

Summary of Terminal Evaluation

1. Outline of the Project	
Country: South Sudan	Project Title: The Project for Management Capacity Enhancement of South Sudan Urban Water Corporation (SSUWC)
Issue/Sector : Water Resources	Cooperation Scheme : Technical Cooperation
Division in Charge: Global Environment Department	Total Cost (up to the end of May 2013) : 275,039,000 yen
Period of Cooperation: October 2010 – September 2013 (3 years)	Partner Country's Implementing Organization: SSUWC Juba Station and Headquarters
	Supporting Organization in Japan:
<p>1-1. Background of the Project</p> <p>In Sudan, after more than two decades of conflict between the government and the Sudan People's Liberation Movement (SPLM), the Comprehensive Peace Agreement (CPA) was signed and the Southern Sudan established an interim government in January 2005. The population of Juba, the capital of the Southern Sudan, has been rapidly increasing with a bulk of internally/internationally displaced people (IDP) returning and is now estimated to be around 400,000. As little maintenance work has been conducted for urban infrastructures due to the conflict, many facilities have become old and the service provision function has significantly decreased.</p> <p>The South Sudan Urban Water Corporation's (SSUWC) Juba Station (164 staff members) is responsible for operating and maintaining water supply facilities in Juba consisting of water treatment, transmission and distribution facilities and collecting water bills. The Juba Station, however, faced difficulties in distributing safe water in an efficient manner due to the absence of: the knowledge and skills for the proper operation and maintenance of water supply facilities; timely and appropriate measures for operation and maintenance; the inspection and verification process of supplied water quality; an up-to-date customer ledger; a management system for equal water distribution; and necessary maintenance materials and budget, coupled with the degraded facilities. The Juba Station did not generate enough revenue to cover all the necessary expenses for the operation of water supply facilities. A low flat-rate system has been employed without clear valuation of the water supply cost or a proper water tariff policy. The bill collection system with handwritten ledgers was considerably inefficient.</p> <p>SSUWC Headquarters (HQ) (38 staff members) is responsible for securing and distributing the government budget to area stations, and providing guidance and supervision on technical issues of the area stations. However, HQ was not able to provide appropriate instructions or support to area stations due to the lack of a clear institutional framework for information collection on the status of area stations' facilities and activities as well as sufficient mutual consultation between HQ and area stations.</p> <p>Under these circumstances, there was an imminent need for a technical cooperation project to enhance the SSUWC Juba Station's operation and maintenance capacity for water supply services. In response to the request from the Southern Sudanese side, a mission for detailed planning was carried out from February to March 2010 and the project outline was developed with MWRI being the executing organization and SSUWC HQ and the Juba Station being the target organizations. In July 2010, the Record of Discussions (R/D) was signed between the Ministry of Finance and Economic Planning (MFEP), which represents the Government of Southern Sudan (then) for the Project, and the Resident Representative of the JICA Sudan Office. According to the R/D, the Project is carried out for the period of three years from October 2010.</p> <p>1-2. Project Overview</p> <p>(1) Overall Goal of the Project:</p> <ol style="list-style-type: none"> 1) The quality of the water supply service extended by SSUWC-Juba is improved. 2) The management capacity of SSUWC is improved. <p>(2) Project Purpose:</p> <p>The management capacity of SSUWC -Juba Station is enhanced through capacity development on operation and maintenance of water supply facilities.</p> <p>(3) Outputs</p>	

- 1) Capacity of SSUWC-Juba Station with respect to operation and maintenance of water intake and treatment facilities is improved.
- 2) Capacity of SSUWC-Juba Station with respect to operation and maintenance of water transmission and distribution facilities is improved.
- 3) Capacity of water quality management of SSUWC-Juba Station is improved.
- 4) Understanding of financial conditions of SSUWC-Juba Station is enhanced.
- 5) Capability of SSUWC HQ to support SSUWC-Juba Station is enhanced.

(4) Inputs (As of the Terminal Evaluation)

Japanese side:

- Japanese Experts: A total of 8 Experts (a total of 74.20 M/M)
- C/P Training in Japan and Kenya: A total of 53 C/Ps
- Equipment: USD 220,829
- Construction of Public Water Tap Stands and Flow Meter Chambers: USD 124,899
- Operational Expenses: JPY 22,066,702 (Approximately USD 219,351)

South Sudanese Side :

- C/Ps: A total of 15 personnel
- Facilities: a room for Japanese Experts and training venues for the Project activities
- Operational Expenses: SSP 218,230 (Approximately JPY 7,576,072)

2. Evaluation Team

Members of Evaluation Team (Japanese side)	[Leader]	Mr. Tatsuya Imai, JICA Global Environment Department
	[Water Supply Management]	Mr. Yoshiki Omura, JICA Visiting Senior Advisor
	[Evaluation Planning]	Mr. Tadashi Kageyama, JICA Global Environment Department
	[Evaluation Analysis]	Ms. Miku Watanabe, IMG Inc.

