

Reform of the Urban Water and Sanitation Sectors in South Sudan

Project Final Report



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Acronyms

GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GM	General Manager
JCC	Juba City Council
JICA	Japan International Cooperation Agency
M&E	Monitoring and Evaluation
MECO	Maridi Electrical Corporation
MoU	Memorandum of Understanding
MWRI	Ministry of Water Resources and Irrigation
NRW	Non-Revenue Water
NWSC	National Water and Sewerage Corporation, Uganda
PMP	Performance Management Plan
PO	Provisional Order
PPP	Public Private Partnerships
RWP	Reform Work Plan
SIP	Small Investment Projects
SISP	Sudan Infrastructure Services Project (USAID)
SOW	Statement of Work
SPIP	Strategic Performance Improvement Plan
SSP	Small Service Provider
SSUWC	South Sudan Urban Water Corporation
SSWSSC	South Sudan Water Sector Steering Committee
SUWASA	Sustainable Water and Sanitation in Africa
USAID	United States Agency for International Development
MWSS	Maridi Water Supply Station (Branch of SSUWC)
UWSR	Urban Water Sector Reform
UWWG	Urban Water Working Group
WASH	Water, Sanitation, and Hygiene
WB-MDTF	World Bank Multi Donor Trust Fund
WOP	Water Operators Partnership
WASH DoG	Water, Sanitation, and Hygiene Donor Group
WWSS	Wau Water Supply Station (Branch of SSUWC)

Executive Summary

Project summary sheet

Project Title	Reform of the Urban Water and Sanitation Sectors in South Sudan
Country	South Sudan
Specific Location	National level: - Water and sanitation sector institutions in Juba State level: Wau (Western Bahr-El-Ghazal State), Maridi (Western Equatoria State) Juba (Central Equatoria State)
Goal/Overall Objective	Improved access to safe, affordable, sustainable and reliable urban water and sanitation services
Project Components	Support urban water supply institutional development Support Evolution of Targeted UWC Operational Autonomy through Small Investment Projects and Capacity building Strengthen and Formalize Institutional Relations between SSUWC and Targeted UWCs Expand urban sanitation access in a safe, affordable and sustainable manner
Project Duration	42 Months
Total Budget	6.9 million USD
Approximate Commencement Date	September 11, 2011
Prime Implementing Organization	Tetra Tech ARD, through SUWASA Regional Office in Nairobi. Project on-site implementation team composed of: Team Leader Institutional Development Specialist Urban Sanitation Development Specialist Implementation Support staff in Juba, Maridi and Wau
Implementing Partners	Ministry of Electricity, Dams, Irrigation and Water Resources Ministry of Lands, Housing and Physical Planning Juba City Council National Water and Sewerage Corporation of Uganda Consultantes

Project Implementation Staff	Team Leader (US/TCN)
	Institutional Development Specialist (US/TCN)
	Urban Sanitation Development Specialist (US/TCN)
	M&E Specialist (South Sudan National)
	Utility Reform Expert (TCN / South Sudan National) / Wau sub-office Manager
	Water Technician / Maridi sub-office Manager (South Sudan National)
	Finance and Office Administrator and support staff(South Sudan Nationals)
	STTA in various technical areas including finance and engineering

The SUWASA project in South Sudan was implemented over a 42 month period to promote a structured, formal and systems-oriented approach to urban water and sanitation sector management. The project which started on September 11, 2011 assisted South Sudan Urban Water Corporation (SSUWC) and its Urban Water Stations (UWC) in Wau and Maridi, work towards achieving long-term sustainability by adopting policies and practices based on commercial principles. In April 2013, a sanitation component was added to the project with the objective of raising the understanding of the prevailing sanitation situation including the institutional setting and defining a way to promote public and private financing for sanitation in Juba City.

For the urban water component, SUWASA was designed to address key sector challenges including the total reliance of SSUWC on Government budget allocations for operations and related lack of autonomy to perform in a sustainable manner; poor maintenance of urban water supply facilities at the UWC stations with related poor service delivery and insufficient revenues that were not ring-fenced; and inadequate participation of local government and other stakeholders.

SUWASA provided support to address these problems by undertaking activities at both national and local levels. In order to move SSUWC towards a more corporate position, SUWASA supported the appointment of the SSUWC Board of Directors and its operationalization. The Board is now fully operational and has developed and endorsed its three year Corporate Plan which sets the strategic direction for the corporation as well as identifying relevant investments.

At the local level in Maridi and Wau, SUWASA supported Small Investment Projects (SIP) to give them the commercial orientation that would help them collect more revenues and raise the level of Operation and Maintenance cost coverage. These activities included developing technical capacities for operation of the water treatment plants through a peer-to-peer partnership with National Water and Sewerage Corporation (NWSC) of Uganda; extending the water supply networks to increase the customer base; introducing consumption metering to build a reliable billing and revenue collection system; repairing network leakages to minimize non-revenue water and improved performance of the water treatment plant. In Maridi, the treatment plant was also connected to the Maridi Electricity Company (MECO) power grid to reduce energy costs associated with use of generators. For both Maridi and Wau, an electronic billing system was introduced, while the system in Juba was upgraded.

