	media). ~~Conduct public awareness activities for potential customers (on water supply through water kiosks and water filling stations).~~ 2-4-2 Conduct public awareness activities for existing customers.	2-4-2 Deleted since new facilities are required.
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. 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.	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. 3-10 Install service pipes and meters for house connections. 3-11 Conduct meter management.	3-1 It is not enough manpower to organize a full time team for NRW. A part time task force team will be organized by existing relevant departments on task basis. 3-7 At this phase only surface leakage survey has priory. Without vehicle, leakage detection and repair activities are difficult. The equipment of leakage detection will be reviewed. Only required equipment at this stage will be procured. The budget for equipment may be used for more for leakage repair tool and materials. 3-12 Deleted since remaining project period is short so that it cannot be reviewed.
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	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.	4-4 Study report can be prepared assuming new facilities operation. 4-5 Deleted. 4-6 Study report can be prepared assuming new facilities operation. 4-7 Deleted

Activities

Version 0	Version 1	Reasons
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 (3 year) financial, revenue and expenditure plan. 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 1-7 and fee collection plan developed in the activity 1-8 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 customers. 1-12 Review financial, revenue and expenditure plan and revise, and update it every year.	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 (1 year) 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 fee collection plan developed in the activity 1-8~~ 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	1-6 The remaining project period is short so that one year plan is enough. 1-8 Deleted. Focus on activity plan for improvement of billing and bill collection in this phase. 1-9 "and fee collection plan developed in the activity 1-8" was deleted. 1-12 Deleted. financial, revenue and expenditure plan is prepared only one 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).	2-1 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, and water tariff ~~and new water supply facilities~~. 2-4-1 Conduct public awareness activities for public in collaboration with relevant organization (such as MWRI, Juba city, payam, schools, churches and	2-4 "~~water tariff and~~ new water supply facilities" is deleted.

NATIONAL WATER AND SEWERAGE CORPORATION

INTERNATIONAL RESOURCE CENTRE

Theme	*Meeting for MWRI, JICA, SSUWC AND NWSC*						
Client	*Japan International Cooperation Agency (JICA)*						
Organiser	*External Services*	Date	*12th February 2018*				
Room	*Atlantic V.C. Hall*	Time	Start	*09.00 am*	End	*4.00 pm*	

Attendance List

No.	Name	Title	Work Place	Mobile No.	Email	Sign
1	Jun MURAKAMI	Rep	Kampala	0782-970917	murakami.jun@jica.go.jp	
2	Tombe Sebit	Asi. Program officer	Juba	+211955164097	Tombesebit.laku.SS@jica.go.jp	
3	Simon K. Kuay	DG Admin Fin	Juba	0780379037	Korkuek@gmail.com	
4	Alex Philip Leek	Ex. Director	SSUWC	+211955190782	alex.leek@yahoo.com	
5	Hirotaka Sato	chief Adviser	JICA	+81-3-3580-2418	sato-h@tec-i.jp	
6	Tomomi Uchikawa	Senior Rep	JICA	0782-970350	Uchikawa.Tomomi@jica.go.jp	
7	Hon. SOPHIA PALGAI	MWRI	JUBA	+211-952722225	sophiagai1983@gmail.com	
8	Yar Paul Kuol	MD SSUWC	Juba.	+211955385075	yarpaulkuol@gmail.com	
9	JOSEPH EBERE	DG. S. AFFAIRS	JUBA	+21195541686		
10	Christine Abuge	D/ Budget	Juba	+211955859007		
11	Alice Busingye	PFAO	NWSC	+256 751118727	alice.busingye@nwsc.co.ug	
12	Edison Muzahura	PRO	NWSC	0751121729	"	
13	Anthony Ochwo	PT-V	NWSC	0751127840	anthony.ochwo@nwsc.co.ug	
14	Christopher Kanyesigye	M.RED	NWSC	0751115258	christopher.kanyesigye@nwsc.co.ug	
15	David Opok	A PT	NWSC	0751122591	david.opok@nwsc.co.ug	
16	LAWRENCE MULODYAN	DG PLANNING	SSUWC	0955-783-903	busukolawrence@gmail.com	
17	Joseph Ndegeya	BRDM	NWSC	0772489154	joseph.ndegeya@nwsc.co.ug	

3

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and to operate them. 4-8 Develop a plan for procurement of materials for operation and maintenance for facilities including new water supply facilities. 4-9 Review and revise two operation and maintenance manuals developed in the activity 4-4, and 4-6.	4-6 Develop manuals for procurement of materials for operation and maintenance for facilities.	4-9 Deleted.
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.	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.	5-3 Deleted since it is difficult to carry out enough training to develop trainers in this remaining short period on site. 5-4 Deleted. Instead, remote training for Headquarter and Juba station is included. 5-5 Deleted. (5-6) Added (5-7) Added (5-8) Added (5-9) Added

Note: "( )" indicates new number in version 1.

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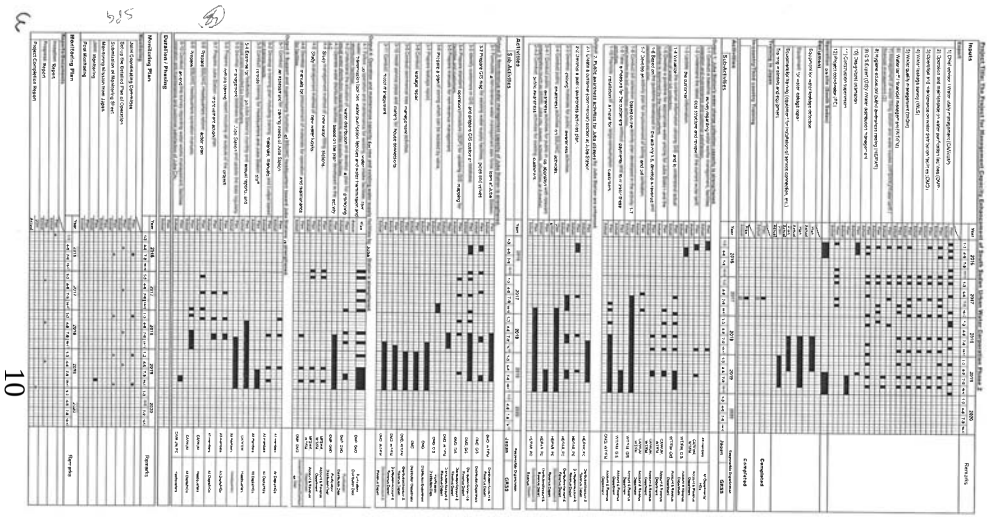


MINUTES OF MEETING
OF THE THIRD JOINT COORDINATING COMMITTEE (JCC)
FOR
"The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation Phase 2"

Based on the **Record** of **Discussions** (hereinafter referred to as "the R/D") on "*The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation Phase 2*" (hereinafter referred to as "the Project") signed on 12th October 2015 between Ministry of Electricity, Dams, Irrigation and Water Resources, MEDIWR (current Ministry of Water Resources and Irrigation (hereinafter referred as "MWRI")) and the Japan International Cooperation Agency (hereinafter referred to as "JICA"), JICA has dispatched the Expert Team (hereinafter referred to as "the JICA Experts") to South Sudan for implementation of the Project since 2nd February 2016.

The 3rd meeting of the Joint Coordinating Committee (hereinafter referred to as "JCC") for the Project chaired by the Project Director and Managing Director of South Sudan Urban Corporation (hereinafter referred as "SSUWC") who is entrusted by the Minister of MWRI (the Chairperson of JCC) was held on 16th April, 2019 with participants of South Sudan Urban Water Corporation (hereinafter referred to as "SSUWC"), JICA South Sudan Office, and the JICA Experts. The following agenda was discussed in the JCC meeting.

1. Review of progress of the Project
2. Review of progress of Reform Action Plan of Juba Station and SSUWC Headquarters
3. Necessity of Revision of Objectively Verifiable Indicators in Project Design Matrix (PDM)
4. Necessity of Extension of Project Duration for around three (3) months
5. Other issues such as Training Building and Equipment/ Tools Procurement

In the course of discussions, main points discussed and decided upon are summarized in the following attachment.

Juba, 18th April, 2019

REPUBLIC OF SOUTH SUDAN
SOUTH SUDAN URBAN WATER CORPORATION
18 APR 2019
MANAGING DIRECTOR'S OFFICE
JUBA

Hon. Yar Paul Kuol
Managing Director, SSUWC
Republic of South Sudan (RSS)

Mr. Hirotaka Sato
Chief Advisor of the Project

(Witnessed by)
Mr. Shinya Tomonari
Chief Representative
JICA South Sudan Office

Attachment: Main points Discussed and Decisions Made

1. Progress of the Project

After the evacuation of the JICA Experts from South Sudan, the Project resumed in South Sudan in July 2016 due to the political crises, JICA in consultation with Government of South Sudan Counterpart Institution (MWRI & SSUWC – herein referred to as "South Sudan Side") decided to continue the Project activities by **Remote Training in the neighboring countries**. The JICA Experts have implemented training in Uganda and Kenya since October 2016. The remote training focuses on the activities that can be implemented remotely in the neighboring countries by lectures, drill, On-the-Job Training (OJT), site observation, etc., in cooperation with National Water and Sewerage Corporation (NWSC) of Uganda and Kenya Water Institute (KEWI).

The main activities of the 1st Term are as follows:

- Baseline survey and capacity assessment
- Design and preparation of tender document of training building
- Remote training
  - 2 times of training in NWSC and KEWI each

Due to continuous remote training in the 2nd term, project implementation policy was adjusted as follows:

- Basic management capacity of the Juba station will be enhanced.
- Basic management capacity of SSUWC Headquarters will be enhanced before implementation of Reform activities.

The 2nd Term started in June 2017. The main activities of the 2nd Term until the end of December 2017 are as follows:

- Remote training
  - 4 times of training in NWSC
  - Training in Japan
  - Training in Cambodia

In the 2nd Term, the revision of PDM was discussed in February in 2018 in Kampala and in principal agreed between JICA and South Sudan sides (hereinafter referred to as "the Both Parties" since the Both Parties understood that many activities in the PDM version 0 cannot be implemented without the activities at the site in Juba and without operation of water supply facilities (hereinafter referred to as "the New Facilities") under the project for Improvement of Water Supply System of Juba in South Sudan by Japanese Grant, construction of which has been also suspended. Accordingly, the PDM and Plan of Operation (PO) were revised as Version

1.

The 3rd Term started in September 2017. The project implementation policy was same as term 2. The project resumed the work in Juba in 14th April 2019. The main activities of the 3rd term are as follows:

- Remote training
  - 3 times of training in NWSC
- Field work in Juba
  - Work in Juba from 14th to 19th April 2109
  - 3rd JCC, Juba, South Sudan (16th April 2019)

2. Project Period

The Project will end in February 2020 in the original schedule. However, Both Parties agreed to extend the project period to April 2020 to keep sufficient time for JICA Experts to assist the Counterparts in using what they learned in the remote training on the **condition that the Project of term 4 will be implemented in Juba.**

3. Training Building

JICA understands the necessity of the Training Building. However, the construction of the Training Building will be rather difficult under this Project for the reason that if the construction starts in term 4, the building will not serve the original purpose intended for since it will serve only short period for the Project after construction. Therefore, the construction of the Training Building is excluded in this project but will be reconsidered by JICA in future projects.

4. Procurement of Equipment / Tools

The Both Parties agreed on the procurement policy of equipment in term 4 as follows.

1) **Personal Computers (PC)**
   The computers procured in Phase 1 of the Project become obsolete after more than 8 years. Therefore, personal computers will be purchased to continue the project activities.
2) **Water leak detection equipment and materials**
   At the stage of high non-revenue water (NRW) ratio, first, it is necessary to take measures to reduce surface leakage using adequate materials and methodologies as a priority, which will be implemented in term 4. For this purpose, leakage repair materials have been purchased from Kenya in term 3. After the measure of surface leakage repair is implemented, underground leakage detection survey will be conducted but it will be not term 4. In addition, due to the security situation, it is not possible to conduct leakage detection survey at night, and there are insufficient means of transportation and human resources. Therefore, it is evaluated that the purchase of leakage detection

equipment in term 4 is premature. However, purchase portable test bench for checking of water meter accuracy is useful at this stage.

3) **Leakage repair equipment**
   Backhoes and asphalt cutters are needed to repair surface leakage promptly. The Backhoe Excavator originally planned to be procured is a *Caterpillar-type ultra-compact*, but if a caterpillar-type is purchased, it will require a separate truck to be transported to the site. Therefore, SSUWC requested JICA to procure a *wheeled type* that is easy to move itself. In Juba, only *medium-sized backhoes* with wheels is available, which is expensive, and its cost is more than the budget of all equipment of the Project.
4) **Equipment of installation of water supply equipment**
   In term 3, large-customer Meters are under procurement from Kenya. Additionally, installation equipment of water supply facilities will be further procured in term 4.
5) **Electromagnetic flow Meters and Mechanical Flow Meters**
   This equipment will be procured to replace existing meters for bulk flow Monitoring. At the site, the number of damaged equipment should be confirmed and procured based on the results of the survey at site.
6) **Sluice valve**
   It is necessary to regulate the pipe network by use of Gate Valves. It is quite difficult to carry out DMA Plan, procure and install all Valves during the term 4. It will be carried out with a small amount. The specific quantity will be determined in field surveys in term 4.
7) **Equipment for water quality test kit**
   The equipment procured in Phase 1 of the Project become obsolete after use of 8 years. Therefore, the equipment will be purchased to continue the project activities.
8) **Transportation means (motor bike)**
   There are existing motor bikes, but it has more necessity for meter reading, bill distribution, collection of unpaid money, connection of each customer, monitoring of leakage, sending letters, and so on.

The proposed required number is listed in the following tables. After final review by Both Parties, the numbers of the items will be finalized.

Item	Content	Quantity					
		Original Plan	Procured			To be procured	Proposed total plan
			Term 1	Term 2	Term 3	Term 4	
Equipment for training building	Computer	7	7	0	0	TBD	TBD
	UPS	7	0	0	0	TBD	TBD
	UPS (big)	1	1	0	0	0	0
	Printer (color)	1	0	2	0	TBD	TBD
	Printer (block and white)	1	0	0	0	TBD	TBD
Copy machine	Copy machine	1	1	0	0	0	1

Item	Content	Quantity					
		Original Plan	Procured			To be procured	Proposed total plan
			Term 1	Term 2	Term 3	Term 4	
Stabilizer	Copy machine	1	1	0	0	0	1
GIS software		1	0	0	0	1	0
GPS		2	2	0	0	0	2
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 roketer D305)	1	0	0	0	0	0
	Ultra-sonic sound wave flowmeter (Fujitecom potter flow 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
	Water leakage detector (Fujitecom HG-10AII)	1	0	0	0	0	0
	Portable water meter	1	0	0	0	1	1
Machinery for leakage repair	Medium sized wheel type backhoe	1	0	0	0	Requested	Requested
	Asphalt cutter	1	0	0	0	1	1
Equipment for piping	Plumbing tool, water meter and plumbing tool, service pipe, valve and pipe accessory	1	0	0	1	1	1
Flow meter	Electromagnetic flow meter	1	0	0	0	1	1
	Bladed wheel water supply amount meter	3	0	0	0	TBD	TBD
Sluice valve		25	0	0	0	TBD	TBD
Water quality test	Bacillus coli test kit and reagent, test kit	1	part	part	0	part	1
Motor bicycle		-				TBD	TBD

Undecided number of equipment in the table above will be fixed based on further study. The operation and maintenance plan for equipment will be developed in the Project, based on which, SSUWC shall have proper O&M activities.

5. Setting of OVI

The numerical values of Objective Verifiable Indicator are set as follows.

NARRATIVE SUMMARY	OBJECTIVE VERIFIABLE INDICATOR
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.** (**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.)* - 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.	- **100 %** of operation and maintenance expenses excluding personnel costs and chemical costs are recovered from water sale revenue. (**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.)*
Output 1: Juba Station's water charge collection capacity is strengthened.	- The number of water meters installed at large-consumption customers is increased from **45** to **220.**

6. Project Site in Term 4

The project site in term 4 will be in **Juba if the security condition in Juba remains stable.**

7. Security Measures

The securing of security for the project members are of the most concern. In this regard, guard fence surrounding of Juba station in which the project office is located will be strengthened in term 4.

8. Schedule of Amendment of R/D

Both Parties agreed to amend the R/D after signing of this Minutes of Meeting of 3rd JCC, in which the numerical targets were set.

(End)

Annex 1: Project Design Matrix (PDM) version 2
Annex 2: Plan of Operation (PO) version 2
Annex 3: Attendant List

		-	- 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	

ANNEX 1

PROJECT DESIGN MATRIX (PDM)

PDM (version 2)
Dated **April 16, 2019**

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
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.** (**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.*) - 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 Sales Revenue. (**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.*) -	- 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.

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	INPUTS		
	The Japanese side	South Sudan Side	PRE-CONDITIONS
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. 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. <Issues and countermeasures>
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. 3-10 Install service pipes and meters for house connections. 3-11 Conduct meter management.			

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
1-2 Understand the latest cost structure and review of the current water tariff.	Plan
	Actual
1-3 Update the customer information.	Plan
	Actual
1-4 Visualize the customer information utilizing GIS and to understand actual situation of water bill collection.	Plan
	Actual
1-5 Develop a guideline for appropriate water pricing for Juba Station and the guideline is approved by the Headquarters.	Plan
	Actual
1-6 Based on the guideline developed in the activity 1.5, develop a revenue and expenditure plan.	Plan
	Actual
1-7 Develop an activity plan for improvement of billing and bill collection.	Plan
	Actual
1-8 Conduct bill collection based on the activity plan developed in the activity 1-7 and monitor the bill collection activities.	Plan
	Actual
1-9 Take a measure for the customers without payments and to monitor these activities.	Plan
	Actual
1-10 Promote installation of a meter for large-consumption customers.	Plan
	Actual

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
2-2 Develop a public awareness activities plan.	Plan
	Actual
2-3 Develop training materials for public awareness activities.	Plan
	Actual
2-4 Conduct public awareness activities on SSUWC activities.	Plan
	Actual
2-4-1 Conduct public awareness activities for public in collaboration with relevant organization (such as MWRI, Juba city, payam, schools, churches and media).	Plan
	Actual
2-4-2 Conduct public awareness activities for existing customers.	Plan
	Actual

P020190416

Annex 2

Plan of Operation

Dated April 16, 2019 Version 2

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

Inputs	Year	2016				2017				2018				2019				2020			
		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
Expert																					
1) Chief Advisor / Water Utility Management (CA/WUM)	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 Leakage Survey (WLS)	Plan																				
	Actual																				
5) Water Quality Management (WQM)	Plan																				
	Actual																				
6) Water Tariff / Financial Management (WT/FM)	Plan																				
	Actual																				
7) Management of Water Filling Station and Water Kiosks (MFSWK)/Water Tariff / Financial Management (2)	Plan																				
	Actual																				
8) Hygiene Education/ Public Awareness Raising (HE/PAR)	Plan																				
	Actual																				
9) GIS Expert (GIS)/ /Water Distribution Management	Plan																				
	Actual																				
10) Design/Cost Estimation	Plan																				
	Actual																				
11) Construction Supervision	Plan																				
	Actual																				
12) Project Coordinator (PC)	Plan																				
	Actual																				
Operation on site (South Sudan)																					
Equipment																					
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	2016				2017				2018				2019				2020			
Sub-Activities		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

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
5-2 Develop a training plan including training materials, manuals and budget based on training needs.	Plan / Actual
5-3 Conduct remote training for Headquarters and Juba Station staff.	Plan / Actual
5-4 Examine for feedbacks on Juba Station's monthly and annual reports, and annual plans provided by Headquarters.	Plan / Actual
5-5 Develop management database for Juba Station and update the data regularly.	Plan / Actual
5-6 Prepare remote training report including all outputs of the project.	Plan / Actual
5-7 Prepare Juba Station improvement Action Plan	Plan / Actual
5-8 Prepare SSUWC Headquarters Reform Action Plan	Plan / Actual
5-9 Prepare SSUWC headquarters Operation Manuals.	Plan / Actual
5-10 Conduct an end line survey regarding water works management, facilities operation and maintenance and customer satisfaction of Juba City.	Plan / Actual
Duration / Phasing	Plan / Actual

Monitoring Plan	Year	2016				2017				2018				2019				2020			
		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
Monitoring																					
Joint Coordinating Committee	Plan			●						●					●				●		
	Actual																				
Set-up the Detailed Plan of Operation	Plan		▲				▲					▲				▲					
	Actual																				
Submission of Monitoring Sheet	Plan			▲						▲					▲				▲		
	Actual																				
Monitoring Mission from Japan	Plan																				
	Actual																				
Joint Monitoring	Plan																				
	Actual																				
Post Monitoring	Plan																				
	Actual																				

Monitoring Plan	Year	2016				2017				2018				2019				2020			
		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
Reports/Documents																					
Inception Report	Plan	▲																			
	Actual																				
Progress Report	Plan						▲				▲				▲						
	Actual																				
Project Completion Report	Plan																		▲		
	Actual																				

Activities	Year	2016				2017				2018				2019				2020			
Sub-Activities		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

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 / Actual
3-2 Prepare GIS map for existing water supply facilities, pipes and valves.	Plan / Actual
3-3 Identify customers in GIS and prepare GIS customer database.	Plan / Actual
3-4 Prepare standard operation procedure (SOP) for updating GIS mapping for facilities and customers.	Plan / Actual
3-5 Prepare manuals for non-revenue management.	Plan / Actual
3-6 Prepare a plan of zoning which can be isolated by valve.	Plan / Actual
3-7 Prepare leakage report.	Plan / Actual
3-8 Conduct leakage repair.	Plan / Actual
3-9 Conduct commercial loss management activities.	Plan / Actual
3-10 Install service pipes and meters for house connections.	Plan / Actual
3-11 Conduct meter management.	Plan / Actual

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
4-2 Understand the situation of water distribution and develop a plan for promoting equal water distribution regarding existing water supply facilities.	Plan / Actual
4-3 Operate water distribution facilities based on the plan developed in the activity 4-2.	Plan / Actual
4-4 Study management method of new water filling stations..	Plan / Actual
4-5 Study management method of new water kiosks.	Plan / Actual
4-6 Develop manuals for procurement of materials for operation and maintenance for facilities.	Plan / Actual

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

Title: 3rd JCC

Date: 16-04-2019

Venue: Juba Grand Hotel.

	Name	Department	Title/ Position
1	CHRISPHINE ABUGO	Budget: SSUWC HQS	D/ Budget
2	William Lokuji	Administration, Juba W/Station	D/Administration
3	Richard Legge	Finance SSUWC / HQS	D/ Accounts
4-	John D. Karabeck	SSUWC HQS. Managmt	Tech. Advisor
5	SEBIT LADU SILVANO	~~LEA~~ SSUWC - JUBA STATION	Ag: D - FOR LAB.
6-	Elfateh Rihan Sur	SSUWC / Juba Station	S/Inspector for Purification
7	Eng. Koboji Charles Y.	Hydrology & Survey - MWRI	Hydrologist.
8	Wol Gordon Tong	MWRI - Directorate of Planning	Inspector for Planning
9	Osama Mahdi	Area Mangr Juba Station	Area Mangr
10	LAWRENCE MOLUSYANG	DG PLANNING & CAPITAL PROJECTS SSUWC HQS	DG

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

Title: 3rd JCC

Date: 16/04/2019

Venue: Juba grand Hotel.

	Name	Department	Title/ Position
1-	Jonathan Winston	SSUWC / Distribution	Assist Eng for Water dist
2.	Ciengpon machiny	" " " "	D/ " /
3-	Pasquale Okume Anthony	" " " "	D MRM
4-	Christopher Philip Lado	" " " "	technician SSUWC
5	Eng. Thomas Jang Kan	~~Ag. D/G for~~ WRM, MWRI	Ag. D. G for WRM
6	KENNETH Gadea	Commercial & Revenue. SSUWC	Ag/ Director for Com
7	Joseph. Abdalla	D/ Director Admin & Finance	D/Director Admin & Fina
8	David Wani	Technician SSUWC	Technician
9	Emmanuel D. Lado	Eng / Purification (SSUWC)	Assist - Eng 4 water Purification
10	Idris Dominic	Eng / Water Distribution (SSUWC)	Assist Eng / Water - D
11	Nancy Eluzai	Eng / water Distribution (SSUWC)	Assist Eng / water - D.

ATTENDANCE REGISTER
OF THE THIRD JOINT COORDINATING COMMITTEE
FOR
"The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation Phase 2"

S/No	Name	Tittle	Institution	Contact	Sign
1.	Julius M. Benea	electrician	(SSUWC)	0916653189	[signature]
2.	Aleer philips Leek	Exc. Director	SSUWC	aleer.leek@yahoo.com	[signature]
3.	Yar Paul Kuol	MD/PD.	SSUWC	+211915993614	[signature]
4.	Shinya Tomonari	Chief Representative	JICA SS	+211-922-431-483	[signature]
5.	Kazumasa Naemura	Representative	JICA SS	0924-535-763	[signature]
6.	ayumi Hama	First Secretary	Embassy of Japan	0922 671 502	[signature]
7.	Simon K. Kuay	DG	SSUWC	0915666491	[signature]
8.	Atsuo Ohno	JICA Expert Team	JICA Expert Team		[signature]
9.					
10					
11					
12					
13					
14					
15					
16					
17					

JICA

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

TEC

Title: 3rd JCC **Date:** 16/04/19

Venue: JUBA GRAND HotEl

	Name	Department	Title/ Position
13	Peter Mahal Dhieu Akot	MWRI / Directorate of Rural Water Supply & Sanitation	D.G.
14	Joseph Elsevar Amosa	Directorate of Technical Services	DG
15	Santurino Tongun	D/Project	0921719808
16	H. Sato	Chief Adviser, JICA Expert	
17	Y. Sawazaki	JICA Expert (PA)	092862043/
18	Phatta THAPA	" "	—
19	Simon Kook Kuay	SSUWC	0915666491 DG
20	Johnman OK.	JICA/TEC manager	[signature]
21	Aleer Philips Leek	Management (MD) - SSUWC	Execut. Director
22	Emmanuel Jok Dut	Programs JICA	0925788047
23	Lwaka MK DENG	Aid Co. Ministry of Finance and Planning.	0927322797

The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation in the Republic of South Sudan, Phase 2

Progress Seminar and 4th Meeting of Joint Coordinating Committee (JCC)

Memorandum		
Date/Time	Wednesday, 16th December 2020	10:00 (Juba time)
Venue	Online meeting, the participants participated from their office or home as per their convenience (JICA HQ office, JICA South Sudan office, SSUWC HQ office, JICA Project office, TEC international Co., Ltd., each expert house)	
Meeting type	Online meeting	
Attendants	SSUWC HQ, SSUWC Juba Station	See the attached attendance sheet for names and positions.
	JICA South Sudan office	
	JICA Expert Team	
Agenda		
1. Opening address, 2. Progress of activities (Output1-Output5, Financial Plan Committee), 3. Outline of Monitoring Sheet of the Project, 4. Discussion, 5. Closing remark.		
Documents	4th Joint Coordination Committee Meeting (PowerPoint Presentation) JCC Program (Attachment-1), A list of participants (Attachment-2)	
Main points discussed, comments, questions, and responses		
Recommendation/ Questions / Comments and Responses		
1.	Experts made the following recommendations. (1) Continue Financial committee, and finalize a finical plan for sustainable operation as a goal. (2) Continue revenue increase activities including meter installation. Tariff revision will be required for sustainable operation. (3) Continue to increase procuring fuel, chemical, and materials by increased revenue. (4) Continue obtaining understanding of customers for water supply operation and tariff revision through public awareness activities. (5) HQ should continue evaluation and providing feedback to activities of monthly report and plan prepared by Juba. (6) HQ should continue implementation of reform/improvement action plan. (7) Continue to review what you learned in Uganda, Kenya, Cambodia and Japan. (8) JICA and experts will continue assisting you in implementing a good business cycle.	
2.	Q: When flat rate customers were converted to metered customers the revenue collection increased. How was the response of customers to this increased water charge? A: It is well accepted. The price of piped water is very cheap compared to tanker's water. Since the meter can determine accurate water consumption to pay for, the customers understand that and do not have any problem with the increased water charge. The most important thing is they get water. SSUWC will continue public awareness activity for payment. Donated equipment such as fittings, pipes, meters, fuel and chemicals help SSUWC a lot. It is good for revenue collection, so that Juba Station suggests for assisting for fuel, chemical and equipment continuously.	
3.	JICA South Sudan Office Closing Remark: • We respect all efforts made by SSUWC to continue water supply service to the citizen even in the difficult situation caused by COVID-19. • There is no Japanese expert in Juba at present, so communication between Juba and Japanese side by suitable methods is important. • JCC presentation is so clear, and it can be visualized what you have done and what we should do. • Hand washing is recognized as an effective measure against covid-19 in Juba. Also, safe water supply is one of the highest concerns in the Juba city. • JICA will continuously collaborate with SSUWC to supply safe water. • In 2021, we will schedule terminal evaluation, so please support us.	

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

Title: 3rd JCC Date: 16/12/20

Venue:

	Name	Department	Title/ Position
1	Makuac Ador M. Deng	Imp admin	Director

4.	SSUWC Closing Remark: • It is a good opportunity to recognize what we have done and the achievement. • There are some challenges due to COVID-19. • We encourage HQ and Juba Station to take care of the evaluation process of the performance and the arrangement of performance contract. We can try and test this opportunity of performance contract for improvement of the service. • For JICA and JICA experts, please continue to support capacity enhancement and technical support. • The major issue for SSUWC is tariff. Some engineers are doing a survey and SSUWC communicate with the Minister and the Board of Directors. According to the advice of Council of ministers, the Board of Directors may issue the order that an increase of tariff should be suitable to support sustainable production of water. So SSUWC wants to assure that it is committed to continue the improvement for sustainable water supply.
Abbreviations (Q: question, A: Answer, C: comment, R: response, MD: Managing Director of SSUWC, JSM: SSUWC Juba station manager, JICA SS: JICA South Sudan office, JET: JICA expert team)	

Attachment-1

Program for Joint Coordinating Committee (JCC) Meeting

16th December 2020

JICA Expert Team

1. Purpose:

1) To review the progress and to exchange opinions on major issues
2) To confirm the succeeding Project schedule and activities
3) To make conclusions and recommendations

2. Participants:

- South Sudanese side: MWRI, SSUWC HQ, Juba station
- Japanese side: JICA HQ, JICA South Sudan Office, (Embassy of Japan), and JICA Expert Team

3. Date and Venue

Date and Time:	**16th December 2020; from 10:00 pm - 11:45 pm (Juba time)**
Venue:	South Sudan side: SSUWC Managing Director's Office and JICA Project Office Japanese side: JICA HQ, JICA South Sudan Office, TEC international Office and others
Meeting type:	On-line Meeting (Application: MS Teams)

4. JCC Agenda

Agenda & Presenters

Time (Juba)	Time (Japan)	Agenda	Presenter
		Entry of participants	
10:00 - 10:05	16:00 - 16:05	Confirmation of Participants	
10:05 - 10:10	16:05 - 16:10	Opening Address	Hon. Manawa Peter Minister, MWRI
		Progress of Activities	
10:10 - 10:15	16:10 - 16:15	Introductory Remarks	Area Manager
10:15 - 10:25	16:15 - 16:25	**Output 1**: Finance & Commercial	Wilson Daniel Okongo/ Kenneth Gideon Dakaya
10:25 - 10:30	16:25 - 16:30	**Output 2**; Customer Service & Public Awareness	Jonathan Winston
10:30 - 10:35	16:30 - 16:35	**Output 3**: NRW reduction and Distribution	Cieggen Mading
10:35 - 10:45	16:35 - 16:45	**Output 4**: Water Treatment Plant &Water Quality Management	Emmanuel Lado Sebit Lado Silverno
10:45 - 10:50	16:45 - 16:50	**Output 5**: HQ Management HQ Progress of Action Plan	Simon Koak Kuay
10:50 - 10:55	16:50 - 16:55	Financial Plan Committee	William Lokuji
10:55 - 11:10	16:55 - 17:10	**Outline of Monitoring Sheet of the Project**	Hirotaka Sato
11:10 - 11:30	17:10 - 17:30	**Discussion**	All
11:30 - 11:35	17:30 - 17:35	Closing remarks	Chief Representative, JICA South Sudan Office
11:35- 11:45	17:35- 17:45	Closing remarks	PD/MD SSUWC

Online meeting rule for JCC

- Mr. Ohno (JICA Expert Team) for the Japanese side and Mr. Manyok (Project Assistant) for the South Sudanese side will be MCs for the JCC meeting. In addition, Managing Director (SSUWC HQ) will take a responsibility of a facilitator through the meeting.
- If participants want to say something, the participant address herself/himself to the MCs. Do not start to speak without the MC's allowing.
- Speaker should mention name and organization before she/he start to talk.
- If the speaker's name and organization is not clearly heard, the MC confirms them immediately.
- The speaker comes to close in front of the available PC screen before talking, and switches on Mic and Camera.
- Mute your microphone and camera when you're not talking. Host will switch them off if this practice is not properly done.
- When the presentation runs longer than expected, the MC reminds the presenter to shorten the remaining part. In addition, if Q&A or discussion takes rather longer time than expected, the MC may take control of them.

Please kindly set your mobile phone to silent mode (mute mode) before the meeting.

Attachment-2

List of Participants for Joint Coordination Committee (JCC) Meeting

S/No	Name	Position
	Ministry of Water Resources and Irrigation SSUWC Head Quarters	
1	Hon. Yar Paul Kuol	Managing Director, SSUWC HQ
2	Simon Koak Kuay	DG, Admin & Finance, SSUWC HQ
3	Richard Legge Modi	Director of Accounts, SSUWC HQ
4	Osama Mahdi Mohamed	DG, Planning and Project, SSUWC HQ
5	Leek Aleer Philiphs	MD's office manager, SSUWC HQ
6	Cep Madol Cuot	Engineer, SSUWC HQ
	SSUWC Juba Station	
1	Joseph Ebere Amosa	Area Manager, Juba Station
2	William Lokuji Germano	Director of HRM, Juba Station
3	Wilson Daniel Okongo	Ag/ Director of Account, Juba Station
4	Kenneth Gideon	Ag/ Director of Commercial service, Juba Station
5	Sebit Lado Seliveno	Ag/ Director of Lab, Juba Station
6	David Wani Kalombo	Ag/ Director of Purification, Juba Station
7	Cieggen Mading	Ag/ Director of Distribution, Juba Station
8	Ebere Peter Pisa Joseph	Commercial service dept., Juba Station
9	Elikana Simon Boss Yoasa	Accounting dept., Juba Sation
10	Jonathan Winston	Distribution dept., Juba Station
11	El-Fateh Rihan	Purification dept., Juba Station
12	Emmanuel Lado	Purification dept., Juba Station
	JICA	
1	Hattori Yoko	Director, Water Resource Management Division2, Global Environment Department, HQ
2	Ogata Ryuji	Senior Adviser, Global Environment Department, HQ
3	Shoji Izumi	Senior Deputy Director, Water Resource Management Division2, Global Environment Department, HQ
4	Hyakukan Yuto	WASH program officer, Global Environment Department, HQ
5	Sagara Fuyuki	Chief Representative, South Sudan Office
6	Yamane Makoto	Senior Representative, South Sudan Office
7	Naemura Kazumasa	Representative, South Sudan Office
8	Chiba Mariko	Project Formulation Advisor, South Sudan Office
9	Garang-Emmanuel	Assistant Program Officer, JICA South Sudan Office
	JICA Expert Team	
1	Sato Hirotaka	Chief Advisor/ Water Utility Management
2	Ohno Atsuo	Deputy Chief Advisor/ Water Tariff and Financial Management2/ Tanker Filling Station and Public Tap Stand Management
3	Matsumoto Naohide	Operation and Maintenance on Water Treatment Facility
4	Sato Yarai	Operation and Maintenance on Water Distribution Facility
5	Thapa Phatta	Water Leakage Survey/ GIS/ Water Distribution Management

S/No	Name	Position
6	Morita Yasuhiko	Water Quality Management
7	Yamada Shoko	Water Tariff/ Financial Management 1
8	Sawazaki Yasushi	Hygiene Education and Awareness Activity
9	Iwamoto Koichi	Training Management/ Coordinator
10	Yasuda Mari	Coordinator in Japan
11	Wal John Manyok	Project Assistant

資料 - 9：その他の資料

9.1：維持管理に関する C/P の最終プレゼンテーション
9.2：第 4 期現地研修計画
9.3：ジュバ支所データベースと主要 PI
9.4：ジュバ支所改善行動計画
9.5：パフォーマンス・コントラクト（SSUWC 本部支所間）
9.6：ジュバ支所年次報告書（2020/21 年度）と年次計画（2022 年）
9.7：SSUWC 本部改革行動計画
9.8：南スーダン水セクター調査報告書

資料-9.1：維持管理に関する C/P の最終プレゼンテーション

Purification department presentations

These some photos shows activities

Done by SSUWC;s technicians in NW of Uganda
Prepared by :
El fateh Rihan & Emmanuel Lado

Contents

Purification department (WTP) working force

- **A-Head of Purification department:**

1- El fateh Rihan
2- Emmanuel Daniel Lado (assistant)

- **B- Maintenance Team:**
  - **Pumps/generators /Blowers/Valves:**

1- Fahim Khafif
2- Manase Lokule Wani
3- Charles Mogga Lago
4- Marcelo Tombe
5- Azhar Abdu
6- Anjelo Peter
7- Alexender Disi

  - **Electric:**

1- Julius Moboruk Benda
2- Martin Rume Olimpio
3- James John
4- Mario Yaga
5- Stephen Lako

  - **Blacksmith:**

1- Anthony Khamis
2- Sebit Marco Daud
3- John Yugu
4- Felix Obilia

- **C- Shift Operators; (WTP, Hospital & Konyokonyo boosters stations):**
  - **Juba Water Treatment plant:**

1- Robert Daya Elsateh
2- Cosmos Pitia Philip
3- William Jada
4- Hillary Laku Loro
5- James Yokwe
6- Emmanuel Khamis
7- James Kuyu Sabuni
8- Gabriel Doggale
9- Sarafino Sebit
10- Lucky Eluzai Molai

  - **Hospital Booster:**

1- George wani Marcelo
2- Felix Peter Twa
3- Michel Serfy
4- John Lado Patrisio
5- Martin Laku Santino
6- Annania Lado

  - **Konyokonyo booster:**

1- John Brown
2- Peter Pitia
3- Peter Ladu

Purification department presentation –

Previous Conditions (WEAKNESS & STRENGHT)

WEAKNESS

- THE STATION WAS USING OLD TYPES OF ELECTRO-MECHANICAL EQUIPMENT SUCH BLOWERS, PUMPS AND STANDBY GENERATORS & PRESSUER FILTERS WITH RARE SPARES AND LACK OF MAINTENANCE KNOWLEDGE.
- THERE WERE NO CLEAR DATA RECORDS /INPUTS FOR THE ELECTRO-MECHANICAL EQUIPMENT & CONSUMBLE ITEMS (fuel & lubricants)) AND regular MONTHLY REPORTS FORMULATION.
- THERE WERE NO WELL-DESIGNED WTP,

FOR INSTANCE ; ALUM DOSE WHERE MIXED IN ONE BIG POND WITHOUT ALUM MIXER WHICH HINDER OPTIUM DOSE OF ALUM INTO TREATMENT PROSSESS.

- THERE WERE NO CLEAR & SCIENTIFIC METHODS USED FOR CHEMICAL DOSAGE INTO WTP PROSSESS TO BE FOLLOWED SHIFT OPERATORS.
- THERE WERE NO REGULAR MEETING BETWEEN WATER QUALITY & WTP STAFFS REARDING CO-ORDINATION & CO-OPERATION OF WORK.

Continuous…

STRENGHT

- THE STATION WAS OPERATIONING 24 HOURS / DAY USING CITY POWER AND STAND BY GENERATORS IN JUBA STATION & HOSPITAL BOOSTER & KONYOKONYO BOOSTER STATION.
- ENOUGH PROCUREMENT OF CHEMICALS (ALUM & CHLORINE) AND FUEL FOR STAND BY GENERATORS WHICH SUPPORT SUSTAINBLE OPERATION IN WTP.
- GOOD WORKING ENVIRONMENT with limited resources and knowledge & ENOUGH MAN-POWER with High MORALS FOR WORK IN VARIOUS SECTIONS OF MAINTENANCE, ELECTRICAL, SHIFT OPERATORS , WATER QUALITY & CLEANERS , etc.

Current conditions

STRENGHT

- **The station is operation around 12 and 18 hours /day (better of not operating at all).**
- **Currently JICA is Procuring total of 126,000 liters of fuel for period of six (6) months for Juba station & HBS.**
- **The staffs have received a good capacity building (Training) by JICA in Uganda and Japan in various sections; and staffs gained skills in following :**
  - Review of SOPs and comparison other waterworks such as in Uganda.
  - Quality insurance of water treatment.
  - All forms of electro-mechanical maintenance (motor rewinding, panel wiring, Pumps, Valves, Blower, Generator service, Chemical mixture & Dosing equipment, compressor.) – **Tour and practical**
  - **Motor rewinding– Practical**
  - Operation records for pumps and filter backwash (low and high lift in every (3) shifts)– (**practical**)
  - Procedures of troubleshooting and maintenances reporting and Health and safety & Fire fighting – **practical and Lectures.**

Continuous..

The station have received numerous donation from development partners as follows:

item	donor	Capacity/number	location
Generator	JICA	450 kvR	Juba station
Generator	ICRC	400 KvR	Juba station
Generator	ICRC	330 kvR	Juba station
Pumps	ICRC	4 high lift/ 1 low lift	Juba station
Pump house	ICRC	For 3 high lift pumps	Juba station
Generator	FORMER SUDAN GOVERNMENT	250 kvR	HBS
Generator	ICRC	275 kVR	HBS
pump	ICRC	3 lift pumps/ I generator	HBS
Pump / Generator houses	ICRC	Pump house	HBS
Fuel storage tanks & fuel pumps	ICRC	2 Tanks (20,000 liters) & 2 fuel pumps	Juba station & HBS
Motorbikes	JICA	7 motorbikes	Juba Station

WEAKNESS

- Abruptly shut down of the station as result of shortage any of operational main items such as fuel or alum.
- Facing difficulties during rainy season at Intake facility challenges (designing problem).
- Breakdown of some key facilities in WTP may Interrupt the normal operations (SOPs) such as current breakdown of blowers (2 of them are working) and one (1) pump low –lift (Not working) which are very essential in Operation.

Continuous…

- Lack of motivation & delay of salaries make the staff to quit the work, therefore, the department is under staffing which affects work activities in WTP.
- Lack of spare parts for electro-mechanical equipment in order to carry the work and apply the knowledge acquired from UGANDA.
- Lack of PPE (personal protective equipment) and transportation for staff.
- Currently we CAN'T Operate Night shift though we have enough fuel & chemicals due to the staff are NOT reporting for night shift (reason lack of Motivation) which affects water Zoning.

TARGET & WAY FORWARD

- THE STATION SHOULD OPERATE 24 Hours/day and we hope soon to combining the old & new facilities of WTP to produce around 17,000 m3 /day to meet highly water demand in the town.
- Sustainability of Power supply (when the station connected to city power) and use generators for stand –by purpose.
- We appeal to HQ/SSUWC to procure enough chemicals (alum & chlorine) & fuel and necessities for one (1) year for sustainability the station.
- Recruitment and fill-up the vacancies with qualified staffs in various sections.
- Improve working environment and transportation of staffs, to allow them work with high morals and better performance in the work.