Evaluation Period	May 20 – June 6, 2013	Type of Evaluation : Terminal Evaluation
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3. Results of Evaluation

3-1. Achievements of Outputs and the Project Purpose

(1) Output 1

Output 1 has been mostly achieved.

- The capacity of the purification department's staff in O&M of the water intake and water treatment plant (WTP) has been strengthened, and the water quality (i.e., turbidity, residual chlorine) has been improved.
- Staff have become able to use computer and produce monthly and annual reports from the daily monitoring records of the volume of treated water, chlorine consumption, and operation of generators.
- Eleven staff out of the 25 trained staff in the purification department have acquired basic O&M skills for WTP.
- It is deemed difficult to achieve the average plant operating hour of 23.5 hours per day (OVI 1-4) by the end of the Project period due to the suspension of the electric power supply from the city.

(2) Output 2

Output 2 has been mostly achieved.

- Staff of the distribution department have become able to compile data of their daily activities as monthly and annual reports using computer.
- Ten out of the 13 trained distribution department staff have acquired adequate O&M skills for the operation of transmission and distribution facilities.
- Treating and distributing water according to the initially-formulated Pump Operation Plan was difficult due to the unstable power supply. Staff of the distribution department calculated possible operation hours of electric generators, based on which they revised the Pump Operation Plan. Staff started the operation of the facilities based on the revised plan.

(3) Output 3

Output 3 has been achieved.

- Staff of the water testing lab have become able to develop monthly and annual reports compiling the results of daily water tests.
- Two lab staff have acquired skills to conduct water quality tests.

(4) Output 4

Output 4 has been achieved.

- Revenue collection reports are prepared monthly.
- Based on the analysis of the cost structure, recommendations on the improvement of revenue collection and water tariff have been put forth in the budget plan and the annual plan of the Juba Station.
- A customer ledger database was developed, and staff have acquired skills to use the database for compiling customers' information and issuing bills.
- Through the pilot operation, it was determined that the public taps and tanker filling stations be managed by individual operators.

(5) Output 5

Output 5 has been achieved.

- SSUWC HQ has become able to carry out the evaluation of monthly and annual reports submitted by the Juba Station.
- The Project conducted a study on the Wau and Malakal stations to collect information on their facilities and status of service delivery.

(6) Project Purpose

The prospect for achieving the Project Purpose by the end of the project period is promising.

- Staff of the purification department, the distribution department, the water testing lab, and the financial department regularly monitor the water supply facilities and properly keep records of the operation status, water quality, and financial status, which contribute to identifying issues to be addressed at each department.
- The quality of water from the station as well as sampling points in the city has been improved and fulfills the standards (target ratios) for turbidity and residual chlorine.
- The amount of delivered bills increased due to the enhanced operational efficiency achieved from the customer ledger database developed by the Project.
- As for the indicators that are dependent on the availability of power supply and accessibility to fuel, achieving target operation hours defined in the PDM by the end of the Project period is deemed difficult without stable power supply.
- The management capacity of the Juba Station, however, has considerably improved in each department.

3-2. Summary of Evaluation Results

(1) Relevance

The Relevance of the Project is evaluated as high. The improvement of water supply services through the capacity enhancement of SSUWC is in line with the needs of South Sudanese people, the Government of South Sudan's development policy, and the Japanese Government's aid policy to South Sudan. The capacity development approach through hands-on instruction and practical training proved to be appropriate since the department managers and technical staff of the Juba Station could immediately apply knowledge and skills to their daily tasks.

(2) Effectiveness

The Effectiveness is relatively high. The management capacity of the Juba Station has considerably improved in each department though OJT by the JICA Expert Team and training in Kenya and Japan. Although staff's limited

skills of English, computer and arithmetic could be hindering factors, the JICA Expert Team adopted appropriate approaches for capacity development and succeeded in raising the skill level of the Juba Station's staff. As a result, except for the Performance Indicators (PIs) that are determined by the situations of power supply and accessibility to fuel (e.g. plant operating hour and pumping station operating hour), all the PIs have improved from the values in 2011. While achieving target operation hours defined in the PDM by the end of the Project period is deemed difficult without stable power supply, staff have become able to operate water supply facilities according to the plans using acquired knowledge and skills. The five Outputs have almost been achieved, and the prospect of achieving the Project Purpose by the end of the project period is promising.