As a result of these interventions, twenty one (21) technicians received on-job training for water treatment plant operation and maintenance and record keeping. These technicians participated actively in implementation of the Small Investment Projects which resulted in 4,083 more people getting access to safe drinking water and 20,998 people getting access to improved service quality from existing drinking water sources. Management of the water supply was also substantially

improved with lower non-revenue water and consistent daily water supply to populations. Revenue collection increased and an interim ring-fencing agreement with the Minister of Finance allowed the stations to keep these revenues for operation and maintenance. In Maridi, a connection to MECO power contributed to a 27% energy cost reduction. A computerized billing system was established for Maridi and Wau UWC stations. Even though incomplete progress was made in Wau with establishing a local water management committee that would facilitate engagement of the local stakeholders, this process was nonetheless successful in Maridi. It is anticipated that further development support would address the challenges in Wau and entrench this initiative in both towns.

For the urban sanitation component, SUWASA was designed to address the lack of a deliberate focus on sanitation in Juba city despite the recurrent cholera outbreaks and high mortality rates associated with waterborne diseases. In addition, even though the city showed extensive use of private septic tank exhauster trucks which could be a good building block for fecal sludge management in the city, there was however little understanding on how the entire sector was functioning. It was therefore necessary to develop a better understanding of the situation of sanitation in Juba in order to identify potential solutions.

SUWASA helped the sanitation sector tackle these issues by undertaking five diagnostic studies namely the Juba Household Sanitation Survey and Mapping, Juba Public Pay per-use Toilet study, the Exhauster Survey, the Roton Lagoon Assessment and Mapping of Sanitation Institutions as a way of increasing understanding of current urban sanitation challenges and opportunities. SUWASA then used these studies to support development of the Juba City sanitation Reform and Investment Plan to provide a platform for attracting public and private sector investment in the sector. Although not part of the original project design, SUWASA also provided capacity building support to Juba City Council to respond to the cholera outbreak of 2014. Key results of the sanitation intervention has been the increased knowledge and understanding of the sanitation situation in Juba covering all elements of the sanitation service chain. The development of the plan also has resulted in coalition of action led by Juba City Council with an initial focus on improving management of the Roton lagoon through the Sanitation Governance Council.

The project faced two key challenges namely the political unrest which took place in December 2013 and USAID delays in approving international staff hire and consultants. This particularly affected mobilization of the Institutional Development Specialist and Urban Sanitation Specialist. This caused either delays or complete abandonment of some planned activities.

Six key lessons on reform and institution building emerge from implementation of SUWASA most of which are of relevance to other fragile and conflict affected countries. They include:

- The need to take into account local histories and political Interests which affected the ability of the project to deliver the local water management committee and utilization of customer meters in Wau;
- The critical role of individual agents who can champion a reform as was the case with the sanitation component in Juba;
- The challenge of providing infrastructure in emergency mode and related consequence of inadequate institutional capacity for operation and maintenance as was the case with the Roton lagoon in Juba;
- The critical need to work through complex institutional arrangements which are only emerging and have only limited organizational clarity and distinction of roles and responsibilities as was the case for sanitation in Juba;
- The need to look out for private sector players who can be a critical part of the solution as was the case with private exhauster truckers in Juba;
- The need for flexibility in project design and approach to allow for both emergency and

long term development objectives.

At the SUWASA project closeout workshop held in February 2015, it was acknowledged that whilst the support provided by SUWASA did not invest heavily in infrastructure, the gains made through technical assistance were important for sector reform as they lay the foundation for attracting infrastructure which also needs viable institutional elements to work effectively. All three beneficiaries of the SUWASA program namely, the Ministry of Electricity Dams Irrigation and Water Resources, South Sudan Urban Water Corporation and Juba City Council committed to implement key actions within their control notably the following:

- Ministry of Electricity Dams Irrigation and Water Resources would fast track and finalize the development of the new water law in order to clearly stipulate roles and responsibilities in the urban water sector. The Ministry would also enhance the autonomy of the urban water stations and define clearly their relationship with SSUWC HQ.
- SSUWC would fast track the roll out of the corporate plan by starting activities that need limited or no funding and starting mobilization of resources required from partnership with the private sector or donor community assistance.
- The urban water stations would be supported to improve technical operations and maintenance of the water distribution systems and to monitor service delivery issues including non-revenue water. In particular, the stations would pursue improvement of commercial operations through proper billing, appropriate customer account management, better revenue collection and cost recovery.
- Juba city council to move forward with implementing all doable actions including fast tracking the establishment and operationalization of a system for managing the Roton lagoon effectively through the creation of the Sanitation Governance Council and ring-fencing of sector revenues; undertaking actions that do not require financing (keeping the lagoon clean, ensuring that the tankers use the discharge bay properly and using equipment which is already installed properly, etc.) and pursuing the preparation and enforcement of by-laws to guide operation of all actors in the sector. In addition Juba City council would begin the process of attracting investments to finance implementation of the Sanitation Reform and Implementation Plan.