Thank you for your Attention

SOUTH SUDAN URBAN WATER CORPORATION –
CES/JUBA STATION

DEPARTMENT of TECHNICAL SERVICE
(WATER QUALITY SECTION)

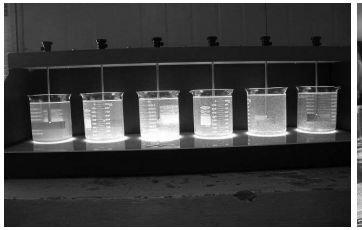
PRESENTATION ON PROGRESS AND CHALLENGES ENCOUNTERED BY WATER QUALITY TEAM

Water Quality Activities;

- Daily Test at the Water treatment plant of Raw water, Treated water, Filtered water and Settled water in addition to Jar test depends on the situation.

Cont.

- Monthly Test at the New York Hotel, Juba University, Kator (Private Tap), Munuki Public Tap, Malakia PTSs (Kiosk) and Judiciary High Court of Appeal.
- In addition to chlorine demand, jar test and preparation of Alum and chlorine solutions on routine bases.



- Rendering monthly reports and data input.

Cont.

- Weekly Test at the Tanker filling station in Hamza Inn, Hospital Tank, Konyokonyo Tank, Kator Tank, University of Juba, Parliament Elevated Tank(Tap) and Munuki Elevated Tank (Tap).

Water quality standards
Residual Chlorine & turbidity

- Residual Chlorine:
  - WTP: 1.5-2.0 mg/L
  - TAP: 0.2-0.6 mg/L
  - TANK: 0.2-0.6mg/L
- Turbidity ≤5NTU

Turbidity	≤ 5
Color	≤ 15
pH-value	6.5 - 8.5
Conductivity	1500
TDS	1000
Residual chlorine at tap	0.2 - 0.6
Alkalinity	(100 - 200)
Dissolved Oxygen	(10 - 13)
Nitrate	30
Hardness	200
Iron	0.5
Manganese	0.4
Zink	3
Copper	1.5
AMMONIA	
ORDER	ACCTABLE
NITRITE	

Water Quality Management Plan

	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
	Daily	Daily	Daily	Daily	Daily		
AM	data input	WEEKLY(	Weekly (TAP)	data input	data input		
		data input	Monthly (TANK)				
PM							
	Daily	Daily	Daily	Daily	Daily		
AM	data input		Weekly (TANK)	data input	data input		
		data input	data input				
PM							
	Daily	Daily	Daily	Daily	Daily		
AM	data input	WEEKLY (TAP)		data input	data input		
		data input	Monthly (TAP)				
PM							
	Daily	Daily	Daily				
AM	data input		Weekly (TANK)				
		data input	data input				
PM							

Cont.

- Data input
- Data analysis
- Performance indicators
- Monthly report

B/ Water quality analysis

- Understanding chemical analysis
- Hardness, Alkalinity, Dissolved Oxygen, Copper, Iron, Zinc, Manganese, Ammonia, Nitrate, Nitrite, etc...
- Preparation of the distilled water.

PROGRESS

A/ Computer uses, Data analysis and Reporting

- Data collection
- Sampling plan

CHALLENGES (Current and Future)

- Most of the devices are outdated.(The working devices are, two portable Turbidimeter, two residual chlorine photometer, one Multiparameter for conductivity & pH, and waterproof Combo meter for EC, TDS, & Temperature).
- Lack of devices for Color, Hardness, Alkalinity, Dissolved Oxygen, Copper, Iron, Zinc, Manganese, Ammonia, Nitrate, Nitrite, etc...
- Lack of reagents for the above mentioned parameters.
- Bad shape laboratory environment, e.g. damaged A/C, Cupboards for keeping reagents and apparatus is also damaged, bad wiring system and water tap, therefore, rehabilitation is necessary.
- Alum and chlorine rooms are in a bad conditions, which needs rehabilitation in the roofing, doors, windows, the mixture tanks, Alum lifter and gravity dozers scale.
- The condition of the store is not conducive for storage because the chemicals are suppose to be stored separately.
- Lack of mobility in order to carry out sampling far outside the treatment plant as soon the new grant aid project finished.

Cont.

- Lack of laboratory technician as the water treatment plant expected to widen.
- Lack of laborers to prepare the chemicals.
- Lack of PPE for both lab technicians and laborers.
- Lack of stationeries, such as tissue papers, cartridge, A4 papers, Computer.
- Lack of detergents such as (Dettol, powdered soap), hand gloves, Rain and lab coat, Overall, Gumboot.
- Lack of motivation, incentive, and other allowances.
- Salaries are not paid on time.
- No budget allocation to the water quality section.
-

Cont.

- Provision of enough reagents for various parameters used to be tested.
- Training for normal analysis and preparation for 0.02n of sulfuric acid and EDTA solution for the titration etc.
- Provision of PPE for laboratory staffs for their safety and health specially chemical solution preparation staffs.
- Stationaries such as A4 papers, cartridge, Dettol, ommo soaps, hand gloves, rain coat, Gum boot, computer, and tissue papers.
- Rehabilitation of the current laboratory, Alum mixture room, and Chlorine mixture room, e.g. roof, tank chemical solution, gravity dozers, windows & doors, and Alum lifter.

Future Plant

- Establishment of permanent laboratory with full facilities at the water treatment plant as the current one is expected to be too small when the new plant is operational.
- Recruitment of more staffs.
- Establishment of branch laboratories in the new water booster house near the parliament and the one in Konyokonyo booster house to easy the testing of samples collected from far places of designed sampling points and to boost the chlorine residual at the end of the water point.
- Provision of mobility to the laboratory section so that it able to carry out their duties that is required, by going out the station reason because the distribution area is expected to widen up to Jebel market,Giada, and Lologo in southern zone. And in northern zone is Hai Jalaba, Juba Na Bari, Juba University. In western zone are Munuki block A,B & C, Gudele up to Doha petrol station, plus the three Mounas, 1,2, & 3, Rock City and Nyakuron east, west & south.
- Provision of enough devices in order to meet the demand of the activities example Copper, Hardness etc.

Water Is Life, Health and Hygiene

THANKS FOR YOUR ATTENTION




Prepared by water quality team;

Mr. Sebit Lado Silvano, Ag./D/for Lab. Juba Station.

Emmanuel Frazer Andrea, John Kenyi Andrea, Santos Simbe Augastino

South Sudan Urban water Corporation Juba Station

Presentation by Distribution Dept.

contents

Main contents of the report consists of the following.

- Developed facilities.
- Gained Equipment
- Learned Skills.
- Customer Satisfaction
- Future Plan.

Developed Facilities of the proper O & M of distribution Systems

- Finding and repairing leaks and bursts.
- Testing system pressure at various locations on a systematic basis.
- Flushing the main lines at least once a year.
- Inspecting fire hydrants twice a year.

Basic Listening Stick

- Non-electronic listening stick
- Relies on the technician and his ability to hear
- Various types available
- Made from a range of materials
- Has no visual display

A precondition for successful leak location – knowing where the pipes are

- If network plans are unreliable pipe locators should be used
- Electric signal put on pipe that will be located – for metallic pipes
- Different equipment for plastic pipes – quite problematic

Network at Large for the O & M

Achievements:

- South Sudan Urban Water Corporation supplies safe and clean water in a reliable manner in Juba
- Non revenue water (NRW) management capacity is strengthened
- O & M Capacity for the existing water supply facilities is strengthened.

NB

- Listening stick
- Ground Microphone
- Maybe entry Level Correlate
- Correlating Noise loggers

REQUIREMENTS OF GOOD DISTRIBUTION SYSTEM

- The layout should be such that no consumer would be without water supply, during the repair of any section of the system.
- It should be fairly water-tight as to keep losses due to leakage to the minimum.

Gained Equipment

- Vehicle
- Back hole
- Pipe Fittings
- Motorcycles
- Materials, different types includes Meters.
- Generators, Computers
- Fuel
- Chemicals
- Pipes different Seize
- ETC

Skills Acquired from training

- Mapping of water facilities into GIS database.
- Leakage is managed appropriately due to increase water supply amount and revenue.
- SSUWC Juba station regarding sustainable services delivery is strength now.
- Promotion of meter installation to the Customers at large consumption improvement activities on collection and updating customer's information are implemented.
- We known how to repair leaks and install Meters in a different way Horizontal/vertical

Learned Skills

the improvement which was presented to our development partners JICA and top management ,as a result follow up activities have been undertaken in Juba that include situation analysis , staff attachments and benchmarking.

The performance improvement programmes have attracted utilities benchmark on best practices to engage in peer –to peer knowledge sharing and exchange technical skills in addressing services delivery.

Cont…

- *We are learned, how to write full report /information about leaks according to the format giving to us.*
- *We have so many knowledge of doing things(which means we benefit from development Partners JICA)*

The Plumber learned

- ❑ Installation of Bulk water meters
- ❑ Installation of PCVs, SVs
- ❑ Participate in the installation and/or measurement of pressure
- ❑ Participate in the measurement of flow rates
- ❑ Disconnection and reconnection of connections during boundary re-definition

13

- ❑ Bulk meter servicing
- ❑ Consumer meter servicing, replacement
- ❑ Illegal water use control (Reactive & preventive measures)
- ❑ Participate in water auditing
- ❑ Leak detection and repair
- ❑ Pipe replacement

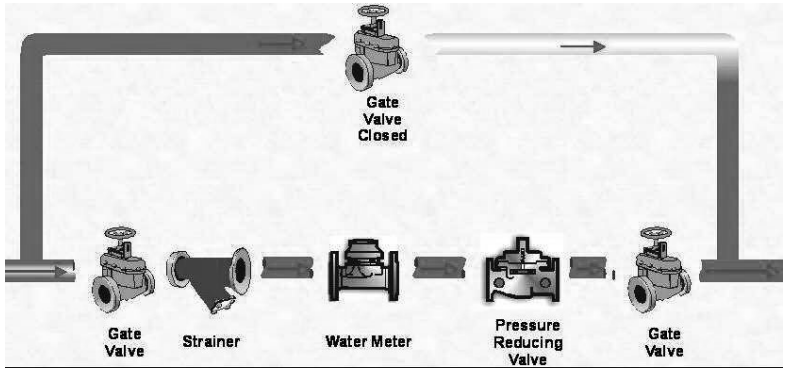
14

MA's Role

- ➢ Bulk meter reading
- ➢ Consumer meter reading
- ➢ Report meter related anomalies
- ➢ Report visible leaks
- ➢ Report illegal water use case
- ➢ Participate in the water auditing exercise
- ➢ Participate in the calibration of bulk meters

15

Typical Installation Arrangements



16

Leakage Repair Work and Identification of the Problems

17

19

18

20

This teams apply the knowledge they acquired from training to SSUWC

Customers Satisfaction

- The purpose of distribution system is to deliver water to consumer with appropriate quality, quantity and pressure.
- Distribution system is used to describe collectively the facilities used to supply water from its source to the point of usage.

Customer's Considerations

- A customer database should be set up for each of the DMA areas. The NRW should be analyzed for each of the DMAs.
- Modification of zone boundaries may require compromise on the no of customers per zone Vs the need to systematically schematize the DMA

Benefits of DMAs

- Systemic measure of losses per section / zone
- Increase of revenue (responsible managers/staff strive to ensure that close to full billing occurs)
- Increased vigilance to reduce NRW at zone level otherwise if NRW is handled as a group problem, there is less responsiveness.
- Establishment of zone meters also eases the identification of problematic areas.

FUTURE PLAN FOR LEAKAGE CLASSIFICATION

- Asbestos Cement pipe to be remove all
- Stock materials to be fill full with different types of materials
- Adding of newly installed pipes into GIS database.
- Visible, phone in the public ,Observed by water utility staffs.
- Becoming expert level at one specific skills or a set of skills.
- Providing excellency services or Care.
- A few of my future goal include leading a distribution team in some capacity building.

- Thank for your Listening

Prepared by
Jonathan Winston, Nancy Eluzai

Activity report
21 September – 29 October 2021
and
Message from Expert

Sato (Yarai), Matsumoto and Morita

2021 October 29

Water distribution (Matsumoto)

2.Filter

Sieve and fill Good sand daily.
(3 buckets)

Scrape off the surface sand
(1 cm) once a month.

Be sure to throw away the Mud.

Water distribution (Matsumoto)

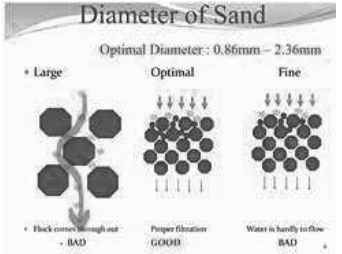
This project has improved the skills of SSUWC staff.
Please manage your operation every day from tomorrow too.

1. Intake Pipe

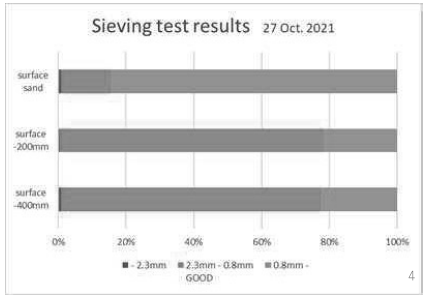
Remove rubbish daily.

Water distribution (Matsumoto)

- Sieving test results and suggestion



Diameter	- 2.3mm	2.3mm - 0.8mm GOOD	0.8mm -
Surface sand	0.7%	14.6%	84.6%
Surface -200mm	0.4%	77.8%	21.8%
Surface -400mm	0.7%	76.6%	22.7%



Water distribution (Matsumoto)

3. Generator

• Regularly replace consumables such as Fuel Filters, Oil Filters, engine oils and coolants.

• The battery needs to be replaced every 2 to 3 years.

Water distribution (Yarai SATO)

✓Flow measurement data is fundamental information to the management of water supply business.

✓In addition, flow measurement data is important to understand the situation of non-revenue water.

✓In SSUWC service area, there are 19 flow meters in WTP and water distribution network, and 5 flow meters in TFS (total 24 flow meters). However, only 7 of these flow meters are in operation.

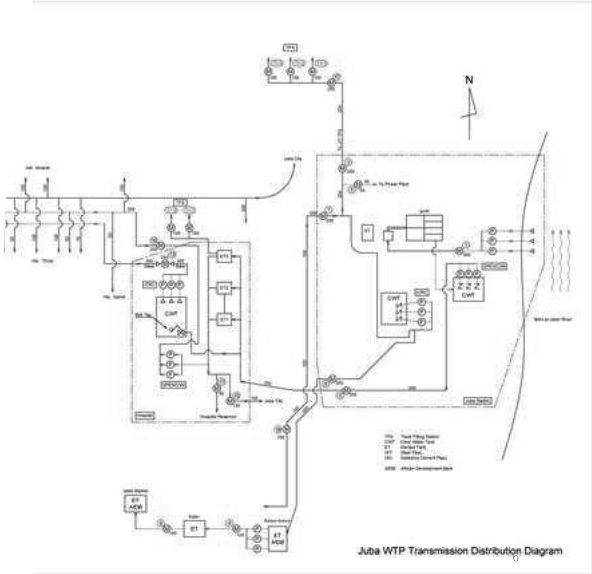
Water distribution (Matsumoto)

4. Flow Meter

• I confirmed the position of the meter and made a drawing.

• Currently, there are 24 flow meters in the water purification plant and in the city. Of these, 7 are operating flowmeters, and 17 are out of order.

• It needs to be updated from the aspect of water volume management.

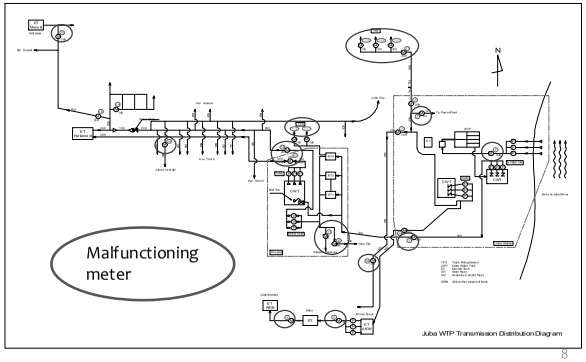


Water distribution (Yarai SATO)

<u>Bulk meter working</u>
No.3,6,7,10,11,14 and 15

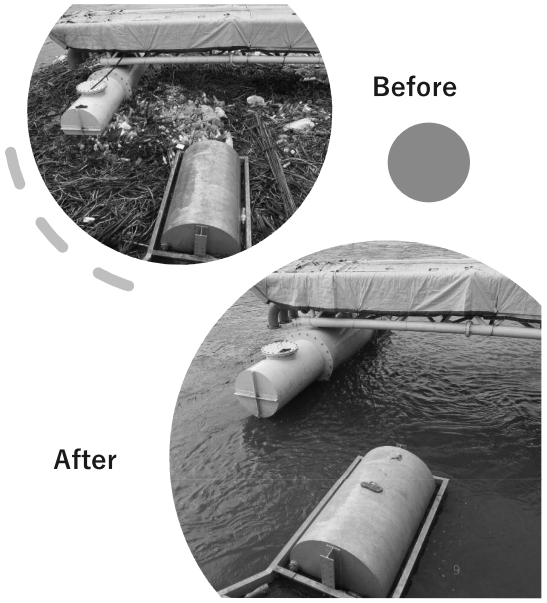
Malfunctioning
✓ 12 in 19 bulk meter
✓ All 5 meters in TFS

Please repair or replace malfunctioning meters as soon as possible.



Water quality monitoring (Morita)

- pH, EC, Turbidity and Residual chlorine are important indicators for treated water quality control. Please continue data acquisition.
- Please continue to clean the water intake. This process will improve the quality of raw water.



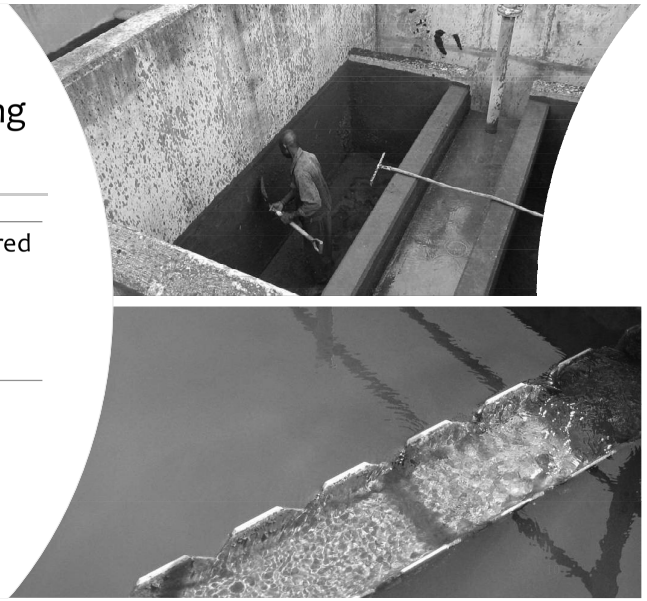
Water quality monitoring (Morita)

- ✓ The participation of University of Juba students as interns is a very good opportunity for them to get to know the activities of SSUWC.
- ✓ Please continue to maintain a **good relationship with the University of Juba**.

Water quality monitoring (Morita)

Think of ways to utilize the acquired water quality data to **improve water purification process**.

I look forward to the continued cooperation between the water quality monitoring team and the water purification team.

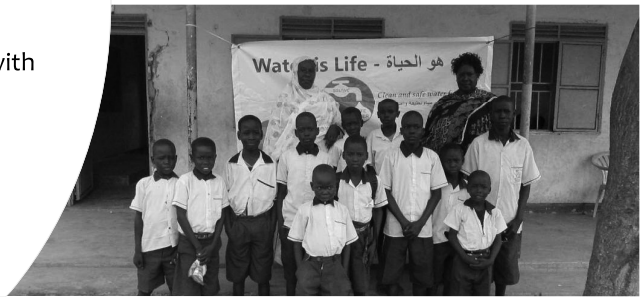


PR activity (Morita)

- ✓ With the installation of the Handwashing station, we were able to create relationships with 2 churches and 4 schools.
- ✓ Please **continue to help and advise** to each installation site (2 churches and 4 schools) on how to maintain the Handwashing station.

PR activity (Morita)

- ✓ The relationship between the 2 churches and the 4 schools is an **important partnership for the future PR activity** of SSUWC.
- ✓ Maintain a good relationship with them and use them for future awareness raising activities.



資料-9.2：第 4 期現地研修計画

Short term training plan (August 2021 to Jan 2022)

Output	Issues to be tackled in this and next visit (main issues)	Training plan/activity in this and next visit (what training will be given?, target C/P, period (days))	Main C/P	Duration
1. Juba Station's water charge collection capacity is あ strengthened (Ohno, Yamada)	• Need to develop tariff setting guidelines for cost recovery tariff • Need to follow up previous improvement activities	1-1 Develop a guideline for appropriate water pricing for Juba Station and the guideline is approved by the Headquarters. 1-2 Based on the guideline developed in the activity 1-5, develop a revenue and expenditure plan. 1-3 Follow up previous activities on revenue increase, debt collection, increase water meters, customers	Mr. Ben Wanga (HQ) Mr. Pisa Joseph Mr. Wilson Daniel Okongo Ms. Achiro Jenennifer Peter	1 month
2. Public awareness activities for Juba citizens by Juba Station are enhanced (Sawazaki, Tanio, Morita)	• Need to response to COVID-19 and safe water supply • Customer needs to aware to pay bill.	2-1 Sustain hygiene awareness activities through the operation and management of handwashing stations. Activities: On-site classes at schools and churches Contents of on-site classes • How is tap water purified. • What does SSUWC do to ensure the safety of tap water. 2-2 Training of the customer service care with the developed "coatomers service manuals" 2-3 Conduct on site -training of the public awareness activities for the customers in promotion with paying bill.	Mr. Johnathan Winston Mr. Pisa Joseph Mr. Christopher Phillip Mr. Geoge Okee Salvator Mr. Kongs Towaro Ononga Mr. Peter Loro	1 month
3. Non-revenue water management capacity of Juba Station is strengthened. (Thapa)	• Need to use SOP and formats prepared appropriately. • Add the pipe and facilities constructed by AfDB project	**A. NRW management** 3-1 How to read bulk meters correctly 3-2 How to calculate supplied water correctly (purification team + distribution team) 3-3 Explain the content of draft manual (SOP) of NRW 3-4 OJT using prepared format (leakage repair and stock management) **A. GIS** 3-5 Provide basic training on QGIS 3-6 Provide training on use of QField to collect and update pipe and customer data at site using mobile devices 3-7 Providing hands on training on how to use QField program to collect and update pipe network and customer data at site using mobile devices (such as mobile phone) 3-8 OJT to collect location data of customers checked by Team 1 during the work of Committee for Confirmation and Disconnection earlier 3-9 Explain the SOP to the previous trainees plus the new trainees 3-10 Provide QField training to new trainees	A. Cieggen Mading Nancy Elizai Douse Joseph Joseph Oniek Salvator B. Ms. Nancy Elizai Ms. Evalin Abuba	1 month

Output	Issues to be tackled in this and next visit (main issues)	Training plan/activity in this and next visit (what training will be given?, target C/P, period (days))	Main C/P	Duration
4. Operation and maintenance capacity for existing water supply facilities by Juba Station is strengthened. (Y. Sato, Matsumoto, Morita)	A. • Need to know the current conditions of water treatment process • Need to change filter sand • Need to know effective backwash method without air washing B. • Need to know current process of water quality monitoring and how to improve problems C. • Need to record stock appropriately A.B.C. • Need to improve report format and PI. (A and B) D. • Need to implement appropriate stock management	**A. Water treatment plant** 4-1 Understand how to evaluate water treatment process performance by OJT 4-2 Understand how to prepare filter sand by OJT and lecture 4-3 Improve back washing method by OJT and lecture **B. Water quality management** 4-4 Review current operation of water quality laboratory 4-5 Provide guidance on problems of water quality analysis 4-6 Improve report format and revise PIs for water treatment and water quality 4-7 Evaluate the status of laboratory development for future for new water supply facilities **C. Water distribution (Y. Sato)** 4-8 Exercise reading flowmeter based on daily, weekly and monthly, review the result, and explain total measured flow volume at outputs of WTP 4-9 Follow up use of SOP of distribution works 4-10 Record plumbing works and review the recording Witness at least one leak repair work, show them how to fill up the report formats as OJT 4-11 Improve monthly report and review the monitoring result 4-12 How to calculate PIs and review the result **D. Inventory management (Y. Sato)** 4.13 Training how to manage stock inventory and review 4-14 How to use SOP for stock management prepared. Witness the process of material issue and inventory update when a leak repair work is conducted (at least one time) and give them feedback, if any improvement is required **E. Capacity assessment (All)** 4-15 Questionnaire **F. Comprehension reporting (All)** All members of Purification, Distribution and Water Quality Team will report on Overview 10 years after the Independence Day 4-16 Kickoff meeting 4-17 Interim reporting and presentation (Water distributing) 4-18 Final reporting and presentation (Water treatment and water quality) Contents	B. Mr. Sebit Lado Selivano Mr. John Kenyi Andrea Mr. Emmanuel Frezer Andrea C. El Fateh Rehan (flow reading) Ciengan Madine Jonathan Winston Nancy Elzai, Peter Garbino Christopher Pitia Angello Appollo, D. William Lakuji Amol Brach Luany (Stock keeper) E. All F. Interim: Madding Final: ???	A.B. 1 month C.D. 3 weeks E. 3 days F. 1 week

Output	Issues to be tackled in this and next visit (main issues)	Training plan/activity in this and next visit (what training will be given?, target C/P, period (days))	Main C/P	Duration
		-Developed Facilities -Gained Equipment -Learned Skill -Customer Satisfaction -Future Plan In the presentation of Future plan, C/Ps will express their thoughts on how the new WTP will be operated and managed. **-Interim Presentation** Date: 12th October Yarai, Matsumoto and Morita will give C/Ps comments on the presentation and their reports Therefore C/Ps revise their presentation and reports till the next presentation **-Final Presentation** Date: 29th October Matsumoto and Morita will discuss the result with C/Ps		
5. Support and supervisory function of SSUWC headquarters toward Juba Station is strengthened. (H. Sato)	• Need to re-establish report and plan evaluation process by HQ • Need to re-establish monitoring process of improvement plans • Need to prepare an annual report and plan	5-1 Explain the result of assessment for training needs 5-2 Development of training plan 5-3 Review remote training work and materials 5-4 Examine and feedbacks on Juba Station's monthly reports 5-5 Revise PI and monthly report formats 5-6 Preparation of annual report (Jul. 2020/Jun.2021) 5-7 Preparation of annual plan (2021/2022) 5-8 Resume monitoring f Juba Improvement Plan and HQ reform plan 5-9 Finalize HQ manuals	HQ. Mr. Simon Kuay Mr. Osama Mr. Ben Wanga Juba Station Ms. Evalin Abuba Mr. Morris Lado Tongun; Ms. Diana Umjuma Daniel	3 weeks in Japan 3 weeks in Juba

資料-9.3：ジュバ支所データベースと主要 PI

Datasheet for SSUWC Headquarter Local Station Management (Juba)

Date of survey: from January 2021

(as of December 2021)

Table of Contents

Abbreviation

NA: NOT APPLICABLE

ND: NO DATA, NOT AVAILABLE

NOTE:

The data shall be updated every half year.

1. Summary Sheet

No.	item	Contents (2013)	Contents (2021)
1	**General**		
	Name of Station	Juba Station	Juba station
	Name of area manager	Eng. Hassan Aggery Yousif	Eng. Joseph Ebere Amosa
	Address of station office	Juba Payam, Central Equatoria State	Juba payam, Central Equatoria state
	Telephone number		+211921839358
	E-mail		Uwc.jubastation@gmail.com
2	**Assets**		
2.1	Locations of water production	2	1
2.2	Water production scheme and design capacity	(1) Purification Plant Juba Station: 7,200 m3/day (Rapid sand filter method) (2)Small borehole system in Kator: Not yet operating	Purification plant Juba station: 7200m^3/day (Rapid sand filter method)
2.3	Treatment flow of purification plant	Rapid mixing- slow mixing-Sedimentation -Rapid Sand filter-Chlorination-Storage	Rapid mixing-slow mixing-sedimentation-rapid sand filter-chlorination-storage
2.4	Water quality laboratory	Chemical only	
2.5	Water storage tank (number, type, capacity)	6 locations (11 tanks) - Ground(4 in purification plant, 1 in Konyookonyo) - Elevated (3 in Hospital, 1 in Kator, 1 in memorial ground, 1 in Munuki); - total 1,940 m3	5 locations (9 tanks) -Ground(2 in purification plant) -Elevated(4 in hospital, 1 in Kator, 1 in Memorial ground and 1 in Munuki) -Total capacity=1,695m^3
2.6	Distribution pump station (number, capacity)	3 locations (6 stations) (3 in Purification Plant, 2 in Hospital station and 1 in konyokonyo station)	3 locations (6 at the station, 9 at hospital and 2 in Konyokonyo)
2.7	Generator (number, kVA)	4 (2 in purification plant, 1 in Hospital station, 1 in Konyokonyo station)	3 locations(4 at the station,2 at the hospital and 1 in Konyokonyo)
2.8	Total length of pipeline	71 km (The major parts were constructed in 1930s or 1960s)	72.705
2.9	Pipe materials (from lager part)	Asbestos, PVC, GI & steel	Asbestos, PVC, GI & steel
2.10	Bulk flow meter	14 (5 in purification plant)	8 working
2.11	Tanker filling points	3 locations (total 9 taps)	4
2.12	Public tap stand	About 53 locations	20
2.13	Buildings (total rooms)	5 buildings (17 rooms)	5 buildings (17 rooms)
2.14	Automobile		4
2.15	Computer and printer	26 desktop CPs, 1 laptop, 13 printers, 1 plotter	23 computers and 10 printers 5 computer and 5 printers are working and the rest need repair
2.16	Copier	2 (including JICA expert room)	ND
2.17	Others	GPS, Digital camera, Video camera, Projector	ND
3.	**Service Level**		
3.1	Total population	About 450,000 (JICA study team estimate)	400,000
3.2	Estimated service population	About 70,000	71,612
3.3	Service percentage (%)	About 18 %	17.90
3.4	Supply areas	Juba Town Payam, part of Kator and	Juba Town Payam, part of Kator and

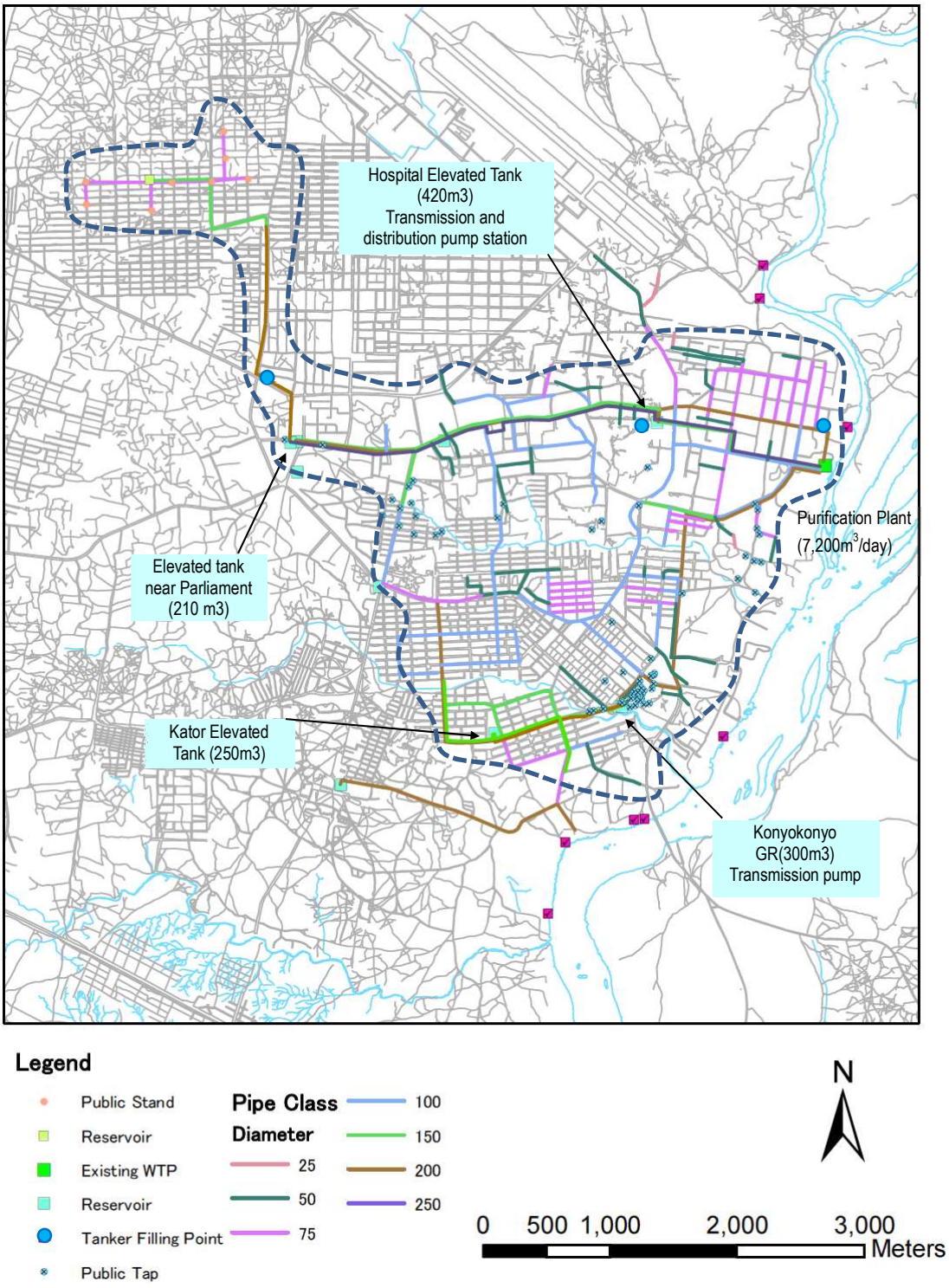
No.	item	Contents (2013)	Contents (2021)
		Munuki Payam, in Juba city	Munuki Payam, in Juba city
3.5	Daily average water production	4,000 - 6,000 m3/day	6,000
3.6	Estimated non-revenue ratio(%)	About 40 %	40%
3.7	Estimated sold water	2,400 - 3,600 m3/day	500-600M^3/day
3.8	Number of connections	3,523	2,304
3.9	Billing period	Every 2 months for Domestic customers Every month for Others customers	Every 2 months for Domestic customers Every month for Others customers
3.10	Number of metered connections	6	1,145
3.11	Monthly average bills in number (num, %)		169
3.12	Monthly average bill collected in number (num, %)		89
3.13	Monthly average bills in amount (SSP, %)		3,335,085
3.14	Monthly average bill collected in amount (SSP, %)		1,600,657
3.15	Overall collection ration in number (%)		52.7%
3.16	Overall collection ratio in amount (%)		48.0%
3.17	Production per day per serviced population(l/d/inh.)		19.5l/d/inha
3.18	Domestic water tariff (SSP)	Fixed rate without meter Class 1 (30); Class 2 (25); Class 3 (15)	Fixed rate without meter Class 1 (4650); Class 2 (2325); Class 3 (1000)
3.19	Typical connection fees		50,000-90,000
4	**Finance (2020)**		
4.1	Total income		1,588,010
4.2	Total expenditure		3,894,251
4.3	Remittance to Block account		ND
4.4	Financial balance		240,080
4.5	Unit cost of operation per m3 production (SSP/m3)		
4.6	Average revenue per m3 sold water (SSP/m3)		170
5	**Operation and Maintenance**		
5.1	Power supply condition	No city power supply as of May 2013	No city power supply
5.2	Reporting system	Monthly report, and annual report	Monthly
5.3	O and M manuals	Purification plant, distribution, water quality, billing (prepared by JICA expert team)	Purification plant, distribution, water quality, billing (prepared by JICA expert team)
5.4	Water quality monitoring (sampling point, monitoring indicator)	Point: Raw water, treatment plant, treated water, distribution (X) Frequency: daily (WTP), weekly (tank) and monthly (tap) Indicator: See water quality	Point: Raw water, treatment plant, treated water, distribution (X) Frequency: daily (WTP), weekly (tank) and monthly (tap) Indicator: See water quality

No.	item	Contents (2013)	Contents (2021)
		management plan	
6	**Organization**		
6.1	Staff number by department	164 in total Purification (64), Distribution (54), Finance (25), Adm. (19), HR (4), Area Manager (1)	108 in total Purification (37), Distribution (24), Finance, Administration and HR (30),General account(16) Area Manager (1)
7	**Donor Activities**		
7.1	JICA	The Project For Management Capacity Enhancement The Project for The Improvement of Water Supply System of Juba (2010-2013)	The Project For Management Capacity Enhancement The Project for The Improvement of Water Supply System of Juba (2015-2021)
7.2	GIZ	Headquarter assistance	No project currently
7.3	World Bank	MDTF infrastructure development (completed)	No project currently
7.4	USAID	SUWASA	No project currently

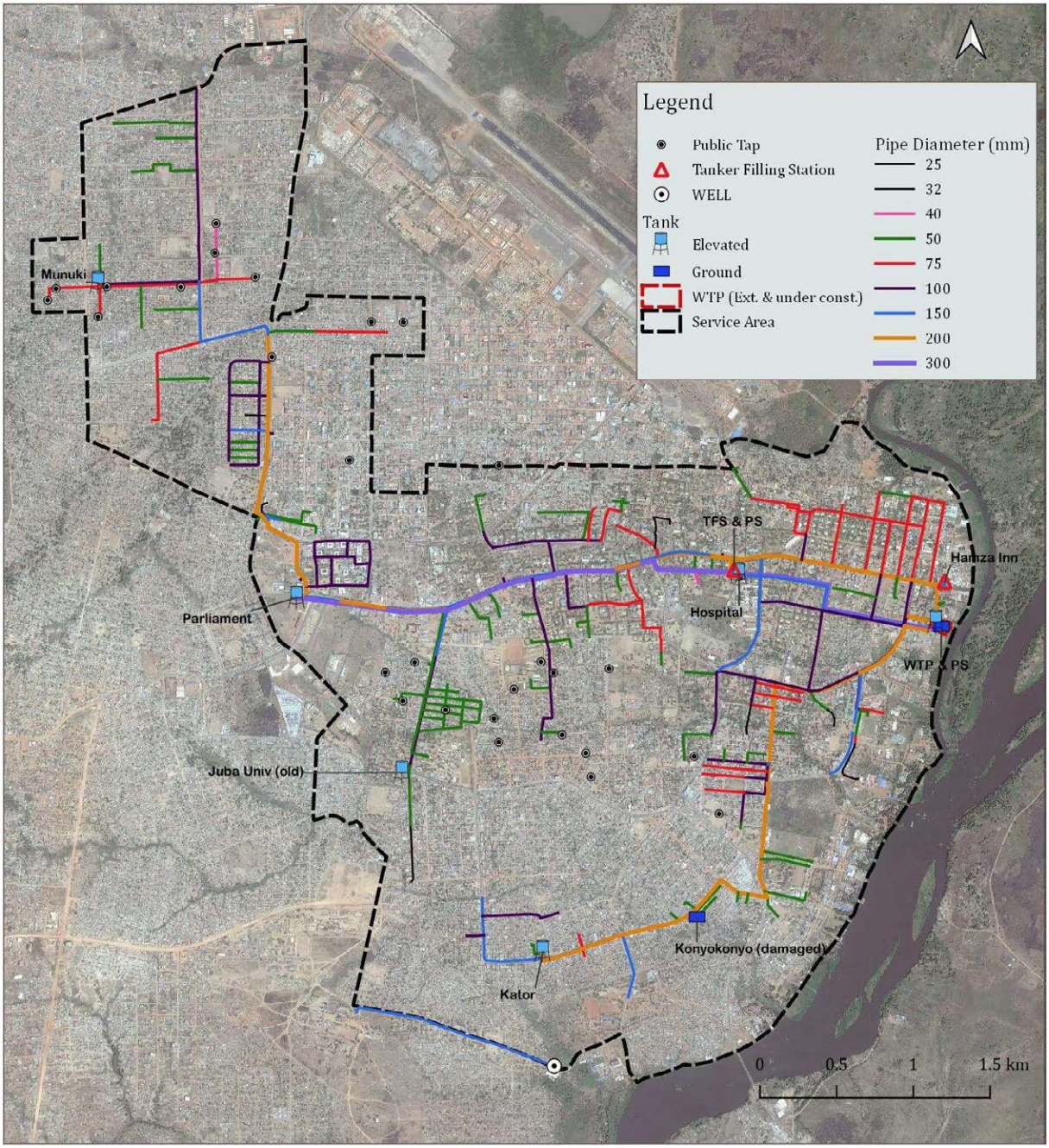
2. Existing Assets

2.1 Basic Data

2.1.1 Facility location map and service area (to be attached)

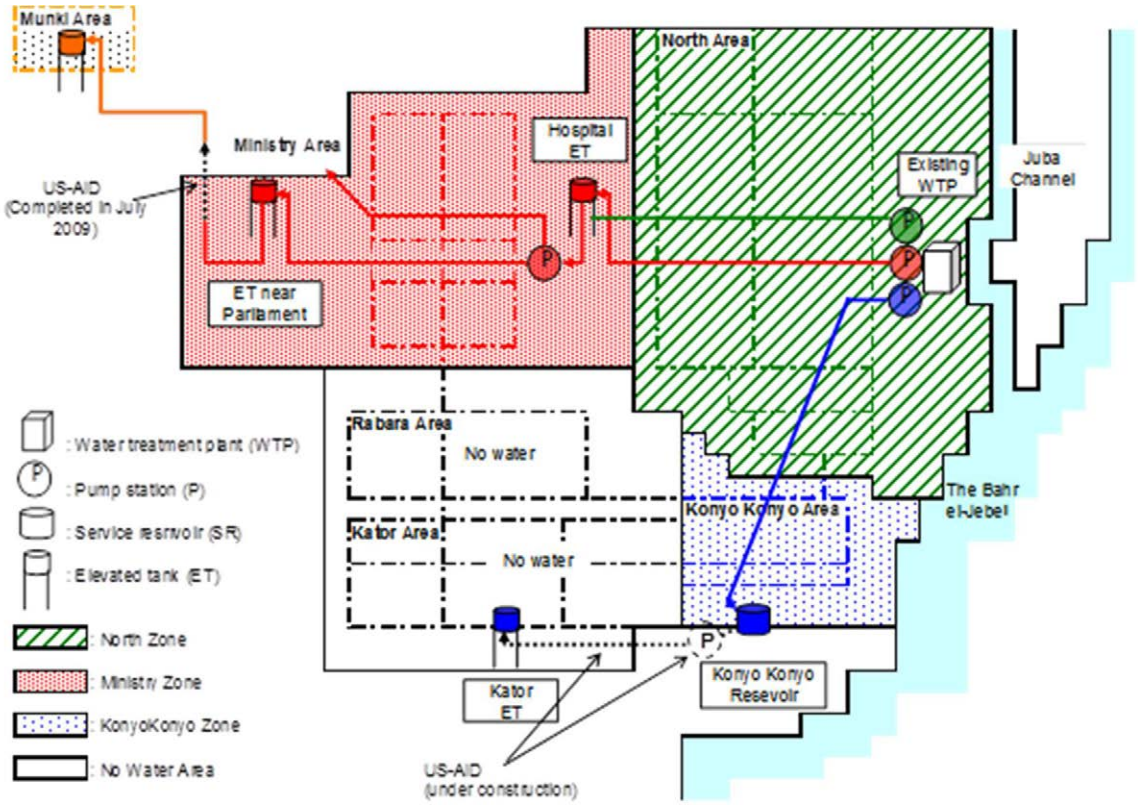


Facility Location Map (1)