(3) Efficiency

The Efficiency of the Project is evaluated as moderate. In consideration of the drastic changes in external conditions (i.e. fiscal austerity, interruption of the power supply, and transfer of personnel) that have significantly affected the Project, the Project has taken appropriate measures and practical approaches, including the revision of the Pump Operation Plan, the provision of incentives (e.g. award) and active discussions among C/Ps and the JICA Expert Team at weekly meetings, in order to facilitate the successful production of intended Outputs. While the South Sudanese staff's low attendance in the training and limited English skills reduced the efficiency of the Project at the initial stage of the Project, the JICA Expert Team patiently worked with staff, offered training in the same contents multiple times, and provided classes on basic English and computer literacy. As a result, the tangible improvements in daily practices have been observed including daily data collection and proper O&M procedures. Most Project activities have been conducted and inputs have been procured as planned to produce the intended Outputs although there have been some constraints in the production of Outputs (e.g., achieving the average plant operating hour of 22 hours per day as in OVI 1-4, operating distribution facilities based on the Pump Operation Plan as in OVI 2-4) caused by such issues as the decrease in the government budget and the insufficient power supply.

(4) Impact

As for the Impact of the Project, the prospect for achieving the Overall Goals within three to five years after the project completion is assessed as promising, judging from the achievement level of three OVIs: (1) the customer satisfaction rate on the water supply service; (2) essential PIs, and (3) SSUWC HQ's capacity in assessing area stations' reports and plans. Despite the decrease in the water production volume, the customer satisfaction has improved due to the improvement in water quality. Given the increasing trend of income from water bills in 2013, the operation hours of water supply facilities is likely to increase, which will lead to a further improvement in the customer satisfaction. The entire system of regular monitoring of water supply facilities, data management, communication through weekly meetings, and monthly reporting to and assessment by SSUWC HQ has become routine activities of the Juba Station. If all the staff of SSUWC HQ and the Juba Station fulfill their commitment and carry on with proper O&M activities and financial management, the Project will generate a large scale of impacts.

(5) Sustainability

The Sustainability is evaluated to be moderate.

<Institutional aspects>

In 2011, the ROSS adopted "Water, Sanitation and Hygiene (WASH) Sector Strategic Framework," which aims at the improvement of urban water supply services, as a guideline to realize the National Water Policy (2007).

<Organizational aspects>

As a result of needs identified through Project activities, the Juba Station established the department of planning and projects and is planning to set up the customer service department. Weekly meetings are being held involving all the departments of the Juba Station, which contributes in developing the ownership of staff of SSUWC Juba Station and HQ. It is essential to appoint eligible personnel to the opening positions in SSUWC HQ and Juba Station.

<Technical aspects>

Staff's capacity in operation and maintenance of water supply facilities, water quality testing, and financial management have been increased. The Project has built a sound technical foundation for continuous O&M, proper record keeping and regular information sharing.

<Financial aspects>

The Project has contributed to the establishing of a base for achieving SSUWC's financial independence. The Juba Station is committed to increase bill collection through the introduction of the efficient billing system and the new water tariff in order to achieve the operation of 24 hours by January 2014. The monthly revenue steadily

increased as a result of the efficient billing system introduced by the Project.

3-3. Contributing Factors

(1) Project Design

- Including the enhancement of the SSUWC-HQ's capacity to support the Juba station as an output of the Project contributed to building the foundations of HQ's providing support and supervision to other stations.

(2) Implementation Process

- C/Ps and the JICA Expert Team held weekly meetings to share and discuss the results of completed activities, outstanding issues and the countermeasures that should be taken by the SSUWC Juba Station and HQ, through which C/Ps' strong ownership of and commitment to supplying safe water have been developed. Weekly meetings contributed to the smooth implementation of the Project activities.
- The JICA Expert Team first trained managers and core staff to be department-level trainers so that they could translate the Experts' lectures and transfer the proper O&M methodologies to the staff whose English proficiency and basic arithmetic skills are limited. From this internal training approach, staff started to learn from each other and strengthen their capacity, which contributed to the effectiveness of the Project.

3-4. Hindering Factors

(1) Project Design

- Since some of the indicators of the Outputs and the Project Purpose were determined based on the assumption that WTP would receive a stable power supply from the city, there are indicators (e.g., P1-P6, D1-D3 of the performance indicators of the Project Purpose) that could not be achieved due to the suspension of the power supply. The Project operated the WTP using its own power generated by fuels purchased from collected water bills. The Juba Station has been working on applying the strategy for efficient billing to increase the bill collection.