It is anticipated that fulfilment of these commitments will contribute significantly to laying a strong foundation on which the Government of South Sudan can further develop the water and sanitation sector.

1.0 Background And Objectives

1.1 Background

According to the 2010 Country Status Overview (CSO) Report prepared by the Water and Sanitation Program, operation and maintenance of urban water supply facilities in South Sudan was poor and South Sudan Urban Water Corporation (SSUWC) did not have sufficient autonomy to allow good performance. At the same time individual Urban Water Corporation (UWC) station revenues were not ring-fenced but rather, transferred to the Ministry of Finance and Economic Planning (MoFEP) Block Account in the capital city Juba. It was also observed that SSUWC was fully dependent on the Government allocated annual budget as its revenues were insufficient to cover operating costs. A GIZ report assessing the commercial and financial performance of SSUWC in 2010, indicated that SSUWC did not have the commercially oriented management it desperately needed to deal with its challenges. It further indicated that SSUWC performance incentives were very low or non-existent.

Despite these challenges, the urban water and sanitation sector has continued to be high priority for the government of the Republic of South Sudan (RSS) and specifically so for the South Sudan Urban Water Corporation. The SSUWC Provisional Order was passed in 2011 in order to realize the goals and objectives laid out in the Government Water Policy of November 2007. The policy calls for sustainable financial systems and operations to ensure that customers receive reliable access to safe drinking water supply from water utilities. It was therefore recognized that there was a strong need for SSUWC to shift to a model based on commercial and cost recovery principles in order to improve performance and quality of service for urban water customers.

In response, USAID provided support to the urban water and sanitation sector through the SUWASA program whose goal is to ensure improved access to safe, affordable, sustainable and reliable urban water and sanitation services. The SUWASA South Sudan project was designed as a 42 month intervention to promote a structured, formal and systems-oriented approach to urban water and sanitation sector management in the country. The project started on September 11, 2011 with assistance only to the urban water sector, focusing on helping the SSUWC and its urban water stations work towards achieving long-term sustainability by adopting policies and practices based on commercial principles. The first step of this 5.0 million USD endeavor was to provide assistance to SSUWC in developing an Urban Water Sector Reform (UWSR) Initiative which provides guidance for SSUWC's transition from being principally a spending agency of the RSS to functioning as a semi-autonomous corporation achieving sustainable financing for regular operations.

This important reform was approved by the Ministry of Electricity, Dams, Irrigation and Water Resources (MEDIWR) and supported by the two major partners in the sector, GIZ and JICA.

In October 2012, USAID/South Sudan asked SUWASA project to consider taking on an additional urban sanitation activity to raise the understanding of the situation in the sector and to define measures for increasing the focus on the urban sanitation sector.

A three member Sanitation Scoping Team visited Juba from January 7 to 17, 2013. The scoping revealed that the urban sanitation coverage in South Sudan was below 10%. This contributed to the mortality rates from waterborne diseases in particular from recurrent cholera outbreaks which in 2006 alone, left more than a thousand people dead. The outbreak was more intense in areas with relatively high population densities such as peri-urban areas and military barracks. The sanitation challenge was made more complex by poor sanitation infrastructure associated with rapid population growth, in particular in the capital Juba, where population increased from about 163,000 in 2005 to approximately 500,000 between 2002 and 2013. A key impact was a high rate of mortality of children under 5 years.

The scoping team also identified that the use of private septic tank exhauster trucks had grown

significantly with the growth of Juba and was a good building block for a private sector led activity. The scoping exercise resulted in agreement with USAID, to develop a sanitation component for Juba city with an estimated budget of 1.5 million US Dollars.

1.2 Goal and Objectives

The overall goal of the SUWASA South Sudan project was to ensure improved access to safe, affordable, sustainable and reliable urban water and sanitation services. SUWASA had planned to promote a structured, formal, market driven and system oriented approach to urban water and sanitation service delivery within the Republic of South Sudan (RSS).

To this end SUWASA assisted South Sudan Urban Water Corporation and its branches (UWC) Stations in Maridi and Wau, work towards achieving long-term sustainability by adopting policies and practices based on commercial principles. For urban sanitation, the aim of SUWASA was to expand urban sanitation service access in a safe, affordable and sustainable manner, through better understanding of the sanitation sector and prioritization of relevant sector reform and investments in Juba.

1.2.1 Specific Objectives in Urban Water

The urban water component had three specific objectives:

1. Support the establishment of a clear institutional framework for urban water supply in South Sudan
 - Support the establishment and operationalization of SSUWC Board of Directors
 - Assist SSUWC in developing its Corporate Plan
2. Support Evolution of Targeted UWC Stations Operational Autonomy
 - Capacity building through peer-to-peer cooperation with National Water and Sewerage Cooperation (NWSC) of Uganda
 - Design and implementation of Small Investment Projects (SIP)
3. Set up a Framework for Local Government Participation in the Management of Local Water Stations
 - Development of a framework for local government participation in management of the local water stations in line with policy
 - Support preparedness at the state, municipal and local government level to progressively assume the responsibility for the management of water supply service provision.