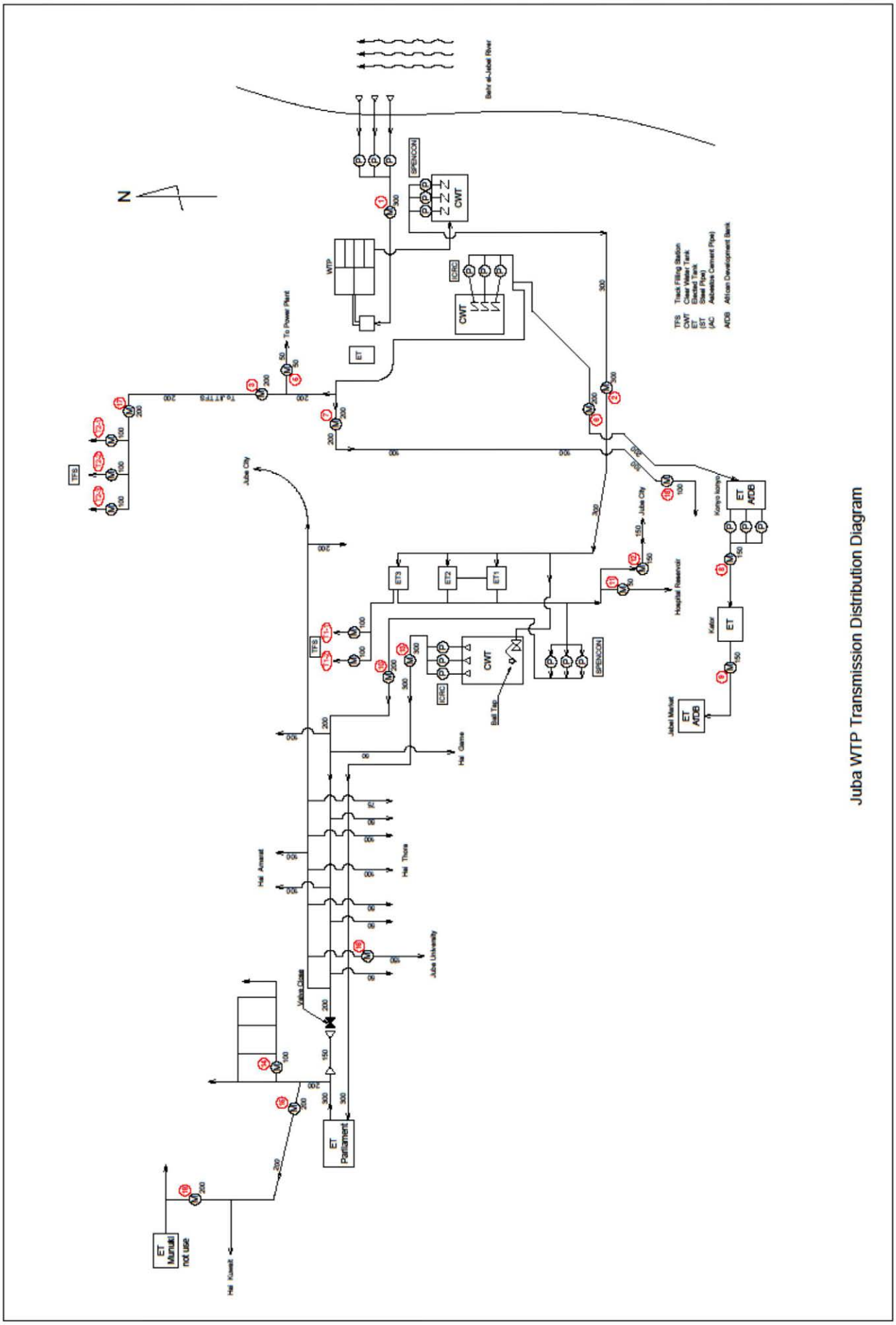


Facility Location Map (2)

2.1.2 Schematic flow of transmission system (to be attached)



Schematic flow of transmission system (1) (To be updated)



Water Flow Diagram in Juba (as f December 2021)

2.1.3 List of Supply Area

Juba Town Payam, and parts of Kator and Munuki Payams, in Juba city

2.1.4 Ownership of land of water supply facilities.

No.	Facility	Owners
1	Juba Station and Headquarters (Offices and Purification plant)	SSUWC
2	Storage tanks and pumping station next to Juba Teaching Hospital	SSUWC
3	Storage tank and pumping station next in KonyoKonyo	SSUWC
3	Memorial ground elevated tank:	SSUWC
4	Public tap stands (PTS)	SSUWC
5	TFS	SSUWC

2.2 Water Supply System Data

2.2.1 List of Water Production Schemes and Design Capacity

(1) Purification Plant Juba Station: 7,200 m3/day

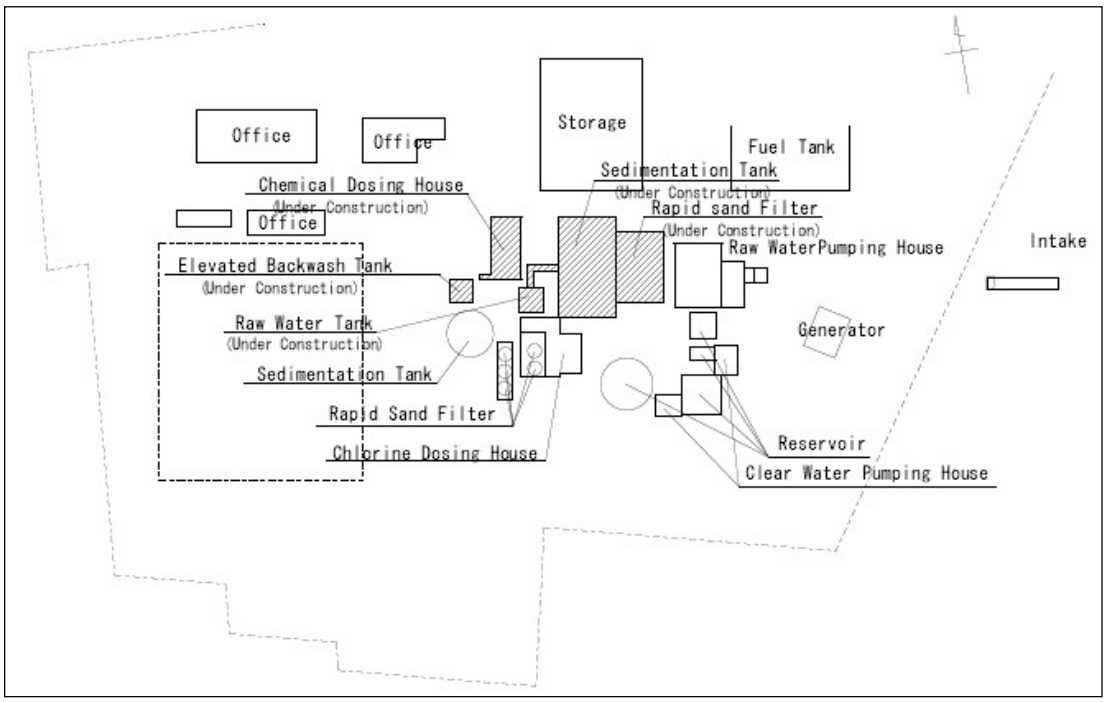
(2) Borehole system: no

	1	2	3
1. Scheme name and construction year	MDTF: Purification Plant Juba Station		
2. Source of water	Juba Channel of Bahr el-Jebel river		
3. Purification method	Sedimentation + rapid sand filter		
4. Total design cap (m3/h)/ (m3/day)	300/7,200		
5. Hours operation (hour/day)	11 - 22		
6. Actual operating flow 7. (m3/day)	3,000 – 6,000		

MDTF: Multi Donor Trust Fund

2.3 Water Purification Plant in Juba Station (MDTF)

2.3.1 Plane drawing of purification plant map (to be attached)

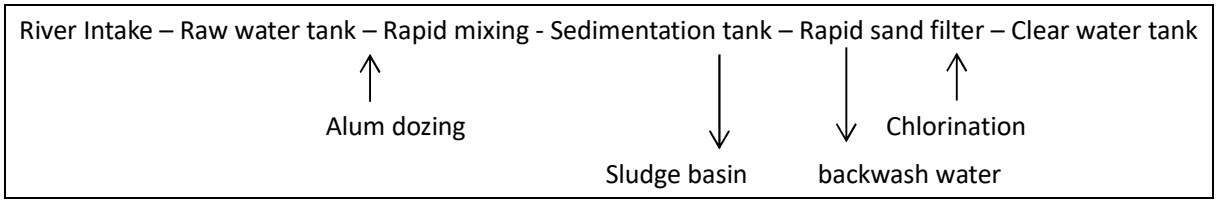


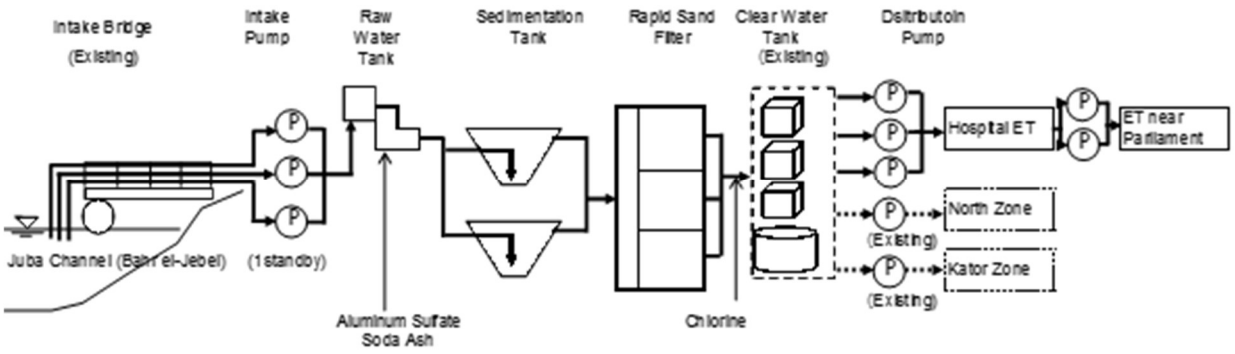
2.3.2 Dimension of purification plant

(Juba station)

Facility	Dimension/Type
Raw water pump	158 m^3/hr*H20.7m*3(1 standby)
Raw Water Tank	RC(elevated tank), W4.8m*4.8m*H2.9m*1
Dosing Device House	RC(2 floor), Alum (3) and Soda-ash doser (1)
Sedimentation Tank	RC W10.25m*L10.25m* 7.5 D*2 Surface overflow rate: 1.5 m3/m2/hr
Filtration Tank	RC W3.4m*L4.0m*4 Filter speed: 5.0 m3/m2/hr
Chlorination Dosing Device House	Chlorination doser: 4 sets Soda-ash doser: 4 sets
Clear Water Pump House	150 m^3/hr*H47.1m*3(1 standby)
Elevated Tank for Backwashing	250 m3

2.3.3 Flow diagram of purification plant





2.3.4 Specification of purification plant

1) Intake facility and raw water conveyance pipe

S No	Specification/Dimension
Year of installation	May 2010
Source	Juba Chanel of Bahr el-Jebel river
Intake type	Direct pipes and suction pump
Pipe materials and number	Steel, 3 lines
Intake conditions	Intake mouse is choked by weed in rainy season

2) Intake pump

3 pumps (2 duties and 1 standby)

No.	Year of installation	Type	Design capacity (m3/hour) Number of pump	Head (m)	Operation capacity (m3/day)	Operation hour (hour)	Conditions
1	2009		158	18.5	3,792	7.4	Good
2	2009		158	18.5	3,792	7.4	Good
3	2009		158	18.5	3,792	7.4	Good

3) Rapid mixing

No	Specification/Dimension
Year of installation	2009
Flocculation type	Cascade type from raw water receiving tank
Dimension of facility	
Materials	RC
Mixer (fill in additional sheet)	No mechanical mixer
Conditions	Good

4) Flocculation

S No	Specification/Dimension
Year of installation	2009
Flocculation type	Baffling type
Dimension of facility	
Materials	RC

S No	Specification/Dimension
Name of chemicals	Aluminum sulphate
Injection method	Pump
Mixer (fill in additional sheet)	No mechanical mixer, Concrete tank
Conditions	Good

5) Sedimentation

S No	Specification/Dimension
Year of installation	2009
Sedimentation type	Clarifier (Upflow)
Dimension	2 tanks, Square 10.25 m, 8.6 m depth
Materials	RCC
Conditions	Good

6) Filtration and backwash

S No		Specification/Dimension
Year of installation		2009
Filter type		Rapid sand filter
Number of filters		4
Capacity (m3/day)		79 m3/h
Dimension		Rectangular
Materials		RCC
Backwash method and equipment spec		Air by compressor Water from elevated tank
Conditions	Sand	Fair − leakage from discharge pipe − Sand conditions? Fair − When was sand replaced? They have not replace it since the first date
	Air compressor (Backwash equipment)	In good condition

7) Reservoir and elevated tank

Item	Serial No.				
	1	2	3	4	5
Scheme	Old	demolished	demolished	MDTF	MDTF
Type (ground, elevated)	Ground	demolished	demolished	Ground	Elevated tank (for Backwash)
Year of construction	1970's	demolished	demolished	2009	2009
Capacity (m3)	330	demolished	demolished	100	140
Dimension (m3)	Circular	demolished	demolished	Rectangular	Rectangular
Materials	RCC	demolished	demolished	RCC	Metal
Conditions	Good	demolished	demolished	Good	Good

8) Laboratory Equipment-No data available for the lab equipment

Items	Specifications	Qty.		Conditions
JICA				
Water Conditioning Laboratory	CEL/850	1	set	
Pocket Colorimeter	Chlorine Free + Total	3	set	
Pocket Colorimeter	Iron	1	set	
Pocket Colorimeter	Manganese	1	set	
Pocket Colorimeter	Ammonia	1	set	
Pocket Colorimeter	Nitrate	1	set	
Pocket Colorimeter	Fluoride	1	set	
Pocket Colorimeter	Dissolved Oxygen	1	set	
Conductivity Starter Kit	Conductivity Starter Kit	1	set	
Portable Turbidimeter	2100Q	1	set	
Turbidity/Colormeter	2100AN	1	set	
Still Water Automatic	Still Water Automatic	1	set	
Handbook	Standard Method	1		
Beakers	Glass 1000ml, 6/pk	2	set	
Beakers	Glass 250ml	12		
Flask Erlenmeyer Wide Mouth	Glass 250ml	12		
Bottle Amber Glass	Amber 237ml, 6/pk	2	set	
Bottle Amber Polyethylene	Amber 500ml, 6/pk	1	set	
Bottle Amber Polyethylene	Amber 1L, 3/pk	1	set	
Cylinder Glass	100ml	10		
Cylinder Glass	250ml	10		
Polyethylene Bucket	10L Handle	3		
Sampler Dipper	500ml 12ft handle	2		
Jar Tester	Six paddle lab stir, 220V 50Hz	1		
UNICEF				
ICRC				

2.4 Flow Diagram of Borehole System

(No System)

Item	Information/value
(1) Source of water	
(2) Year of installation	
(3) Treatment method:	
(4) Depth of wells	
(5) Water quality characteristics	
(6) Supply method	

2.5 Transmission and Distribution System

2.5.1 Pump Stations

(1) Juba Station

No.	Scheme	Location	No.	Year of installation	Capacity (m3/hour)	Capacity for 24 hours operation (m3/day)	Average operation hours per day (hours/day)	Conditions
1	MTDF	High-lift pump 1 (2 duties and 1 standby)	1	2009	150	3,600	3	Good
			2	2009	150	3,600	3	Good
			3	2009	150	3,600	3	Good
2	ICRC	Pump Station No1	1	2017	150	3600	4.5	Good
			2	2017	150	3600	4.5	Good
3		Pump Station No2	1	-	150	3600	1.4	Good
			2	-	150	3600	1.4	Good

(2) Hospital pumping station

No.	Scheme	Location	No.	Year of installation	Capacity (m3/hour)	Capacity for 24 hours operation (m3/day)	Average operation hours per day (hours/day)	Conditions
1	MTDF	Hospital pump 1 (to elevated tank in Parliament) 2 duties and 1 standby	1	2009	150	3,600	1.4	Good
			2	2009	150	3,600	1.4	Good
			3	2009	150	3,600	1.4	Good
2		Hospital pump 2	1	-	150	3600	0	NA
			2	-	150	3600	0	NA
			3	-	150	3600	0	NA

(3) KonyoKonyo pumping station

No.	Scheme	Location	Number	Year of installation	Capacity (m3/hour)	Capacity for 24 hours operation (m3/day)	Average operation hours (hour/day)	Conditions
1	USAID	Konyokonyo 1 duty and 1 standby	1	2010	150	4,320	0	NA
			2	2010	150	4,320	0	NA

2.5.2 Water tank in the city

No.	Location	Volume (m3)	Material	Type	Year	Conditions
1	Hospital	210	Metallic	Elevated tank	1983	Ok
		125	Metallic	Elevated tank	1983	Ok
		85	Metallic	Elevated tank	1983	Ok
		360	RCC	Ground tank	ND	Ok
2	Parliament	210	RCC	Elevated tank	2009	Ok
3	Kator	250	Metallic	Elevated tank	2007	Not ok
4	Konyo Konyo	300	RCC	Ground	2007	Demolished
5	Munuki	25	Fiber reinforced plastics (FRP)	Elevated tank	2006	Ok
	Total	1,940	NA	NA	NA	NA

2.5.3 Statistics of existing pipeline

(1) Total length: 72.735 km

(2) Age of network: Mainly constructed in 1930s and 1960s

(3) Average age: (80 - 50) years old

(4) History of replacement: Now main distribution lines are being replaced by AfDB project.

(5) Materials: mainly Asbestos pipe (AC) for old pipes and PVC for new pipes

(6) Details by material and by diameter:

Dia. (mm)	AC	PVC	Steel	GI	HDPE	Total length (m)
300	-	-	4,521	-	-	4,521
200	1,829	10,392	27	-	-	12,248
150	2,527	7,018	-	887	36	10,468
100	9,187	6,470	-	22	-	15,679
75	7,605	4,047	-	-	-	11,652
50	1,251	1,901	-	857	12,083	16,092
40	-	361	-	95	-	456
32	-	-	-	-	1,495	1,495
25	-	-	-	124	-	124
	22,399	30,189	4,548	1,985	13,614	72,735

2.5.4 Bulk Flow Meter

Location	Location ID	Detail Location	Type of Flow Meter	Gate Valve	Condition of Meter
WTP in Juba Station	**1**	300 mm Steel, Outlet of 3 Intake Pumps	EM	Working	Not Working
	2	300 mm Steel, Outlet of Transmission Pump	Turbine		Not Working
	3	200 mm AC, to Tanker Filling Station (Hamza)	Turbine	Working	Working
	5	50 mm HDPE, to Power Plant (The line has been closed)	-	-	-
	6	200mm AC, to Konyokonyo Near HQ	Turbine	Working	Working
	7	200mm AC, near the Main Gate	Turbine	Working	Working
Konyokonyo	**8**	200 mm Outlet of Pump	Electromagnetic	Not Working	Not Working
Kator Tank	**9**	200mm Outlet of Elevated Tank	Turbine	Working	Not Working
Hospital	**10**	200mm PVC, Outside of Hospital to Amarat, Hai Game, Hai Thoura	Turbine	Working	Working
	11	50 mm to Hospital Reservoir	Turbine	Working	Working
	12	150mm, PVC to Juba City	Turbine	Working	Working
	13	300mm, to Parliament	Turbine	Working	Not Working
	T1-1	100mm, TFS	Turbine	Working	Not Working
	T1-2	100mm, TFS	Turbine	Working	Not Working
Parliament	**14**	100mm, to the Ministerial Area (Closed due to building)	Turbine	Closed	Closed
	15	200 mm, to Munuki	Turbine	Working	Working
Buluk	**16**	150mm to Juba University	Turbine	Closed	Not Working
JIT Tanker Filling Station	**17**	150mm Tanker Filing Station	Turbine	Working	Not working
	T2-1	100mm TFS	Turbine	Working	Not Working
	T2-2	100mm, TFS	Turbine	Working	Not Working

Location	Location ID	Detail Location	Type of Flow Meter	Gate Valve	Condition of Meter
	T2-3	100mm, TFS	Turbine	Working	Not Working
Hai Cinema	**18**	100mm Test field Distribution line	Turbine	Working	Not Working
Munuki	**19**	200mm under the bridge	Turbine	Working	Working but cannot read

2.5.5 Tanker Filling Points

No.	Location	Scheme	Nos of taps	Year	Water meter status (working or not)	Operating status
1	In front of Hamza inn (moved to JIT)	MTDF	3	2010	Not working	Operating
2	Hospital pumping station	MTDF	3	2010	Not working	Operating
3						

2.5.6 Public tap stand/ Kiosk

No.	Scheme (Construction by)	Location	Year	No of stands	Total taps	Water meter status (working or not)	Operating status
1	JICA Master Plan Study	Munuki	2009	7	21	Not Working	Operating
2	USAID in Kator		2010	3	-	Not working	Operating
3	JICA technical cooperation project	Juba market	2011	1	3	ND	ND
		Kator	2011	1	3		
		Munuki	2011	1	3		
4	UWC existing			About 40			

2.6 Generators

No.	Location	No.	Power (KVA/KW)	Voltage (V)	Amp	Oil Tank (L)	Year	Conditions
1	Juba WTP	1	350/280	415/240	486.9	Diesel 600	2009	Under repair
		2	300/240	415/240	417	Diesel 600	2009	Ok
		3	400KVA	415/240	ND	Diesel 600	2009	Ok
		4 (JICA)	450KVA	415/240	ND	600	2017	OK
2	Hospital	1	275KVA	415/240	347.8	600	2009	Ok
		2	250KVA	415/240	ND	600	2009	Not Ok
3	Konyokonyo		80/64	415/240	111		2010	OK

2.7 Other Assets

2.7.1 All kind of buildings and assets within the buildings

No.	Type	Nos of building	Nos of room
1	Office buildings	1. Area Manager and HR	3
		2. Deputy AM and secretary	3
		3. Finance and administration	9
		4. Distribution and purification	2

No.	Type	Nos of building	Nos of room
		5.	
		6. JICA expert	demolished
2	Workshop	Near power plant	0
3	Stock house	Container	1
total			17

2.7.2 Office Equipment

1) Computer and Printer

S/No	Department or Unit	Computers (desktop)	Laptop Computer	Printers	New computers	New printers	Remark
1-	Administration	4	1	3	1	1	2 Computers and 1 new Printer working
2-	Accounts	5	0	4	1	1	2 computers and 2 Printers working
3-	Commercial and Revenue	9	1	4	2	1	4 computers and 2 printers working
4-	W/Purification	3	1	2	0	1	2 computers and 1 printer
5-	W/Distribution	1	3 for GIS training	1	0	1	1 computer and 1 printer
6-	HQs		1				Hq,s
	Total	18	7	15	4	5	

2.7.3 Vehicles and motor bike

- ✓ Juba W/Station was functioning with three vehicles:

  1- One (1) Land Cruiser which donated by JICA 2021 in a good condition.

  2-One Lorry in good condition used for carrying material.

  3-One Nissan hard body off road in the workshop

- ✓ Motorbikes:
  - 12 Motorbikes functioning in good condition, it was donated by JICA in different Years, but three (3) are off road.

2.7.4 Equipment and machinery

No	Type of materials	Brand	Year of purchase	
1	Backhoe	CAT 428F2	Apr. 2020	Donated by JICA
2	Floor cutter	Mikasa MCD-218	Dec. 2019	Donated by JICA
3	Welding machine		Dec. 2019	Donated by JICA
4	Submersible engine pump		Dec. 2019	Donated by JICA
5	Thread machine (Die set)		Dec. 2019	Donated by JICA

2.7.5 Safety equipment

Safety equipment was procured by JICA expert team and handed over to juba station in November 2021.

Items	Quantity	Used for
Overall	6	For general work
Face mask	3	Chemical handling
Safety goggles	3	Chemical handling
Safety helmet	3	For general work
Safety plastic gloves	10	Chemical handling
Hearing protector	3	For generator
Gum boots	5	Chemical handling

3. Service Level

3.1 Service indicators

(December 2020)

No.	Indicators	Unit	Value
S1	Supply areas		
	List of supply areas and mark them on map (map to be attached)	-	
	Area of responsibility	sq.km	
	Present service area	sq.km	
S2	Population Served		
	1 Estimated total population in responsible area	inhab	400,000
	2 Estimated population covered by UWC water		71,612
	Domestic connection/Other CUs	inhab	17,896
	Public tap stand (UWC water)	inhab.	17,316
	Tankers (UWC water)	inhab.	36,400
	Total		71,612
	3 Service coverage	%	17.9%
S3	Water volume		
	1 Monthly production (as of December 2020)	m^3/month	41,850
	2. Daily average production	m^3/day	1,350
	3 Assumed Non-Revenue water ratio	%	40
	4 Estimated sold water volume	m^3/month	14,380
S4	Number of connections (as of December 2020)		
	1 Domestic	num	2,058
	2 Commercial & industrial sector	num	80
	3 Public sector	num	142
	4 Public tap stand	num	20
	5 Tanker filling stations	num	4
	6 Others	num	0
	7 Total	num	2,304
	8 Number of metered connections	num	1,145
	9 Metered consumption		
S5	Bills (as of December 2020)		
	Number of bills delivered	num	169
	Amount of bills delivered	SSP	3,335,085
	Number of bills paid	num	89
	Amount of bills paid	SSP	1,600,657
S6	Production per day per serviced population	l/cap/d.	19.5

3.2 Water tariff

(1) Type: Fixed rate without meter

(2) Details

Customer type	Unit price	Customer type	Unit price
1. Metered rate	300/m3	5. Governmental units	
2. Domestic	300/m3	6. NGOs	300/m3
Class 1	4650	7. Restaurant	300/m3
Class 2	2325	8. Companies	300/m3
Class 3	930	9. Factories	300/m3
3.Stand-Pipes		10. Military (Mess)	300/m3
Ordinary stand pipes (small)	300/m3	11. School	300/m3
		12. Public latrines	
4.Hotels		13. Petroleum station	300/m3
Hotel (Small)		14. Tower buildings	300/m3
Hotel (Medium)		15. Churches & Mosques	300/m3
Hotel (Large)	300/m3	16. Hospitals	300/m3

See Attachment for Water Tariff History.

4. Finance

4.1 Financial Indicators

As of December 2020

No.	Indicators	Unit	Annual Value (2020) or As of December 2020
S1	**Monthly income of Juba station**		
	1 Water service (connection)	SSP	1,461,510
	2 Tanker filling station	SSP	0
	3 Others	SSP	126,500
	4 Total	**SSP**	**1,588,010**
S2	**Monthly expenditure of Juba station**		
	1 Fuel	SSP	0
	2 Electricity (not yet)	SSP	0
	3 Allowance	SSP	1,215,851
	4 Fuel lubricant	SSP	857,500
	5 Materials, repair, maintenance and spare part	SSP	1,820,900
	6 Others	SSP	0
	Total	**SSP**	**3,894,251**
S5	**Financial Balance**	**SSP**	**2,306,241**
S6	**Subsidy from MoFEP and SSUWC HQ**		
	1 Salary & Allowance	SSP	631,360
	2 Fuel	SSP	750,000
	3 Chemicals		0
	Total		**1,381,360**

5. Customer Service

	Items	Contents
1.	Number of new connections installed in 2021	8
2.	Average waiting time for a new connection	2-3 days
3.	Number of connections disconnected in 2021	ND
4.	Number of leaks reported 2021	ND
5.	Number of leaks repaired in 2021_	ND
6.	Number of customer complaints recorded in 2021	ND
7.	Means of making complaints	☐ Letter X ☐ Telephone ☐X In person ☐ E-mail ☐SMS (txt msg) ☐ Other _____
8.	How much are the typical connection charges for new customers?	50,000-90,000
9.	Others	

6. Operation and Maintenance

6.1 Power Supply

Power Source/location		Supply hours	Remarks
General city power supply		0 (no supply)	From Dec 2020
Generator	Purification	7-20 hours	From Dec 2020
	Hospital PS	1-8 hours	From Dec 2020
	Konyokonyo PS	O hour	NA

6.2 Average Consumable Usage

Items	Calculation of average monthly consumption	Average monthly consumption
Alum (kg)	6 bags/day x 50 kg x 30 days=	9,000 kg
Soda	NA (no use)	NA
Chlorine (kg)	22.5 kg/day x 30 days =	675 kg
Fuel (L)	100-500 L x 30 days =	3,000-15,000 L

6.3 Consumable Stock (as of Day (31) and Month (December) 2021)

Chemical	Type	Stock As of ( )	Stored condition
Alum	Aluminum sulphate (solid)	0 bags	In chemical building
Soda ash	Soda	NA	NA
Chlorine	Calcium hypochlorite (liquid)	21 drum x 45 kg	In chemical building
Fuel	Diesel	0	In storage tank

6.4 Recording and Reporting System (Periodically submitted reports)

- ✓ 10 record sheet for O&M of purification plant
- ✓ 5 record sheet for O&M of distribution
- ✓ Asset inventory sheets for mechanical equipment
- ✓ Monthly report and annual report
- ✓ Financial outline

6.5 O&M Manuals/SOP

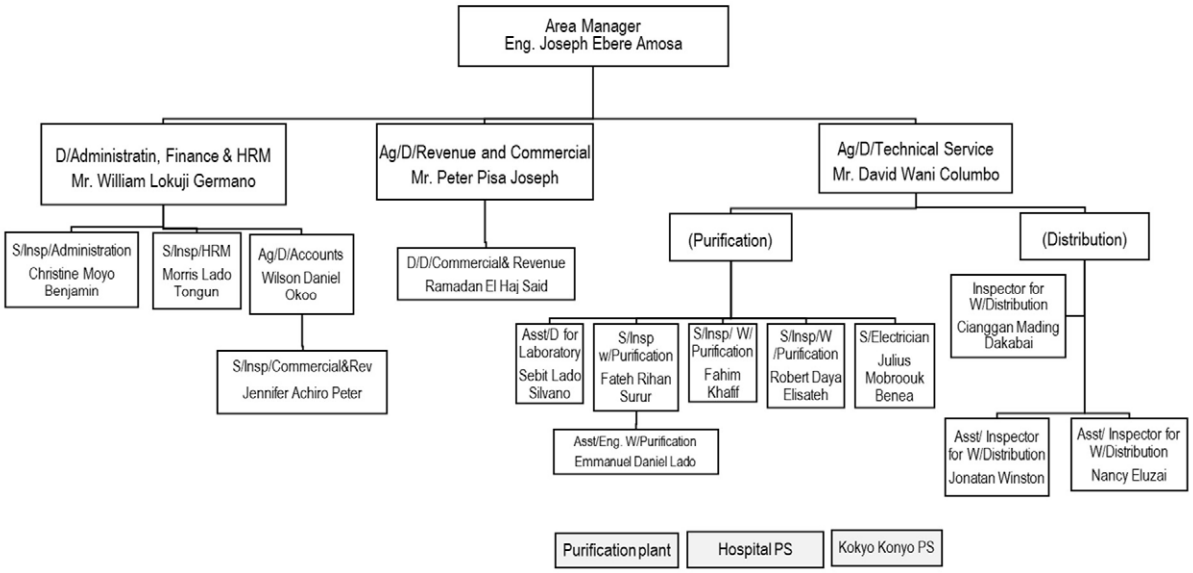
- ✓ Purification operation and maintenance manuals (prepared by Spencon)
- ✓ Customer, billing, collection database manuals (prepared by JICA)
- ✓ Several O&M manuals are now being prepared by JICA

6.6 Water quality monitoring

No.	Item	Implementation
1	Daily test for process in the purification plant	
2	Weekly test for tanks in the city	No
3	Monthly test for taps in the city	No

7. Organization

7.1 Organization chart



7.2 Staff Member

No.	Classification and Department	Total persons	Active persons	Inactive
1-(A)	Department of Administration and HRM based on the grade (Classified staff)	25	22	3
2-(B)	Department of Adm and HRM (Unclassified Staff)	11	7	4
3-(A)	General Accounts Unit (Classified staff)	5	5	0
4-(A)	Department of Commercial and Revenue (Classified staff)	14	8	6
5-(B)	Department of Water Purification (Unclassified staff)	33	30	3
6-(B)	Department of Water Distribution (Unclassified staff)	24	18	6
	Total	112	90	22

As of September 2021

7.3 Job description for each staff

Not clearly identified

8. Status of on-going project

Donor	Title	Project period	Remarks
JICA	✓ The Project For Management Capacity Enhancement (Phase 2)	2 Feb 2016 – Jul. 2021 Fourth term	Technical cooperation
	✓ The Project for The Improvement of Water Supply System of Juba	2013 ~ on-going	Grant aid Constriction stage
GIZ	✓ None		
USAID	✓ None		
WB	✓ None		
ICRC	✓ Rehabilitation of the intake pipeline and the 300m3 underground tank ✓ Gumbo water supply system	2017-ongoing - 2022	Ongoing
AfDB	✓ Strategic water supply and sanitation improvement project (SWSSIP) Phase 1 and Phase 2	2018-2024	0ngoing
UNICEF/ KFW	✓ Juba South and IDP Water supply	- 2022	0ngoing

Attachment: Water Tariff History

Customer type	2004-2010 (SDG)	Oct. 2010- (SDG)	Aug. 2012 (SSP)	Jan. 2016- (SSP)	Nov. 2016 (SSP)	Apr. 2018 (SSP)	Apr. 2019	1st Feb. 2021 (SSP)	Dec. 2021 (SSP)
Tanker filling station rates							170/m³	200/m³	300/m³
Metered Rates			6/m³	20/m³	60/m³	170/m³	170/m³	200/m³	300/m³
Domestic									
Class 1	18	30	72	288	864	4,650			
Class 2	15	25	48	192	576	2,325			
Class 3	9	15	24	96	288	930			
Stand-pipes	60				6,720				
Ordinary stand pipes		100	500			93,000	170/m³	200/m³	
Large standpipes for lorry		1000	6/m³	20/m³					
Hospitals	100	*1	6/m³	20/m³		170.m³	170/m³	200/m³	
NGOs	100	300							
NGOs (Big)			0-30m³: 600 30m³-: 6/m³ Flat rate: 600	0-30m³: 600 30m³-: 20/m³ Flat rate: 600	Flat rate: 7200	Flat rate:7200	170/m³	200/m³	
NGOs (Small)			0-30m³: 300 30m³-: 6/m³ Flat rate: 300	0-30m³: 300 30m³-: 20/m³ Flat rate: 300					
Schools	100	250	300		3,600	4,650	4,650	200/m³	
University			6/m³ Flat rate: 1,500	20/m³ Flat rate: 1,500		170/m³	170/m³	200/m³	
Governmental units	100	300	600	600	7,200	7,200	7,200		
Hotels							170/m³	200/m³	
Hotel (Small) & lodges	1200	750	0-30m³: 500 30m3-: 6/m³ Flat rate: 1,200	0-30m³: 500 30m3-: 20/m³ Flat rate: 1,200	Guest house Flat rate: 8,400	Guest house Flat rate: 18,600	18,600		
Hotel (Medium)		1200	0-30m³: 500 30m³-: 6/m³ Flat rate: 1,500	0-30m³: 500 30m³-: 20/m³ Flat rate: 1,500	Hotel Flat rate: 2,160 0	Hotel Flat rate: 74,400	74,400		

Customer type	2004-2010	Oct. 2010-	Aug. 2012	Jan. 2016-	Nov. 2016	Apr. 2018	Apr. 2019	1st Feb. 2021	Dec. 2021
	(SDG)	(SDG)	(SSP)	(SSP)	(SSP)	(SSP)		(SSP)	(SSP)
Hotel (Large)	1,440	1,440	0-30m3: 500 30m3-: 6/m^3 Flat rate: 1,800	0-30m3: 500 30m3-: 20/m^3 Flat rate: 1,800			170/m^3	200/m^3	
Restaurants	100		500				170/m^3	200/m^3	
Factory		700					170/m^3	200/m^3	
Factory (Small)			700	700			170/m^3	200/m^3	
Factory (Big)			1,500	1,500			170/m^3	200/m^3	
Military (Mess)		250	700	700			170/m^3	200/m^3	
Public latrines		500	500	500	8,400	4,650	4,650		
Petroleum station		300	700	700			170/m^3	200/m^3	
New construction buildings		500	1,500	1,500	18,000	93,000	93,000		
Bakeries		300	250	250	3,000		170/m^3	200/m^3	
Tower buildings		1,500					170/m^3	200/m^3	
Business center					60,00		170/m^3	200/m^3	
Churches & Mosques		*2	*1	*1	576		170/m^3	200/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

資料-9.4：ジュバ支所改善行動計画

Republic of South Sudan

South Sudan Urban Water Corporation (SSUWC)

Action Plan Juba Station

Duration One Year (Jan – Jun 2019)

Prepared By Eng. Osama Mahdi / Area Manager

Kampala, Uganda (11th– 17th Feb2019)

1. Performance Indicators, Causes, Critical Success Factors and Activities of Purification

Performance Indicators	Present Value Ave. in Jan2019	Target Value Dec 2019	Cause of Problems	Critical Success Factor	Activities	Term by Jan 2019	Term by March 2019	Term by Jun 2019	Problem to Achieve Target	Counter Measures/Activities
1) Tech Services										
1.1 Operation Hours	(14hrs/d)	22hrs/d)	1) Lack of fuel	Adequate allocation of subsidies fuel from Nilepet	1.1.1) Review the tariff to cost effective tariff (cost recovery tariff)	125 SSP/M^3			New tariff not yet approved	MD, HQs to lobby for the approval of the tariff
					1.1.2) Buy fuel from the market using the revenue collection @ rate of 1 $ per litr	Achieved but not sustainable			Uncertainty of availability of subsidies fuel from Nilepet	Buy Fuel from Nilepet **18,000ltr*22= 396,000 SSP** Buy City Power **1,500,000 SSP** Buy Fuel from the market **18,000 ltr*200= 3,600,000** SSP/Month.
1.2 Cleaning & Improving the Intake	Improved Intake Area	Intake Area to clean once every 2 month	Achieved	To be continued	1.2.1 Cut the grass and clean the surrounding area frequently base on the cleaning plan 1.2.2 Remove the accumulated silt accordingly	**Achieved**				
1.3 Water Quality	No samples been	Frequently testing at	1) No water supply to	Supply water to the public	1.3.1) Change the operation system to	No samples				

Performance Indicators	Present Value Ave. in Jan2019	Target Value Dec 2019	Cause of Problems	Critical Success Factor	Activities	Term by Jan 2019	Term by March 2019	Term by Jun 2019	Problem to Achieve Target	Counter Measures/Activities
1.3.1 collection of water samples from outside end point for testing	collected from outside	least once a week from different points	zones during day hours	kiosks and HBS during day time	supply water to the public kiosks and HBS during day time 1.3.2) Stopped Hamza inn from (12:00 PM to 2:00 PM) and supply public kiosks 1.3.3) collect samples from different points outside the station for frequently test	been collected from outside				
1.4 NRW	Almost 45% for physical & commercial NRW	To be reduced to 30% or less	1)High ration of leakages & illegal connections 2) Old pipes 3) Lack of fittings	Replacement Old network, update of consumers in to GIS and lobby for fittings from government or development partners	1.4.1 replace the old pipes 1.4.2 update all consumers' connections in GIS 1.4.3 prepare a list of fittings required and try to get some donation from JICA	2 inch dia, and less are achieved Bigger than 2 inch not Achieved			Lack of fittings and clamps	Prepare a list of fittings & clamps as JICA is willing to procure
2) Commercial & Revenue										
2.1 Increase number of customers	(2186 connections)	(2500 connections) 314 new	1) Pipes removed during road construction .	Reconnection of disconnected pipelines Supply of sufficient water	2.1.1 use the available pipes and fittings to reconnect some of the customers	Achieved 30 only 9.5%			Inadequate water supply	Increase water supply hours at a sustainable manner

Performance Indicators	Present Value Ave. in Jan2019	Target Value Dec 2019	Cause of Problems	Critical Success Factor	Activities	Term by Jan 2019	Term by March 2019	Term by Jun 2019	Problem to Achieve Target	Counter Measures/Activities
			2) Inactive area	Reactivate 4 PTS in Kator	2.1.2 Reactivate old PTS from (4 PTS) in Kator	Not achieved			Inactive area	Needs Construction of new ground pressure breaking tank at KonyoKonyo Market
			3) Some were stopped due to insufficient water supply to TFS	Supply of sufficient water	2.1.3 Increase the operation hrs to produce more water 2.1.4 Reactivate Tanker Fillings Stations From (1 TFS) to (6 TFS)	Achieved 2- Hamza inn & HBS			No funds for rehabilitation of the rest	Lobby for funds from the government or development partners
2.2 Convert 40% of flat rate customers to metered customers.	(1571 flat rate connections)	(628 connections)	inadequate meters & fittings	Avail budget to buy fittings	2.2.1 Use the meters that donated by our development partners (JICA & ICRC) To metered some of the customers 2.2.2 Make installation plan per month 2.2.3 Inform the customers about important and benefit of the meters	1571 flat rate connections			Expensive fittings to install the meters	Lobby for funds for fittings from the government or development partners

Performance Indicators	Present Value Ave. in Jan2019	Target Value Dec 2019	Cause of Problems	Critical Success Factor	Activities	Term by Jan 2019	Term by March 2019	Term by Jun 2019	Problem to Achieve Target	Counter Measures/Activities
2.3 Reduce Arrears	(986.150 SSP)	(60% of 1643584 SSP) (986,150 SSP)	1) Lack of continues supply of water	Follow up the payments of arrears	2.3.1Set the signboard in the office and Public places. 2.3.2Prepare the notice and send to Customers to remind them about the payment and inform them about disconnection 2.3.3Give notification letters for payment deadline.	Paid 837,434 SSP 50.9 %			Low willingness to pay the arrears	Direct the revenue staff to follow up closely

56

2. Required Input and Cost Estimation (Accounting)

Performance Indicators	Target Value Dec-19	Activities	Responsible Person/ Dept.	Input/ Resources Required: Staff	Goods	Funds: Unit Price SSP	Funds: Qty.	Funds: Budget SSP	Expected Outcome
1) Tech Services									
1.1 Operation Hours	(22hrs/d)	1.1.1) Review the tariff to cost effective tariff (cost recovery tariff)	MD/ AM	-	Fuel/Day	150000	30	4,500000	
					Alum/Day	63000	30	1,890000	
					Chlorine	50,000	2	100,0000	
					Genset Service/Month	2*	-	-	
		1.1.2) 1.1.2) Buy fuel from the market using the revenue collection @ rate of 1 $ per litr			Incentives/M	50000	1	50,000	
		1.1.3) Buy chemicals (Alum, Chlorine) from the revenue collection							