(2) Implementation Process

- Although staff's limited skills of English, computer and arithmetic could be hindering factors, the JICA Expert Team adopted appropriate approaches for capacity development and succeeded in raising the skill level of the Juba Station's staff. The JICA Expert Team used figures and pictures in the posters and manuals illustrating operation procedures in order to make these materials simple and understandable for all the staff including the illiterate and the uneducated.

3-5. Conclusion

The Project has high relevance assessed from the ROSS's development policies, Japanese Government's aid policies, and the needs of the beneficiaries. The effectiveness of the Project is evaluated as relatively high because the Project has succeeded in building the basic O&M and managing capacity of the Juba Station; however, raising the skill level of all the staff is indispensable for further achievement of operational efficiency of the water supply facilities. The efficiency of the Project is evaluated as moderate since most inputs have been successfully converted to the expected Outputs in spite of the staff's low participation in the Project activities in the initial stage of the Project. The Project has good potential to generate a large scale of impacts if staff continues their effort in conducting proper O&M and financial management of the Juba Station. In order to enhance the sustainability of the Project, more efforts are required for appointing eligible staff in the laboratory, SSUWC HQ, and the financial department, and increasing revenue to cover O&M costs.

The Project has made a significant progress in developing the management capacity for the SSUWC Juba Station and HQ. Judging from the achievement level of each expected Output, the Project Purpose is expected to be achieved by the end of the Project period; therefore, the Project will be terminated as scheduled.

3-6. Recommendations

a. Ensuring the implementation of assigned tasks in accordance with the established procedures and data management system in each department

Before the Project implementation, there were no structured O&M procedures, digital record-keeping and data management system, or regular water quality analysis, all of which have been established by the Project. In order to further enhance the management capacity of the Juba Station for the expected increase of operation hours and water production, it is recommended that staff in the SSUWC Juba Station thoroughly conduct the newly-established O&M, water tests, and billing procedures in accordance with the O&M manual and data

management system developed by the Project.

b. Planning a structured internal training system

During the course of Project activities, core staff and C/Ps voluntarily started providing informal training for staff in each department. Peer training is effective since trainers can effectively respond to the trainees' learning needs using the already-established rapport and the shared language. Since raising staff's overall technical capacity is still necessary for further enhancing the skill level of O&M and bill-collection activities, it is recommended that the SSUWC HQ and the Juba Station start the planning of a structured internal training system.

c. Extending support to area stations

The Project laid out the SSUWC HQ's procedure in providing support to area stations through evaluating the Juba Station's monthly reports and upcoming plans and giving feedback in a systematic way. Although SSUWC HQ is capable of assessing reports submitted by the Juba Station, other area stations need proper guidance and attention to prepare and submit reports to SSUWC HQ. It is recommended that SSUWC HQ develop effective strategies to extend support to area stations outside Juba City.

d. Increasing bill collection

Continuous efforts in increasing bill collection are recommended in order to enhance SSUWC's financial sustainability under the ROSS's uncertain fiscal prospect. While the financial department of the Juba Station is carrying out the billing activities more efficiently than before through the digital customer ledger, a larger number of staff who deliver the bills would increase the income from water bills. The financial department has made efforts to introduce the methods that make customers' payments easier (e.g. payment through a direct deposit into the Juba Station's bank account, payment kiosks throughout the city). Installing meters for house connections and businesses will increase bill collection.

e. Recruiting qualified staff

Recruiting qualified staff in vacant positions is indispensable in enhancing the organizational sustainability. As recommended in the Mid-Term Review, directors' positions (i.e. technical director and commercial director) in SSUWC HQ and staff of the laboratory need to be filled as soon as possible. In addition, increasing staff for delivering bills will be of great help in increasing water bill collection. Appointment of engineers in the Juba Station would further increase the technical capacity of the purification and distribution departments.

3-7. Lessons Learned

a. Methods of capacity development in a post-conflict country

A prolonged civil war in Sudan severely devastated public infrastructures and institutions including SSUWC. Most of the staff are undereducated while some are even illiterate or innumerate. In order to achieve the efficiency and effectiveness of the Project, it is important to assess the level of capacity and learning needs of C/Ps in the early stage of the Project period and take approaches suitable for the target groups. In the Project, the SOP, O&M manuals, and format of monthly reports have been revised multiple times so that staff can conduct O&M and prepare monthly reports on their own. The JICA Expert Team developed posters and manuals using figures and pictures illustrating operation procedures in order to make these materials simple and understandable for all the staff regardless of their reading ability. The JICA Expert Team spent a long time for teaching basic concepts of O&M as well as proper O&M methodologies, water test, billing and data management. Identifying the C/Ps' level of capacity and taking appropriate approach for their skill levels are essential for capacity development in a post-conflict country.