1.2.2 Specific Objectives for Urban Sanitation

For the sanitation component which was focused on Juba, the following specific objectives were defined:

1. To raise the understanding of current urban sanitation challenges and opportunities
2. To raise the understanding of key stakeholder roles and responsibilities
3. To promote public and private financing for sanitation

2.0 Implementation approach

The SUWASA South Sudan approach was to work in collaboration with major water and sanitation sector partners to push for reform and institutional strengthening at the national level. At the same time, SUWASA worked in targeted urban areas. Maridi and Wau Urban Water Stations were supported to develop their operational capacity and transition towards a commercial orientation required for sustainable financing and operation of existing urban water supply infrastructure. For the sanitation sub-sector, SUWASA focused on engaging the Juba City Council together with the Town Blocks, the State Ministry of Health, Environment and Sanitation, Juba County and the national Ministry of Lands Housing and Physical Planning.

SUWASA engaged, not only with central and local government but also with organizations across the sector in various fora like the Water, Sanitation and Hygiene (WASH) Bi-annual Planning and Coordination Meetings, the WASH Coordination Meetings, the Urban Water Working Group (UWWG), the National Sanitation Task Force and the Juba Sanitation Working Group.

SUWASA collaborated with development partners active in the urban water and sanitation sector including the World Bank, KfW/GIZ, JICA, the Netherlands, UNICEF and NGOs. SUWASA also partnered with SSUWC peers including National Water and Sewerage Corporation (NWSC) of Uganda and Kenyan Water Services Regulatory Board (WASREB) for capacity development and benchmarking. This was done through both study visits as well as hands on-training.

SUWASA also engaged local partners and undertook consultations to build understanding and ownership of the water and sanitation reform.

2.1 Activities Undertaken in the Urban Water Sub-sector

2.1.1 Supporting the Establishment of a Clear Institutional Framework for Urban Water in South Sudan

At SUWASA inception, it was observed that the reform of the urban water sector was moving very slowly due to lack of clarity and limited commitment to an identified agenda. The first activity of SUWASA was to develop the Urban Water Sector Reform (UWSR) Initiative and to mobilize major stakeholders and the donors around a clearly defined reform agenda. The Urban Water Sector Reform Initiative was signed on November 3, 2011 by MEDIWR and the SSUWC with GIZ, JICA and SUWASA as witnesses. Based on the UWSRI, SUWASA and GIZ partnered on 16 April 2012 to organize a national workshop attended by forty three participants from eight states, SSUWC, MWRI, GIZ and JICA. The workshop reviewed possible institutional, legal and regulatory arrangements and articulated common approaches of how urban water supply systems and services would be managed and governed including clearly delineating roles and responsibilities of South Sudan Urban Water Corporation.

2.1.2 Supporting the Establishment and Operationalization of SSUWC Board of Directors

SUWASA supported the operationalization of the SSUWC Board of Directors (BoD) based on the Presidential Provisional Order of 2011 which authorized formation of the same. SUWASA lobbied and persuaded the MEDIWR that in order to give SSUWC a commercial orientation, it was necessary that the board be appointed to set the direction and objectives for the Corporation. The BoD was appointed by the president on May 28, 2012. SUWASA conducted an induction workshop for the 9 board members on September 19, 2012 to provide them with an understanding of their roles and responsibilities and expose them to how other boards within the region run their businesses. The National Water and Sewerage Corporation (NWSC) of Uganda and the Chairperson of the Board of Directors and the Executive Director of the Kenya Regulatory Board (WASREB) made presentations to the SSUWC Board on their responsibilities, the issues and challenges they face and what makes a successful board.

The project also provided support for the first five board meetings. The board has since begun to organize their meeting on a regular basis without support from SUWASA.

As part of the capacity building program the project organized a study tour for the BoD of SSUWC and senior management of the MEDIWR to familiarize themselves with the reform process in Uganda with emphasis on the operations of the NWSC.

2.1.3 Assisting SSUWC to Develop a Corporate Plan

Poor performance, dependency on government provided resources and low human resource capacity, were identified as issues that jeopardize the Corporation's long term commercial viability and sustainability of water supply services. To help resolve these issues, SUWASA, with support from a team from NWSC, facilitated the development of a Corporate Plan for SSUWC. The Plan defined the vision and mission and established SSUWC goals and strategies for the next 3 years (2015-2018) based on the urban water strategy and sector goals. This process was initiated in October 2013 with a collection of baseline data but was delayed as a result of the December 2013 political crisis. The Corporate plan was nonetheless completed successfully in 2015 and will act as a management tool to guide the planning and implementation of programs.