Performance Indicators	Target Value Dec-19	Activities	Responsible Person/ Dept.	Input/ Resources Required					Expected Outcome
				Staff	Goods	Funds			
						Unit Price SSP	Qty.	Budget SSP	
1.2 Cleaning & Improving the Intake	Intake Area to clean once every 2 month	1.2.1 Cut the grass and clean the surrounding area frequently base on the cleaning plan 1.2.2 Remove the accumulated silt accordingly	Tech. Services Dept. AlfatehRihan Emmanuel Ladu	5 Staff	- Hire Boat - Cutting Tools - Silt Removing Tools	SSP SSP SSP	TBD	SSP	
1.4 Water Quality 1.3.1 collection of water samples from outside end point for testing	Frequently testing at least once a week from different points	1.3.1) Change the operation system to supply water to the public kiosks and HBS during day time 1.3.2) Stopped Hamza inn from (12:00 PM to 2:00 PM) and supply public kiosks 1.3.3) collect samples from different points outside the station for frequently test	Director of Lab Mr. SebitSilvano & AM	3 staff	- One vehicle - Sample containers - Onsite testing devices	-	-	-	
1.3 NRW	To be reduced to 30% or less	1.4.1 replace the old pipes 1.4.2 update all consumers' connections in GIS 1.4.3 prepare a list of fittings required and try to get some donation from JICA	MD/AM/Department of Tech. Services BestonJuma CiangganMadin	20 Staff	- Digging tools - JCB backhoe - GIS Equipnts	- -	- -	- -	
2) <u>Commercial & Revenue</u> **2.1 Increase number of customers**	(2500 connections)	2.1.1 use the available pipes and fittings to reconnect some of the customers 2.1.2 Reactivate old PTS from (4 PTS) in Kator 2.1.3 Increase the operation hrs to produce more water 2.1.4 Reactivate Tanker Fillings Stations From (1 TFS) to (6 TFS)	AM/ Department of Commercial and Revenue Kenneth Gideon	15 Staff	- Digging tools - Pipes & fittings - Backhoe	-	-	-	

Performance Indicators	Target Value Dec-19	Activities	Responsible Person/ Dept.	Input/ Resources Required					Expected Outcome
				Staff	Goods	Funds			
						Unit Price SSP	Qty.	Budget SSP	
2.2 Convert 40% of flat rate customers to metered customers.	(670 connections)	2.2.1 Use the meters that donated by our development partners (JICA & ICRC) To metered some of the customers 2.2.2 Make installation plan per month 2.2.3 Inform the customers about important and benefit of the meters	AM/Dept. of Commercial & Revenue Kenneth Gideon	20 Staff	- Meters & Fittings - Digging Tools - Awareness	-	-	-	
2.3 Reduce Arrears	(60% = 986,150 SSP)	2.3.1Set the signboard in the office and Public places. 2.3.2Prepare the notice and send to Customers to remind them about the payment and inform them about disconnection 2.3.3 Give notification letters for payment deadline. 2.3.4 Make announcement over social medias. 2.3.5 Discuss and set up the task force committee to follow up the arrears of Governmental sector and other difficult Customers. 2.3.6 Report the situation to the ministry by HQs for further actions. 2.3.7 Start the activities of collecting the arrears.	AM/Dept of Commercial & Revenue Kenneth Gideon	15 Staff	- Repair the Vehicles - Repair the Motorcycles - Repair PCs & Printers - Stationeries	-	-	-	

3. Performance Measurement (Sales)

Progress measurement of PI (2017-2018)

Category	Performance indicator	Present value Ave(2018/19)							Evolution Dec.2018	Target value	
			Oct 2018	Nov 2018	Dec 2018	**Jan** 2019	**Feb** 2019	**March** 2019		May 2019	Nov 2019
Bills Delivered	Number of bills delivered					334					
	Amount of billed delivered Monthly (SSP)					713,335					
	Amount of billed delivered -Arrears (SSP)					**251,555**					
Bills Paid	Number of billed paid					195					
	Amount of billed paid (SSP)					461,985					
						July	**August**	**September**			
	Number of bills delivered										
	Amount of billed delivered Monthly (SSP)										
	Amount of billed paid (SSP)										

59

3) Administration, Human Resources and Finance

Goal 1: (Update of Structure Plan)

Objective	Current situation	Cause of problem	Activities
1- To acquire broader knowledge and skills of human resources management.	• No training and capacity building for Admin & HR staff	• There was no plan and budget for training of Admin and HR staff	• Prepare a clear plan for the training needs assessment • Estimate budget for the training of the staff
2- Under staffing in Admin ,HR& Finance Dept.	• Inadequate Staff	• Many vacant positions due to death, turnover, transfer and leave without pay	• To clean up the nominal roll to fill the vacant positions • Recruitment of new staff

Resources and Schedule (Update of Structure Plan)

Objective	Activities	Means of Verification	Resp. Person/Dept.	Resource Required	Approx. Implementation Period					
					Jan-19	Mar-19	Jun-19	Sep-19	Nov-19	Dec-19
1-To acquire broader knowledge and skills of human resources management.	• Prepare a clear plan for the training needs assessment • Estimate budget for the training of the staff	• Training Needs Assessment • Reporting • Evaluation	MD, AM and D/ Admin, HRM & Finance William Lokuji Morris Ladu	• 4 Staffs • Stationeries • Motivation	4 Staff Achieved 50% 2 trained and 2 not					
2- Under staffing in Admin ,HR& Finance Dept.	• To clean up the nominal roll to fill the vacant positions • Recruitment of new staff	• Assessment • Reporting • Evaluation	AM and D/ Admin, HRM & Finance William Lokuji Morris Ladu	• 6 Staffs • Stationeries • Motivation	Not Achieved					

60

Goal 2: (Communication and coordination)

Objective	Current situation	Cause of problem	Activities
1-Develop and improve departmental data base.	• There was no proper documentation and database system	• The staff capacity on computer ware not enhanced	• To improve the staff capacity on computer use and documentation system • To develop central and departmental archive

Resources and Schedule (Communication and coordination)

Objective	Activities	Means of Verification	Resp. Person/Dept.	Resource Required	Approx. Implementation Period					
					Jan-19	Mar-19	Jun-19	Sep-19	Nov-19	Dec-19
1-Develop and improve departmental data base.	• To improve the staff capacity on computer use and documentation system • To develop central and departmental archive	• Reporting • Assessment • Evaluation	MD, AM, D/ Admin, HRM & Finance dept. William Lokuji Morris Ladu	• Stationeries • Motivation • Training • Budget • 5 Staff	Achieved 50% SMEC developed the data base but not yet in use					

Goal 3: (Update Nominal Roll)

Objective	Current situation	Cause of problem	Activities
1- To Control Human Resources Management	• The nominal roll is combining all stations of SSUWC • Difficult to filter the nominal roll for specific station	• The labour law combined the nominal roll for all SSUWC stations	• Request annual update of the nominal roll from the public service through SSUWC HQs
2- To avoid Over & Under Staffing	• Some departments are over staffing and some are under staffing	• We cannot replace or fill the vacant position that created by death or leave without pay or pension	• Prepare and submit annual report of the HR to AM and the area manager to report to HQs to update the nominal roll • Get the permission from HQs to recruit and employ new staff to fill the vacant positions

Resources and Schedule (Update Nominal Roll)

Objective	Activities	Means of Verification	Resp. Person/Dept.	Resource Required	Approx. Implementation Period					
					Jan-19	Mar-19	Jun-19	Sep-19	Nov-19	Dec-19
1- To Control Human Resources Management	• Request annual update of the nominal roll from the public service through SSUWC HQs	• Reporting • Evaluation • Follow up	MD, AM, D/ Admin, HRM & Finance Dept. William Lokuji Morris Ladu	• Stationeries • Motivation • Training • 2 Staff						
2- To avoid Over & Under Staffing	• Prepare and submit annual report of the HR to AM and the area manager to report to HQs to update the nominal roll • Get the permission from HQs to recruit and employ new staff to fill the vacant positions	• Reporting • Requesting • Follow up	AM, D/ Admin, HRM & Finance Dept. William Lokuji Morris Ladu	• Stationeries • Motivation • Training • 2 Staff						

Goal 4: (Promotion)

Objective	Current situation	Cause of problem	Activities
1- To motivate the staff & raise their moral	• Staff stayed longtime in the same grade • Frustrated staff and low moral to carry out their daily duty	• Lack of clear system for evaluation and promotion of the staff	• Developed a staff evaluation and promotion system • Prepare a confidential performance report for promotion
2- To fill vacant position and the gap	• Vacant positions and gaps	• Lack of performance records and monitoring system • Lack of annual update of the nominal roll and filtering process	• Identification of vacant position in the nominal roll • Form a committee for promotion

Resources and Schedule (Promotion)

Objective	Activities	Means of Verification	Resp. Person/Dept.	Resource Required	Approx. Implementation Period					
					Jan-19	Mar-19	Jun-19	Sep-19	Nov-19	Dec-19
1- To motivate the staff & raise their moral	• Developed a staff evaluation and promotion system • Prepare a confidential performance report for promotion	• Reporting • Evaluation • Monitoring	MD, AM, D/ Admin, HRM & Finance Dept. William Lokuji Morris Ladu	• Stationeries • Motivation • Training • 3 Staff						
2- To fill vacant position and the gap	• Identification of vacant position in the nominal roll • Form a committee for promotion	• Reporting • Evaluation • Monitoring	AM, D/ Admin, HRM & Finance Dept. William Lokuji Morris Ladu	• Stationeries • Motivation • Training • 5 Staff						

Goal 5: (Maintenance of Office Building & Installation of Fire Extinguisher)

Objective	Current situation	Cause of problem	Activities
1- To create conducive working environment	• Most of the building needs rehabilitation works: - Plastering - Cracks repairing - Ground works - Roofing & ceiling works - Painting works	• There is no existing rehabilitation or renovation plan • No budget for renovation works	• Make a proper plan for rehabilitation works • Make budget for rehabilitation works • Form a monitoring team to report on any required renovation or maintenance works
2- To maintain safety in the station	• No fire extinguisher installed in the station • The electro-mechanical equipment's are not protected against fire	• Lack of firefighting training or manuals	• Develop firefighting instruction manuals to be print and fix on the walls • Install the fire cylinders that brought by ICRC at the right locations

Resources and Schedule(Maintenance of Office Building & Installation of Fire Extinguisher)

Objective	Activities	Means of Verification	Resp. Person/Dept.	Resource Required	Approx. Implementation Period					
					Jan-19	Mar-19	Jun-19	Sep-19	Nov-19	Dec-19
1- To create conducive working environment	• Make a proper plan for rehabilitation works • Make budget for rehabilitation works • Form a monitoring team to report on any required renovation or maintenance works	• Planning • Monitoring	AM, D/ Admin, HRM & Finance Dept. William Lokuji Morris Ladu	• Budgeting • Motivation • Stationaries						
2- To maintain safety in the station	• Develop firefighting instruction manuals to be print and fix on the walls • Install the fire cylinders that brought by ICRC at the right locations	• Reporting • Monitoring	AM, D/ Admin, HRM & Finance Dept. William Lokuji Morris Ladu	• Budgeting • Motivation • Stationaries						

資料-9.5：パフォーマンス・コントラクト（SSUWC 本部支所間）

100-DAY PERFORMANCE IMPROVEMENT PROGRAM

Between

THE MANAGING DIRECTOR

And

AREA MANAGER

JUBA WATER STATION

MARCH 2019

Background

The South Sudan Urban Water Corporation is a public utility fully owned by the Government of the Republic of South Sudan, and responsible for provision of water supply in urban areas of the Country. South Sudan Urban Water Corporation is comprised of the Head Quarter headed by over-all Managing Director and six other stations namely; Juba, Wau, Malakal, Renk, Maridi and Bor Water Stations with varying populations. Juba has an estimated urban population of 2.6million people, of which only an estimated 30% have coverage to water supply.

South Sudan Urban Water Corporation (SSUWC) is implementing reforms aimed at transforming the company into an autonomous self-financing water utility through a combination of various thrusts including:

a) *Rehabilitation and extension of water supply systems.*
b) *Institutional reforms for capacity building for improved sector, Improved Utility Management including Commercialization and increased private sector participation.*

The SSUWC PIP focusses on addressing the critical challenges currently faced by the Stations and on addressing the need to create a corporate culture of excellence. It consolidates and delivers a strategic package of results-oriented activities that incorporate organizational change management, promote efficiency in operations and provide a framework through which remedial measures for performance gaps may be addressed.

The twelve (12) month PIP starts with an initial 100 days' pilot program that is to be implemented from March to May 2019 that is to be followed by a 180-day Successor Program. The 100 days' pilot Program, code named Service Reliability Improvement Program (SERIP) is designed to incorporate the lessons learnt during the review of 2015 – 2018 Corporate Plan and the implementation of the strategic reform plan by SSUWC management. This Memorandum of Understanding covers the 100 days' pilot (initial) Program.

Objectives of the PIP

The objective of the PIP is to support the transformation of SSUWC into an autonomous and commercially viable water utility. Specifically, the PIP aims to:

a) Institutionalize a commercial attitude in the Station and focus on providing the improved service delivery to its customers at affordable cost without government subsidies
b) Improve the operational and financial performance of the Station and expand the revenue base by establishing effective technical, billing, accounting and revenue collection systems
c) Secure staff commitment and motivation and hence increased staff productivity
d) Provide transferable skills related to water utility management especially in financial and commercial management and tariff setting.

This Memorandum of Understanding covers 100 days of implementation of the initial PIP. The MoU prescribes the roles and obligations of the parties (the Managing Director and the Area Manager) and attests to the commitment and dedication by both to implement the initial PIP. This MOU is construed to be part of the main **Strategic Reform Plan** and the **SSUWC Corporate Plan (2018 – 2021)** documents.

MEMORANDUM OF UNDERSTANDING BETWEEN SSUWC MANAGING DIRECTOR AND SSUWC AREA MANAGERS

This Memorandum of Understanding is made this ----- day of _____2019

BETWEEN

The Managing Director of SSUWC (herein referred to as MD)

AND

The Area Manager of Juba Water Station (herein referred to as AM)

Recitals:

WHEREAS

1. SSUWC Juba Station is a statutory corporation established pursuant to Water Corporation by SSUWC Act 2011. The mandate of SSUWC is to provide potable water to the citizens of the Country in Urban Areas at reasonable charges and in adequate quantities.
2. SSUWC is committed to meet its mandate and intend to implement this 100-day initial Performance Improvement Plan to improve its operational and financial performance.
3. The MD is desirous that the 100-day initial Performance Improvement Plan is developed and duly implemented as a tool to meet the Corporate strategic objectives and targets.
4. The SSUWC Act 2011 allows for the MD to enter into MoUs with Management and Staff of SSUWC for purposes of ensuring that the objectives and mandate of the Corporation are realized.
5. The MD and Top Management of SSUWC have committed to give to the Area Manager of Juba Station sufficient autonomy to manage the operations of their respective Strategic Business Units (SBUs) in a rigorous and enterprising manner, and to exercise and balance this autonomy within the agreed mandate and framework of effective accountability.
6. SSUWC HQs has formulated the 100-day PIP which incorporates an enhanced internal delegation framework with Area Manager, Directors and Units Heads with the main aim of reducing bureaucracy through effective decentralization of functions and improving service delivery.
7. Management of SSUWC has worked with the Departments, States and Water Schemes to come up with this 100-day initial PIP as a means of improving performance with emphasis on 7 core drivers of; Water Production & Quality, Active Accounts, Revenue Generation, Customer Care, Cost Optimization, Technology & Innovation and Monitoring and Evaluation during this 100 days of initial PIP.
8. The management and staff have embraced the principles and objectives of the 100-day initial PIP, and have formulated strategies & activities aimed at achieving SMART & STRETCH Targets for Corporate SSUWC, and for Juba Water Station.
9. The management and staff have also embraced the adoption of a Performance Management system that monitors Key Performance Indicators and applies incentives as tools to performance improvement.

NOW THEREFORE, the two parties agree to enter into this Memorandum of Understanding to fulfill their obligations towards achievement of agreed goals and objectives and towards boosting SSUWC's performance on the terms agreed hereto as follows.

This MOU shall in no way amend, supersede or modify the provisions of the Juba Water Station policies and all water policies relating to other Companies (providers), and any other regulations in terms thereof;

Article 1: MANAGING DIRECTOR'S (MD) COMMITMENTS

The MD hereby undertakes the assignments falling into different areas as:

Strategic Leadership

- To develop and oversee implementation of the other strategic programs to ensure the maximization of stakeholders' value and the long-term success of the Corporation;
- To provide strategic leadership and guidance to the Top Management Team, the Station Area Manager on a regular basis and achieving all the targets that have been agreed upon and laid down in this 100-day of Initial PIP;
- To expeditiously implement Management decisions aimed at the realization of the targets and strategies laid down in the 100-day Initial PIP;
- To review and report regularly to the Board of Directors on matters concerning the Corporation's progress towards achievement of 100-day Initial PIP goals, focus areas and all material deviations from the said goals;
- To develop and implement a capital investment program and other operational plans that support the Corporation's long-term strategic objectives;
- To coordinate the implementation and evaluation of policies, activities and practices, considered necessary to promote efficiency in the delivery of potable water by Juba Station;
- To identify, develop and direct the implementation of business strategies, to ensure that the Corporation is run on a sound commercial and professional principles and that defined corporate objectives are pursued;
- To provide financial and technical support as agreed in the details set out in this 100-day Initial PIP especially with respect to giving more autonomy to the Station.

Financial Leadership

- To develop and implement capital commitment and expenditure budgets for the Corporation;
- To prepare and submit for approval the annual budget of the Corporation;
- To coordinate the Corporation's strategy for resource mobilization, investment and planning with clear focus on achieving the Corporation's long-term objectives;
- To promote strong fiscal accountability and responsibility in all areas of the Corporation's operations and develop a culture of efficiency, productivity, flexibility and accountability to customers and stakeholders;
- To take reasonable steps to ensure that the Corporation's assets are adequately safeguarded and optimized in the best interest of all stakeholders;
- To pay incentives to Station Departments staff based on the incentive framework in a timely manner and avoid unnecessary demotivation and backsliding of staff morale in pursuit of the objectives of the 100-day Initial PIP;

- To facilitate the provision of supplementary budget allocations to the Station; to facilitate implementation of the developed strategies/undertakings and ensure that the Station provide the necessary and justifiable cause for budget supplementation.

Administrative Leadership

- To exercise oversight responsibility for the efficient and effective management of SSUWC's human capital and the financial resources of the Corporation;
- To develop and maintain an effective organization structure and ensure that appropriate personnel and systems are in place to maximize productivity and achieve the Corporation's goals;
- To discipline without fear or favor any errant staff that contravene the Corporation regulations and terms and conditions of service;
- To maintain a positive work environment that is conducive to attracting, retaining and motivating a diverse group of top quality employees at all levels;
- To ensure that an effective forward and feedback communication system between management and staff is established and promulgated to all staff of the Corporation, to inculcate team spirit, improve staff motivation and loyalty and cultivate a culture of excellence;
- To ensure that the Corporation has an effective management team and an established plan for senior management development and succession;
- To operate in a bureaucracy-free environment and enable Directorates, Departmental Heads and Area Stations to acquire the required resources and facilitation in the stipulated time;
- To provide overall leadership of the implementation of the 100-day Initial PIP and carry out the supervision and monitoring of all activities as specified in the Monitoring and Evaluation (M&E) framework;
- To ensure that all the issues raised and documented in the 100-day Initial PIP document are addressed and that software issues which might hinder performance that arise in the duration of this Memorandum of Understanding will be addressed as soon as they are brought to the attention of Top Management;
- To ensure that there is industrial harmony between the Station, staff and customers and with the view of achieving all the targets that have been agreed upon within the 100-day Initial PIP and beyond.

Public Leadership

- To formulate and oversee the implementation of policies and ensure that there is an effective communication policy for the Corporation;
- To ensure that effective communication and appropriate relationships are maintained between the Corporation and its stakeholders;
- To manage and oversee the required interaction between the Corporation and the public;
- To maintain liaison with other Government bodies, agencies and foreign development partners.

Compliance Leadership

- To ensure that appropriate personnel and systems are in place for the integrity and adequacy of the Corporation's internal controls and management information systems;
- To ensure compliance with the Corporation's environmental, health and safety policies, procedures and practices;

- To ensure that all operations and activities of the Corporation are conducted in accordance with the applicable laws, regulations, and any other relevant policies and practices;
- To foster a culture of excellence that promotes high performance, fulfills social responsibility, endorses ethical practices and encourages individual integrity and accountability;
- To promote sound corporate governance and high ethical standards to enhance the Corporation's image;
- To ensure that the objectives of the MOUs with Top Managers and other key individual staff are fulfilled,

Article 2: AREA MANAGER'S COMMITMENTS

The Area Managers hereby undertake:

- To cooperate support and with the MD to achieve the formulated objectives, strategies and targets of the 100-day Initial PIP;
- To actively facilitate and supervise the implementation of Station-specific activities in line with the 100-day Initial PIP;
- To monitor and supervise the activities of Station staff to achieve conformity to the set targets;
- To mobilize all Area staff in the implementation of the 100-day Initial PIP;
- To take collective responsibility with individual accountability in the implementation of the 100-day Initial PIP and in the achievement of the set performance standards;
- To do everything necessary to improve performance of the Station taking care of its jurisdictional activities and targets stipulated in the 100-day Initial PIP document;
- To streamline Station operational activities in line with the 7 PIP focus areas of Water Production & Quality, Active Accounts, Revenue Generation, Customer Care, Cost Optimization, Technology & Innovation and Monitoring and Evaluation;
- To take continuous pro-active steps and to liaise with SSUWC Headquarters and Directorates with respect to the required operational inputs, including timely submission of operational reports as per the formats set by SSUWC Headquarters;
- To take continuous pro-active steps and to liaise and support departments and units in leakage management including joint planning of pumping regimes, human resource sharing for network monitoring activities among others.
- To optimize costs in all activities carried out, taking into account the approved budget;
- To proactively execute all activities spelt out as strategies or, activities and achieve all the milestones as stated in the Station Business Plan;
- To monitor and supervise the implementation of the activities laid down in the 100-day Initial PIP in the Station as specified in the Corporate Plan;
- To promptly engage the MD on matters that may hinder the successful implementation of the 100-day Initial PIP.

Article 3: GAIN AND LOSS OF BONUS TO AREA MANAGERS

The **Area Manager** shall be entitled up to **10% performance bonus** of their monthly basic salary if the **SMART targets** of the **100-day Initial PIP** are achieved and up to **15% of their monthly basic salary** as a performance bonus if the **STRETCH targets are achieved**.

On the other hand, the **Area Manager** shall forfeit any performance bonus charged on future incentives (equivalent to up to 10% of their monthly basic salary) if the Station's Revenue

Collection Performance falls below the **Baseline Standards** set out in this **Memorandum of Understanding**.

Article 4: MoU Duration
The duration of this MoU is the three calendar months from 01/03/2019 to 31/05/2019.

Article 5: Dispute Settlement
Any dispute or disagreement inherent to this MoU shall, upon the request of one Party to the other, be amicably resolved between parties and if the differences persist, competent mediators and arbitrators following laws of South Sudan shall resolve the matter.

Article 6: MoU Endorsement
NOW THEREFORE the MD of SSUWC and Area Manager of Juba Water Station named hereto, sign this Memorandum of Understanding (MOU) the day and date first above mentioned. The two parties hereby commit and undertake to fulfill their roles and obligations towards achievement of the agreed goals and objectives entailed in the 100-day Initial PIP. Under this MOU, the two parties shall take responsibility for specified activities and responsibilities under their jurisdiction.

SIGNATORIES

FOR AND ON BEHALF OF **SOUTH SUDAN URBAN WATER CORPORATION**:

SIGNED BY:	SIGNED BY:
HON. YAR PAUL KUOL *MANAGING DIRECTOR*	**ENG. OSAMA MAHDI** *AREA MANAGER – JUBA WATER STATION*

FOR AND ON BEHALF OF THE **AREA MANAGER, JUBA WATER STATION**:

WITNESSED BY:	WITNESSED BY:
ENG. JOSEPH EBERE AMOSA *D/G TECHNICAL SERVICE & OPERATION*	**MR. WILLIAM LOKUJI** *DIRECTOR OF ADMINISTRATION & FINANCE – JUBA WATER STATION*

ANNEXE 1

SSUWC JUBA STATION BUSINESS PLAN (April 2019 – June 2019)

1.0 STATION OWNERSHIP AND MISSION

Juba Station is a Government Agency owned by the Government of Republic of South Sudan (GRSS) and currently operates as a Business Unit under the South Sudan Urban Water Corporation (SSUWC). The Authority's mission is: "*to provide enough, clean and safe water supply services to the Juba City Council area*".

2.0 *GUIDING POLICIES*

2.1 South Sudan National Development Strategy

This Three Year Business Plan covers the years July 2018 – June 2021. The end of the plan period coincides with the end of the plan period for the *South Sudan National Development Strategy (SSNDS*). The Business plan targets can, therefore, be used to gauge the extent to which SSUWC Juba Station has implemented the SSNDS, whose target with respect to clean and safe water is: to increase the number of urban population with access to clean and safe water from 30% in 2018 to 60% by the year 2021.

2.2 *Sustainable Development Goal No 6 and South Sudan National Development Vision 2040*

By implementing the SSNDS, SSUWC Juba Station is, simultaneously, implementing the *Sustainable Development Goal (SDG) No.6*, which advocates *to reduce the number of people without safe and clean water access by 50% by the year 2030* and the South Sudan National Development Vision 2040 (Vision 2040), which advocates the attainment of high quality livelihood for all South Sudanese by the year 2040, through formulation of strategies that include, among others, those that would make universal access to safe water possible.

2.3 Water Sector Policies

The goals set by the SSNDS are, further, captured and enhanced by the Urban Water and Sanitation Action and Investment Plans (*UWSSAIP2015 – 2020*) and the **South Sudan Urban Water Corporation Strategic Business Plan (2018-2021)**. The Urban WASH Plans targets include provision of clean and safe water to 60% of urban dwellers by the year 2021. One of the major underlying assumption in this Plan is the requirement for Water and Services beneficiaries to pay for the services they receive in compliance with the National Water Policy (2007) which advocates100% payment by urban water beneficiaries so that the provision of such services may be sustainable.

3.0 CURRENT STATUS

3.1 Water Production

Currently, SSUWC Juba Station has a Design Production Capacity of **7,200 m³** of water daily. The immovable assets that SSUWC Juba Station uses to achieve this production level include: Bahr el Gebel River which has a water intake. Due to power supply problems, the plant currently has daily Production operations between **10 – 15 Hours** with daily production volume of between **3,000 – 4,000 m³/day**. As the pumps are quite old, the WTP has an operating Efficiency of roughly **83%** indicating **Systems losses of 17%.**

3.2 Water Distribution

The water that is produced is treated in one Water Treatment Plant, located at Hai Jalaba Area (*Old Juba town centre near the river bank*) and then sent to 2No. storage tanks for distribution to customers over a 71kms water distribution network. This network serves **30%** of the City population which, currently, stands at over 1million people. SSUWC Juba Station has only **2,218 customers**. There is, hence, a significant part of the population that does not have access to clean and safe water.

It is estimated that **50%** of the water that is produced is unaccounted for (**Non-Revenue Water**). Although, it is not possible to have a system that would have a nil water loss capability, the 50% water loss is rather on the higher side. Some intervention is, therefore, required to reduce this loss of water. Even with the current level of production, if this loss could be **reduced to, say 30%**, an extra **1,080m³** would be available daily for the municipal dwellers, thus, giving **900** more customers access to clean and safe water.

3.3 Personnel

To achieve the gigantic task of supplying Juba City Municipality with water services, SSUWC Juba Station Agency has **156 employees** under a representative parent Executive Board (SSUWC Board), giving it a manning level of **88 / 1,000** connections which, is very high as the optimal manning level is **10 / 1,000 connections**. Only 33 of the employees are female, giving a 21% female male ratio.

3.4 SALES TREND

Since its **major upgrading and refurbishment in the year 2010, SSUWC Juba Station** has more than doubled its **Annual Revenue from SSP11million to SSP37million** by the **year 2018** in response to the Government User Pay Policy as stipulated in the National Water Policy (NWP 2007).

4.0 THE PROPOSED BUSINESS PLAN, PERFORMANCE CONTRACT &

INITIAL 100 DAYS PERFORMANCE CONTRACT

4.1 Water Production

SSUWC Juba Station Agency plans to increase the percentage of the City Population with access to clean and safe water to 60% by the end of the year 2021 to implement the SSNDS and SSUWC Corporate Plan 2018-21. The production is expected to increase to **6,500m³/day** from the current **3,000 – 3,500m³/day**. This Target Production Volume can be achieved by implementing the following projects:

- The rehabilitation of the Juba Station Water Intake facility (*Funds to be sought approximately **USD 2million***)
- On-going Rehabilitation and minor Expansion of Water Storage (**ICRC USD1.7million**)
- On-going Rehabilitation and minor Extensions of approximately 70Km Distribution Network (**AfDB RWPILJ USD10million + SWSIP USD17million)**
- Construction of new Water Treatment Plant and related works, which is expected to supply an additional **10,800 m³/day** (**JICA USD50million**)

The cost of the three projects is expected to be approximately ***USD 87.5million*** over 3 Years period (2018-2021).

4.2 Distribution Zoning

SSUWC Juba Station Agency plans to increase the Water Distribution Network by undertaking the JICA Grant Aid Project which is expected to be completed during the plan period. This will tap water from the additional production at Hai Jalaba Water Treatment Plant. It is expected that **600,000 additional people** can get access to clean and safe water after the **Rehabilitation of the Old Treatment Plant** and **Construction of New Water Treatment Plant** and related works and **Non-Revenue Water (NRW)** is reduced to 30%.

4.3 WATER DEMAND

SSUWC Juba Station has considerable assets and management system in place. However, the Demand for water will be much higher than the SSUWC's ability to supply it. Consequently, it is a matter of urgency that funds be sought for expanding the existing Water Abstraction and Production Facilities as per the *"Juba Water Supply Master Plan (2009)"* to meet future demand.

4.4 WATER TARIFF

The water Tariff is still very low, judging from the inability of Juba Station to recover its full Operational and Maintenance (O+M) cost. The raising of Tariff is for the benefit of the beneficiaries, since it's the only way the services can be sustainable.

5.0 CONCLUSION

It is apparent that SSUWC Juba Station cannot depend on itself for undertaking the development projects, although such projects are long overdue as demand already outweighs supply, consequently, it is necessary that:

- SSUWC HQs / Government should seek Development Partners Support to expand the water Supply Infrastructure and construct new ones. Support to the tune of **USD 200million** is suggested in the next three years.
- **Tariff will be increased gradually** until SSUWC recovers most of its Operational and Maintenance (OPEX) costs. During the Plan Period, SSUWC Juba Station will increase tariff by *10%* in the year *2018/19* and by *5%* annually over the next two years.

ANNEXE 1

PERFORMANCE IMPROVEMENT PLAN TARGETS

100 DAYS PC (*April 2019 – July 2019*)

SCHEDULE 1: WATER PRODUCTION OPERATIONAL TARGETS (22-24 HRS / DAY)

Juba Station Target is to operate **24 Hours per day**. Our current operational hours are **12 Hours per day** and the Station will **progressively increase hours' of operation** to **SMART Target** of **22 Hours/Day** with **a STRETCH TARGET** of **24 Hours / day Water Production and Distribution**:

Table 1: Treatment Operational Plan & Water Distribution / Supply Zoning

TIME SCHEDULE	OPERATIONAL HOURS	SUPPLY AREA	REMARKS
06:00 – 12;00	6	Hamza Inn TFS and Hospital Booster Pump House	Pump Water at the Hospital Reservoir to Munuki Kiosks
12;00 – 14:00	2	Hospital Booster Pump Station and Munuki PSPs	To fill Hospital Ground Concrete Reservoirs and pump water to Munuki Elevated Reservoir and PSPs
14:00 – 19:00	`5	• Hamza Inn and Hospital Booster Pump House	
19:00 – 04:00	9	Zones: • **Zone (1):** Hai Jalaba, Hai Jerusalem, Police Line, Hai Cinema • **Zone (2):** Hai Amarat and Hai Thoura • **Zone (3):** Hai Kuwait, *Munuki Block A, B and C*	
04:00 – 06:00	2	WTP and Hospital Booster Pump House	To fill Clear Water Concrete Tanks at WTP and HBPH ground Reservoir

SCHEDULE 2: FUEL & CHEMICALS COSTS

Table 2 and 3 details Juba Station ***Average Operational Costs for Fuel and Water Treatment Chemicals*** per week and per month:

Table 2: Fuel Costs (Subsidised / Unsubsidised) – Juba Station

Location	HOURS OPERATION		PRODUCTION VOLUME	FUEL CONSUMPTION // Week (Ltrs)		FUEL CONSUMPTION / Month (Ltrs)		FUEL COST / Day (SSP)	
	22 Hrs	24 Hrs						Nilepet @ 22 SSP / L	Market @ 220 SSP / L
Juba WTP	550	600	22Hrs Design Volume = 6,000m³	22 Hrs	24Hrs	22Hrs	24Hrs	22Hrs	24Hrs
			Actual Volume = 4,000 – 5,000	3,850	4,200	16,500	18,500	16,500	165,000
Hospital	200	300	NA	1,400	2,100	6,000	9,000	19,800	198,000
Total	750	900	NA	5,250	6,300	22,500	27,000		

SCHEDULE 3: WATER TREATMENT CHEMICALS COSTS – JUBA STATION

Table 3: Water Treatment Chemicals Costs

LOCATION	Aluminium Sulphate Consumption/50Kg/ Day	Chlorine Consumption @ 45Kg / Day	Total Consumption / Month		Total Cost / Month (SSP)	
	22 Hrs	24Hrs	Alum Bags	Chlorine Barrels	Alum Bags @ 10,500SSP	Chlorine Barrels @ 51,300SSP
Juba WTP	9	0.5	270	15	2,835,000	769,500
Hospital	-	-	-	-	-	-
Lologo Station	1	0.25	30	7.5	315,000	384,750
Gumbo Station	1	0.25	30	7.5	315,000	384,750
TOTAL	11	1	330	30	3,465,000	1,539,000

OPEX SUMMARY

Table 4: OPEX Summary 22Hours Production

Item	OPEX Material	Unit	Qty /Day	Qty /Month	Cost/Day (SSP)		Cost/Month (SSP)	
					Nilepet @22	Market @220	Nilepet @22	Market @220
1	Fuel (Diesel)	Ltrs	750	22,500	16,500	165,000	495,000	4,950,000
2	Aluminium Sulphate	50Kg Bag	9	270	94,500		2,835,000	
3	Chlorine Gas	45Kg Barrel	0.5	15	25,650		769,500	
	TOTAL				136,650	285,150	4,099,500	8,554,500

Table 5: OPEX Summary 24Hours Production

Item	OPEX Material	Unit	Qty /Day	Qty /Month	Cost/Day (SSP)		Cost/Month (SSP)	
					Nilepet @22	Market @220	Nilepet @22	Market @220
1	Fuel (Diesel)	Ltrs	900	27,000	19,800	198,000	594,000	5,940,000
2	Aluminium Sulphate	50Kg Bag	11	330	115,500		3,465,000	
3	Chlorine Gas	45Kg Barrel	01	30	51,300		1,539,000	
	TOTAL				186,600	364,800	5,598,000	10,944,000

PROJECTED WATER SALES REVENUE / MONTH

The water supply system will be distributed to all categories according to the operation hours in table (1), and each category will have its time schedule that will be announce to all customers. Bills distribution and revenue collection will be according to the table below:

Item	Customer Category	Number of Connections		Billing & Tariff System			Revenue Projection/ Month (SSP) @ 90% Efficiency	
		Metered	Flat Rate	Metered Cost/ M^3 SSP	Ave.Consupt 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	

SCHEDULE 2: KPIs BASELINE DATA, SMART & STRETCH TARGET

(March 2019 – February 2021)

	DESCRIPTION OF KPIs	UNITS	BASELINE	SMART TARGET	STRETCH TARGET
A	WATER VOLUME DATA				
1	Plant Capacity	m^3	7,200	6,500	7,000
2	Average Daily Water Production	m^3	3,000	6,500	7,000
3	WTP Capacity Utilization	%	42%	83%	90%
4	Plant Losses	%	17%	17%	10%
5	Water Sales	m^3	713,335+ Hamza	900,000	1,200,000
B	OPERATIONAL PERFORMANCE				
1	Non-Revenue Water (NRW)	%	50%	30%	10%
2	Hours of Power Supply	Hrs	12	22	24
3	Hours of Production	Hrs	12	22	24
C	LEVEL OF SERVICE				
1	New connections	No.	22	40	60
2	Reactivated Connections	No.	40	80	120
3	Total Active Connections	No.	1,433	1,600	1600
4	Total Inactive Connections	No.	785	500	300
5	Metering Efficiency	%	14%	17%	25%
6	Customer Complaints Handling Efficiency	%	61%	70%	100%

	DESCRIPTION OF KPIs	UNITS	BASELINE	SMART TARGET	STRETCH TARGET
7	Percentage of Quality Tests Passing Bacteriological and Physical-chemical Standards	%	80%	90%	100%
D	COMMERCIAL AND FINANCIAL PERFORMANCE				
1	Billing (Water Sales/Month) - Total	SSP	3,500,000+ Hamza	3,500,000+H	4,000,000+H
2	Collection (on Water Bills)- Total	SSP	800,000 + Hamza	3,000,000+H	3,500,000+H
3	Collection Efficiency	%	65%	95%	103%
4	Operating Expenditure (OPEX)	SSP	-2,000,000	1,000,000	1,500,000
5	Cash Operating Margin (COM)-Less Subvention	SSP	-4000,000	0	100,000
6	Arrears - Total	SSP	3,000,000	1,500,000	500,000

Hon. Yar Paul Kuol AWAR
MANAGING DIRECTOR

資料-9.6：ジュバ支所年次報告書（2020/21 年度）と年次計画（2022 年）

ANNUAL REPORT

FOR July 2020 TO June 2021

AND

ANNUAL PLAN

FOR Jan 2022 TO Dec 2022

21st December 2021

SOUTH SUDAN URBAN WATER COOPERATION (SSUWC)

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

PREPARED UNDER

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

Table of Contents

1. Introduction

This report includes following contents:

- ✧ Annual Report and Performance Indictors (PI) (July 2020 to June 2021)
- ✧ Action Plan in Jan 2022 to June 2022
- ✧ Operation plan of Juba Plant and pump stations
- ✧ Monthly and Annual Budget including revenue forecast and expenditure estimation

This annual plan is used for the improvement of water supply service and for exercising to learn a project cycle (plan, do, check and act).

The main performance indicators set are below.

Performance Indicators	Present Value	Target Value
	Ave. in Oct 2021	Jun-22
1. Technical Services		
1.1 Operation Hours	14 hrs/day	18 hrs/d
1.2 Cleaning & Improving the Intake	Regular cleaning of intake	To be clean & improved
1.3 Water Quality 1.3.1 Residual Chlorine at Clear water tank 1.3.2 Heavy metal	No reagents for residual chlorine test and heavy metals	(1.5 – 2.0) PPM
1.4 Service areas	10	15
1.3 NRW	High rate NRW (physical & commercial)	To be reduced
2. Commercial & Revenue		
2.1 Increase number of active customers	614 out of 2, 292 connections	1,500 connections
2.2 Convert 70% of flat rate customers to metered customers.	1996 flat rate connections 306 meters	1,000 metered connections
2.3 Improve billing and collection system	Bill delivered-386 Bills collected-102	1,500 bills to be delivered 1,000 bills to be collected
- Improve revenue collection	1,244,460SSP	10,000,000 SSP
2.4 Reduce Arrears	22, 805,914 SSP	Collect 95% of the arrears if water is available.

Target cost and revenue balance (SSP/month) is as below. Estimated target revenue will cover all expenses of Juba Station including salary. The saved amount will be utilized for purchase of spares and fuel and chemicals, and major breakdown of facilities and extension facilities/pipelines in future.

Office	Monthly cost	Monthly Revenue target (500 bills)	Monthly Balance
Ministry of Finance	1,127,300	0	-1,127,300
Headquarters	8,889,075	12,600,000	3,710,925
Juba Station	3,271,214	6,994,744	3,723,529
Total	13,287,589	19,594,744	6,307,154

Eng. Joseph Ebere

Area Manager, Juba Station

December 2021

2. Annual Report and Performance Indictors (PI) (July 2020 to June 2021)

Monthly performance measurement for July 2020 to June in 2021 and have been prepared.

- ✧ Purification Department
- ✧ Laboratory Section
- ✧ Distribution Department
- ✧ Sales and Accounting Section
- ✧ Finance Section

2.1. Purification Department

2.1.1. Performance Indicators in FY2020/2021 (Purification Plant)

Category	Performance Indicators	Progress Measurement of PI												Present Value	Target Value
		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	(Ave. in 2020-21)	(Jul 2021) (Jun 2022)
Water Production	Average daily production volume at WTP (m3/day)	130,433	140,313	105,166	141,825	137,301	41,850	61,380	97,400	110,640	127,350	110,670	113,500	90,315 m3 /216,000 m3	162,000 m3/ month at 18 hrs
	Operation ratio (%)	60.3 %	64.9 %	48.6 %	65.6 %	63.5%	19.37%	28.4%	45%	51.2%	58.9%	51.23%	51.54	41.8 %	75 %
	Operation hours (hrs.)	12	16.3	14.9	15.2	16.8	7.4	5.7	14	14	13.6	12	12	12.5	18-20 hours
Hospital PS	Average pump operation hours (hrs/day)	2.2	4.5	3	3.2	5	4.5	0	2.2	12.6	0	0	0	3.1	5 hours
Konyokonyo PS	Average pump operation hours (hrs/day)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	

2.1.2. Current Water Treatment lant Operation Hours: 6 am to 8 pm

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					4,424	14	137,144	434
Juba Treatment Plant (Output)																												
1. Juba station Old Pump (Spanicon)							1	1	1	1	1	1	1	1	1	1	1	1	1	1					2,100	14	65,100	434
2. Juba station New Pump (ICRC)							1	1	1	1	1	1	1	1	1	1	1	1							1,800	12	55,800	372
3. Hospital Old Pump																		1	1	1					450	3	13,950	93
4. Hospital New Pump																		1	1	1					450	3	13,950	93
5. Konyokonyo Pump							ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND					0	0	0	0

2.1.3. Description of PIs and achievement

- From the performance measurement table above the highest month water produced volumes were October & November, 2020 and the lowest months were December & January, 2020, when subsidized fuel was not available.
- The average operation ratio was 41.8 % and the average operation hours are 12.5 hours which shows the shortage of fuel in 2020.
- Though there was shortage in fuel, the station could be able to pump water the zone with except of months, January, April, May & June, 2021.
- The average operation hours of Hospital PS were 3.1 hours in a day.
- Currently Konyokonyo PS was not operated due to pipe damage.

2.1.4. Challenges /Problems to be tackled for Achieving Performance Targets with Priority

1) Breakdown of some key facilities in WTP may interrupt the normal operations (SOPs) such as
    - Current breakdown of blowers (2 of them are working).
    - One (1) pump low –lift (Not working).
    - Eight (8) gate valves for filters –outlet are defunct.
    - Raw water meter (300 mm) & Transmission line flow –meters (300 mm) from WTP to HBS are not working, which all these equipment are essential in Operation.
2) Lack of spare parts for electro-mechanical equipment in order to carry the work and apply the knowledge acquired from UGANDA.
3) Lack of PPE (personal protective equipment) and transportation for staff.
4) Currently we CAN'T Operate Night shift though we have enough fuel & chemicals due to the staff are NOT reporting for night shift (reason lack of Motivation) which affects water Zoning.
5) Lack of motivation & delay of salaries make the staff to quit the work, therefore, the department is under staffing which affects work activities in WTP.

2.1.5. Target & way forward

1) THE STATION SHOULD OPERATE 24 Hours/day and we hope soon to combine the old & new facilities of WTP to produce around 17,000 m3 /day to meet highly water demand in the town.
2) Sustainability of Power supply (when the station connected to city power) and use generators for stand –by purpose.

3) We appeal to HQ/SSUWC to procure enough chemicals (alum & chlorine) & fuel and necessities for one (1) year for sustainability of the station.
4) Recruitment and fill-up the vacancies with qualified staffs in various sections.
5) Improve working environment and transportation of staffs, to allow them work with high morals and better performance in the work.

2.2. Laboratory Section

2.2.1. Performance Indicators in FY2020/2021 (Laboratory Section)

N	S	Indicators	Unit	2020						2021						Average		
				Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	First half year	Last half year	Annual average
Production																		
8	P7	Alum consumption	bags	186	186	180	186	180	186	186	174	186	180	186	180	184	182	183
9	P8	Chlorine consumption	tanks	16.5	16.5	15.5	16.5	15.5	16.5	16.5	14.5	16.5	15.5	16.5	15.5	16.2	15.8	16
Water Quality																		
16	Daily Sampling (purification plant)		Days	31	31	30	31	30	31	31	29	31	30	31	30	30.7	30.3	30.5
17	W1	Compliance ratio of turbidity	%	100	100	100	100	100	100	100	100	100	97	100	100	100	99.5	99.8
18	W2	Compliance ratio of residual chlorine	%	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
19	W3	Average turbidity in clear water tank	NTU	4.5	4.3	2.5	3.5	4.2	4.2	1.5	2.4	1.7	4.3	2.6	2.5	3.9	2.5	3.2
20	W4	Average residual chlorine in clear water tank	mg/l	1.7	1.8	1.6	1.9	1.8	1.8	1.7	1.8	1.7	1.8	1.8	1.9	1.8	1.8	1.8
	Weekly sampling (tank in the city)		No sampling	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
	Monthly sampling (tap in the city)		No sampling	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			

2.2.2. Description of PIs and achievement

- The PIs in regards to turbidity is improving comparing to the previous years.
- The average turbidity in April 2021 exceed the guideline value (5 NTU). This is caused by operators who forget to open and close of chemical injection when generator stop and start again.
- The PIs in regards to residual Chlorine is within the guideline.

- There are no data of weekly and monthly data since they are not monitored due to lack of transportation means and no water in daytime in many areas.

2.2.3. Issues and challenges

- Lack of reagents and devices for testing heavy metals, Hardness, Copper, Nitrate, etc.
- Stationeries are lacking.
- There is no means of mobility for collecting samples in various locations outside the station.

2.2.4. Actions to be taken in the next fiscal year (2021/2022) according to priority

- We are going to maintain the current limited activities.
- We are planning to add weekly and monthly test if the issues and challenges mentioned above are lessen.

2.3. Distribution Department

2.3.1. Performance Indicators in FY2020/2021 (Distribution Department)

N	S	Indicators	Unit	2020						2021						Average		
				Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	First half year	Last half year	Annual average
Distribution																		
13	D4	No. of leakage reported	num	15	15	7	9	10	1	2	8	2	6	4	3	10	4	7
14	D5	No. of leakage repaired	num	13	13	7	9	8	1	0	2	2	0	4	1	9	2	5
15	D6	Percentage of No. of leakage repaired in No. of leakage reported	%	87	87	100	100	80	100	0	25	100	0	100	33	92	43	68
		Leakage report		15	6	7	12	12	1	2	2	3	1	2	1	8.8	1.8	5.3

2.3.2. Description of PIs and achievement.

We installed one Bulk meter which is 300 mm near the head quarter.

In 2020/2021 we have repaired so far some of the leakages, and some of the pipe line were also replaced.

2.3.3. Issues and Challenges;

We have faced some numerous issues and challenges during 2020/2021 are as follows:

Issues:

- ✓ High pressure causes some leakages due to weakness of pipe.
- ✓ Road Construction Company recuts to cutting of pipeline.
- ✓ Some of the pipes are very old they need to be replaced. (AfDB project)
- ✓ Some of the areas still have AC pipe and need to be replaced. (AfDB project)

Challenges:

- ✓ Lack of some materials.
- ✓ Staff motivation.
- ✓ Delay of salary.
- ✓ Transportation from home to work place / to the areas where they are leakages sometimes is challenges.

2.3.4. Actions to be taken in the next financial year 2021/2022;

We have some steps to be taken and put it forward in the upcoming year 2022 are as follows:

- ✓ Replacement of old pipe (AC pipe) with HDPE pipe.
- ✓ Installation of Bulk water meters which are not working.
- ✓ Extending the network to some areas which are not connected for example Hai thoura, Buluk, Hai Neem and part of Munuki residential area etc.

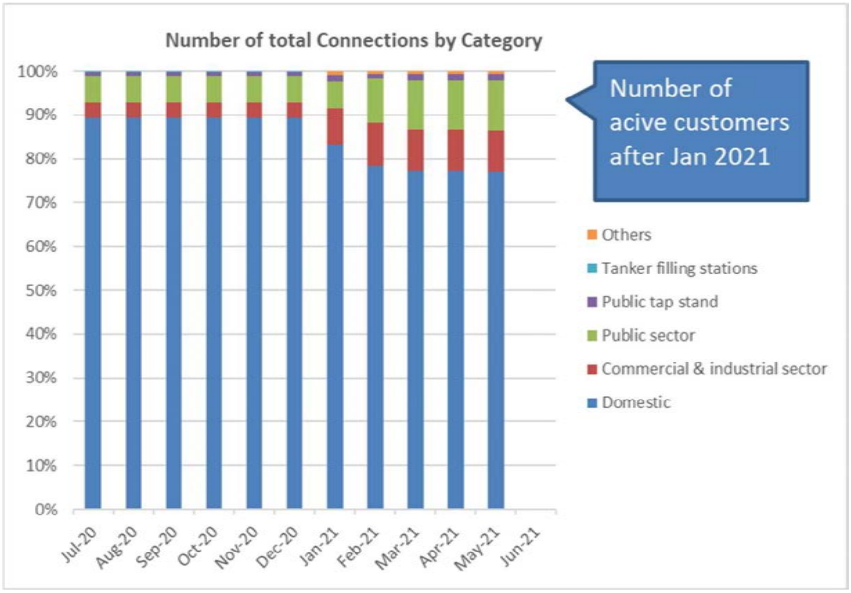
2.4. Sales Department

2.4.1. Performance Indicators in Fiscal Year 2020/2021

N	S	Indicators	Unit	2020						2021						Average		
				Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	First half year	Last half year	Annual average
Sales																		
		Number of connections (total)	num	2,036	2,040	2,046	2,049	2,057	2,058	2,924	2,375	2,341	2,341	2,328		2,048	2,462	2,236
21	S1	Number of connections (active)	num	ND	ND	ND	ND	ND	ND	252	548	548	572	580	572	#DIV/0!	512	512
22	S2	Number of metered connections	num	ND	ND	ND	ND	ND	ND	164	280	280	290	295	290	#DIV/0!	267	267
23	S3	Number of bills delivered	num	328	334	346	354	446	169	186	132	52	47	97	86	330	100	215
24	S4	Number of bills collected		208	187	168	188	122	89	38	52	50	38	52	31	160	44	102
25	S5	Amount of bills delivered	SSP/month	2,360,279	3,382,186	2,789,736	4,681,182	4,125,417	3,335,085	1,950,990	2,323,485	783,748	1,045,360	5,354,350	1,955,900	3,445,648	2,235,639	2,840,643
26	S6	Billing ratio in number	%	ND	ND	ND	ND	ND	ND	74	24	9	8	17	15	#DIV/0!	25	25
27	S7	Billing ratio in amount (SSP)	%															
28	S8	Amount of bills collected (SSP)	SSP/month	3,075,268	2,669,490	2,260,694	2,539,447	3,369,885	1,600,657	980,943	1,305,318	1,352,460	1,724,975	2,277,455	904,980	2,573,378	1,424,355	1,998,867
29	S9	Collection ratio in number	%	63.4	56.0	48.6	53.1	27.4	52.7	20.4	39.4	96.2	80.9	53.6	36.0	50	54	52
30	S10	Collection ratio in amount (SSP)	%	127	79	81	54	82	48	50	56	173	165	43	46	79	89	84

2.4.2. Description of PIs and achievement

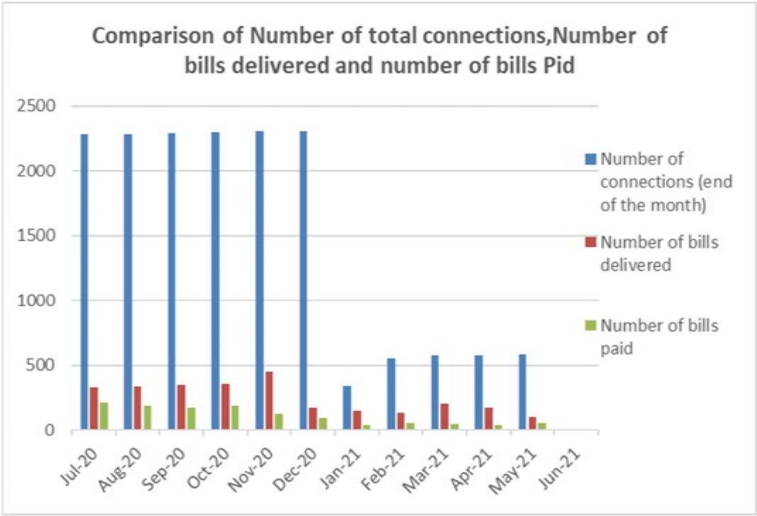
(1) Trends of connection



The data is the number of active customers after Jan 2021, before which it is the number of all customers in customer ledger.

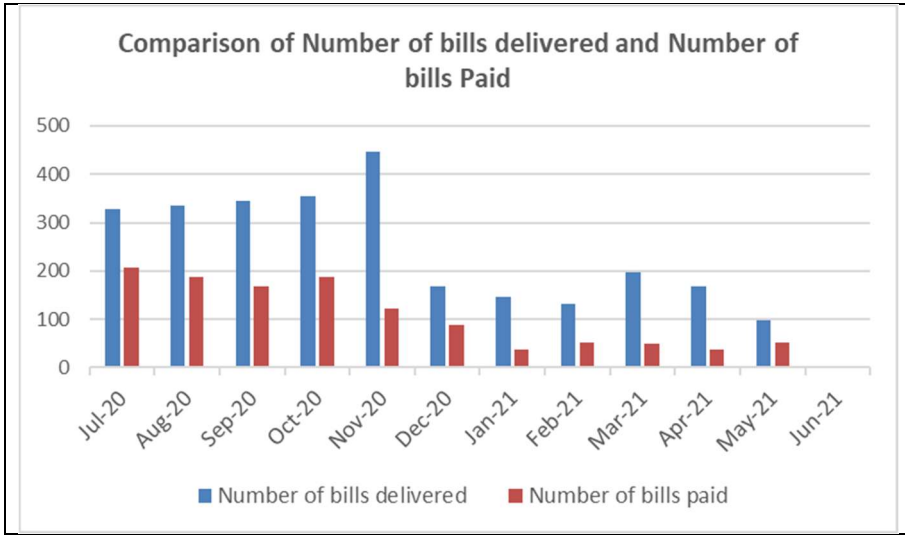
06

(2) Trends of connection, bills delivered and bills paid



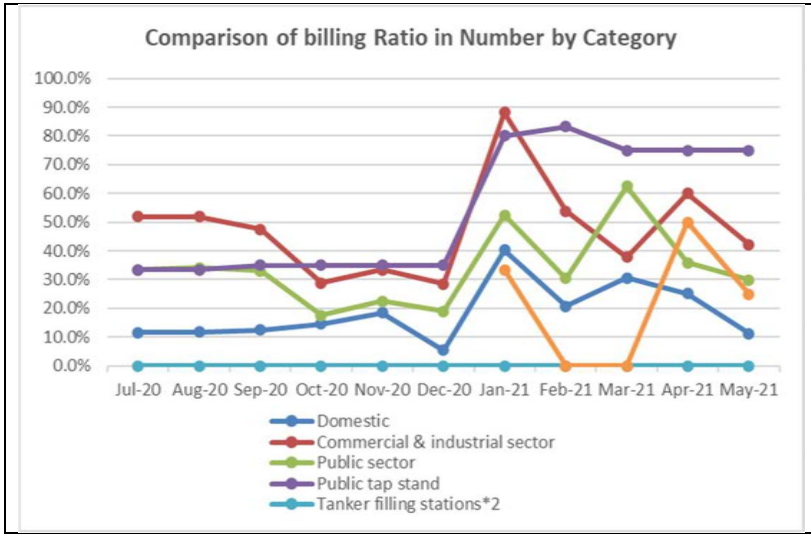
Billing ratio was very low, because many areas that were having UWC connections before are not getting water up to this moment, and this was due to the fact that most of the pipe lines were removed during road construction by the Ministry of Physical infrastructure. And these areas are, Malakal, Hai Neem, Thoura, Mayo, Buluk, Juba day, Hai Negily, line Tumaragia, Kator, Jallaba and Munuki Block A and part of Munuki Block B and Atalabara.

(3) Trends of number of bills delivered and number of bills paid



Number of bills delivered was bit high compared to the number of bills paid, and that was simply because some of the Government Institutions e.g. Juba Teaching Hospital and Prison Service etc. are not paying their bills.

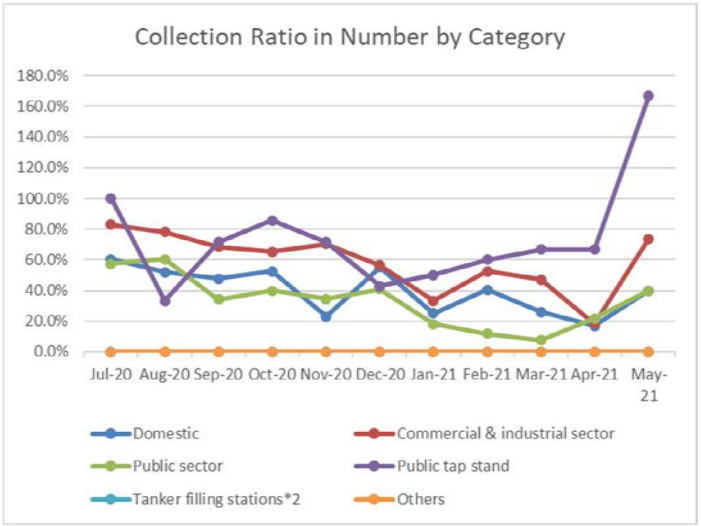
(4) Trends of billing ratio in number by category.



As from the month of July to Nov 2021 Billing ratio was very low in all the categories regarding the active connections because most of these areas that were inspected getting water connections were not getting. In December 2021 there was increment of water supply far as Hai Kuwait that was inspected and billed.

TFS is billed by HQ.

(5) Trends of collection ratio in number by category

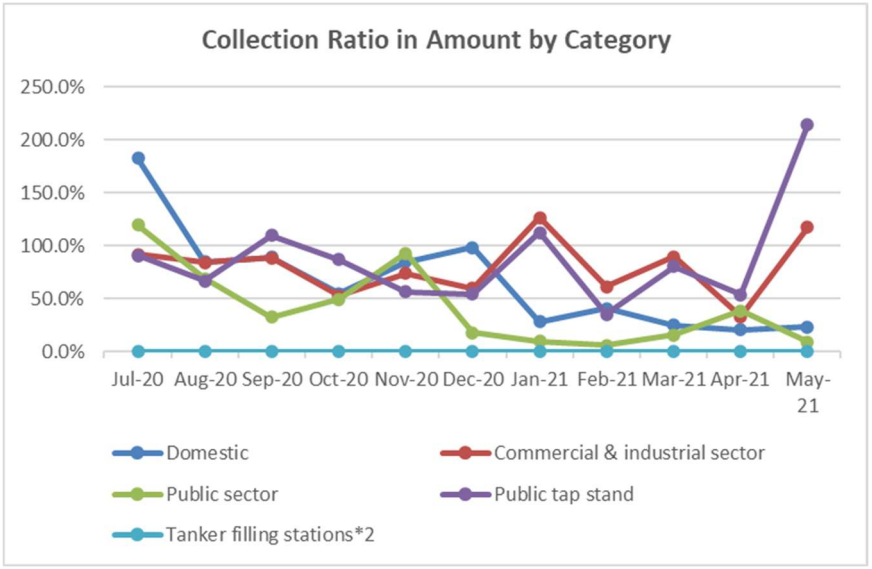


1- Collection ratio had improved as from the month of May, 2020 because of the hard work of the committee for water inspection and disconnection that used to follow up the bills and arrears of Government and commercial institutions. And also due to constant supply of fuel by the development partners (ICRC and JICA).

2- Motivation of the staffs by the current Area Manager Eng. Joseph Ebere, made the collections to improve.

92

(6) Trends of collection ratio in amount by category.



The more the public sector we billed the lowest collection amount result shown on the graph, simply of this government institution are not responding in clearing their water bills. e.g. Juba Teaching Hospital, Prison and Police services, Ministries (Telecommunication, Housing etc.)

2.4.3. Issues and challenges

- ✓ Irregular continuity and insufficient of water supply to active network.
- ✓ Very few staffs in commercial and revenue section

2.4.4. Actions to be taken in the next fiscal year (2021/2022) with priority

- ✓ To improve the billing system and revenue collection:

1. Constant water supply for at least 2 uninterrupted hours to respective zones by providing sales department with clear operation weekly work plan.
2. Increase of number active connections to 1500 metered customers by replacement of damaged water pipes.
3. The management has to recruit 10 permanent staffs as meter readers
4. Provision of motivation to the staffs concerned
5. Provide Motorbikes to the meter readers that will fasten billing cycling.

2.5. Finance Department

2.5.1. Performance Indicators in Fiscal Year 2020/2021

N	S	Indicators	Unit	2020						2021						Average		
				Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	First half year	Last half year	Annual average
Finance																		
31	F1	Monthly income	SSP/month	3,075,268	2,669,490	2,260,694	2,539,447	3,520,145	1,588,010	1,922,990	1,550,358	1,998,235	1,642,945	2,123,358	2,277,455	2,608,842	1,919,224	2,264,033
32	F2	Monthly expenditure covered by Juba Station	SSP/month	2,273,878	3,413,570	2,769,739	2,500,740	3,163,924	3,894,251	1,495,650	1,257,897	1,722,388	1,978,787	2,517,568	2,189,289	3,002,684	1,860,263	2,431,473
33	F4	Financial balance	SSP/month	801,390	-744,080	-509,045	38,707	356,221	-2,306,241	427,340	292,461	275,847	-335,842	-394,210	88,166	-393,841	58,960	-167,441
34	F3	Monthly expenditure not covered by Juba Station	SSP/month	0	0	0	0	0	1,381,360	306,212		306,212		500,400	923,982	230,227	509,202	341,817
35	F5	Unit cost of operation per m3 production	SSP/m3	17	26	26	18	23	126	29	13	18	17	31	28	39	23	31
36	F6	Average revenue per m3 production	SSP/m3	24	25	21	191	26	38	31	#DIV/0!	18	13	22	20	54	#DIV/0!	#DIV/0!

2.5.2. Description of PIs and achievement

- ✓ The indicator covers 2020-2021 beginning from July-June monthly Accounts.
- ✓ Increase in revenue income is due to team inspection and disconnection who moves from door to doors.

2.5.3. Issues and challenges

- ✓ The Expenditures is more than revenue some months.
- ✓ Thus matters of receipts/payments resulting in arithmetic errors.
- ✓ The collectors/cashier in treasury should follow routine of finance.
- ✓ Therefore, there will be no errors, thus focuses on Balances to date.
- ✓ Update books of Accounts such like treasury chest, to confirm to the requirement and certification of the accounts by Accounts Section.

2.5.4. Actions to be taken in the next fiscal year (2021/2022) with priority

- ✓ Collectors and cashiers to follow financial procedures, therefore there will be balance carried forward than deficit in the accounts.
- ✓ Training in computer and financial management is necessary.
- ✓ Ascertainments Actual Revenue/Expenditure for the months according with receipts is very important to determine appropriations.
- ✓ Anti-Virus, Virus problems affecting documents unstapled for quit duration of times.

2.6. Annual report for Administration, HRM and finance, Juba W/Station 2020/2021

(1) Human Resource:

- ✓ Since 2015/2016 the Structure of Juba Water Station has not been updated because of no any circular from the public service
- ✓ Presently Juba Water Station has 112 HR based on these departments and Units in table (1):

S/No	Human resource (HR)	Total of HR
1-	Department of Administration Classified Staff	25
2-	General Section unit under Administration unclassified staff (Drivers, Messengers and Watchmen)	11
3-	General Account unit (classified staff)	5
4-	Department of Commercial and Revenue classified staff	14

5-	Water Purification Unit unclassified staff	33
6-	Water Distribution Unit unclassified staff	24
	Total	112

- ✓ We have 6 (six) staff transferred from Juba station without replacement
- ✓ we have 2 staff died.

(2) Computers and printers table (2):

S/No	Department or Unit	Computers (desktop)	Laptop Computer	Printers	New computers	New printers	Remark
1-	Administration	4	1	3	1	1	2 Computers and 1 new Printer working
2-	Accounts	5	0	4	1	1	2 computers and 2 Printers working
3-	Commercial and Revenue	9	1	4	2	1	4 computers and 2 printers working
4-	W/Purification	3	1	2	0	1	2 computers and 1 printer
5-	W/Distribution	1	3 for GIS training	1	0	1	1 computer and 1 printer
6-	HQs		1				Hq,s
	Total	18	7	15	4	5	

(3) 3-Vehicles and Motorbikes:

- ✓ Juba W/Station was functioning with three vehicles:
  - 1- One (1) Land Cruiser which donated by JICA 2021 in a good condition.
  - 2-One Lorry in good condition used for carrying material.
  - 3-One Nissan hard body off road in the workshop
- ✓ Motorbikes:
  - 12 Motorbikes functioning in good condition, it was donated by JICA in different Years, but three (3) are off road.

(4) Challenges and achievement:

- ✓ Lack of manpower in some departments and units
- ✓ Transportation in general to the place work and departure.
- ✓ Delay of salary.

(5) Achievement:

- ✓ Implementation of new Salary Structure.
- ✓ Returned of Water Revenue Collection from NRA on the 8th Nov 2021.

3. Action Plan for 2022

3.1. Introduction

The following are outline of planning procedure. For detailed planning procedure, a Manual for Reporting and Planning System for Juba Station shall be referred.

1. Decide **performance indicators** and set target values
2. Find **causes of problems** for performance indicators
3. Work out **critical success factors** to solve the problems
4. Select **activities** for critical success factors and **responsible persons**
5. Decide term/period for achievement
6. Estimate **input / resources** required for activities

The action plan to be achieved until the end of December 2022 starting January in 2022, were formulated.

3.2. Summary of Performance Target (up to June 2022)

The performance targets for purification, laboratory, distribution and accounting are summarized in the following tables, and an explanation is followed.

3.3. Performance Indicators, Targets, Causes, Critical Success Factors and Activities

South Sudan Urban Water Corporation (SSUWC)

Action Plan Juba Station

Duration Six Month (Jan – Jun 2022)

3.3.1. Technical Services

Performance Indicators	Present Value	Target Value	Cause of Problems	Critical Success Factor	Activities	Term		Problem to Achieve Target	Counter Measures/ Activities
	Ave. in Oct 2021	June 2022				By Jan 2022	By June 2022		
1. Technical Services									
1.1 Operation Hours	(14 hrs/day)	(18 hrs/d)	1) Night shift Members are NOT turning for work. 2) Lack of operation cost	The top management to motivate working force to report to work especially night shift and cover operation cost	the tariff have reviewed and been increased from 200 to 300 SSP per Meter cubic in order to increase the revenue collection for operation cost recovery.	300 SSP/m^3 for TFS 300 SSP/M3 for Domestic and Commercial Customers	300 SSP/m3 for all customers 300 SSP/M3 for Domestic and Commercial Customers	budget	
1.2 Cleaning & Improving the Intake	Regular cleaning of intake	To be clean & improved	Seasonal (rainy) at intake	Procure tools, hiring of boat in order to implement the regular cleaning plan	cut the surrounding grass & remove the silt on regularly bases				
1.3 Water Quality 1.3.1 Residual Chlorine at Clear water tank 1.3.2 Heavy metal	No reagents for residual chlorine test and heavy metals	(1.5 – 2.0) PPM)	Lack of reagent and devices for heavy metals eg, copper, iron, hardness ammonia, nitrate, chlorite etc.	According to WHO Standard Procure the reagent and the devices.	keep and maintain the Quality Control				**Buy new equipment to monitor heavy metals control**
1.4 Service area	10	15	Old network	To supply water to all areas	1) Network has to be rehabilitated 2) Increase supply hours				

Performance Indicators	Present Value	Target Value	Cause of Problems	Critical Success Factor	Activities	Term		Problem to Achieve Target	Counter Measures/ Activities
	Ave. in Oct 2021	June 2022				By Jan 2022	By June 2022		
1.3 NRW	High rate NRW (physical & commercial)	To be reduced	1) High ration of leakages & illegal connections 2) Due to Old Pipes (Ac pipes)	3) Replacement of Old network (Ac & GI Pipes) and update of consumers in to GIS 4) Repair of the Leaks to be done on time. 5) Convert all consumers from flat rate to metering. 6) Increase the number of bill distribution as more as possible	1) Replace the old pipes 2) Repair leakage on time 3) Update all consumers' connections in GIS 4) Install water meters to all connections 5) Conduct door to door inspection.				

3.3.2. Commercial & Revenue

Performance Indicators	Present Value	Target Value	Cause of Problems	Critical Success Factor	Activities	Term		Problem to Achieve Target	Counter Measures/ Activities
	Ave. in Oct 2021	June 2022				By Jan 2022	By June 2022		
2. Commercial & Revenue									
2.1 Increase number of active customers	(614 out of 2, 292 connections)	1500 connections)	Pipes removed during road construction.	Reconnection of disconnected pipelines Supply of sufficient water and conduct door to door water inspections	Use the available pipes and fittings to reconnect some of the customers				
			Some were stopped due to insufficient water supply to PTS	Supply of sufficient water to all	Use the collected revenue & support of our development partners to rehabilitate the PTS	17 PTS			

Performance Indicators	Present Value	Target Value	Cause of Problems	Critical Success Factor	Activities	Term		Problem to Achieve Target	Counter Measures/ Activities
	Ave. in Oct 2021	June 2022				By Jan 2022	By June 2022		
					Reactivate old PTS from (4 PTS) to (15 PTS)				
			Some were stopped due to insufficient water supply to TFS	Supply of sufficient water to all	Increase the operation hrs to produce more water Reactivate Tanker Fillings Stations From (2 TFS) to (6 TFS)	4 TFS			
2.2 Convert 70% of flat rate customers to metered customers.	(1996 flat rate connections)	(1000 metered connections)	1) Lack of Manpower 2) Insufficient Fittings	1) Recruit qualified staffs and motivate them 2) Procurement of fittings etc.	Procurement of fittings of various sizes for meters installations				Allocate enough budget to buy fittings
2.3 Improve billing system **Improve revenue collection**	Bill delivered (386) (1,244, 460 SSP)	(1500) Bills to be delivered (15,000, 000 SSP)	Very few staff and only three(3) motorcycles for distribution of bills and their collections motorcycles	avail budget for servicing and repairing of motorcycles and vehicle if any.	Use the available resources from the revenue to repair the vehicles and motorcycles Procure enough stationaries Motivate meter readers, bill distributors, revenue collectors				Provision of petrol for motorcycles for distribution of Bills Regular payment of salaries of employees. Awareness of customers for regular payment of bills. Provision of transport & Motivation.
2.4 Reduce Arrears	(22, 805, 914 SSP)	Reduce to 95%	Lack of continues and limited supply of water	Follow up the payments of arrears	Set the signboard in the office and Public places. Prepare the notice and send to Customers to remind them about the payment and inform them about disconnection Give notification letters for payment deadline.		To reduced 25 % arrears	Absentia of staffs from the work due to current situation. Motivation Some government institutions	Regular payment of salaries of employees. Awareness of customers for regular payment of bills. Provision of transport & Motivation.

Performance Indicators	Present Value	Target Value	Cause of Problems	Critical Success Factor	Activities	Term		Problem to Achieve Target	Counter Measures/ Activities
	Ave. in Oct 2021	June 2022				By Jan 2022	By June 2022		
								and individual are not paying theirs arears Transportations	

3.3.3. Administration, Human Resources and Finance

Goal 1: (Update of structure plan)

Objective	Current situation	Cause of problem	Activities
1- Implementation of the Structure	• Clear identification of job descriptions • The structure NOT updated since 2015-2016	• It was not avail by public service	• Update of the structure. • Preparation of Job description; 1) Responsibilities 2) Functions 3) Assignments
2- Budget allocation	• No Clear budget allocation	• Management depending on water revenue collection. • Revenue was Not enough to cover operational costs of the station.	• Preparation for budget of cost recovery • Implementation of budget • Monitoring , accounting, audit & accountability
3- Implementation of public service regulations	• Not fully implemented	• Delay in payment of salaries due to economical situations of the country.	• Motivation of staff to maintain them to attend the work • Implementation of the public service rules & regulations. • Initiate promotion for those who over-stay in one grade.
4- Staffing in the Departments.	• Some department are facing under staffing • Unqualified and unskilled staff	• Delay in payment of salaries; • Over-stayed in one grade without promotion; • Due to death; • Quit the job • Transfers without replacement.	• Identification of vacant position • Fill the vacant positions • Promotion after every four years depends on staff job performance

Resources and Schedule (Update of structure plan)

Objective	Activities	Means of Verification	Resp. Person/Dept.	Resource Required	Approx. Implementation Period					
					Jan-22	Feb-22	March-22	April-20	May-20	June-20
1-Implementation of the Structure	• To make a clear identification of job description • The Nominal roll has to be updated.	• Assessment • Reporting • Evaluation	MD, AM and D/ Admin, HRM & Finance	• Stationeries • Motivation						
2-Budget allocation	To follow up budget of Juba Station in HQ's	• Preparation of budget by Juba Station • Budget execution • Monitoring • Evaluation	MD, AM and D/ Admin& Finance and D/Accounts	• Committee needed to implement the activity						
3- Implementation of public service regulations	• Update of the organization structure. • Preparation of Job description; 1) Responsibilities 2) functions 3) Assignments	• Assessment • Reporting • Evaluation	AM and D/ Admin, HRM & Finance	• committee to be formed ✓ Admin (2 staff) ✓ HR (2 staff)						
4. Staffing in the departments.	• Recruit new Staffs: (19) ✓ Commercial (6) ✓ Accounts (3) ✓ Admin (3 staff) ✓ HR (2 staff) ✓ IT (1 staff) ✓ Laboratory (4)	• Assessment • Reporting • Evaluation	AM and D/ Admin, HRM & Finance	• Motivation • Stationaries						

Goal 2: (Enforcement of regulations and rights)

Objective	Current situation	Cause of problem	Activities
1—Implementations of administrative laws, orders and rights.-	• The rules and regulations of the public service is not fully implemented on the staffs	• Due to current economic situation and delay of staff monthly salaries	• Motivation of the Staffs in order to maintain them to work. • Implementation of rules and regulation to be in a flexible way
2-Financial management procedures for payment of approved money.	• The payment procedures is according to financial management.	No Problem	• To improve and fasten the payment process through Administrative system • To ensure that payments are done according to budget line

Goal 3: (Communication and coordination)

Objective	Current situation	Cause of problem	Activities
1- Improvement of departmental communication and Coordination	• The communication and coordination between the department is up to date	• No problem	• To keep up to date communication and coordination between the departments on daily, weekly and monthly bases
2-Develop and improve departmental data base.	• Using existing database	• No problem	• To improve the staff capacity on computer use and documentation system • To develop central and departmental archive

Resources and Schedule (Communication and coordination)

Objective	Activities	Means of Verification	Resp. Person/Dept.	Resource Required	Approx. Implementation Period					
					Jan-22	**Feb-22**	**Mar-22**	**Apri-22**	**May-22**	**Jun-22**
1- Develop departmental communication and Coordination	• To improve communication and coordination between the departments on daily, weekly and monthly bases	• Assessment • Reporting • Evaluation	AM, D/ Admin, HRM & Finance Dept.	•						
2-Develop and improve departmental data base.	• To improve 5 Staff's capacity on computer use and documentation system through training. • To develop central database for all the departments	• Reporting • Assessment • Evaluation	MD, AM,D/ Admin, HRM & Finance dept.	• Stationeries • Motivation • Training • Budget • Trainers						

3.4. Required Input and Cost Estimation (Accounting)

3.4.1. Technical Services

Performance Indicators	Target Value	Activities	Responsible Person/ Dept.	Input/ Resources Required					Expected Outcome
				Staff	Goods	Funds			
	Jun-22					Unit Price SSP	Qty.	Budget SSP/day	
1.1 Operation Hours	(18 hrs./d)	1- Implement new approved tariff 300 SSP/cubic meter (cost recovery tariff)	MD/ AM	staff of SSUWC Juba station	Fuel/Day from Open Market	350	600 liters	210,000	Improvement
					Alum/Day	14, 350	12 bags	172, 200	Improvemen

Performance Indicators	Target Value Jun-22	Activities	Responsible Person/ Dept.	Input/ Resources Required					Expected Outcome
				Staff	Goods	Funds			
						Unit Price SSP	Qty.	Budget SSP/day	
		2- Buy fuel from the market using the revenue collection @ rate of 0.83 $ per liter.(equiv. 350 ssp) 3- Buy chemicals (Alum, Chlorine) from the revenue collection. 4- Donation from developing partners (JICA, ICRC, UNICEF, etc..) by supply chemicals & fuel.							t
					Chlorine	18, 450	0.5	9, 225	Improvement
					Genset Service/Month(WTP+HBS)	230000	Every day	7,666	Improvement
					Incentives/Meal	1000	Every day for 27 staffs	27, 000 Total: 12, 552, 750/ month	
1.2 Cleaning & Improving the Intake	Improved Intake Area	1- Cut the grass and clean the surrounding area frequently base on the cleaning plan 2- Remove the accumulated silt accordingly	Tech. Services Dept. 1- Ag/D/W/P 2- Asst/Insp/W/P	5 Staff	- Hire Boat - Cutting Tools - Silt Removing Tools	200, 000 -	Every 3-6 months -	400, 000 - -	Improvement
1.2Water Quality 1.2.1 Residual Chlorine at Clear water tank	(1.5 – 2.0) PPM)		Water Q. Unit	2 Staff	Reagent and Devices	-	-	-	
1.2.2 Compliance ratio 5 NTU turbidity of clear water	(less than 5 NTU)	Do Jar test at least ones every 3 days and change injection rate for Alum	Water Q. Unit	2 Staff	Reagent and Devices	-	-	-	
1.3 NRW	To be reduced	1- Replace the old pipes (AC & Galvanize pipes) 2 - Update all consumers' connections in GIS 3- Customers metering 4- Maintenance of	MD/AM/Department of Tech. Services 1- D/Technical service	20 Staff	- Pipes & fittings: • PVC 8" • PVC 6" • PVC 4" • PVC 3"	 25,000 20,000 15,000 12,000	 25 pipes 25 pipes 25 pipes 50 pipes	 562,500 625, 000 500,000 375,000 600, 000	

Performance Indicators	Target Value Jun-22	Activities	Responsible Person/ Dept.	Input/ Resources Required					Expected Outcome
				Staff	Goods	Funds			
						Unit Price SSP	Qty.	Budget SSP/day	
		defunct pipes.	W/D		• HDPE Roll 2"	82, 500	10 rolls	825,000	
					• HDPE Roll 1"	60,000	10 rolls	600,000	
					• HDPE Roll ¾"	50,000	10 rolls	500,000	
					• Galvanize 3"	25,000	10 pipes	250,000	
					• Galvanize 4"	30,000	10 pipes	300, 000	
					• Fittings:			500,000	
					• Coupling 3"	20,000	25 couplings	500,000	
					• Coupling 4"	25,000	50 couplings	125,000	
					• Coupling 6"	30,000	50 couplings	1,500,000	
					• Coupling 8"	30,000	25 couplings	750, 000	
					• Others			Total	
					- Digging tools				
					- GIS Equipment				

105

3.4.2. Commercial & Revenue

Performance Indicators	Target Value Jun-22	Activities	Responsible Person/ Dept.	Input/ Resources Required					Expected Outcome
				Staff	Goods	Funds			
						Unit Price SSP	Qty.	Budget SSP/day	
2.1 Increase number of customers	(1500 connections)	2.1.1 use the available pipes and fittings to reconnect some of the customers.	AM/ Department of Commercial and Revenue,	15 Staff	Digging tools Pipes & fittings Grader	6, 920	15	94, 800 SSP/Month	
2.2 Convert 70% of flat rate customers to metered customers.	(1604 connections)	2.2.1 Use the meters that donated by our development partners (JICA & ICRC) To metered some of the customers	AM/Dept. of Commercial & Revenue	20 Staff Temporary	Meters & Fittings Digging Tools Awareness	6, 920	20	138, 400	
2.3 Improve billing	(1500) Bills	2.2.2 Make installation plan per month	AM/ Dept. of	10 Staff	Repair the Vehicle and additional				

Performance Indicators	Target Value	Activities	Responsible Person/ Dept.	Input/ Resources Required					Expected Outcome
				Staff	Goods	Funds			
	Jun-22					Unit Price SSP	Qty.	Budget SSP/day	
system **2.4 Improve revenue collection**	(7, 000,000 SSP)	2.2.3 Inform the customers about important and benefit of the meters 2.3.1 Use the available resources from the revenue to repair the vehicles and motorcycles 2.3.2 motivate meter readers, bill distributers and revenue collectors	Commercial and Revenue	Permanent	Motorcycles to the three existing ones are needed				

Performance Indicators	Target Value Jun-22	Activities	Responsible Person/ Dept.	Input/ Resources Required					Expected Outcome
				Staff	Goods	Funds			
						Unit Price SSP	Qty.	Budget SSP/day	
2.5 Reduce Arrears	(Zero SSP)	2.4.1 Set the signboard in the office and Public places. 2.4.2 Prepare the notice and send to Customers to remind them about the payment and inform them about disconnection 2.4.3 Give notification letters for payment deadline. 2.4.4 Make announcement over social medias. 2.4.5 Discuss and set up the task force committee to follow up the arrears of Governmental sector and other difficult Customers. 2.4.6 Report the situation to the ministry by H. Qs for further actions. 2.4.7 Start the activities of collecting the arrears.	AM/Dept of Commercial & Revenue	10 Staff same as above	Repair the Vehicles Repair the Motorcycles				

Performance Measurement (Sales)

Progress measurement of PI (2020-2021)

Category	Performance indicator	Present value							Evolution May-2022	Target value	
		Ave(2021/22)	Jan 2022	Feb 2022	March 2022	**April** 2022	**May** 2022	**June** 2022		Jan 2022	Jun 2022
Bills Delivered	Number of bills delivered										
	Amount of billed delivered Monthly (SSP)										
	Amount of billed delivered -Arrears (SSP)										
Bills Paid	Number of billed paid										
	Amount of billed paid (SSP)										
	Number of bills delivered										
	Amount of billed delivered Monthly (SSP)										
	Amount of billed paid (SSP)										

3.5. Facility Operation Plan (2021- 2022)

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

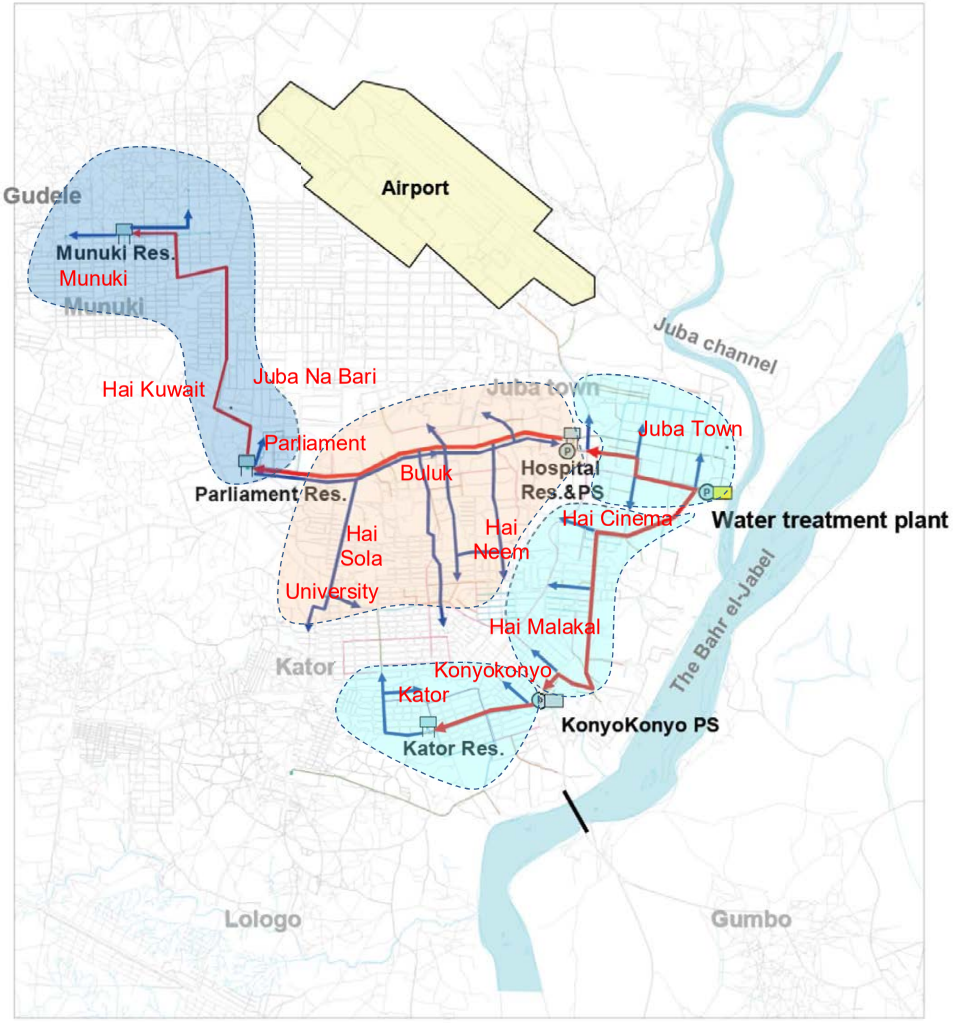
Note:

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

2. Hai Cinema, Hai Malaka, KnyoKonyo

Muniki A&B from 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



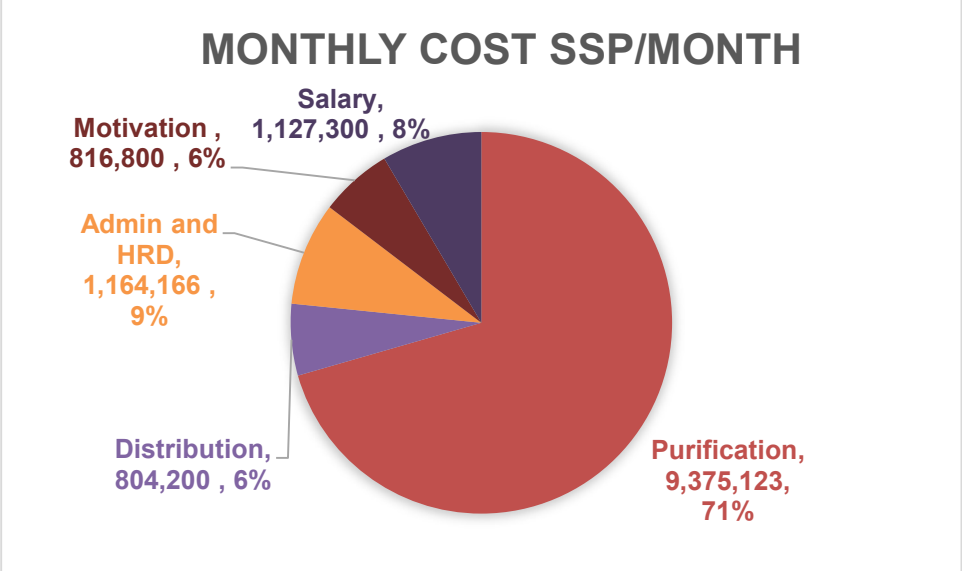
3.6. Expenditure

3.6.1. Summary

The required monthly and annual funds to implement the action plan for purification, distribution, laboratory and sales & accounting sections until December 2022 are summarized in the table below.