2.1.4 Support Evolution of Targeted UWC Stations Operational Autonomy:

At the start of the project, Urban Water Corporation (UWC) stations in Maridi and Wau were not operating due to unreliable supply of fuel, weak technical capacity and limited resources for operation and maintenance of the water treatment plants.

SUWASA involved building capacity through peer-to-peer cooperation with National Water and Sewerage Corporation (NWSC) of Uganda and designed and implemented Small Investment Projects (SIP).

2.1.4.1 Capacity Building through Peer-to-Peer Cooperation with National Water and Sewerage Cooperation (NWSC) of Uganda

One of the identified weaknesses in the operation and maintenance of the Urban Water Stations is the level of skills to adequately run the water treatment plants and produce the quality and quantity of water required to satisfy the needs of the population sustainably. In order to help raise the local staff operational capacity and customer service, SUWASA supported the establishment of a South-South Water Operator Partnership (WOP) between the National Water and Sewerage Corporation (NWSC) of Uganda and SSUWC to provide hands-on technical training. The partnership was also meant to provide an avenue for peer assistance after the conclusion of USAID support. NWSC helped in the development of a Capacity Development Plan and provided technical training in water treatment plant operation and maintenance. Technical training was provided to 21 utility staff including troubleshooting procedures for operational problem solving. This training, and SUWASA technical assistance, jump-started operation of the water treatment plants in Wau and Maridi following months of no service. The customer care skills development did not take place due to the December 2013 political crisis in South Sudan.

2.1.4.2 Planning and Implementation of Small Investment Projects (SIP)

Small Investment Projects (SIPs) were undertaken in Wau, Maridi and Juba. They were aimed at demonstrating the introduction of commercial and cost recovery principles in order to sustain services, improve revenue collection and the impact of revenue ring fencing on financial sustainability. A participatory planning process involving Urban Water Station management teams, local government institutions and civil society groups and the private sector was initiated by SUWASA to develop SIP packages to implement in the three towns.

In Wau the SIP package comprised leakage control repair works to minimize non-revenue water, installation of water consumption meters to improve revenue collection and upgrading the billing and revenue collection system.

In Maridi the project supported water consumption metering, repair of leakage, extension of the water distribution system and construction of five water points in underserved areas, and upgrading the billing and revenue collection system.

In Juba, SUWASA partnered with the Urban Water Station to network and upgrade their electronic billing system which was originally provided by JICA. SUWASA provided the information technology equipment required for the billing systems in Maridi, Wau and upgrades in Juba, while the Juba Urban Water Station billing section staff provided hands-on training on use of the billing software for Maridi and Wau staff. This assistance also helped build internal capacity to better manage the billing and collection for SSUWC in the three stations.

2.1.5 Set up a Framework for Local Government Participation in the Management of Local Water Stations

SUWASA aimed at developing the institutional foundation of the urban water sector with particular attention to promoting autonomy of Urban Water Stations. This requires the support of local stakeholders and is in line with the Local Government Act Cap 209 and the draft water bill currently under discussion. The National Water Policy states that “Where capacity exists, responsibility for development and management of Urban Water Supply and Sanitation (UWSS) services shall be progressively decentralized and Urban Water Corporations shall be supported to become semi-autonomous entities”

It is therefore imperative to establish a framework where local government and other stakeholders will support the management of the urban water stations, including Maridi and Wau. Discussions with key stakeholders identified the need for a consultative process to define the way forward. Consultation workshops on the involvement of local stakeholders were therefore held in Maridi and Wau and concluded that Local Water Management Committees needed to be created. Participants in the workshops included Urban Water Stations management, state and local government representatives, NGOs, local organizations and the business community.

In Wau, a technical committee created by the Ministry of Physical Infrastructure in response to the 2014 cholera outbreak was already in existence. Its mandate and membership needed to be revised and broadened from the purely technical, to respond to the needs of a commercially oriented water utility. In Maridi the other hand, the committee needed to be created from scratch.

The objective of the Local Water Management Committees was to provide a level of direct communication and accountability between the urban water stations and the local stakeholders.

The committees are meant to evolve gradually with the South Sudan Urban Water Corporation (SSUWC) progressively ceding autonomy to the local water stations as municipal and local governments progressively assume responsibility for the water supply and sanitation service provision.

2.2 Activities Undertaken in the Urban Sanitation Sub-Sector

The urban sanitation component was expected to contribute to three intermediate results as follows:

1. Increased understanding of key stakeholder roles and responsibilities contributing to improved coordination on urban sanitation.
2. Improved understanding of current urban sanitation challenges and opportunities both documented and disseminated.
3. Increased public and private financing for household and public urban sanitation

The first two results were achieved through implementation of five diagnostic studies namely the Juba Household Sanitation Survey and Mapping; Juba Public Pay Per-use Toilet Study; Exhauster Survey; Roton Lagoon Assessment and Mapping of Sanitation Institutions. The third result was achieved

through the development of the Juba City Sanitation Reform and Investment Plan.