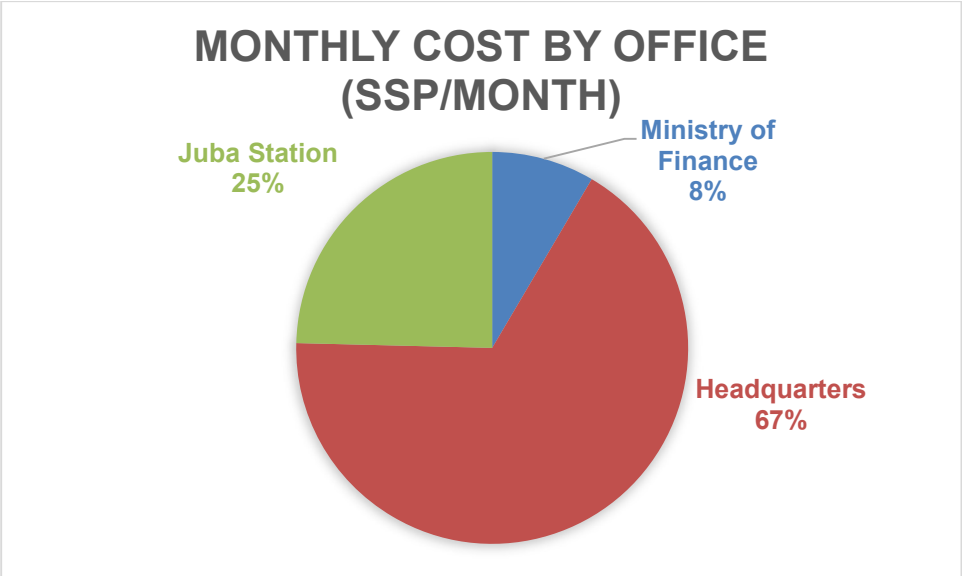
Summary of Operation and Maintenance cost by Department

Department		Monthly cost SSP/month	Annual cos SSP/year	In charge
1	Purification	9,375,123	112,501,476	Fuel and chemicals are provided by HQ
2	Distribution	804,200	9,650,400	
3	Admin and HRD	1,164,166	13,969,996	
4	Motivation	816,800	9,801,600	
	Total	**12,160,289**	**145,923,472**	
5	Salary	1,127,300	13,527,601	MOF
Grand total		**13,807,223**	**13,287,589**	**159,451,073**



Operation and Maintenance cost in charge by office

Office	Monthly cost (SSP/month)	Annual cost (SSP/month)
Ministry of Finance	1,127,300	13,527,601
Headquarters	8,889,075	106,668,900
Juba Station	3,271,214	39,254,572
Total	13,287,589	159,451,073



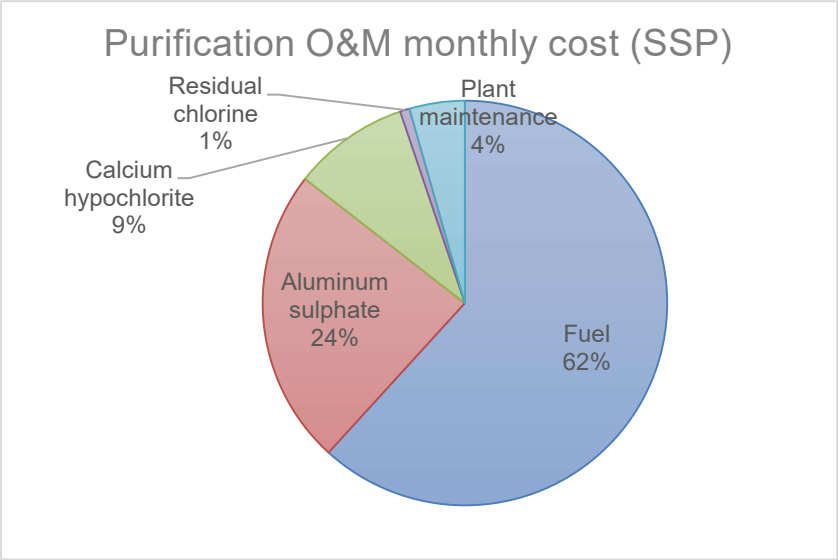
Summary of Operation and Maintenance cost by Item

Department	Item	Monthly cost (SSP/month)	In charge	Remarks
Purification dept	Fuel (market)	5,791,275	HQ	Enough chemicals for 3 months
	Chemicals	3,097,800	HQ	Fuel reserve from JICA will finish in Dec.
	Laboratory	70,848	Juba Station	
	Plant Maintenance	415,200	Juba Station	Generator and E&M spare
Distribution dept	Materials	804,200	Juba Station	Materials available, procured by JICA expert
Admin&HRD dept	Stationaries	406,000	Juba Station	
	Computer &printer consumables	302,500	Juba Station	
	Fuel/lubricants	455,666	Juba Station	
Motivation and Allowance	Purification	360,000	Juba Station	
	Distribution	72,000	Juba Station	
	Commercial and revenue	203,800	Juba Station	
	Admin&HRD	181,000	Juba Station	
Subcontract fee for TFS by HQ			HQ	
TOTAL		12,160,289		
Salary		1,127,300	**MOF**	
Grand total		13,287,589		

3.6.2. Purification Department

Summary of Operation and Maintenance cost of Water Supply Facilities

N	Item	Month cost	Annual cost
		SSP/month	SSP/year
1	Fuel	5,791,275	69,495,300
2	Aluminum sulphate	2,226,300	26,715,600
3	Calcium hypochlorite	871,500	10,458,000
4	Residual chlorine	70,848	850,176
5	Plant maintenance	415,200	4,982,400
	Total	9,375,123	112,501,476



Operation and Maintenance cost of Water Supply Facilities

1 Fuel

	Operation hours	Fuel requirement		Unit price	Monthly cost
	(hours/day)	(L/day)	(L/month)	(SSP/L)	(SSP/month)
Juba station	18	450	13,500	350	4,725,000
Hospital		100	3,000	350	1,050,000
Lologo station			46.5	350	16,275
Total			**16,547**		**5,791,275**

2 Aluminum sulphate

	Operation hours	Comsumption		Unit price	Monthly cost
	(hours/day)	(bag/day)	(bag/month)	(SSP/L)	(SSP/month)
Juba station	18	6	180	12,300	2,214,000
Lologo station	5		1	12,300	12,300
Total			**181**		**2,226,300**

Unit price			
Alum		Chlorine	
0.6	USD/kg	3.15	USD/kg
50	kg	45	kg/drum
30	USD/bag	141.75	USD/drum
12,300	SSP/bag	58,100	SSP/drum

3 Calcium hypochlorite

	Operation hours	Coumsumption		Unit price	Monthly cost
	(hours/day)	(drum/day)	(drum/month)	(SSP/L)	(SSP/month)
Juba station	18	0.5	15	58,100	871,500
Lologo station			0	58,100	0
Total			**15**		**871,500**

4 Reagent

Residual chlorine

	Water sample			Unit price	Monthly cost
	per day	per week	per month	SSP/test	(SSP/month)
Daily	6		180	246	44,280
Weekly		10	40	246	9,840
Monthly			20	246	4,920
Total			240		59,040

JICA procured price	
100	test
60	USD
0.6	USD/test
246	SSP/test

Reagent (others)				0.2	11,808

20% of cost of the residual chlorine

Total reagent					**70,848**

5 Plant maintenance

Generator (Fuel filter)

	Operation hours	Monthly operation hours	No. of filter required	Unit price	Monthly cost
	(hours/day)	(hours/month)	Number	(SSP/filter)	(SSP/month)
Juba station	18	540	2.2	102,000	224,400
Hospital	7	210	0.8	81,000	64,800
Lologo station	5	150	0.6	10,000	6,000
Total					295,200

Minor maintenance for electrical parts, when required	120,000

Total plant maintenance	**415,200**

3.6.3. Distribution Department

Operation and Maintenance Cost for Distribution Department

S/No	Particulars	Qty	Unit	Rate (SSP)	Annual cost (SSP/annual)	Monthly cost (SSP/month)
1	(UPVC) Pipe 4"	100	No.	20,000	2,000,000	
2	Coupling 4"	50	No.	25,000	1,250,000	
3	(UPVC) Pipe 8"	50	No.	25,000	1,250,000	
4	(UPVC) Pipe 3"	50	No.	15,000	750,000	
5	Coupling 6"	40	No.	30,000	1,200,000	
6	Coupling 3"	100	No.	20,000	2,000,000	
7	Fitting Various sizes	1	No.	600,000	600,000	
8	Coupling 8"	20	No.	30,000	600,000	
	Total				9,650,000	804,200

3.6.4. Administration and Human Resources

Stationaries budget for Juba water Station2021/2022

S/No	Item	Quantity/ month	Unit Price in SSP	Total/Month in SSP	Total/Year in SSP
Stationaries					
1	Papers box	5	15,000	75,000	900,000
2	Box Pen	6	5,000	30,000	360,000
3	Marker Pen	5	5,000	25,000	300,000
4	Correcting pen	5	5,000	25,000	300,000
5	Envelop (3) different size	3	5,000	15,000	180,000
6	Box Files	8	3,000	24,000	288,000
7	Spring file	10	3,000	30,000	360,000
8	Jackets	6	5,000	30,000	360,000
9	Registration book	6	3,000	18,000	216,000
10	Pin for Stapler	4	3,000	12,000	144,000
11	Ink for Step	2	5,000	10,000	120,000
12	Punch	6	5,000	30,000	360,000
13	Soap	1	10,000	10,000	120,000
14	Dettol	6	5,000	30,000	360,000
15	Brums	6	2,000	12,000	144,000
16	Electrical Connection	6	5,000	30,000	360,000
	Su-total			**406,000**	**4,872,000**
Computer Maintenance					
1-	Printer ink	3	15,000	45,000	540,000
2-	Color Printer	3	60,000	180,000	2,160,000
3-	Anti-virus	15	2,500	37,500	450,000
5-	Computer Repair			30,000	360,000
6-	Internet fee			10,000	120,000
	Su-total			**302,500**	**3,630,000**
Total				**708,500**	**8,502,000**

Budget for Vehicles

S/No	Description	Item	Quantity of Fuel/ Month SSP	Price SSP	Monthly cost in SSP	Total cost/Year in SSP
Vehicles O&M						
1	Land Cruiser	Fuel (L)	80	350	28,000	336,000
		Engine Oil	3	10,000	30,000	360,000
		Filter	2	10,000	20,000	240,000
2	Nissan Dabble Cabin (Under repair)	Fuel	80	350	28,000	336,000
		Engine Oil	3	10,000	30,000	360,000
		Filter	2	10,000	20,000	240,000
3	Lorry Vehicle	Fuel	80	350	28,000	336,000
		Engine Oil	3	10,000	30,000	360,000
		Filter	2	10,000	20,000	240,000
4	Back Hoe (JCB)	Fuel	80	350	28,000	336,000
		Engine Oil	3	10,000	30,000	360,000
		Filter	2	10,000	20,000	240,000
5	Motorbikes (13) senke	Petrol	20	350	7,000	84,000
		Engine Oil	1	2,500	2,500	30,000
6	Tire		8	85,000	113,333	1,360,000
7	Cost of Repair for Vehicles and Motorbike's (assumption)				20,833	250,000
	Sub-total				**455,666**	**5,468,000**
Total					**1,164,166**	**13,970,000**

3.6.5. Motivation and Allowances

Meal and Motivation Allowance in general:

		No. of persons	Daily motivation per person	Days of motivation	Total monthly	Total Annual
		Nos.	SSP/day/person	days	SSP/month	SSP/Year
Admin and HRD						
1	Air time for head of department and senior staffs	18	5000	1 time	90,000	1,080,000
2	Meal for other employees	8	1000	7	56,000	672,000
3	Administration, HRM and Finance motivation	5	1000	7	35,000	420,000
	Sub-total				181,000	2,172,000
Other departments						
4	Motivation for Water Distribution Unit	8	3000	3	72,000	864,000
5	Motivation for Department of Commercial and Revenue				203,800	2,445,600
6	Motivation for Department of Purification				360,000	4,320,000
	Sub-total				635,800	7,629,600
	Total				**816,800**	**9,801,600**

Purification Department

		No. of operators	Motivation (SSP)	Days	total
1	1st/2nd shift	10	700	30	210,000
2	3rd shift	3	1000	30	90,000
3	Hospital BPS	2	1000	30	60,000
	Total	15			360,000

Department of Commercial and Revenue

S/ No	Description	No. of staff	Motivation (SSP)	Days	Total /Month
1	Meal allowances	10	1000	10	100,000
2	Employments staffs on the contract basis	15	6920		103,800
	Total				203,800

3.7. Revenue Forecast

Total revenue estimation by water sale amount

Water sale amount			Water tariff	Total sales
m3/day	days/month	m3/month	SSP/m3	SSP/month
1,000	30	30,000	300	9,000,000
1,500	30	45,000	300	13,500,000
2,000	30	60,000	300	18,000,000

- If Juba station including TFS sells 1,000 m3/day, total revenue will be 9 million SSP/month.
- If Juba station including TFS sells 1,500 m3/day, total revenue will be 135 million SSP/month. This will be first target.

Individual customers sales (billing) plan (existing and target)

		Average monthly revenue collection Fy2020/21	Estimated monthly revenue based on new tariff	Target 1	Target 2	Target 3
Tariff	SSP/m3	170	300	300	300	300
Bill delivered	Number	215	215	500	1000	1500
	Amount	2,840,643	5,012,900	11,657,906	23,315,813	34,973,719
	one bill	13,212	23,316			
Bill collected	Number	102	102	300	700	1050
	Amount	1,998,867	3,527,412	6,994,744	16,321,069	24,481,603
	one bill	19,613	34,611			

- Average monthly revenue collection Fy2020/21 was 2,840,643 with 215 bills per month. If tariff is converted from 170 SSP (previous tariff) to 300 SSP (new tariff), the average monthly revenue is equivalent to 5,012,900 SSP.
- If Juba station delivers 500 bills per month and 300 bills (60%) are collected, the monthly revenue is estimated as 6,994,744 SSP.
- If 1,000 bills are delivered, the revenue will increase further. 16,321,069 is an indicative number. As the number of bills are increased, billing amount of one bill will be reduced so that total estimated revenue will be reduced less that the estimated figure.

TFS sales plan

	Tanker				Tariff	Sales
	Number/day	m3/tanker	m3/day	m3/month	SSP/m3	SSP/month
Hospital	270	5	1,350	40,500	300	12,150,000
JIT	10	5	50	1,500	300	450,000
Total				42,000		12,600,000

- The current number of tankers buy water in Hospital TFS is 230 per day and the operator plant to increase it to 270 SSP/day. The monthly revenue will be 12,150,000 SSP.

- The number of tankers in Jit station is very less.

Individual customer and TFS revenue estimation

	Current	Target 1 (500 bills)	Target 2 (1,000 bills)	Target 2 (1,000 bills)
Regular bill	1,998,867	6,994,744	16,321,069	24,481,603
TFS		12,600,000	12,600,000	12,600,000
Total		19,594,744	28,921,069	37,081,603

- In total revenue of regular bills and TFS will be 19,594,744 SSP/month. This will be first target to be achieved.

3.8. Expenditure and Revenue Balance

- Monthly and Annual Operation and Maintenance cost in charge by office

Monthly and Annual Operation and Maintenance cost in charge by office

Office	Monthly cost (SSP/month)	Annual cost (SSP/month)
Ministry of Finance	1,127,300	13,527,601
Headquarters	8,889,075	106,668,900
Juba Station	3,271,214	39,254,572
Total	13,287,589	159,451,073

- Monthly revenue estimation from Individual customer and TFS

Monthly Balance of Cost and Revenue (SSP/month)

Office	Monthly cost	Monthly Revenue target (500 bills)	Monthly Balance
Ministry of Finance	1,127,300	0	-1,127,300
Headquarters	8,889,075	12,600,000	3,710,925
Juba Station	3,271,214	6,994,744	3,723,529
Total	13,287,589	19,594,744	6,307,154

- Estimated target revenue will cover all expenses of Juba Station including salary.
- The saved amount will be utilized for purchase of spares and fuel and chemicals, and major breakdown of facilities in future.

Annual Balance of Cost and Revenue (SSP/Annum)

Office	Annual cost	Annual Revenue target (500 bills)	Annual Balance
Ministry of Finance	13,527,601	0	-13,527,601
Headquarters	106,668,900	151,200,000	44,531,100
Juba Station	39,254,572	83,936,925	44,682,353
Total	159,451,073	235,136,925	75,685,852

資料-9.7：SSUWC 本部改革行動計画

SSUWC HQs, Status of Action Plan Activities as of November, 2019

Presented by: **Simon K. Kuay**

DG, Administration & Finance

Strengthening Institutional Capacity

Objective	Problem Statement	Activities	Current Status	Outstanding as of Nov. 2019	Responsible
1. Develop SOPs and Manuals	• There are no guiding documents for staff	• Finalize financial manual • Develop procurement manual • HR and Administration manual • Develop JD for all staff • Presents drafts to management • Present to BoD for approval	• Financial Manual developed • HR Manual • JD Partially developed • Procurement Manual in process • Training Manual (completed)	✓ Printing ✓ Printing ✓ ✓ To develop JD for other positions ✓ ✓ PM to be completed	✓
2. Amendment of SSUWC Act 2011	• Some of the articles in the Act 2011 does not reflect the current situation	• Committee to be formed to study and revise the Act • Write a request to Ministry of justice • Recommend change to be considered • Present revised draft to BoD for approval	• SSUWC BoD recommended revision /amendment	✓ SSUWC HQs to submit review/comments to Ministry of justice ✓ SSUWC is participating in drafting of water bill at MoJ together MWRI	✓

Objective	Problem Statement	Activities	Current Status	Outstanding as of Nov. 2019	Responsible
3. Review and Develop new Corporate Plan 2018 - 2021	• Completed 3 years • The Corporate Plan period will soon elapse	• Managing Director to form committee • Collect new baseline data • Compile a draft and present to management • MD will present final draft to the SSUWC BoD	• Corporate Plan 2018/2021 developed	✓ Review the Corporate plan implementation	✓
4. Establish IMS Directorate with qualified staff	• Lack of proper data collection and information management for planning, coordination and decision making	• Recruit 3 skilled staff • Set up IMS Directorate ToR • Develop Strategic plan • Develop first M&E framework	• Not yet establish • Database established by AfDB	✓ Recruitment processes are suspended by Public Services ✓ 3 Positions to be advertised when recruitment open	✓
5. Strengthening Coordination and communication between stations and HQs	• Insufficient communication and coordination framework	• Revise the reporting manual provided by JICA • Train staff on how to use it • Strick supervision on the implementation	• HQs Management transferred former AM of Juba Station to HQ to strengthen the Station coordination	✓ Ongoing process ✓ Regulate reporting from station and feedback…. Eng. Osama will do the follow up	✓
6. Recruit and improve Directorates Staffing and Productivity / Performance	• Lack of qualified staff to carry out important tasks • Big manpower gaps in most of Directorate	• Advertise positions • Form recruitment committee • Prepare JDs for all positions • Continue with Dept. restructuring • Prepare dept. functions	• Capacity gaps assessment available • Positions identified • 4 staff recruited including 4 on contract bases	✓ HQs is awaiting greenlight from Ministry of Public Service to recruit more capable staff	✓
7. Preparation of SSUWC 2018/19 Nominal roll	• To have realistic manpower	• Form Nominal roll committee • Collect data from all stations • Compile the draft and present to management for approval • Continues clean-up of Nominal roll • Submit final draft to MoPS	• Data from previous Nominal roll available • Public Service undertake head count • SSUWC HQs did pay-sheet clean up	✓ Preparation of Nominal roll 2018/19 is completed ✓ HQs to incorporate Public Service report and Pay-sheet clean report	✓

Objective	Problem Statement	Activities	Current Status	Outstanding as of Nov. 2019	Responsible
8. **Preparation of training plan for FY 2019/20**	• Many staff lack capacity	• Reactivation of training Database • Avail the list of staff to be trained • Establishment of training topics • Present request to MoPS • Present request to Dev. Partners	• Training assessment by ICRC consultant available (Identify ToTs, Identify repeated annual training) Directorates and departments to identify gaps and give to HQs to compile one training annual plan (by March 2020)	✓ This activity still under process ✓ HQs to review training need and recommend staff to undergo additional training ✓ More in-house training to be planned	-MD and Osama to send letters out and facilitate the process
9. **Coordinate effectiveness of Urban Water Supply Projects**	• Lack of better understanding after project completion and hand-over	• Participate in all Feasibility & Technical Studies • WSS Action & Investment Plans • Resource Mobilization Strategy • Government WASH Development Partners Investment Conference	• SSUWC formed PMT composed staff from SSUWC, MWRI, States govt, local govt. including City council • HQs assigned staff to projects • SSUWC held 1 meeting with development partners	✓ Ongoing activity ✓ SSUWC to hold more meetings with partners in 2020 ✓ Strengthening the PMT activities and support	MD, DG Lawrence
10. **Streamline Implementation of projects among stakeholders**	• Investors / stakeholders only interested in certain areas	• Reactivate Urban Water Working Group (UWWG) • Hold Regular Information Sharing and Coordination Meetings • Special Public Information Sharing Events / Launch / Publicity • Radio Talk Shows / Newspaper Articles	• SSUWC assisted by ICRC held 2 WASH DoG Meeting and attended by JICA, UNICEF, OXFAM and other stakeholders	✓ Ongoing process	✓ DG Lawrence

Improved Financial Sustainability

Objective	Problem Statement	Activities	Current Status	Outstanding as of Nov. 2019	Responsible
1. Secure Funding for Implementation of Water Stabilization Projects	Due to economic situation in the country, Govt. is unable to fund projects	• Assigned DG, P&CD • Identify Dev partners • Write funding proposals	• JICA support is ongoing • ICRC assisted SSUWC with 1.7 M in various activities • UNICEF – assisted with rehabilitations and OPEX • OXFAM – assist with OPEX • AfDB – Funded the rehabilitation of network in two phases • World Vision assist Renk station with OPEX and some minor rehabilitation • NUS State govt procure electro mechanical equipment	✓ Ongoing process ✓ SSUWC processing another funding proposal to AfDB	✓ Lawrence, Simon MD
2. Consolidate Planning, Budgeting and Monitor Budget Execution	Implementation of budget is not well coordinated with Stations and other relevant departments	• Harmonize Plans and Budget Templates for SSUWC • Monitor Effective Execution of Budget Plans and Report to Senior Management	• 2018/19 budget prepared • Request for additional fund approved by Council of Ministers • Budget funds not yet released	✓ MD, DMD, DG, AF to continue with follow up of funds	✓ MD, DMD, DG, AF to continue with follow up of funds
3. SSUWC Budget Preparation	• Imposed budget ceiling by MoF&P • Budget planned by the institution not considered	• Write request for data collection to all stations • SSUWC HQs to call for annual review and planning meeting • Analyze and compile data to be present to management • Present draft budget plan to BoD for approval and present to MoF&P before ceiling	• Data collected from all stations • Budget preparation meeting to be held early next year – Feb 2020 • 2019/20 budget prepared • Management defended budget at Parliament	✓ Budget prepared and submitted	✓ All DGs and MD

Objective	Problem Statement	Activities	Current Status	Outstanding as of Nov. 2019	Responsible
4. Installation of accounting software for Dept. of Accts	• Acct. data on hard copies not reliable	• Adopt the system from ongoing project supported by AfDB • Assign the acct controller to learn from project acct officer	• SSUWC still uses manual accounting system • 2 staff assigned to AfDB project to be trained on account software	✓ SSUWC Management to look into procurement of accounting software when funds become available	✓ Simon
5. Revise and setup new tariff rates	• Lack of financial sustainability due to low tariff	• Collect O+M data from all station • Get assistance from TA • Propose 3 scenario of tariff development • Submit tariff draft structure to BoD • Submit final tariff rate to MoF&P • Keep checking the competitors (Osama to Check)	• New tariff calculated to cover OPEX • Tariff approved by SSUWC BoD • Memo presented to Council of Minister • New tariff rejected by the Govt.	✓ SSUWC management to gradually implement the new rate approved by BoD (SSP. 170)	✓ MD, Osama & Area managers
6. Establish general holding account for all stations	• Financial restriction on disbursements	• Present the case of SSUWC to ring-fence its own revenue to BoD for approval • Mobilize stakeholders for the importance of ring-fencing • Inform the Ministry of Finance of BoD resolution on holding account • HQs to discus with stations the holding account implementation	• Working only with letter issued by Minister of Finance and former Minister of water for ring-fencing of revenue for O&M use • Holding account established but only used for tanker filling stations in Juba • Other Stations are still under study	✓ HQs to continue demanding financial autonomy from Govt. ✓ To instruct all stations to remit certain percentages from their collection	✓ MD, Simon

Sustainable, Efficient & Equitable Technical Operation

Objective	Problem Statement	Activities	Current Status	Outstanding of Nov. 2019	Responsible
1. Extension of water network in all stations	Low water supply coverage	• Identified area to be covered • Determined the KM to be extended • Network extension and new connection data to be updated monthly	• Study done for Juba, Wau, Bor and Renk • Extension of Wau water network completed • Rehabilitation and extension of Juba water network commenced by AfDB • Rehabilitation and extension of Bor water network by UNICEF to commenced soon	✓ Ongoing process	✓ Osama & All Area Managers
2. Supply Chemical to all Stations	Most station always run out of stock	• Local shopping • Advertise • Transport • Continue to engage donors and present the short fall of SSUWC budget • Revise and gradually increase the tariff	• Development partners support water station on emergency bases • HQs requested funds from govt. • Internal revenue is used to procure chemical for Juba station	✓ Ongoing activity	✓ MD, Lawrence and Osama
3. Supply Fuel to all Stations	Most stations buy from black market	• Request funds from MoF&P • Ring-fenced fund from stations	• HQs ring-fenced tanker filling station fund for Juba station fuel • All other station are instruct to ring-fence their collection to procure fuel locally	✓ Ongoing activity	✓ Simon, Osama & AMs
4. Supply Operation and maintenance equipment/materials	Replace old equipment	• Supply generator 350 kva • Supply pumps (low & high lift) • To also engage dev. Partners to assist	• HQs through ring-fenced funds procure O&M materials for Juba • Dev partners support	✓ Ongoing activity	✓ AMs, Osama & Simon

資料-9.8：南スーダン水セクター調査報告書

独立行政法人国際協力機構

南スーダン国都市水道公社水道事業管理能力強化プロジェクト・フェーズ２

南スーダン
水セクター調査報告書

2022 年 2 月

株式会社 TEC インターナショナル

目　次

略語

略語	英語	日本語
AfDB	African Development Bank	アフリカ開発銀行
GTZ	German Agency for Technical Cooperation	ドイツ国際協力公社
ICRC	International Committee of the Red Cross	赤十字国際委員会
MWRI	Ministry of Water resources and Irrigation	水資源灌漑省
SSUWC	South Sudan Urban Water Corporation	南スーダン都市水道公社
UNICEF	United Nations Children's Fund	国際連合児童基金
WVI	World Vision International	ワールド・ビジョン

第1章 JICAによる支援状況

1.1. 南スーダン都市水道公社（SSUWC）へのJICA支援

1.1.1. 概要

南スーダン共和国（以下「南スーダン」）は、第 1 次内戦（1955 年）および第 2 次内戦（1983 年）の長い内戦状態が終わり、2005 年に包括和平合意が締結された。南部スーダンの首都と制定され、ジュバ市には国内外からの帰還民の流入等により、急激な人口が増加し、2005 年推定で約 16 万人、2018 年推定で約 37 万人（UN、2018 年）と現在も都市域の拡大と人口集中が続いている。そうした中、JICA は 2008 年から開発調査を実施し、SSUWC への支援を開始し、現在まで継続している。

1.1.2. ジュバ市開発調査（2008-2009年）

JICA は 2008 年から 2009 年に開発調査「ジュバ市水道事業計画調査」（以下、「JICA-M/P・F/S」）を実施し、必要な水道水供給量及び水道施設を提案するマスタープランを作成した。
主な概要は以下のとおりである。

(1) マスタープランの給水目標

マスタープランの給水サービス対象地域は、ジュバタウン、カトールおよびムヌキ、レジャフのグンボ及びロロゴ、ノーザンバリのグデレを含む地域である。マスタープランにおける給水サービスの目標は、2025 年までに全てのジュバ市民が、各戸給水、公共水栓および給水車による給水を通じて、清浄な給水を受けられることであると設定した。マスタープランの給水目標値を下表に示す。2015 年及び 2025 年の水需要量は、69,000 m³/日及び 237,000 m³/日である。

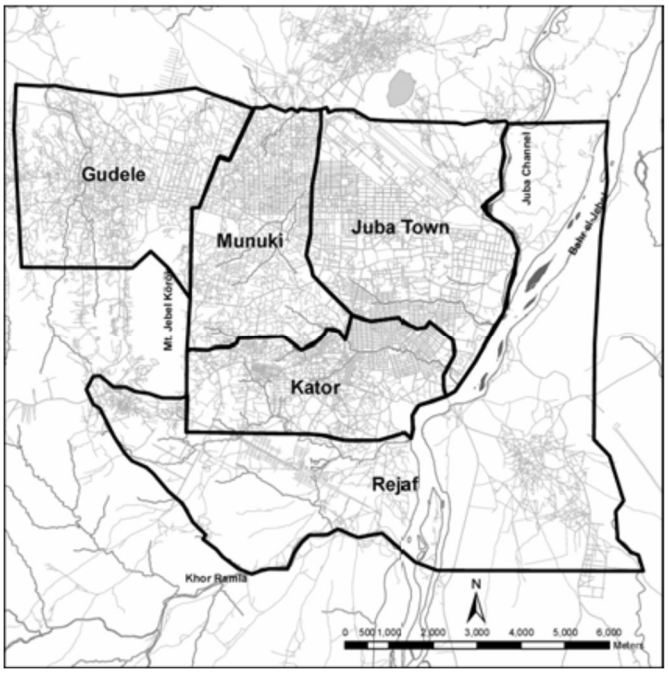


図 1-1 目標給水サービス地域

表 1-1　マスタープランの給水サービス目標値

項目	2009 年 （現況）	2015 年	2025 年
将来全人口予測（人）	406, 000	680, 000	1, 161, 000
安全で清浄な給水を受けられる率（%）	8. 4（推定）	80	100
計画給水人口（人）	34, 000	544, 000	1, 161, 000
計画１人１日家庭用水使用量（ℓ/人/日） - 各戸接続 - 公共水栓及び給水車	 26（53)* 34	 90 40	 120 40
日平均需要水量（m^3/日）	-	58, 000	197, 000
日最大需要水量（m^3/日）	-	69, 000	237, 000

注：*53 L/人/日は 2009 年 5 月以後の既存浄水場の改修による給水量増加を考慮し推定。

(2) マスタープラン及び優先プロジェクトの計画水道システム

ジュバの水道水源として Bahr el-Jebel 川が選定された。取水点は、Khor Ramla 川流域内に位置するジュバの廃棄物・し尿処分場からの潜在的な浸出水の影響をさけるため、Bahr el-Jebel 川の Khor Ramla 川合流点上流とする。

計画水道システムにおいては、既存浄水場は現有能力の 2 倍に拡張され、更に西岸及び東岸にそれぞれ 1 ヶ所ずつ新設浄水場を建設する。西岸には高区と低区の配水ゾーン、東岸にはグンボ配水ゾーンの合計 3 配水ゾーンが配置され、各配水ゾーンに建設される配水池から自然流下でゾーン内に配水する計画である。計画配水ゾーンシステム及び主要な計画施設を下図に示す。

マスタープランで計画された構成要素のうち、2015 年までに優先的に実施すべきプロジェクトを「優先プロジェクト」として選定した。マスタープラン及び優先プロジェクトの主要施設の概要を下表に示す。なお、調査では、優先プロジェクトに対してフィージビリティ調査を実施した。

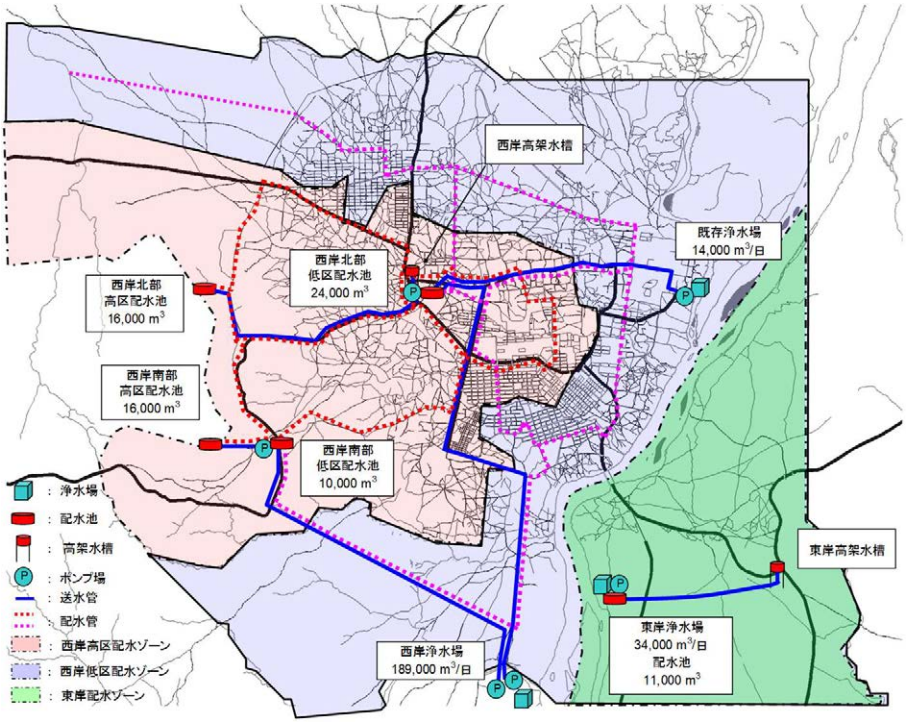


図 1-2　マスタープランにおける計画配水ゾーン及び主要施設配置

(3) プロジェクト実施計画

マスタープランの実施は 4 フェーズとして計画した。各フェーズの実施概念、主要計画施設、総浄水能力及び総資金需要額を下表に示す。フェーズ 1 及びフェーズ 2 が優先プロジェクトとして実施されると計画した。

表 1-2　フェーズ毎の実施概念、主要計画施設、総浄水能力

ﾌｪｰｽﾞ	期間	実施概念	主要計画施設	総浄水能力 (m^3/日)
1	2010-2012	既存システムの改善	1. 既存浄水場の拡張 2. 西岸北部低区配水池と送水幹線の建設 3. 既存配水管網の全面改修	14,000（注）
2	2013-2015	西岸水道システムの構築開始	1. 西岸浄水場（第 1 期）建設 2. 西岸水道システム北部送水幹線の建設 3. 配水管網の拡張	77,000
3	2016-2020	西岸水道システムの拡張と東岸水道システムの構築	1. 西岸浄水場（第 2 期）建設 2. 西岸水道システム南部送水幹線の建設及び配水管網の拡張 3. 東岸浄水場の建設、東岸送配水システムの建設	174,000
4	2020-2025	水道システムの拡張とマスタープラン完成	1. 西岸浄水場（第 3 期）建設 2. 配水管網の拡張	237,000

注：無償資金協力プロジェクトの実施により 18,000 m^3/日となる。

マスタープランで策定された実施計画を基に、下図に需要水量予測と浄水能力の拡張計画を示す。

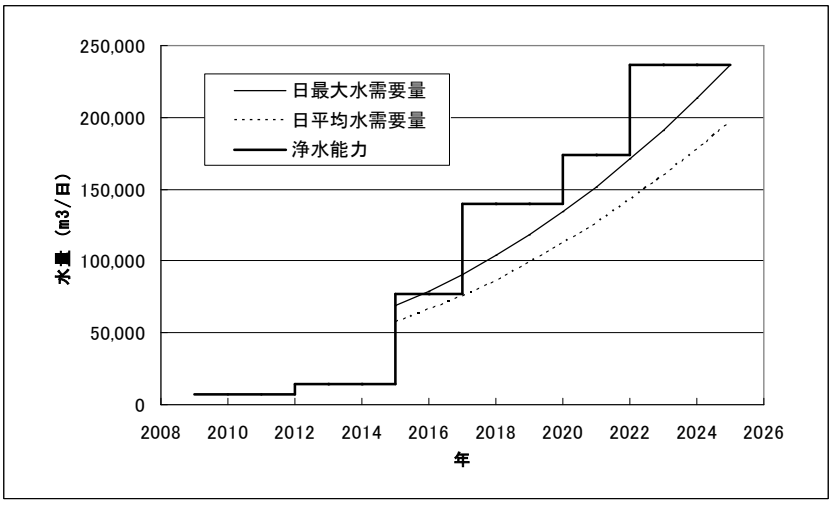


図 1-3　水需要予測と浄水場能力の拡張計画

(4) 事業運営・維持管理計画

マスタープランで策定された SSUWC の運営目標・経営指標の要約を下表に示す。

表 1-3　運営目標・経営指標の要約

項目	2009 年（現況）	2015 年の目標	2025 年の目標
給水人口 （普及率）	推定 34,000 (8%)	544,000 (80%)	1,161,000 (100%)
各戸接続数	2,500	25,200	111,700
運営組織形態の目標	・ 組織の自立性なし ・ 補助金依存 ・ 脆弱な財務基盤	・ 自治を有する自立した組織への移行期 ・ 適度に健全な財務基盤	・ 完全な自治を有する組織 ・ 強固な財務基盤
総職員数 （職員効率）	167 (68 職員/1000 接続)	378 (15 職員/1000 接続)	808 (7 職員/1000 接続)
内部組織管理の目標	・ 各部署への責任委譲無し ・ 極度に低い維持管理能力	・ 各部署への責任の委譲 ・ 採算事業単位で組織を再構成 ・ 改善された維持管理能力 ・ 事業経営指標による管理	・ 各部署への責任の委譲 ・ 採算事業単位で組織を構成 ・ 高い維持管理能力 ・ 事業経営指標による管理
年間維持管理費	0.55 百万 USD	6.8 百万 USD	21.8 百万 USD
有収水量当り維持管理費	0.64 USD/m^3 （補助金による人件費を除く）	0.52 USD/m^3	0.41 USD/m^3
年間補助金	推定 2.0 百万 SDG	無し	無し
年間収入	0.38 百万 SDG (0.18 百万 USD) 2007 年度	8.7 百万 USD	51.6 百万 USD
平均収入世帯の標準的な使用水量における月平均水道料金	13.3 SDG/世帯（推定） (接続世帯平均)	29.5 SDG/世帯 (平均世帯収入の 2.5 %)	- (平均世帯収入の 2.5 %)
無収水率（%）	60 %	44 %	28 %
民間セクターの参加	水供給で重要な役割を担うものの民間セクターの参加及び規制なし	民間参加を促進 ・ コミュニティー型水管理委員会 ・ 民間水売りの免許制度（給水キオスク） ・ 免許制給水車	

(5)　SSUWC のキャパシティ・デベロップメント

「JICA-M/P・F/S 調査」では、SSUWC の能力は全てのスタッフレベル及び全ての業務面で非常に弱いため、SSUWC のキャパシティ・デベロップメント計画が策定された。

1.1.3. 無償資金協力　ジュバ市水供給改善計画（2010-現在）

前述した JICA-M/P・F/S 調査に基づき、日本政府は無償資金協力「ジュバ市水供給改善計画（Project for Improvement of Water Supply System of Juba in South Sudan)」（以下「無償案件」）を開始、2022 年 1 月現在も実施中である。

同無償案件により新規浄水場（10,200 m3/日）が完成すれば、ジュバ市では約 35.5 万人が安全な水にアクセスできる計画となっている。

主な概要を以下に示す。

(1)　無償案件の対象事業

表 1-4　準備調査で確認した協力対象事業の内容

番号	本調査で確認した内容
1	浄水場の拡張（10,800 m³/日）
2	配水池の建設（5,000 m³/日）、高架水槽の建設、浄水場から配水池までの送水管の敷設、送水用ポンプの設置
3	主要配水管の敷設
4	給水車用給水拠点（8 箇所）および公共水栓（120 箇所）の設置

(2) 全体計画

1)　計画給水区域

ジュバタウン・パヤム、カトール・パヤム、ムヌキ・パヤム、ノーザン･バリパヤムの一部（グレイ）およびレジャフ・パヤムの一部（ロロゴとグンボ）を含むジュバ都市圏。

2)　計画目標年:　2015 年

3)　計画給水人口：　355,300 人

4)　給水原単位

①　家庭用水（生活用水）：　26 L/人/日

②　非家庭用水：　含めない（安全な水へのアクセス人口を向上することを優先課題としており、公共水栓および給水車による家庭用水の供給を対象とする）

(3) プロジェクトの工期

本プロジェクトは、実施設計・入札に約 8 ヶ月、建設工事に約 25 ヶ月が見込まれている。当初案では、2013 年 8 月工事着工、2015 年 9 月に完工する計画であった。しかし、2013 年 12 月及び 2016 年 7 月の政治的混乱及び COBID-19 により、度重なり工事は一時中断した。2020 年 2 月に工事は再開し、現在の予定は 2023 年 2 月に完工する計画である。

1.1.4.　技術協力プロジェクト（フェーズ 1 技プロ）（2010 年-2013 年）

「JICA-M/P・F/S 調査」で SSUWC には水道施設の適切な運営と維持管理の知識と技術が不足しており、安全な水を効率的に配水することが困難であることが認識され、SSUWC 職員の能力向上を図るため、JICA は技術協力プロジェクト「都市水道公社水道事業管理能力強化プロジェクト（Project forManagement Capacity Enhancement of South Sudan Urban Water Corporation）（以下、フェーズ 1 技プロ）」（2010 年 10 月～2013 年 9 月）を実施した。フェーズ 1 技プロでは、水道事業体としての基礎的能力開発支援を実施した。概要を以下に示す。

表 1-5　プロジェクト概要（フェーズ 1 技プロ）

プロジェクト名	南スーダン都市水道公社水道事業管理能力強化プロジェクト
上位目標	1)　SSUWC ジュバ支所が管轄する水道サービスの質が改善する。 2)　南スーダン都市水道公社の水道事業管理能力が向上する。
プロジェクト目標	運転・維持管理能力の改善を通して、南スーダン都市水道公社ジュバ支所の水道事業運営能力が強化される。
期待される成果	1)　SSUWC ジュバ支所の取水・導水・浄水施設の運転・維持管理能力が向上する。

	2) SSUWC ジュバ支所の送配水施設の運転・維持管理能力が向上する。 3) SSUWC ジュバ支所の水質検査能力が向上する。 4) SSUWC ジュバ支所の財務状況に関する理解が向上する。 5) SSUWC 本部の SSUWC ジュバ支所サポート能力が強化する。
調査対象地域	南スーダン　ジュバ
関係省庁	南スーダン政府　電力・ダム・灌漑・水資源省（MEDIWR）（旧名：水資源・灌漑省（MWRI））
カウンターパート	SSUWC 本部およびジュバ支所

1.1.5. 技術協力プロジェクト（フェーズ２技プロ）(2016 年-2022 年)

フェーズ 1 技プロの後、SSUWC の更なる水道事業運営能力の強化のため、「都市水道公社水道事業管理能力強化プロジェクトフェーズ 2（The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation Phase 2)」（2016 年 2 月～2021 年 2 月）（以下「フェーズ 2 技プロ」）を実施し、2022 年 2 月に完了した。

一方で、フェーズ 2 技プロと並行する無償案件は、二度にわたる政治危機による退避による中断をはさみ実施されてきた。無償案件の新施設の稼働は、2023 年前半となる見込みとなり、新施設の稼働前に、SSUWC は新施設を適切に運営、維持管理し、持続可能な運営のための管理能力を強化する活動を必要としている状況である。また、フェーズ 2 は期間中の活動のほとんどが遠隔での指導であり、技術の定着のためには現場での技術指導も必要となっている。こうしたことから、SSUWC への支援を継続する技術協力プロジェクト「ジュバ市きれいな水供給プロジェクト」（以下「新規技プロ」）が要請、計画され、準備中の状況である。フェーズ 2 技プロの概要を以下に示す。

表 1-6　プロジェクト概要（フェーズ２技プロ）

プロジェクト名	南スーダン都市水道公社水道事業管理能力強化プロジェクト（フェーズ２）
上位目標	ジュバにおいて安全できれいな水が確実に供給される。
プロジェクト目標	SSUWC ジュバ支所において、持続可能なサービス提供(財務管理、無収水対策、施設運転維持管理を含む)に係る能力が強化される。
期待される成果	1) SSUWC ジュバ支所の水道料金徴収能力が向上する。 2) SSUWC ジュバ支所による市民に対する啓発活動が強化される。 3) SSUWC ジュバ支所の無収水管理能力が向上する。 4) SSUWC ジュバ支所の既存・新設給水施設の運営維持管理能力が向上する。 5) SSUWC 本部のジュバ支所への支援・監督機能が強化される。
調査対象地域	南スーダン　ジュバ
関係省庁	実施機関:南スーダン都市水道公社（SSUWC）ジュバ支所、本部（HQ） 協力機関:水資源灌漑省（MWRI）（前電力・ダム・灌漑・水資源省から分離）
カウンターパート	SSUWC 本部およびジュバ支所

1.1.6. 技術協力プロジェクト（フェーズ１、フェーズ２技プロ）(2010 年-2022 年)の成果

フェーズ１技プロは、南部スーダンのスーダン国からの独立前後をはさんで 2010 年から中断なく実施された。一方で、フェーズ 2 技プロは 2016 年 2 月から開始されたが、2016 年 7 月に南スーダンで起こった政治的混乱による退避（2016 年 7 月～2019 年 3 月）とコロナ禍の影響（2020 年 3 月～2021 年 5 月）を受けて 2022 年 2 月まで実施期間を延期している。

政治的混乱の退避の期間中は、ウガンダ、ケニヤにカウンターパートを呼寄せて、遠隔研修としてプロジェクトを実施した。遠隔での研修は、JICA 専門家による座学とウガンダ全国上下水道公社（NWSC）とケニヤ水研修所（KEWI）の水道施設や研修施設を活用した実地研修と講義を組み合わせて行った。NWSC での研修センターと共同した堅守が中心となったが、東アフリカの水道事業体のグッドプラクティスを習得する良い機会となった。

政治的混乱の状況が改善された 2019 年 4 月には、専門家によるジュバでの活動が再開されたものの、2020 年 3 月にはコロナ渦の影響で再び現地での活動が停止することになった。

従って、フェーズ 2 技プロは、当初計画からは実施できる活動が大幅に制限させられた中でのプロジェクトの実施となった。

フェーズ 1 の成果とフェーズ 2 の成果を以下に整理する。

表 1-7　フェーズ 1 とフェーズ 2 の成果等

項目	第 1 期での成果等	第 2 期での成果等
1. 浄水場維持管理	1. 毎日各種データ（浄水量、運転時間、塩素消費量、発電機の運転等）を記録できるようになった。毎日記録の重要性をよく理解した。	継続実施 （データシートの整理が必要）
	2. 毎日の維持管理記録はコンピュータに保管され、それを基に PI や月例報告書、維持管理計画書が作成された。	継続実施 PI や月例報告書は継続作成。維持管理計画書は未作成。
	3. 維持管理マニュアルと標準手順書（SOP）を作成した。これにより、職員は、適切な維持管理ができるようになった。	継続実施
	4. 薬品の適切な注入や逆流洗浄方法が実施できるようになった。その結果、浄水水質は改善し、2013 年 9 月時点で浄水濁度及び残留塩素濃度は 100%基準を達成した。	継続実施 NRA 問題のため、シフトオペレーターが出勤しないため、運転時間が不安定。NRA 問題は 2021 年 11 月に一旦は解決した。
	備考：電力供給状況 開始時点では、SSUWC は比較的安定した電力供給を受けていたが、2013 年 1 月に商用電源の供給は完全に停止した。2013 年 9 月に、商用電源が復旧、ほぼ 24 時間電力が浄水場に供給されるようになった。これにより、浄水場はほぼフル運転となった。	開始当初から電力は無し。発電機で施設運転。当初は、補助金付きの燃料の調達により運転ができていたが、現在、補助金付き燃料は無くなり、マーケット価格の燃料を調達している。発電機の維持管理は改善。NRA 問題のため燃料、薬品とも購入できず。
2. 水質管理	1. 水質試験室職員は、数学や化学の基礎知識が備わっていないため、基礎数学や化学単位から研修する必要があった。2 人のラボ職員の水質試験技能は向上した。ジャーテストも実施可能。	フェーズ 1 後にラボ職員を拡充したが離職した。当初の 2 名のみ。
	2. 水質試験室職員は、浄水場で毎日、市内の配水池で毎週、給水栓、給水車取水ポイントで毎月、水のサンプリングを行っていた。ただし、専門家の車両を使用してのサンプリングである。	現在は、浄水場のみで水質サンプルが可能。浄水場以外は、サンプルの収集手段が無いことや、一般顧客には夜間給水のみであるためサンプリングが困難。
3. 配水管理、漏水管理	1. ポンプ配水計画が作成された。2013 年 1 月以降、電力は完全に停止したため、本計画は実施が不可能となった。その	配水計画を作成して実施可能、ただし浄水場の運転時間が限られているため、配水管理計画の実施は困難。

項目	第1期での成果等	第2期での成果等
	後、自家発電機のみでのポンプ送配水計画が立案され実施に移された。2013年 9 月の商用電源復旧後には、新たに浄水場 24 時間運転用のポンプ送配水計画が作成され実施に移された。	
	2. 報告書には、送配水施設の稼働の状況、配水量、漏水報告と修理の状況、管路の新設・更新を記載している。GPSと GIS の使用が可能。地図上に、新設・更新管路や漏水の情報をインプットした。	継続実施
	3. 維持管理の予算の制約により、十分な配管部品は購入できないため、十分な修繕活動はできないが、職員は予算や資材がある限りにおいて、漏水の修繕、新設管の敷設（給水地域の増加）と老朽管の更新を行っている。	継続実施 依然、予算確保は不十分。
	4. （無収水対策は無し）	第2期で無収水対策を追加。ただし、漏水調査機材調達なし。地上漏水の修理のみを実施。無収水マニュアル（地上漏水対策、報告書、GIS マッピング、メータ管理）を作成。バックホー調達により修理の省力化、迅速化に貢献。資機材があれば漏水修理は可能。
4. 財務管理	1. 財務状況及び料金徴収の現状把握を行った。コスト構造分析を基に、料金徴収の改善と水道料金に関する提言を行い、ジュバ支所の年間計画と予算書を作成した。提案は実施に移された。	商業サービス部の部長が離職。検針員、料金徴収係、会計、財務の職員の出勤が少なくなり、業務に大きな影響を与えている。 NRA 問題の解決後に、職員の出勤が改善している。2022 年 1 月の料金収入が 7 百万 SSP に達し、過去最高を記録した。
	2. 水道料金改定（従量制）案が作成され、SSUWC 本部及び監督官庁に送られた。認可されていないが、ジュバ支所は、コスト・リカバリーを目的に、新料金を課金徴収している。	複数回料金値上げを実施した。最新は 2021 年 11 月に従量制料金を 200SSP/m3 から 300SSP/m3 に値上げした。
	3. 顧客情報の整理と請求書発行ためのコンピュータベースの顧客データベースを開発した。請求書の徴収効率の改善に貢献している。	継続実施 データベースのクリーニングが必要。
	4. 財務部門の職員は、ケニヤで、メータシステムと顧客管理の研修を受けた。	ウガンダの NWSC でメータメンテナンスの研修を受けた。
	5. 今後、以下の課題が残る。 - 請求書配布職員数が少ない - 未使用の接続が多い - 顧客位置図がない - 財政難のため新規家庭接続のための水道メーター及び付属品が調達できない	- 給水されていない接続を整理する活動を実施（約 3,000 件から約 500 件に減少） - 顧客位置図の作成途上 - 専門家が大口水道メータを約 150 個調達し商業顧客に設置済み。
	6. 公共水栓の運営モデルを作成し、パイロットプロジェクトによる運営管理を行った。専門家チームは、民間運営による管理モデルを提言した。同様に、給水車取水ポイントの運営においても民間運営モデルを提言した。運営モデルには、契約書（案）、各種帳票が含ま	実施なし

項目	第1期での成果等	第2期での成果等
	れる。	
7. 計画書	計画書を 3 年間作成した。パフォーマンス目標、維持管理上の問題、問題解決のための活動、必要な資源が網羅されている。プロジェクトで作成したフォーマットを埋めることにより、C/P 独自で報告書は作成できるようになったが、今後、分析と計画能力の更なる改善が必要である。	年間計画書を 2021 年 12 月に作成し、HQ と共有した。改善計画を作成し 2019 年 3 月までモニタリングした。維持管理予算書は作成も、十分な予算がないため執行は未実施。
8. SSUWC 本部	SSUWC 本部はジュバ支所から提出された月報、年報、年間計画の評価を行った。ジュバ支所の 2011/2012 年、2012/2013 年、2013 年/2014 年の年間計画を審査した。	担当職員の離職等により、審査は不十分。月報と計画書の審査体制を再整備中。
9. データ管理	各部署がデータを作成し保存	継続活用 統合的にデータを管理するため、データベース管理責任者をアサインする計画。
10. PC 技能	プロジェクト開始前には、データ管理のため一度もコンピュータを使用したことがなかった職員がほとんであったら、必要な職員がコンピュータにデータを入力・分析し、コンピュータで報告書を作成できるようになった。	継続活用 必要な人材は PC ができるようになった。
11. インターネット	なし	なし
12. 車両	複数台の車両が稼働していたが、不足気味。	JICA 供与の車両（ランドクルーザー）1 台、バイク 12 台、バックホー1 台。維持管理活動をするには車両が極端に不十分。
13. 資機材調達	予算が不十分のため計画的な大口調達できず。	予算がないため計画的な大口調達できず。
14. 薬品調達	薬品は SSUWC 本部が調達。	薬品は SSUWC 本部が調達。ドナーからの支援に依存。
15. 電力・発電機燃料	電力供給あり。	電力なし。発電機で運転。補助金付き燃料が調達不可になる。
16. 既存施設の状況	2010 年に稼働した MDTF の施設を使用。老朽化なし。	以下の機材が老朽化あるいは故障している。 ● 原水ポンプ 1 台 ● 逆洗ブロワー2 台 ● 空気洗浄管の破損 ● ろ過砂の要交換 ● 塩素注入器 2 台（注入量調節できず） ● TFS の流量計 6 台が故障
17. 遠隔研修		ケニヤ、ウガンダでの遠隔研修により、各種基礎知識、技能の取得済み。
18. 研修教材	作成したマニュアル、SOP 類	ケニヤ、ウガンダでの遠隔研修資料
19. 人材		遠隔研修等で能力強化した能力のある職員の離職： ● Lawrence (HQ DG of Planning& Study)

項目	第１期での成果等	第２期での成果等
		● Arison (Juba station Director of Accounting section) ● Keneth (同上) ● Moris (Accounting staff) ● Peter Toburo (Director of water purification) ● Daniel (Meter reader) ● Tibo (laboratory staff) 一方で、若干の若手職員が入職(Nancy, Abuba, Evilis, Emmanuel)。
20. 職員のモチベーション	為替レートが安定しており、給料もドルで数百ドル相当を配給、遅配もなし。	為替レートが 100 分の 1 以下に下落。平均給与は 2,000SSP (5 ドル/月)、2021 年 7 月から 2 倍になるも、以前給与レベルは極端に低い。また遅配も頻繁であり、現時点 4 か月の遅配。職員は出勤費用も出せないため出勤率は低下。職員のモチベーションは極度に低下し離職者も多い。

※JICA 支援状況の記述にあたっては、下記の JICA 報告書を参照している。

- JICA（2013）フェーズ１技プロ「事業完了報告書」
- JICA（2022）フェーズ２技プロ「業務完了報告書（案)」
- JICA（2021)「南スーダン国ジュバ市きれいな水供給プロジェクト詳細計画策定調査」

第2章 他ドナーによる支援状況

2.1. UNICEF（国際連合児童基金）

2.1.1. 概要

UNICEF は安全な水へのアクセスをコミュニティに提供することを目標にしている。その 1 つが井戸の掘削である。長期的な解決策が必要な地域では、水をトラックでコミュニティに運搬、浄化用のタブレットや粉末を家族に提供したりしている。衛生についてもトイレの建設と維持管理が行われており、コミュニティは衛生計画の重要性について理解を深めている。病気の感染を防ぎ子供たちに健康な未来を提供するために、全国で衛生促進活動を実施している。

2019 年の Annual report によると、以下を達成した。

- 496,574 人がきれいな飲料水にアクセスできた。
- 54 の新しい井戸が掘削された。
- 626 の井戸が修復された。
- 202,208 人が基本的な衛生設備を利用できるようになった。
- 361,319 人が石鹸やバケツなどの衛生用品の支援を受けた。
- 444,305 人が衛生促進のためのメッセージを受けた。

2020 年には、激化する地方の紛争、2 年連続の大洪水、および COVID-19 の影響によって、南スーダンは大きな打撃を受けた。UNICEF はそのような状況に対応するため、690 万人、その内 190 万人の子供へ、児童保護、教育、健康、衛生、WASH 等のサービスを提供した。WASH プログラムでは都市と都市周辺の人口の回復力を強化するために、都市の水供給と管理に焦点を当て、Bor、Rumbek、Yambio、Torit で活動を実施した。WASH プログラムを通じて、2,910,264 人に WASH 用品を提供、414 の村、199,765 人の衛生施設が改善された。

2.1.2. プロジェクト 1

表 2-1 UNICEF プロジェクト 1 概要

プロジェクト名	Bor 町の水供給システムの FS、設計、施工監理及品質管理 （コンサルタント向け EOI 公示 2019 年 12 月 27 日))
目的	Bor 水供給システムの FS、設計、実施計画の策定 Bor の水供給・衛生施設のリハビリ及び建設の施工監理及び品質管理
期間	39 か月（Phase 1：3 ヵ月、Phase 2：6 か月、Phase 3：30 か月）
対象都市	Bor
内容	
・給水	• 25 万人が安全な水への持続的なアクセスを得る。 ➢ 取水口、ポンプのリハビリ ➢ 既存浄水場の改築 ➢ 送水管の修理とルート変更 ➢ 貯水池の建設 ➢ TFS の建設 ➢ 既存の配水管網のリハビリ、修理 ➢ 水質監視と情報管理システムの確立 ➢ 州立水質研究所の修復と運営支援
・衛生	• 175,000 人（目標の 70%）が衛生的な排泄物処理手段を持続的に利用できる

	ようになる。 ● 175,000 人（目標の 70%）が少なくとも 3 つの重要な改善された衛生行動（手洗い、トイレと HWTS 技術の使用）を認識し、実践できるようになる。 ● 対象となる学校で持続可能な学校水衛生アプローチが実施される。
能力向上	● コミュニティが WASH プログラムを計画し持続可能な方法で水衛生施設の効率的な維持管理するためのトレーニングを受ける。 ● 4 州の農村水供給・衛生局が農村水情報管理システム（RWIMS）を通じて、WASH 活動を効果的に計画、監督、監視、報告する能力が強化される。
Bor 市の現状（2013 年）	水源はナイル川と地下水であり、1960 年代に都市給水システムが建設されたが、戦争で破壊された。2010 年 1 月に 200m3/h の小型水処理プラントを建設、一日 5 時間の稼働で 1,000m3 を生産（ただし水質は飲料水基準を満たしていない）。 浄水場と同時期に建設された配水システムは市の 35%をカバー、配水網延長は 25km で、直径 300mm(12 インチ)、250mm(10 インチ)、200mm(8 インチ)、150mm(6 インチ)、100mm(4 インチ)の HPDE パイプが敷設された。水道接続数は 61 で、13 の公共水栓がある。 町の残りの部分は地下水に依存し、合計 63 以上の井戸があると記録されている。そのうち 85%はハンドポンプで、井戸は州の農村部水道局により管理・運営されている。

2.1.3. プロジェクト 2

表 2-2 UNICEF プロジェクト 1 概要

プロジェクト名	3 都市（Yambio、Torit、Yei）の水供給衛生システムの FS、設計、施工監理及び品質管理 （コンサルタント向け EOI 公示 2018 年 5 月 9 日))
目的	3 都市で信頼性が高く公平で安全な水の供給を持続的に受けられるようにする。施設（学校、医療施設）へ水を供給する。
期間	18 か月（Phase 1：4 ヵ月、Phase 2：14 か月
対象都市	Yambio、Torit、Yei
内容	
・給水	Component 1 ● 都市周辺部 Yambio の脆弱なコミュニティへの水供給の提供 ➢ 配水管の拡張、キオスク、TFS の建設 ➢ 3 か所の湧水の開発 ➢ 40 か所の給水ポイントの回収 ➢ 4 つの水利組合の設立とトレーニング ➢ Yambio UWSSCO の能力向上、キオスク管理者のトレーニング ➢ WASHCOMS 及びポンプ整備士協会の設立と強化 ➢ 州水質研究所の改修 ● 都市周辺部 Torit の脆弱なコミュニティへの水供給の提供 ➢ Torit 都市部の浄水場の改修・増設 ➢ 配水管の延長 ➢ 50 か所の給水ポイントの改修 ➢ 4 つの水利組合の設立とトレーニング ➢ Torit UWSSCO の能力向上、キオスク管理者のトレーニング ➢ WASHCOMS 及びポンプ整備士協会の設立と強化 ➢ 州水質研究所の改修 ● Yei 都市周辺部の脆弱なコミュニティへの給水の提供 ➢ Yei 都市部の水道システムの復旧、KfW が中断したプロジェクトの未完了部分の完了 ➢ 30 か所の給水ポイントの復旧

	➢ 4 つの水利組合の設立とトレーニング ➢ Yei UWSSCO の能力向上、キオスク管理者のトレーニング ➢ WASHCOMS 及びポンプ整備士協会の設立と強化 ➢ 州水質研究所の改修
・衛生	Component 2 Yambio、Torit、Yei、Juba における衛生施設の提供 ● 20 の共同衛生施設の建設 ● 学校用トイレ 40 基の建設 ● 保健施設用トイレ 20 基の建設 ● 共同衛生施設の O&M を行う小規模な会社の設立 ● 都市周辺部の 10 村で CLTS 開始
現状（2018 年以前）	Torit 市 人口 30,100 人の内、30%が安全な水にアクセス可能である。500m3/日の能力の浄水場と合計 126m3 の高架水槽 2 つがある。燃料価格・不足により既存のシステムはフル稼働できていない。住民の大半は水売り人から高い費用で水を購入している。  Yambio 市 人口 54,004 人。75m3/日の能力のある 2 つの井戸から 4 キオスクと TFS2 か所に水を送っている。住民の大半は市の様々な場所にある改良/改良されていない泉、ハンドポンプ付き井戸、手掘り井戸、保護されていない湧水を使用している。UNICEF が最近 Kortangl 地区で太陽光発電による湧水システムにより、40m3/日を 20m3 の高架水槽 2 基とキオスク 6 台で配水している。湧水は数多くあるが、保護されておらず、またコミュニティからのアクセスが悪い。 Yei 市 人口 93,976 人で既存の水道は 40～50%をカバーしている。合計 100m3/日の井戸と合計 50m3 の容量を持つ 2 つの高架水槽、11 のキオスクで配水している。3 つの井戸と 15 のキオスクが建設されているが機能していない。

2.2. ICRC（赤十字国際委員会）

2.2.1. 概要

ICRC は 1980 年にジュバに設立され、2011 年半ばに南スーダンに代表部を開設した。武力紛争やその他の暴力状況の影響を受けた人々を、International Humanitarian Law（IHL）およびその他の規範に従って保護することを目的として、主に以下の活動を行っている。

- 医療施設、リハビリテーション施設の整備・教育
- 安全な水へのアクセスの確保
- 緊急救援・生活支援（食糧支援、農業再開支援等）
- 紛争による離散家族との連絡回復

ICRC の活動は南スーダン全土で行われている。南スーダンにおける ICRC の拠点を図 2-1 に示す。

図 2-1　南スーダンにおける ICRC 拠点

South Sudan Facts and Figures 2020-2021 によると、「安全な水へのアクセス確保」に関するこれまでの主要な成果は、以下のとおりである。

- 数百か所の給水拠点・ボアホール・溜池・水キオスクの整備により、275 万人の安全な水へのアクセスを改善
- Gumbo water supply project により、Juba 市 Gumbo 地区に浄水・配水施設と給水キオスクを整備し、20 万人の安全な水へのアクセスを改善

給水に関連するプロジェクトとして、以下が紹介されている。

	2014 年 プロジェクト実施地：Upper Nile 州 • Lui コレラトリートメントセンター • 浄水施設を備えた給水施設の整備。
	2015 年 プロジェクト実施地：Juba • 太陽光パネルを備えた給水施設 6 か所を整備。 • 6 施設合計で 15,000 人の飲料水へのアクセスを向上させた。

	2018 年 プロジェクト実施地：Lakes 州、Rumbec ・ 武装勢力による被害を逃れるために Rumbec に多くに避難民が集中した。 ・ このため既存給水施設である Akuach water yard の改修を行い、ボアホール、配水タンク、発電機、ソーラーパネルの新設を行った。 ・ Akuach water yard は 15,000 人に対する給水が可能である。

ICRC は、南スーダンの SSRC（South Sudan Red Cross）と共同で活動を行っている。SSRC の活動拠点を図 2-2 に示す。SSRC は ICRC、IFRC（International Federation of Red Cross）のパートナーとして活動を行っている南スーダンの国内組織である。

SSRC は活動戦略計画を 3-4 年毎に定めており、現在の活動戦略計画は SSRC Strategic Plan 2018-2021 である。この中で、以下の項目を戦略的重点分野としている。

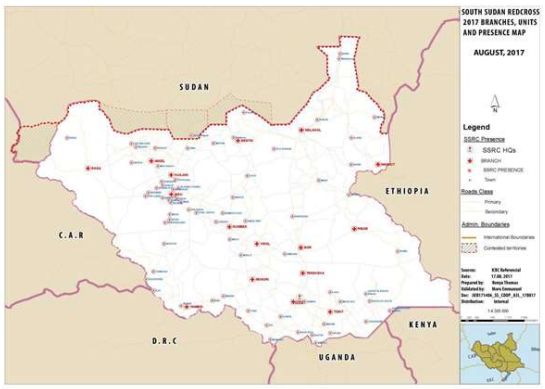


図 2-2　南スーダンにおける ICRC 活動拠点

- Disaster management
- Health
- Water Sanitation and Hygiene （WASH）
- Protection（暴力の予防）

これらのうち、SSRC の WASH プログラムは、以下の活動により衛生習慣の定着を目指している。

- 水・衛生施設の建設リハビリテーション
- 施設の持続的な維持のためのコミュニティの能力開発
- コミュニティ参加型の衛生・サニテーション変革活動（PHAST）
- コミュニティ主導型トータルサニテーション（CLTS）
- 子ども衛生サニテーショントレーニング（CHAST）

ICRC によって近年実施された給水関連のプロジェクトは以下のとおりである。コレラ発生対策としての給水施設整備および内戦難民・帰還者支援のためのプロジェクトである。

2.2.2.　プロジェクト 1

表 2-3　ICRC プロジェクト 1 概要

プロジェクト名	プロジェクト名不明
目的	2015 年のコレラアウトブレイク（感染者 1,800 人、うち死者 47 人）の緊急対策として、被害が深刻であった Juba および Jonglei 州 Boa 近郊において給水施設の整備を行った。
期間	2015
対象都市	Juba および Bor 郊外(Achngdir, Langbar, Malow)
内容	

・給水	Juba ナイル川河畔に 700m3/日の能力を持つ浄水施設を建設し、9 か所（Block4, Block5, Gurei east, Hai Bakara, Jebel Yesua, Angels primary school, Market, Chaplain Church and John Garang school）に配水拠点を整備。 給水拠点には給水車で浄水を運搬する。47,000 人の市民が安全な飲料水にアクセスすることが可能となった。   Jonglei 州 Bor 郊外 Juba から北北東に約 150 km離れたナイル川河畔の都市である。浄水施設とタンク車給水拠点を整備し、タンク車による給水を実施。 7,200 人以上の住民が安全な飲料水にアクセスすることが可能となった。  
・衛生	給水拠点の整備と並行して、衛生に関する住民啓発活動を実施。
・コロナ	データなし

出典：https://www.icrc.org/en/document/south-sudan-conflict-preventing-cholera
https://www.icrc.org/en/document/clean-drinking-water-vital-lifeline-people-south-sudan

2.2.3. プロジェクト 2

表 2-4 ICRC プロジェクト 2 概要

プロジェクト名	Gumbo water supply project
目的	人道支援として、Juba 市 Gumbo district（Juba 市街地の対岸）への給水実施を目的とする。Gumbo District は、内戦の避難民・帰還者が多く居住する地域である。
期間	2019-2023
対象都市	Juba, Gumbo district
内容	
・給水	GIZ と協同実施しているプロジェクトである。浄水施設、配水ポンプ、延長 15 km の配水管網、配水池 2 か所、TFS 及び水キオスクの建設を行う。同時に職業訓練施設が設置・運営され、水道・衛生施設の運営を担う人材を教育している。
・衛生	データなし
・コロナ	データなし

出典：https://www.giz.de/en/worldwide/89376.html

2.3. ドイツ国際協力公社（GTZ）

2.3.1. 概要

数十年間の内戦により 200 万人以上の内戦避難民が発生していると同時に、内戦の影響により上下水道インフラの開発は停滞していたため、避難民の大部分が衛生的な飲料水を利用することができていない。こうした中、GTZ は給水施設の運転持続のための支援や特定の学校における衛生指針の改定を通じた貧困層支援プロジェクトを実施した。策定された衛生指針にもとづいて Torit、Yambi、Yei の 3 つの都市において水洗トイレ、コンポストトイレ、手洗い場の修復・改修等の活動を行った。

2.3.2. プロジェクト 1

表 2-5　GTZ　プロジェクト 1 概要

プロジェクト名	Development of the Urban Water and Sanitation Sector in South Sudan
目的	紛争避難民とそのホストコミュニティ向けに飲料水へのアクセス改善及び衛生環境の改善を行う。
期間	2017 年～2020 年
対象都市	Torit、Yambio、Yei
内容	
・給水	給水施設拡充に向けた財政支援、施設運転のための技術支援の提供。
・衛生	学校の水洗トイレ・コンポストトイレ及び手洗い場の改修。コンポストトイレから生成される堆肥の活用場所としての庭場の設置。
・コロナ	データなし

2.4. 世界銀行（World Bank）

2.4.1. 概要

世界銀行は 2005 年の南北協定の締結と南スーダン自治政府の創設以来、支援を続けている。2012 年 4 月の独立後の紛争再開で後退したものの、2018 年に国別エンゲージメントノート（CEN）を締結した。この CEN は極端な貧困を終わらせ、持続可能な方法で繁栄の共有を促進するという目標を掲げ、(1) 脆弱な人々への基本的なサービス提供の支援と (2) 生計、食料安全保障および基本的な経済回復への支援に重点を置いている。

2.4.2. プロジェクト 1

表 2-6　世界銀行　プロジェクト 1 概要

プロジェクト名	Water Supply and Sanitation Project (WSSP)
目的	水道・衛生施設の改善
期間	2010～2013
対象都市	Jonglei、Central Equatoria、Western Equatoria、Eastern Equatoria、Lakes、Warrap、Unity、Upper Nile、Northern Bahr el Ghazal、Western Bahr el Ghazal 等
内容	
・給水	安全な水へのアクセス：394,000 人 ・ 90 井戸の掘削、1,050 既存井戸のリハビリ、2 貯水池の建設、6 湧水の保護

	（Jonglei、Central Equatoria、Western Equatoria、Eastern Equatoria、Lakes、Warrap、Unity、Upper Nile、Northern Bahr el Ghazal、Western Bahr el Ghazal） ・ 配水システムの建設・リハビリ（Jonglei、Central Equatoria、Warrap、Upper Nile、Eastern Equatoria、Northern Bahr el Ghazal、Lakes、Western Equatoria、Unity、Western Bahr el Ghazal） ・ 水質検査ラボの建設（Juba、Torit、Bor、Rumbek、Aweil、Bentiu、Malakal、Kwajok、Wau、Yambio） ・ 7 都市（Bor, Rumbek, Yambio, Torit, Kuacjok, Aweil, Bentiu）の状況確認、F/S、設計
・衛生	改善されたトイレへのアクセス：22,500 人 ・ トイレの建設（Jonglei State、Eastern, Central & Western Equatoria State、Warrap, Lakes、Western Bahr el Ghazal State、Northern Bahr el Ghazal State、Upper Nile、 Unity State ・ 7 都市（Bor, Rumbek, Yambio, Torit, Kuacjok, Aweil, Bentiu）の状況確認、F/S、設計

2.4.3. プロジェクト 2

表 2-7　世界銀行　プロジェクト 2 概要

プロジェクト名	South Sudan Local Governance & Service Delivery
目的	地方自治体とサービス提供の改善 ・ 地方自治体の改善 ➢ 地域開発の計画、管理、監督におけるコミュニティの関与を強化 ➢ 地方開発の計画、管理、および監督における地方政府の能力を向上 ・ サービス提供の改善 ➢ サービス提供の改善
期間	2013～2018
対象都市	7 県の 23 郡
内容	
・給水	・ 105 井戸
・衛生	・ 202 改善されたトイレ

2.5. 国連機関および他ドナー機関

2.5.1. 概要

南スーダンでは、国連機関の United Nations in South Sudan のほか、平和・治安維持活動である UNMISS(United Nations Mission in south Sudan)が活動している。

国連機関は南スーダン政府との間の共同協力協定である UNCF（United Nations Cooperation Framework）を通じて、国家開発の優先事項と「持続可能な開発のためのアジェンダ 2030」に向けた活動を行っている。

UNICEF は 2019 年～2021 年が計画期間であった。この枠組みの下で、以下の優先分野に焦点を当てた支援活動が行われた。

- 平和の構築とガバナンスの強化
- 食糧安全保障の向上と地域経済の回復
- 社会サービスの強化

- 女性と若者のエンパワーメント

上記優先分野の実現のために、以下の 9 つの主要プログラムが実施されている。

1) ジェンダーに基づく暴力との闘い
2) 基本的な保健サービスの提供
3) 子どもと若者の教育
4) 食料と栄養の確保
5) ガバナンスと司法へのアクセスの改善
6) 地域に根ざした経済復興
7) 避難民家族の支援
8) 完全な国勢調査の準備の支援
9) 女性のエンパワーメント

なお、南スーダンでは多くの国連関係機関が協力して活動を行っている。UN South Sudan のホームページには、以下の機関が挙げられている。

表 2-8 南スーダンで活動実施している国連関係機関

略称	機関名	日本語名称
AfDB	African Development Bank	アフリカ開発銀行
FAO	Food and Agriculture Organization	国際連合食糧農業機関
IFAD	International Fund for Agricultural Development	国際農業開発基金
IOM	International Organization for Migration	国際移住機関
OCHA	United Nations Office for the Coordination of Humanitarian Affairs	国連人道問題調整事務所
OHCHR	Office of the High Commissioner for Human Rights	国連人権高等弁務官事務所
UNEP	United Nations Environment Programme	国連環境計画
UN-Habitat	United Nations Human Settlements Programme	国際連合人間居住計画
UN Women	United Nations Women	国連女性機関
UNAIDS	Joint United Nations Programme on HIV/AIDS	国連エイズ合同計画
UNDP	United Nations Development Programme	国連開発計画
UNESCO	United Nations Educational, Scientific and Cultural Organization	国際連合教育科学文化機関
UNFPA	United Nations Population Fund	国連人口基金
UNHCR	The Office of the United Nations High Commissioner for Refugees	国連難民高等弁務官事務所
UNICEF	United Nations Children's Fund	国連児童基金
UNIDO	United Nations Industrial Development Organization	国連工業開発機関
UNMAS	United Nations Mine Action Service	国連地雷対策サービス部
UNOPS	United Nations Office for Project Services	国連プロジェクトサービス機関
WFP	United Nations World Food Programme	国連世界食糧計画
WHO	World Health Organization	世界保健機関
World Bank	World Bank	世界銀行

出典：https://southsudan.un.org/en/about/un-entities-in-country

UN の活動は多岐にわたるが、給水・衛生に係る直近のプロジェクトとして、以下が紹介されている。南スーダンでは、COVID-19 だけでなく、コレラも注意すべき脅威として捉えられている。

2.5.2. プロジェクト 1

表 2-9　プロジェクト 1 概要

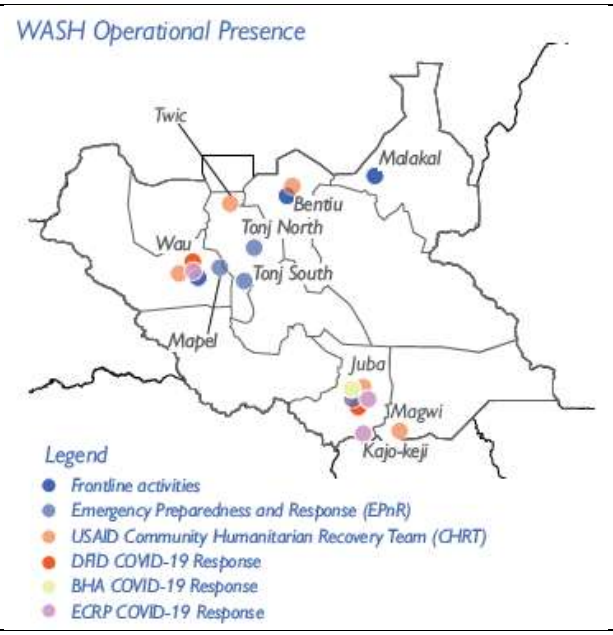
プロジェクト名	Cholera Vaccination Campaign
目的	洪水被害者に対するコレラワクチン接種
期間	1) 2020 年 12 月 16-20 日、2021 年 1 月 10-15 日 2) 2021 年 1 月 16-21 日
対象都市	1) Bor 2) Pibor town、Verteth、Gumurk、Lekuangule
内容	
・給水	データなし
・衛生	南スーダンMinistry of Healthが主体となり、WHO、UNICEF、IOM MEDAIR他パートナーの協力により、コレラの経口ワクチン接種を実施。洪水被害により人口の大規模な移動があったJonglei州Pibor川流域の都市で実施された。 接種を行った人数は、以下の通り。 1) Bor：63,280人＋64,137人　合計127,417人 2) Pibor town、Verteth、Gumurk、Lekuangule　：93,250人。 
・コロナ	データなし

出 典 ： https://southsudan.un.org/en/111637-ministry-health-launches-campaign-protect-over-93000-individuals-against-cholera-greater

2.5.3. プロジェクト 2

表 2-10　プロジェクト 2 概要

プロジェクト名	WASH（IOM が主体となった活動）
目的	給水および衛生施設の整備およびコロナ対策
期間	2020 年 4 月-6 月

<table>
<tr><td>対象都市</td><td>Juba、Magwi、Kajo-keji、Mapel、Tonji South、Tonj North、Wau、Bentiu、Twic、Malakal
（右図参照）
 
</td></tr>
<tr><td>内容</td><td></td></tr>
<tr><td>・給水</td><td></td></tr>
<tr><td>・WASH
・コロナ</td><td>IOM主体のWASH活動による主な成果は以下のとおりである。
• Water・Sanitation・Hygieneサービスへのアクセス人口：731,856人
• コミュニティ管理ラトリントイレ利用可能人口：5,967人
• コミュニティ管理給水サービス利用人口：105,887人
• 手洗い施設設置数：512か所
• WASH/NFIキット配布による裨益人口：39,768人
• IPC/WASHサービス実施：3か所
上記の内、トイレの整備は、女性・子供の安全を守るための目的である。

<u>コロナ対策</u>
• COVID-19対策としてのハンドポンプ利用可能人口：183,404人
• COVID-19リスクコミュニケーション・Community engagement activity参加人口：578,506人
 
IOMによるハンドポンプ(Juba)
 
新設されたラトリンピット</td></tr>
</table>

出典：IOM South Sudan Water, Sanitation and Hygiene (WaSH) 2020 Quarter2 report

2.5.4. プロジェクト 3

表 2-11 プロジェクト 3 概要

プロジェクト名	WaSH（IOM が主体となった活動）
目的	給水および衛生施設の整備およびコロナ対策
期間	2021 年 4 月-6 月

対象都市	Juba、Magwi、Nimula、Tonji East、Tonj North、Tonj South、Wau、Jur River、Rubcona、Malakal、Panyikang、Twic North、Twic south、Twic East （右図参照） 
内容	
・WaSH ・コロナ	主な成果は以下のとおりである。 <u>Jur Riverにおける深井戸建設</u> • 西Bahr el Ghazal州、Jur River地域における深井戸建設 • これまでの浅井戸は周囲からの汚水が流入しており、水系感染症の原因であった。住民は井戸まで片道1.5時間の水くみ労働を行っていた。 • 深井戸建設により安全な飲料水にアクセスすることが可能となった。 • また水くみ労働から解放されたことにより、農作業を行う時間が増加した。  IOMによるボアホール <u>ラトリンピットの汚泥引き抜き</u> • Malakal PoCサイト（文民保護区：居住人口30,000人）において、IOMの指導による液体廃棄物（し尿）管理チームを住民により組織した。 • 管理チームはPoCサイト内の1,200か所のラトリンピットの汚泥引き抜きとメンテナンスを実施している。 • IOMは汚泥処理用の嫌気処理池および安定化池（合計容量8,600m³）を建設し、管理チームが水質をモニターしながら処理を行っている。 • し尿収集および廃棄物処理を行うことにより、PoCサイト内の伝染病の発生が減少した。

出典：IOM South Sudan Water, Sanitation and Hygiene (WaSH) 2021 Quarter2 report

2.6. Water Aid

2.6.1. 概要

南スーダンでは女子学生の多くが月経周期に差し掛かると、衛生的なトイレや手洗い場が不足している学校への通学を控える場合が多い。安心安全な水衛生環境が整っていないために、女子学生たちは安心して学校教育を受けることができず、こうした状況は学力にも悪影響を及ぼす可能性が懸念されている。Water Aid は UNICEF や SNV（オランダ開発機構）と共同で、”Girls in Control”という、南スーダンを含めた 5 ヵ国の女子学生の就学を支援するための設備整備や啓発活動を含む包括的なプロジェクトを実施した。このプロジェクトは、水衛生環境の整備を通じ

て、月経期間においても女子学生が安心安全に通学して就学できる環境の整備を目的に実施された。

2.6.2. プロジェクト 1

表 2-12 Water Aid プロジェクト 1 概要

プロジェクト名	Girls in Control
目的	地方部や貧困地域部の女子生徒に向けて、衛生的な上下水道施設の整備、衛生用品の提供を行い、女子生徒の安定的な就学を支援する。
期間	データなし（既に終了済み）
対象都市	南スーダン、エチオピア、タンザニア、ウガンダ、ジンバブエの各都市（地域詳細不明）
内容	
・給水	手洗い等で用いる清潔な水供給の確保に向けた学校給水施設の改修。
・衛生	女子用の洗水トイレ、手洗い場、更衣室の建設。社会的認識向上に向けた啓発活動。
・コロナ	データなし

2.7. まとめ

南スーダンにおける給水・衛生セクターのドナー支援状況を次表に整理した。ジュバ以外の都市については、主にインターネットでの収集情報を基に確認できたものを掲載している[1]。

都市名	ドナー	セクター			COVID-19
		給水	衛生	その他	
Central Equatoria State	WB	○	○		
Juba	JICA	○			○
	WB	○			
	UN			○	○
	ICRC/SSRC	○			
Kajo-Keji	UN			○	○
Yei	UNICEF	○	○		
	GIZ	○	○		
Eastern Equatoria State	WB	○	○		
Magwi	UN			○	
Torit	UNICEF	○	○		
	WB	○			
	GIZ	○	○		
Jonglei State	WB	○	○		
Bor	ICRC/SSRC	○			
	UN			○	○
Bor South	UNICEF	○	○		
	WB	○			
Gumruk	UN			○	○
Nyirol					

[1] インターネットで確認ができた情報について、可能な範囲で掲載しており、水・衛生セクターのすべてのプロジェクトを記載しているわけではない。

都市名	ドナー	セクター			COVID-19
		給水	衛生	その他	
Central Equatoria State	WB	○	○		
Pibor	UN			○	○
Lakes	WB	○	○		
Rumbek Centre	WB ICRC	○ ○			
Verteth	UN			○	○
Lekuangule	UN			○	○
Northern Bahr el Ghazal State	WB	○	○		
Aweil Centre	WB	○			
Unity	WB	○	○		
Rubkona	UN			○	○
Twic (Twic East, Twiv north, Twic East)	UN			○	○
Upper Nile State	WB	○	○		
Lui	ICRC	○			
Malakal	JICA WB UN	○ ○		○	○
Panyikang	UN			○	○
Renk	WVI	○			
Warrap State	WB	○	○		
Tonj East	UN			○	○
Tonj North	UN			○	○
Tonj South	UN			○	○
Western Bahr el Ghazal State	WB	○	○		
Jur River	UN			○	○
Mapel	UN			○	○
Wau	WB UN	○		○	○
Western Equatoria State					
Yambio	UNICEF WB GIZ	○ ○ ○	○ ○		
Unity State					
Bentiu	UN			○	○

第3章 SSUWC 各支所のデータ

2021 年 2 月に、SSUWC 本部の協力を得て各支所にデータシートを送付し、水道事業サービスにかかる基礎情報の提供を依頼した。基礎情報にかかるデータシートは、大きく施設、サービス水準、財務、施設の維持管理、組織、ドナー機関による活動の 6 つの分野について構成されている。その結果、ジュバ支所を含め、全 5 つの支社から提出があった。各支所の水道サービスにかかる基礎情報を以下に示す。