2.2.1 Juba Household Sanitation Survey and Mapping

The rapid growth of Juba City, the capital of South Sudan, over the past ten years presents municipal authorities with a multitude of challenges. One of these challenges is the provision of adequate sanitation facilities for an ever growing population. At the start of SUWASA, information that would ordinarily be available for planning purposes, including the size of the city and population density variations, levels of access to latrines and hygiene behaviors, was scarce or absent. As a result, there was a risk that future utility investments, based upon circumstantial evidence, would not target those areas of the city that should be prioritized. To address this gap, SUWASA worked with 16 local enumerators from Juba University to conduct a household sanitation mapping survey from September 11 to October 10, 2013.

2.2.2 Juba Public Pay-per-use Toilet Study

At the inception of SUWASA's sanitation intervention, there was an understanding that public pay per use toilets of which USAID and the World Bank had financed construction of a few, were potentially a key part of the sanitation solution in Juba. There was however need to gather information on the operations of the public toilets in order to determine functionality, areas for improvement, replication and scale up. SUWASA surveyed all toilets built by both the public and private sector that could be identified (a total of 21 Public toilets across the city). The target respondents were either owners of the toilet block or employees managing the toilet block. The survey was undertaken between December 9-13, 2013.

2.2.3 Exhauster Regulation Case Study

Juba city has almost negligible sewer network with only 2% of the population said to have access to a sewer network. This, together with a very limited piped water network (estimated to serve approximately 25% of the population) means that onsite sanitation facilities will remain the norm in Juba for the foreseeable future. The private sector has stepped in to provide sewage exhauster services throughout the city and sewage exhauster trucks will remain a key part of the sanitation solution in Juba. However, at the start of SUWASA, there was little understanding of how this sector was organized, how it was operating and how it was being regulated. To fill this knowledge gap, SUWASA undertook a survey of the exhausters to determine the sources of sludge; management of the trucks at the lagoon including financial transactions related to the use of the lagoon for emptying sludge; information about the exhauster businesses including organizational and employment structure, information about the exhauster fleet, operational aspects as well as key challenges and opportunities for growth of the business; and assessing the quantity of sludge being collected by the trucks and emptied into the lagoon.

2.2.4 Roton Wastewater Lagoon Study

The Roton lagoon which was commissioned in 2010 remains the largest public sector investment in sanitation in Juba and a critical part of the sanitation services supply chain. However, at the start of SUWASA there was little clarity on its ownership as well as operation and maintenance. This understanding is however important in order to safeguard the gains made through this investment and to assure continued safe disposal of human waste in Juba. SUWASA therefore undertook an assessment of the lagoon to gather information on design and operation of the lagoon (including quantity and quality of effluent produced), supervision of the exhauster tankers and financial transactions related to the use of the lagoon. The survey undertaken between December 2013 and July 2014.

2.2.5 Urban Sanitation Roles & Responsibility Mapping

At the start of SUWASA there was a lack of understanding on institutional arrangements in the sector with many players and lack of clarity on roles and responsibilities. In order to unravel this complexity SUWASA carried out a mapping of the key government institutions that are involved with urban

sanitation in Juba.

2.2.6 Investment Planning for Urban Sanitation with the Juba Municipal Government

Based on the outcomes of all the studies, SUWASA supported the Juba City Council (JCC) with development of the Juba City Sanitation Reform and Investment Plan. The Plan was developed in collaboration with all key government ministries and agencies, donors, and non-governmental organizations, working through the Juba Sanitation Investment Plan Working Group established by the Mayor of Juba. Technical assistance was also provided by Tetra tech Home office. The Working group held 4 stakeholder consultative meetings between August and December 2014. SUWASA also supported the official launch of the plan which was held on January 30, 2015.

2.2.7 Emergency Response to Cholera

In May 2014, South Sudan was hit by a cholera outbreak in Juba. In an effort to have longer term impact, SUWASA responded not by undertaking any activities directly, but rather strengthening the response capabilities of relevant government agencies. Specifically, SUWASA South Sudan engaged and convinced the Munuki Payam of Juba City Council to use their sewage exhauster truck to safely handle and collect cholera waste from the cholera treatment centers. SUWASA provided training and protective equipment to the payam, and ensured that the truck was in good condition for safe transportation of the waste. To ensure compliance with agreed safety standards, SUWASA coordinated the collection from all cholera centers in the city, as well as supported monitoring activities.

3.0 Key Partners And Staffing

3.1 Key Partners

From inception to the end of the project, SUWASA worked with the Ministry of Electricity, Dams, Irrigation and Water Resources (MEDIWR) and South Sudan Urban Water Corporation (SSUWC) to implement the reform for urban water supply services delivery. This involved working closely with the UWC stations at Wau and Maridi. In addition, SUWASA worked with State and Local governments and other stakeholders in including community associations, the private sector and the local media.