3.1. ジュバ支所

No.	item	Contents
1	**General**	
	Name of Station	Juba Station
	Name of area manager	Eng. Joseph Ebere
	Address of station office	Juba Payam, Central Equatoria State
	Telephone number	
	E-mail	
2	**Assets**	
2.1	Locations of water production	2
2.2	Water production scheme and design capacity	(1) Purification Plant Juba Station: 7,200 m3/day (Rapid sand filter method) (2)Small borehole system in Kator: Not yet operating
2.3	Treatment flow of purification plant	Rapid mixing- slow mixing- Sedimentation -Rapid Sand filter-Chlorination-Storage
2.4	Water quality laboratory	Chemical only
2.5	Water storage tank (number, type, capacity)	6 locations (11 tanks) - Ground(4 in purification plant, 1 in Konyookonyo) - Elevated (3 in Hospital, 1 in Kator, 1 in memorial ground, 1 in Munuki); - total 1,940 m3
2.6	Distribution pump station (number, capacity)	3 locations (6 stations) (3 in Purification Plant, 2 in Hospital station and 1 in konyokonyo station)
2.7	Generator (number, kVA)	4 (2 in purification plant, 1 in Hospital station, 1 in Konyokonyo station)
2.8	Total length of pipeline	71 km (The major parts were constructed in 1930s or 1960s)
2.9	Pipe materials (from lager part)	Asbestos, PVC, GI & steel
2.10	Bulk flow meter	14 (5 in purification plant)
2.11	Tanker filling points	3 locations (total 9 taps)
2.12	Public tap stand	About 53 locations
2.13	Buildings (total rooms)	5 buildings (17 rooms)
2.14	Automobile	
2.15	Computer and printer	26 desktop CPs, 1 laptop, 13 printers, 1 plotter
2.16	Copier	2 (including JICA expert room)
2.17	Others	GPS, Digital camera, Video camera, Projector
3.	**Service Level**	
3.1	Total population	About 450,000 (JICA study team estimate)
3.2	Estimated service population	About 70,000
3.3	Service percentage (%)	About 18 %
3.4	Supply areas	Juba Town Payam, part of Kator and Munuki Payam, in

No.	item	Contents
		Juba city
3.5	Daily average water production	4,000 - 6,000 m3/day
3.6	Estimated non-revenue ratio(%)	About 40 %
3.7	Estimated sold water	2,400 - 3,600 m3/day
3.8	Number of connections	3,523
3.9	Billing period	Every 2 months for Domestic customers Every month for Others customers
3.10	Number of metered connections	6
3.11	Monthly average bills in number (num, %)	
3.12	Monthly average bill collected in number (num, %)	
3.13	Monthly average bills in amount (SSP, %)	
3.14	Monthly average bill collected in amount (SSP, %)	
3.15	Overall collection ration in number (%)	
3.16	Overall collection ratio in amount (%)	
3.17	Production per day per serviced population(l/d/inh.)	
3.18	Domestic water tariff (SSP)	Fixed rate without meter Class 1 (30); Class 2 (25); Class 3 (15)
3.19	Typical connection fees	
4	**Finance (2011)**	
4.1	Total income	
4.2	Total expenditure	
4.3	Remittance to Block account	
4.4	Financial balance	
4.5	Unit cost of operation per m3 production (SSP/m3)	
4.6	Average revenue per m3 sold water (SSP/m3)	
5	**Operation and Maintenance**	
5.1	Power supply condition	No city power supply as of May 2013
5.2	Reporting system	Monthly report, and annual report
5.3	O and M manuals	Purification plant, distribution, water quality, billing (prepared by JICA expert team)
5.4	Water quality monitoring (sampling point, monitoring indicator)	Point: Raw water, treatment plant, treated water, distribution Frequency: daily (WTP), weekly (tank) and monthly (tap) Indicator: See water quality management plan
6	**Organization**	
6.1	Staff number by department	164 in total Purification (64), Distribution (54), Finance (25), Adm. (19), HR (4), Area Manager (1)
7	**Donor Activities**	
7.1	JICA	The Project For Management Capacity Enhancement The Project for The Improvement of Water Supply System of Juba (2010-2013)
7.2	GIZ	Headquarter assistance
7.3	World Bank	MDTF infrastructure development (completed)
7.4	USAID	SUWASA

3.2. ワウ（**Wau**）支所

No.	item	Contents
1	**General**	
	Name of Station	South Sudan Urban Water Corporation/WBGS
	Name of area manager (start of assigned month and year)	Eng. Hassan Aggery (02/04/1948)
	Address of station office	SSUWC/WBGS/Wau
	Telephone number	0927066860/0914694444
	E-mail	
2	**Assets**	
2.1	Locations of water production	River Jur
2.2	Water production scheme and design capacity	(1) 3,000m^3 (2) 2,000 m^3
2.3	Treatment flow of purification plant	(1) Rapid mixing-slow mixing (2) Segmentation (3) Rapid sand filter (4) Chlorination-storage
2.4	Water quality laboratory (sampling point, monitoring items)	Every morning
2.5	Water storage tank (number, type, capacity)	Two types of storage
2.6	Pump station (number, capacity)	Nine pumps six pump working three in not working
2.7	Generator (number, kVA)	Five generators. three generators working and two generators not work
2.8	Total length of Pipeline	84.932 km^3
2.9	Pipe materials	PVC/UPVC Steel Pipe
2.10	Bulk flow meter	6 (in purification)
2.11	Tanker filling stations	23 Tanking
2.12	Public tap stand/kiosk	23 kiosks
2.13	Generators	Five generator& three generator bad condition
2.13	Buildings (total rooms)	26 rooms
2.14	Automobile	Two
2.15	Motor bike	Nill
2.16	Main machinery	Nill
2.17	Computer and printer	Four computer one printer
2.18	Copier	One on repair condition
2.19	Others	
3	**Service level**	
3.1	Total population	Last census year 2008 population 151,000 currently around 265,000
3.2	Estimated service population	120,000
3.3	Service percentage (%)	45 %
3.4	Supply areas	DargatHai, Jabel Wau Market Hai, Dinka,Hai-Zande, Hai-Kosti, Hai-Nazareth, Hai-Keresh, Hai-Salam, Hai-Lokoloko, SikaHadid, Hai-Khormadir
3.5	Daily average water production	5,000 m^3
3.6	Estimated non-revenue ratio(%)	
3.7	Estimated sold water	
3.8	Number of connections	1202
3.9	Billing period	
3.10	Number of metered connections	
3.11	Monthly average bills in number	

	(num, %)	
3.12	Monthly average bill collected in number (num, %)	
3.13	Monthly average bills in amount (SSP, %)	
3.14	Monthly average bill collected in amount (SSP, %)	
3.15	Overall collection ration in number (%)	
3.16	Overall collection ratio in amount (%)	
3.17	Production per day per serviced population (l/d/inh.)	
3.18	Domestic water tariff (SSP)	4,000
3.19	Typical connection fees	
4	**Finance**(Sept. 2020)	
4.1	Total income/revenue	
4.2	Expenditure by Wau station	
4.3	Expenditure by government	
4.3	Remittance to block account	
4.4	Financial balance	
4.5	Unit cost of operation per m3 production (SSP/m3)	
4.6	Average revenue per m3 sold water (SSP/m3)	
5	**Operation and maintenance**	
5.1	Power supply conditions	Four generators, only once in good but three bad condition
5.2	Reporting system	Every month
5.3	O and M manuals	Every Year
5.4	Water quality monitoring (sampling point, monitoring indicator)	Every morning
6	**Organization**	
6.1	Staff number by department	52 staffs
7	**Donor activities (Project title and description)**	
7.1	JICA	Construction kiosk and new connection pipeline
7.2	ICRC	Support water treatment chlorine
7.3	UNICEF	Support water treatment chlorine
7.4	USAID	Rehabilitation water treatment plant
7.5	African Bank	Replacement of old pipe and construction kiosk

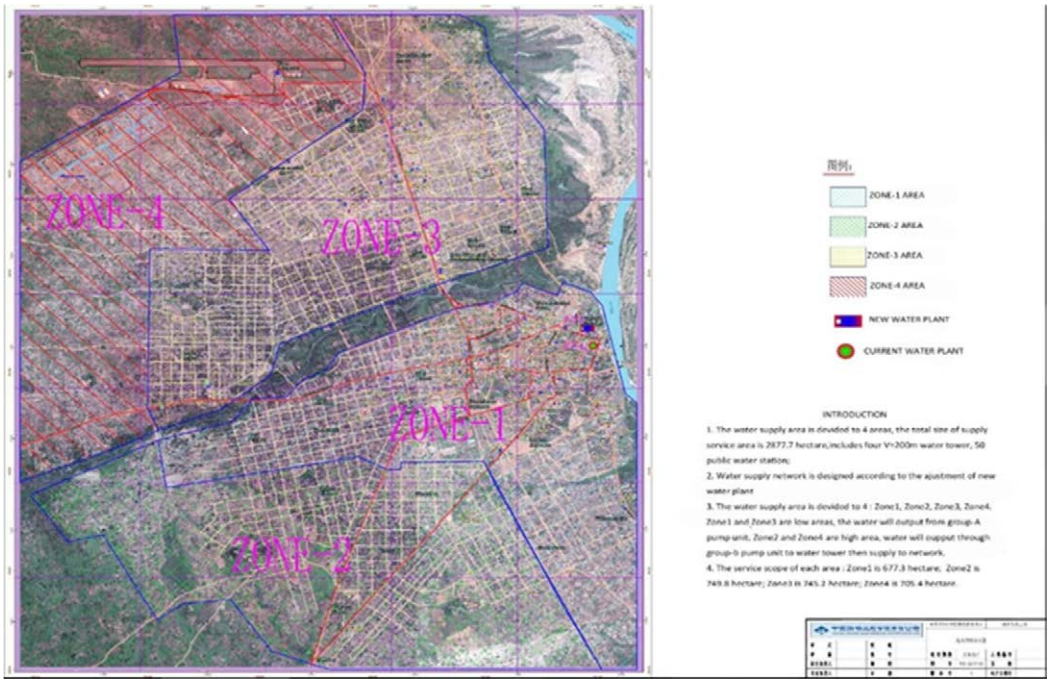


図 3-1　ワウ支所　管轄地域図

3.3. ボア（Bor）支所

No.	item	Contents
1	**General**	
	Name of Station	Bor Water Station, Jonglei State
	Name of area manager (start of assigned month and year)	Eng. John Jurkuch Yaak (January 2014)
	Address of station office	
	Telephone number	0925472327/0916817937/+2547409639
	E-mail	lonhkonn@gmail.com
2	**Assets**	
2.1	Locations of water production	In Bor town, Near South Sudan Hotel adjacent Nile river
2.2	Water production scheme and design capacity	(1) Compact, portable in container type chambers (2) 480m3 (3)
2.3	Treatment flow of purification plant	(1) sedimentation in 4 series (2) filters, pressure types 6 (3) pre and post chlorination points
2.4	Water quality laboratory (sampling point, monitoring items)	- Raw water - Clear water and filtered water - Clean water and PWDP and HHS - Physical, Biochemical parameters
2.5	Water storage tank (number, type, capacity)	3 elevated towers, 3 ground tanks steel 210M3 combined
2.6	Pump station (number, capacity)	1, & 200m3
2.7	Generator (number, kVA)	2 number, 650 KVA combined
2.8	Total length of Pipeline	21KM
2.9	Pipe materials	HDPE
2.10	Bulk flow meter	None
2.11	Tanker filling stations	None

No.	item	Contents
2.12	Public tap stand/kiosk	16 Public Water Distribution Points
2.13	Generators	2
2.13	Buildings (total rooms)	2
2.14	Automobile	1
2.15	Motor bike	None
2.16	Main machinery	None
2.17	Computer and printer	None
2.18	Copier	none
2.19	Others	
3	**Service level**	
3.1	Total population	150,000
3.2	Estimated service population	36000
3.3	Service percentage (%)	24%
3.4	Supply areas	Blocks 1,2, 3 M N and 6, Leudiet, Langbar and Marol
3.5	Daily average water production	800m3
3.6	Estimated non-revenue ratio(%)	80m3
3.7	Estimated sold water	720m3
3.8	Number of connections	300
3.9	Billing period	Per month
3.10	Number of metered connections	
3.11	Monthly average bills in number (num, %)	200
3.12	Monthly average bill collected in number (num, %)	190
3.13	Monthly average bills in amount (SSP, %)	500,000
3.14	Monthly average bill collected in amount (SSP, %)	70%
3.15	Overall collection ration in number (%)	70%
3.16	Overall collection ratio in amount (%)	
3.17	Production per day per serviced population(l/d/inh.)	800m3
3.18	Domestic water tariff (SSP)	720m3
3.19	Typical connection fees	flatrates
4	**Finance** (Sept. 2020)	
4.1	Total income/revenue	500,000
4.2	Expenditure by Juba station	700,000
4.3	Expenditure by government	700,000
4.3	Remittance to block account	none
4.4	Financial balance	Negative
4.5	Unit cost of operation per m3 production (SSP/m3)	500
4.6	Average revenue per m3 sold water (SSP/m3)	15
5	**Operation and maintenance**	
5.1	Power supply conditions	Well functioning
5.2	Reporting system	Departmental written on monthly bases
5.3	O and M manuals	1
5.4	Water quality monitoring (sampling point, monitoring indicator)	Raw water, clear water, clean water, PH, Ecoli, chlorine residual, Turbidity
6	**Organization**	

No.	item	Contents
6.1	Staff number by department	Admin and Finance dept 4, Purification Dept 4, Distribution 5
7	**Donor activities (Project title and description)**	
7.1	JICA	External training 2014 & 2016
7.2	AfDB	
7.3	GIZ	
7.4	USAID	
7.5	World Bank	

3.4. マリディ（**Maridi**）支所

No.	item	Contents
1	**General**	
	Name of Station	Maridi Station
	Name of area manager (start of assigned month and year)	Kennedy Mawa Samuel (January 2016)
	Address of station office	Maridi Central Payam
	Telephone number	0922050351
	E-mail	KennedyMawa05@gmail.com
2	**Assets**	
2.1	Locations of water production	
2.2	Water production scheme and design capacity	(1) Purification Plant Maridi (2) 3,000m3 (3) Rapid sand filtation method
2.3	Treatment flow of purification plant	(1) Rapid mixing-slow mixing (2) Sedimentation-rapid (3) Sand filter
2.4	Water quality laboratory (sampling point, monitoring items)	- Chemical, physical, biological test - Raw water - Filtration - Clear water
2.5	Water storage tank (number, type, capacity)	2 storage, Capacity=1,000 m3
2.6	Pump station (number, capacity)	2 low level pump, 1,000m3, 3 high lift pump, 100m3
2.7	Generator (number, kVA)	2 number, 220 KVA
2.8	Total length of Pipeline	42KM
2.9	Pipe materials	GI, PE, PVC
2.10	Bulk flow meter	None
2.11	Tanker filling stations	None
2.12	Public tap stand/kiosk	100 Public Water Distribution Points
2.13	Generators	2
2.13	Buildings (total rooms)	217
2.14	Automobile	2
2.15	Motor bike	None
2.16	Main machinery	
2.17	Computer and printer	1
2.18	Copier	
2.19	Others	
3	**Service level**	
3.1	Total population	45,000

No.	item	Contents
3.2	Estimated service population	35,000
3.3	Service percentage (%)	77.7%
3.4	Supply areas	Entire Maridi town
3.5	Daily average water production	200m3
3.6	Estimated non-revenue ratio(%)	40%
3.7	Estimated sold water	60%
3.8	Number of connections	217, 124 working, 93 disconnected
3.9	Billing period	End of every month
3.10	Number of metered connections	217
3.11	Monthly average bills in number (num, %)	124, 57%
3.12	Monthly average bill collected in number (num, %)	100, 80%
3.13	Monthly average bills in amount (SSP, %)	400,000 SSP
3.14	Monthly average bill collected in amount (SSP, %)	400,000 SSP
3.15	Overall collection ration in number (%)	
3.16	Overall collection ratio in amount (%)	
3.17	Production per day per serviced population (l/d/inh.)	200m3
3.18	Domestic water tariff (SSP)	Household: 800 SSP, School 1,000 SSP Government, Institution, Commercial 1,250 SSP
3.19	Typical connection fees	5,000 SSP
4	**Finance** (Sept. 2020)	
4.1	Total income/revenue	
4.2	Expenditure by Juba station	
4.3	Expenditure by government	
4.3	Remittance to block account	
4.4	Financial balance	
4.5	Unit cost of operation per m3 production (SSP/m3)	
4.6	Average revenue per m3 sold water (SSP/m3)	
5	**Operation and maintenance**	
5.1	Power supply conditions	Public electricity, all generator is not working
5.2	Reporting system	Monthly
5.3	O and M manuals	Purification plant, distribution, water quality, biling
5.4	Water quality monitoring (sampling point, monitoring indicator)	Raw water, filtration water, treated water, public water points
6	**Organization**	
6.1	Staff number by department	12 employed by government, 13 paid by station Purification (9), Distribution (6), Finance (5), Admi (5)
7	**Donor activities (Project title and description)**	
7.1	JICA	
7.2	AfDB	
7.3	GIZ	
7.4	USAID	
7.5	World Bank	

3.5. レンク（**Renk**）支所

No.	item	Contents
1	**General**	
	Name of Station	Renk Station
	Name of area manager (start of assigned month and year)	Obec Otor Kudil (January 2016)
	Address of station office	Renk
	Telephone number	0915406686
	E-mail	
2	**Assets**	
2.1	Locations of water production	Renk
2.2	Water production scheme and design capacity	(1) 35,000 m3 (2) (3)
2.3	Treatment flow of purification plant	(1) Rapid mixing-slow mixing (2) Sedimentation-rapid sand (3) Ffilter, chlorination, storage
2.4	Water quality laboratory (sampling point, monitoring items)	- Clear water only
2.5	Water storage tank (number, type, capacity)	5 storages
2.6	Pump station (number, capacity)	2 treatment plant 3 high lift pumps
2.7	Generator (number, kVA)	2 number at treatment plant, not functional
2.8	Total length of Pipeline	40KM
2.9	Pipe materials	Asbestos, PVC, GI, Steel
2.10	Bulk flow meter	72, 3 at treatment, 69 at pipeline
2.11	Tanker filling stations	5
2.12	Public tap stand/kiosk	5 kiosks
2.13	Generators	
2.13	Buildings (total rooms)	
2.14	Automobile	
2.15	Motor bike	
2.16	Main machinery	
2.17	Computer and printer	
2.18	Copier	
2.19	Others	
3	**Service level**	
3.1	Total population	70,000
3.2	Estimated service population	4,000
3.3	Service percentage (%)	15%
3.4	Supply areas	Renk town
3.5	Daily average water production	5,000m3
3.6	Estimated non-revenue ratio(%)	20%
3.7	Estimated sold water	60%
3.8	Number of connections	4,000
3.9	Billing period	Every 2 months
3.10	Number of metered connections	5
3.11	Monthly average bills in number (num, %)	
3.12	Monthly average bill collected in number (num, %)	
3.13	Monthly average bills in amount	

No.	item	Contents
	(SSP, %)	
3.14	Monthly average bill collected in amount (SSP, %)	
3.15	Overall collection ration in number (%)	
3.16	Overall collection ratio in amount (%)	
3.17	Production per day per serviced population(l/d/inh.)	
3.18	Domestic water tariff (SSP)	500 SSP
3.19	Typical connection fees	
4	**Finance** (Sept. 2020)	
4.1	Total income/revenue	200,000 SSP
4.2	Expenditure by Juba station	
4.3	Expenditure by government	
4.3	Remittance to block account	
4.4	Financial balance	
4.5	Unit cost of operation per m3 production (SSP/m3)	
4.6	Average revenue per m3 sold water (SSP/m3)	
5	**Operation and maintenance**	
5.1	Power supply conditions	
5.2	Reporting system	Monthly report
5.3	O and M manuals	
5.4	Water quality monitoring (sampling point, monitoring indicator)	
6	**Organization**	
6.1	Staff number by department	35 staffs
7	**Donor activities (Project title and description)**	
7.1	JICA	
7.2	AfDB	
7.3	GIZ	
7.4	USAID	
7.5	World Bank	
7.6	WVI (World Vision International)	Supporting for rehabilitation of plant

第4章　SSUWC への COVID-19 の影響と対応

2020 年に発生した COVID-19 により SSUWC には様々な影響があった。COVID-19 による移動制限により職員が出社できずジュバ浄水場の稼働時間の減少、燃料の不足、料金徴収の減少などが影響としてあげられる。

その状況下、南スーダン国内での日常生活の変化、水供給活動への影響、プロジェクトへの影響、今後の支援ニーズについて、2020 年 9 月に 5 支所（Juba、Bor、Maridi、Renk、Wau）にアンケート調査を実施した。具体的な質問内容は以下である。

- COVID-19 流行下での日常生活の変化
- COVID-19 が拡大する前後の各支所の状況の変化
- 各支所の COVID-19 への対策
- 顧客の態度
- 本プロジェクトに関する活動
- 緊急支援ニーズ

質問票で聞いた各支所の営業収入と営業支出を次表に示す。

表 4-1　各支所の営業収支表

		Jan. 20	Feb. 20	Mar. 20	Apr. 20	May. 20	Jun. 20	Jul. 20	Aug. 20
Juba	収入	1,133,690	1,618,665	2,093,705	1,113,040	1,272,124	2,524,220	3,075,268	2,669,490
	支出	1,314,348	983,646	1,679,520	1,564,858	1,027,490	3,101,060	2,273,878	3,413,570
Bor	収入	700,000	705,000	700,000	800,000	600,000	500,000	530,000	Not function
	支出	630,000	700,000	640,000	720,000	560,000	530,000	530,000	N/A
Maridi	収入	48,000	612,775	744	501	631,465	363,555	445,080	298,660
	支出	4,000	510,000	N/A	334,710	451,465	392,900	475,240	128,650
Renk	収入	14,000	39,000	106,000	33,800	30,000	295,000	70,000	16,000
	支出	15,000	43,000	94,000	19,000	24,000	300,000	40,000	13,000
Wau	収入	748,915	688,440	897,520	604,200	790,060	672,500	604,400	327,170
	支出	711,150	620,000	799,200	543,600	621,800	597,500	543,600	529,676

4.1. ジュバ支所

日常生活において、値段は上昇したものの、食料品や日用品の購入には問題がない。しかし給料の支払い遅延や低い給料水準により、日々の生活必需品の入手が困難になっている。またバスの本数は変わらないものの、運賃が 2 倍以上になっており通勤、日常生活への影響が大きい。COVID-19 が拡大したことにより、ジュバ支所の出勤率は 70%から 40～50%へ減少し、燃料・薬品が入手しづらくなっている。さらに維持管理に必要な水道資機材の入手も難しくなっているが、それ以上にコストが高くなっており、現状の水道料金水準では賄えない状況である。

ジュバ支所の収入については、ICRC、JICA、UNICEF による燃料・薬品の支援により浄水場の運転時間を増加（5 時間から 17 時間へ）できたことから、落ち込みはなかったとのことだ

が、資機材含む維持管理費が高くなっており、財務状況は良くない。COVID-19 対策として、石鹸での手洗い、マスク着用といった啓発活動を住民に実施しており、また料金支払いの理解を得るための活動をしている。2020 年 4 月、5 月の料金支払いが一時落ち込んだものの、そういった活動成果が実り、顧客の水道料金未払いといった問題は起きなかったということである。援助機関の支援を受けて、顧客に石鹸やバケツを配布すると共に、顧客が訪れるジュバ支所の部署や顧客と接するメーターリーダに消毒液を配布するなど、COVID-19 への対策を実施した。特に顧客への水道料金減免といった措置はとっていない。

緊急支援ニーズとしては、燃料と薬品、様々なサイズの配管接手やスペアパーツ、ラボの検査キットなど資機材が求められている。

4.2. ワウ（Wau）支所

食料品の不足、公共交通機関の減少、さらに麻薬が問題となっている。交通機関であるバイクは 2020 年 2 月には 150SSP だったものが 1,500SSP にまで上昇、バスは燃料不足により稼働していない。それにより COVID-19 以前は出勤率 80%だったものが 40%まで減少、2020 年 9 月は 60%まで改善した。燃料は価格高騰により購入できず、一方薬品は SSUWC HQ と UNICEF から供与された。COVID-19 による手洗いで水需要が増加しており、施設の更新と稼働時間の増加（4 時間/日から 10 時間/日へ）が求められている。顧客による料金支払いは 8 ヵ月の猶予を与えている。

ジュバ支所から供与されたポンプ 1 つしか稼働しておらず、また古い配水管の交換、キオスクの建設、高架水槽などの支援が必要である。

4.3. ボア（Bor）支所

Bor 地域では、燃料の高騰に共に日用品の値段が上がっている。また市内の交通システムは COVID-19 に加え洪水があったことで機能していない。施設運営にあたっては、洪水によるジュバと Bor 間の道路断絶により燃料と資機材が不足している。一方薬品については UNICEF から供与を受けた。収入は 4 月までは増加したものの、それ以降は減少傾向にある一方で、燃料・資機材の不足により運転が落ち込んでいる。

COVID-19 に対しては、手洗いや消毒を徹底し、顧客に対しても対策にかかるメッセージを広く伝えている。それにより顧客や公共の場所での水消費が増加している。顧客の料金支払いにあたっては 3 ヵ月の猶予を提供している。料金徴収者には手洗いの徹底と石鹸を提供し、顧客への感染を防止している。

4.4. マリディ（Maridi）支所

Maridi では生活必需品は入手可能だが値段があがっている。燃料は 240SSP/L から 620SSP/L まで値上がりし、車やバイクの維持費が高騰、またスペアパーツやメンテ費用が増加している。公共交通機関は減少しており、さらにバイクは 1 マイル 50SSP から 300SSP にまで値上がりしている。COVID-19 前までは職員は 95%の出勤率だったが、75%に減少、2020 年 9 月には 94%まで改善した。燃料はなんとか入手できるものの必要十分ではなく、薬品費は料金支払いの激減により賄うことができない。維持管理用の資機材についても同様である。

COVID-19 以前は住民の収入は比較的よく、支出の 95%は料金でカバーできたが、COVID-19 後、顧客は水道料金が高いと苦情を言い支払いをしなくなった。そのため水道料金の値上げを検討したが、運転に十分な燃料を得られないため課題となっている。生産量は減少し、以前は毎日給水していたが週 4 日の給水となっている。COVID-19 による手洗いにより需要は増加したが、上記背景により十分供給できていない。UNICEF と協力して顧客へ石鹸、マスク、手洗い用の水を貯める缶を配布した。職員へも同様である。顧客へは燃料費高騰の理解を得ながら料金支払いを促進しているものの、最大の顧客が業務を停止したため、収入に大きな打撃になっている。緊急支援として、薬品、パソコン、プリンター、ラボの資機材が求められている。

4.5. レンク（Renk）支所

生活必需品の品不足と価格上昇（7,500SSP から 11,300SSP、8,000SSP が 15,000SSP 等）が起きており、燃料不足がその背景にある。職員の出勤率は COVID-19 前から 20%と低かったが、10%に低下、さらに 2020 年 9 月は 6%となった。燃料不足、洪水、さらに給料支払いの 3 ヵ月の遅延など、複数の要素が重なり合い、大きな影響を受けている。職員に対して手洗いの促進及び石鹸を供与している。

4.6. 各支所からの回答

SSUWC 各支所からの回答を次表にまとめる。

表 4-2　SSUWC5 支所へのアンケート調査結果

Questions	Juba	Bor	Maridi	Renk	Wau
1. General situation under the COVID-10 epidemic					
1) Is there enough food or basic commodities to buy in the market?	Yes		Yes	Yes	
Is price same as before?	No		No		
Examples				7,500 to 11,300 8,000 to 15,000	
2) What problem are you encounting to manage your daily life now?	Low rate and delay of salaries cannot meet the daily basic needs	The shortage of fuel an ever increasing prices of the commodities in the markets	High price of commodities in the market, especially diesel price increase from 240 per litter to 620 as a result of the price of grinding floor is very expensive. High cost of maintenance of car and motorcycles, especially labour, spare parts and lubricants.	The shortage of fuel an ever increasing price of the commodities in the markets.	a) Feed is problem b) Transportation system for employees to coming to work c) Drugs
3) Is common transportation system functioning in your town?	Yes, number of bus is same. But the tariff increased double than before.	No, the COVI-19 and flood combined crippled the transport system in my town.	Yes, the number is not like before, in our town we use motorcycle and trucks are used to carry material. Motor cycle price or tarrif is not the same has increased from 50 SSp to 300 SSP per a mile.	No, the COVI-19 and flood combined crippled the transport system in my town.	a) common transportation system only motorcycles before Feb. 2020 was 150 SSp but new 1,500 SSP Bus: not due of fuel issue
2. General situation around your station before and after COVID-19					
(1) % of workers of your station coming to the office, compared with the situation of February (before COVID-19 expansion)	Before: 70% Just after: 40-50% Now (Sep.): 50%	Before: 20%	Before: 95% Just after: 75% Now (Sep.): 94%	Before: 20% Just after: 10% Now (Sep.): 6%	Before: 80% Just after: 40% Now (Sep.): 60%
(2) Is your station able to procure the materials after COVID-19?					
Fuel	Partially	Shortage in the town due to inaccessibility of the road between Bor and Juba	Yes, but what we can is not enough to provide daily water supply.	Shortage in the town due to inaccessibility of the road between Bor and Juba	No. Because the price become costly to buy

Questions	Juba	Bor	Maridi	Renk	Wau
Chemical	Partially	UNICEF has provided	No, Covid-19 has affected people job and reduce the economic position of customer and they are not able to clear bills in time	UNICEF has provided	Supported by Head quarter & UNICEF
O&M materials	Partially Cost a lot and the tariff rate not meeting the running cost.	Transport and lack of supporting organizations	No, we are not able to cover operational cost due to low income compared to the current market price	Transport and lack of supporting organizations	It is very hard for station to buy due of increase of price in market
(3) Is revenue collection and expenditure changed after COVID-19?	Yes. With the support from ICRC, Jica and Unicef, made collections improved.	See the Table	See the Table	See the Table	See the Table
(4) What is different between before and after COVID-19?	Operation hours increased after Covid -19 . from 5hr/day to average of 17hrs/day.	The supply of inputs became difficult after	Before COVID-19, people income was good and our operation was almost 95 %, but after Covid-19, most our customer are compalint of water money for bills payment.	The supply of inputs became difficult after	No movement which affects the standard live become very hard to people
(5) Is your financial situation sound? If not, what is the planned course of action?	It sounds, but maintenance and repair cost a lot.	To extend the customers base and will require external supports	No, we had increase the tarrif to meet the operational cost, but we don't have capical to buy diesel, we are requesting your organization to support us with diesel.	To extend the customers base and will require external supports	Not. Increase the working hour
(6) Is ther any other impact on your water utility management after COVID-19?	Public awareness activities being carried out on Handwashing with soap, wearing mask to prevent corona spreading. With these awareness alert, Customers are responding in paying their water bills to avoid disconnection.	The use of hand washing and associates protocols at more costs over expenditures those time for the system working.	Yes, we left with liabilities (loans) needed from us due to unpaied water bills and low tarrif.	The use of hand washing and associates protocols at more costs over expenditures those time for the system working.	Only one water pump older once given by Juba water station.

Questions	Juba	Bor	Maridi	Renk	Wau
(7) Is there any other impact on your water supply service to the public after COVID-19?	Yes. New connections been done	We have help in educating users and members of community in spreading messages	Yes, we had reduced water productions and supplies four time in a week compared to previously daily supply.	We have help in educating users and members of community in spreading messages	a) Replacement of old pipe b) new construction of kiosk c) elevated tank
3. Actions taken by your station against COVID-19?					
(1) Do you think the water consumption of customers changes due to COVI-19?	No	Yes	Yes	Yes	Yes
How the consumption is changed?		Addition water use now for hand washing at household and public points levels	Because of frequently washing of hands and improvement of hygiene practices. And even the quantities we are supplying is not enough.	Addition water use now for hand washing at household and public points levels	hand wash & awarding
What actions your station taken for consumption change?		Allocates litres water for washing purposes	Awareness through media on the important of frequent hand washing and social distancing on public water points special when fetching water.	Allocates litres water for washing purposes	SSUWC deliver the water every town area but only the problem of fuel to the station because no support every side in side of fuel
(2) Describe your actions taken against COVID-19					
To the public/customers	We provide container, soap sanitizer at the entrance for handwashing to both customers and staffs	We have done that supplying water for washing hand and provided soap to rates collectors for hand washing	We joined UNICEF in distributions of soaps, face mask and tins for reserving for hand washing.	We have done that supplying water for washing hand and provided soap to rates collectors for hand washing to the staff of the station.	No
To the staff of the station	Mask being given to all staff and Sanitizer, to Cashier and other committee members for door to door Water Inspection and Disconnection.	-	We distributed soap and face mask to the operations and others. We encourage social distance.	-	Yes
(3) Does your station exempt water charge to the customers/	No	N/A	Yes	N/A	N/A

Questions	Juba	Bor	Maridi	Renk	Wau
If yes, fill the table			1st Class 600 to 1,250 2nd Class 400 to 1,000 3rd Class 375 to 800		3rd class: 3,000 SSP 2nd class: 4,500 SSP 1st class: 5,000 SSP office&hotel:10,500 SSP
(4) Does your station defer the paymnent of water charge to the customers?	No	Yes, for 3 months		Yes, for 3 months	Yes, 8 months
4. Customers attitude					
Do the customers change their attitude of use of water and paymnet to the water charge?	No. Their payments depend on the availability of water.	Delaying the payment in the first 3 months during COVI-19.	Yes, we explained to them the current sky rocketitng diesel price. And most of them started paying the bills but install meter?	Delaying the payment in the first 3 months during COVI-19.	a) yes some other people has not power acquire the amounts. b) some other people they see our meter reader as their enemy c) it creasion lost of trust between our meter reader and the customer.
5. Any other issues	No. Staffs are working normally on the guideline from the Ministry of Health.	-	Our biggest customers had closed their business and we lost most of them, our revenue cannot cover operaitonal cost. Support us with plumbing materials to reduce non-revenue water and improve our collection	-	a) upgrad the station b) increase the work hour from 4 hours to the 10 hours daily & upgrade chemical pumps
6. Activities related to JICA TA Project					
1) Any impact on activities to TA Project due to Covid-19?	The Project has stopped.	-	-	-	-
2) Describe newly started activities after COVID-19 and its result	Only online meetings being contacting with experts and provision of emergence supports in terms of fuel and chemical from donors to Juba Station that enabled it supplies safe and clean drinking water to Juba citizens.	-	We had informed our community on the hand washing and using of face mask. Most of people know imporant of water in human life and we had new connections in our line.	-	-

Questions	Juba	Bor	Maridi	Renk	Wau
7. Are there any urgently necessary needs for your station under his hard situation in COVID-19?	Yes. Juba Station is in urgent needs 1. Fuel and Chemical 2. Fittings of various sizes 3. Spare parts 4. Lab Test kits	-	Yes, we don't have chemical injections pumps, printers and even computers a few only one. We have some few apparatus in lab. But we need equibator for bactrilozical test. We have biggest challenges connected to public water point. Lack of all plumbing… We are requesting your organization to support us with diesel and plumbing materials to make water available.	-	-

第5章　協力ニーズに関する提言

本調査ではインターネットを中心にした情報収集を実施したが、JICA が支援を行ってきた SSUWC ジュバ支所を除き、全般的に具体的な情報は限定的なものに留まっている。ただ、SSUWC 各支所へのデータシートに付随するアンケートで、非常におおまかではあるが協力ニーズの記載の回答が一部あった。ここではこれらの情報を基に、ジュバ市を中心とした協力ニーズについて下記に整理をした。

5.1. ジュバ市　「JICA-M/P・F/S 調査」フェーズ２の実施

引き続き、未給水人口への給水を拡大するために、水道施設の整備が必要である。「JICA-M/P・F/S（2009 年）」では、上水道整備マスタープランのフェーズ 2 として、SSUWC ジュバ支所の既存浄水場や無償案件による新規浄水場よりも大規模な新浄水場（ナイル川西岸浄水場）の整備を提案している。主な概要を以下に示す。

目的：	給水人口の増加にともなう給水地域の拡張
施設整備：	・新浄水場：63,000m3/日（全量は金額的に不可能：1 万～2 万トン規模） ・北部高区配水池：10,000m3（5,000m3 規模） ・送配水管 ・給水方法：戸別、公共水栓、給水車

MPにおける段階的整備計画

フェーズ1実施中

整備段階	開発概念	計画施設	総浄水能力
フェーズ1 (～2012年)	本フェーズを緊急改善フェーズと位置付ける。小さな投資で大きな便益を期待できる小規模プロジェクトを実施する。本プロジェクトでは既存浄水場の処理能力を増加させ、既存配水管網を更新し、限られた量の浄水を目標地域に効率的に給水することとする。	- 既存浄水場の拡張 - 北部低区配水池 - 既存浄水場から北部低区配水池までの送水管 （以上は無償） - 既存配管網の更新（AfDB）	14,000 m3/日 ↓ 18,000
フェーズ2 (～2015年)	本フェーズを新水道システムの創設期と位置付ける。本プロジェクトにより浄水能力を大幅に拡大させ、既存の市街地を中心とする配水区に十分な給水を行う。	- 西岸浄水場の第1期分の建設 - 第一送水管および配水本管の建設 - 配水管網の拡張	77,000 m3/日
フェーズ3 (～2020年)	本フェーズを新水道システムの拡張期と位置付ける。同時に、東岸地区の水道システムの整備も実施し、全ての上水道基幹システムが整備される。	- 西岸浄水場の第2期分の建設 - 東部浄水場の建設 - 第二送水管および配水本管 - 配水管網の拡張	174,000 m3/日
フェーズ4 (～2025年)	本フェーズによりマスタープランの新水道システム構築がが完了する。本フェーズの終了時には、ほとんどの給水対象地区において配水管網が整備される。	- 西岸浄水場の第3期分の建設 - 配水管網の拡張	237,000 m3/日

図 5-1　マスタープランにおける段階的施設整備計画

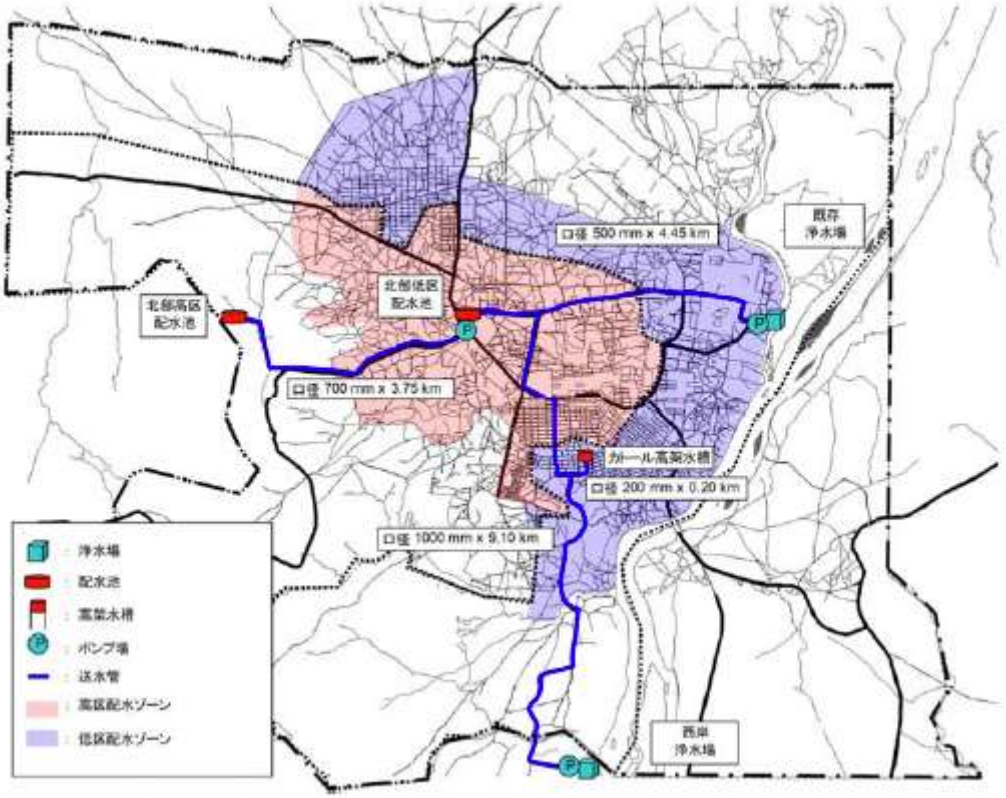


図 5-2　優先プロジェクトの計画上水道施設（フェーズ２）

5.2. ジュバ市　ジュバ市内全域への安定給水のための太陽光発電施設の整備

SSUWC ジュバ支所の既存浄水場、および無償案件による新規浄水場からの安定給水のための施設整備である。

ジュバ市では、2021 年より民営化された電力会社により、ようやく公共電力の供給が開始された。しかしながら、SSUWC ジュバ支所で検討した結果、高額な初期投資費用と供給電力単価のため導入は難しいと判断して、従来の自家発電機による電力に依存した施設運用を継続している。一方で、燃料費も安価でないため資金調達にも苦慮しており、また市場での供給も不安定であることもあり、代替電力として利用のニーズは依然として高い。太陽光発電を導入することで、SSUWC の維持管理費の負担を低減し、安定的な供給、安定的な経営に繋げることができると考えられる。主な概要を以下に示す。

目的：	既存及び無償施設からの安定給水
施設整備：	・ 既存及び無償浄水場、ポンプ場への太陽光発電設備の設置 ➢ 維持管理費の負担を軽減し、継続的安定給水および経営の安定化を目指す ・既存浄水場の改修と既存配水管の改修（AfDB で更新以外の管網） ➢ さらに漏水率を低減し有効水量を増加させ、より多くの市民に給水する ・Konyokonyo 配水池の再建 ➢ 市南部への給水の再開

5.3. ジュバ市上水道整備マスタープランの見直し調査

JICA の支援により同マスタープランは 2009 年に策定された。策定から 10 年以上が経過する中で、ジュバ市の人口増加による都市化も当初の想定を超える早さで進み、マスタープランの人

口予測と実態と乖離がでてきている現状がある。そのため、新規技プロの詳細計画策定調査でヒアリングした際、水資源灌漑省からもマスタープランの改訂について要望があった。こうしたニーズを考慮し、ジュバ市の上水道整備マスタープランの見直し調査を提案する。

5.4. SSUWC 各支所（ジュバ支所以外）の地方都市における上水道セクター情報収集調査

各支所へのアンケート調査の結果から、ジュバ支所以外の 3 支所から協力ニーズが示されており、次表に整理した。各支所の協力ニーズは必ずしも詳細な情報が記載されているわけではないが、施設状況や経営環境はジュバ支所よりも総じて脆弱な状況にある。また、アンケート調査では回答がなかったものの、マラカル支所は JICA による支援を実施していたものの、国内紛争の影響もあり、SSUWC 本部の情報によると、上水道施設は壊滅的なダメージを負ったといわれている。

こうした地方都市の上水道事業運営および上水道施設整備を促進するため、上水道セクター情報収集調査を実施し、将来的な協力案件の設計と案件の実施を目指すことを提案する。なお、地方の治安回復状況を確認しながらの実施が必要である。

表 5-1　各支所の協力支援ニーズ

	ボア支所	マリディ支所	レンク支所
優先順位 1	・ 取水ポンプ・送配水ポンプの修繕、逆止弁の設置 ・ 無収水削減のための水道メータの供給 ・ 水質分析計（フォトメーター）の供給 ・ 計画、財務管理、料金請求・徴収業務、顧客サービス、住民啓発分野のキャパビル	・ 収入増加のための新規地域への配水管路網の拡張 ・ 無収水削減のための配水資機材の供給	・ 配水地の整備
優先順位 2	・ 浄水場の拡張 ・ 検針員の研修 ・ 水質分析計の研修	・ 薬品室の修繕 ・ 新しい薬品保管スペースの建設	・ ポンプ室の修繕
優先順位 3	・ 配水管路網の拡張 ・ 漏水発見および違法接続探査のための漏水探査機器の供給 ・ コンピュータによる料金請求・徴収システムの導入	・ 管接続付属品や水栓の供給による無収水の削減 ・ 配管工の漏水修理のためのオートバイの供与	・ 計画、財務管理、料金請求・徴収業務、顧客サービス、住民啓発分野のキャパビル