Other project implementing partners included Maridi Electrical Corporation (MECO) which extended its power network to connect the water treatment plant to Maridi power grid. National Water and Sewerage Corporation (NWSC) of Uganda undertook capacity building for Wau and Maridi Water Treatment Operations and peer-to-peer learning.

In Central Equatoria State (CES), the State Ministry of Lands, Housing and Physical Planning, Ministry of Electricity, Dams Irrigation and Water Resources, the Ministry of Health, Ministry of Environment, Ministry of Gender, Ministry of Health, Environment and Sanitation (CES), Ministry of Finance (CES), Juba City Council, Juba County and Juba payams, the Local Government Board, University of Juba, South Sudan Urban Water Corporation, GIZ, UNICEF, UNEP, PSI, OXFAM, MSF, the Netherlands and the World Bank were key partners in the Sanitation component development and implementation. SUWASA also worked closely with Munuki Payam of Juba City Council, UNICEF and MSF in responding to the cholera outbreak in 2014.

SUWASA also partnered with donors particularly GIZ and JICA who particularly supported the urban water reform initiative through the Urban Water Working Group (UWWG) led by GIZ.

3.2 Project Staffing and support Consultants

SUWASA/SSP implemented the project activities with a 13 staff team including 8 professionals. The team was supported by one utility management consultant and 3 consultants from TetraTech Home Office. SUWASA Regional Office specialists also provided assistance to the South Sudan

implementation Team.

A table of staffing and support consultants is attached in Annex 2.

4.0 Key Results

4.1 Urban Water Sub-sector

4.1.1 Institutional Framework for Urban Water in South Sudan

The Urban Water Sector Reform Initiative has helped the country to jump start its urban water reform activities. The definition of roles and responsibilities at the national and local levels has provided a clear mandate for SSUWC as well as a framework upon which the formulation of the New Water Bill initiated by MEDIWR has been based.

4.1.2 Establishment and Operation of SSUWC Board of Directors

SSUWC BoD became a functional body and their board meetings have become institutionalized with seven held by March 2015, the last two of which were organized without SUWASA support. In addition, the study tour to NWSC of Uganda helped Board members to compare their utility's performance and to show positive examples of a well performing commercially operated utility.

4.1.3 SSUWC Corporate Plan

The process of developing the Corporate Plan provided a platform for the different directorates to critically engage in thinking about the strategic direction for the Corporation. Their engagement also meant that there is a high level of ownership of the plan which was also reviewed and endorsed by the SSUWC Board of Directors' on March 12, 2015. The SSUWC have already used the Plan as a basis for development of their annual work plans for the 2015/2016 financial year. Significantly, the plan provides a reliable instrument that the BoD can use for their budget allocation discussions with Ministry of Finance.

4.1.4 Local Government Participation in the Management of Local Water Stations

In Maridi, the Local water management committee was successfully created and is fully operational. By March 2015, the committee had already held 2 monthly meetings. The operations of this committee will be critical to improving and sustaining services delivery in Maridi as the broad representation of local stakeholders means that the UWC station can call upon these players to assist with the different elements involved in service delivery, including customer outreach activities. It also presents a platform for the eventual formal involvement of the local municipality as well as laying a potential foundation for increasing transparency and accountability.

The same cannot yet be said of Wau where further work is needed to broaden local stakeholder participation in the existing technical committee.

4.1.5 UWC Stations Operational Autonomy

The peer-to-peer cooperation with National Water and Sewerage Cooperation (NWSC) of Uganda facilitated the development of training plans for Maridi and Wau Water Treatment Plants and provided effective technical hands-on training in operation and maintenance, performance data recording and troubleshooting for the water treatment plants. The training has resulted in the ability of the staff to undertake basic operation and maintenance including chemical dosing and other activities that they were not able to undertake before. Aside from the technical aspects, staff are now able to prepare and keep reports of operations of the plant. The real result however is that the plants are now functional and providing a service to the populations.

On August 21, 2012, an interim mechanism for revenue ring fencing was set up by the Minister of Water Resources and Irrigation. This has allowed SSUWC stations in Maridi and Wau to retain the revenues collected for provision of fuel and chemicals to operate the water treatment plants and provide more water to their clients. This is a key building block in getting financial autonomy for the

stations.

4.1.6 Small Investment Projects (SIP)

In Wau, the SIP resulted in reduction of non-revenue water with investments in leakage control. Additionally, 850 customer meters were also installed. A computerized billing system was installed, combined with training on the new system with a particular focus on improving collection efficiency. After months of being non-operational, water supply increased to 14 hours a day. In Maridi, the SIP resulted in extension of the water distribution network by 2.5 kilometers, an addition of 5 new water points in underserved neighborhoods, reduction in non-revenue water due to repairs undertaken on the water main and improved revenue collection measure through installation of household 100 water meters.

These works in Wau and Maridi ultimately led to an increased client base for the urban water stations, with 4,083 more people getting access to safe drinking water, and 20,998 people getting access to improved service quality from existing improved drinking water sources. The SIP together with the training from NWSC provided an opportunity for hands on capacity building of staff of the UWC who undertook the installation of the customer meters.

The connection of the water treatment plant to the MECO electricity grid in Maridi, allowed the station to save an estimated 27% on its power cost compared to historical generator fuel costs. Most importantly, all energy costs are now being covered from the station's user revenue collection.

For both Wau and Maridi, a commercial foundation has been established with increased billing and collection efficiency, building on the computerized billing system and training provided by SUWASA.

4.2 Expand Access to Urban Sanitation

The sanitation intervention produced two main results namely, improved knowledge and understanding of current urban sanitation challenges and opportunities and a plan to attract private and public investments to the sector.

4.2.1 Understanding of the sanitation situation in Juba

Through the diagnostic studies which generated knowledge and information, which had hitherto been unknown, a comprehensive understanding of the Juba urban sanitation context was fully documented and disseminated for action. This effort included the elements detailed below.

4.2.1.1 Household Sanitation Survey and Mapping

There is a serious sanitation problem in Juba both in terms of sanitation infrastructure (toilets) and hygiene behaviors at the household level. Only 55% of households have access to a toilet, 40.7% share a toilet, 2.7% practice open defecation with the remainder using public toilets. Of those that have private toilets, only 2% have access to a sewer connection and the remainder have pit latrines or pour-flush toilets. Toilets are generally poorly constructed and only about 40% are apt to be emptied by mechanized exhausters (others are abandoned and new pits dug). Mechanical exhausting is however widely practiced by those with septic tanks and lined pit latrines and costs an average of 229 South Sudanese Pounds (approximately US\$51). Hygiene behaviors are relatively poor with only 46% of residents having a hand washing facility. In addition, only 39.9% indicated that they wash their hands after defecating, 32.2% before eating, 19.3% before preparing food and only 8% after handling child's feces.

These problems are exacerbated by the fact that Juba is one of the fastest growing cities in the World. The city grew by 230% from a geographic area of 21.55km² in 2002 to 27.44km² in 2007 and 71.22km² in 2012. The population quadrupled from 165,000 in 2005 to 500,000 in 2013.

4.2.1.2 Public Per pay Use Toilets

There has been a steady increase in the number of public toilets between 2008 and 2013, with the majority concentrated in the two Blocks of Munuki and Kator and very few in Juba. The majority

of the toilets have been built by the private sector, even though the biggest toilets are built by the public sector. Management is also largely by the private sector, although some of the bigger toilets are managed by the public sector. The toilets seem to be profitable with an average profit of USD541 per month. There is however need for the city council to improve the regulatory environment including hygiene practices, use of protective clothing, lighting, privacy, security and general upkeep of the toilets.

4.2.1.3 Exhauster Survey: Juba has an active Private Exhauster Service

Juba has a very active and relatively profitable mechanized exhauster service sector, accounting for over 96% of fecal sludge handled. Over 150 exhauster tankers are operating in Juba, with over 91% owned by private companies or individuals; nine are owned by four public sector agencies. The average cost of emptying a household latrine is between US\$88-US\$122, quite high when compared to an average of US\$60 in other African countries. The JCC is responsible for registration of the tankers, while regulation is limited to issuance of operational licenses and disposal permits. These licenses and fees, contribute about US\$1.3m in revenue annually to the public sector. However, this revenue is not ring-fenced and not reinvested in the sector.

4.2.1.4 Assessment of Roton Lagoon

Sludge treatment is provided at the Roton Wastewater lagoon located outside the City boundaries (two smaller lagoons within the city limits at Hai Amarat and Kololo treat sewage from the small sewer networks serving government offices and Ministerial homes). The lagoon is managed by the Juba County administration. The installed capacity is 3,300 m³/day with possible expansion to 9,500 m³/day. The facility is currently operating at 70% of installed capacity and is expected to reach full utilization by 2020. The lagoon is not properly operated and managed and it produces foul smells and poor quality effluent. Of the US\$1.3m generated from the exhauster tankers, the lagoon accounts for US\$555,364 from tanker emptying charges.

4.2.1.5 Sanitation Institutional Mapping

There is a lack of clarity on institutional roles and financial responsibilities which has an important drag on the sector. There are at least six government agencies at the national, state and city level with some role in urban sanitation including the MLHPP, the MEDIWR, the Ministry of Health, the Ministry of Environment, the Juba County and the Juba City Council. However, none has the necessary technical capacity or the resources to effectively manage sanitation services. The sector is reliant on the private sector both for investment in exhauster tankers and the bulk of construction of public toilets. Households pay for construction of their private toilets. There is no dedicated public financing stream directed toward maintenance and improvement of the sanitation sector and the only notable public investment has been the construction of the Roton wastewater lagoon and rehabilitation of the two small lagoons at Kololo and Amarat.

4.2.3 Juba City Sanitation Reform and Investment Plan

Using the results from the studies, the program has provided strategic guidance for investments in the urban sanitation sector through the Juba City Sanitation Reform and Investment Plan. The summary below provides the key elements of the investment plan.

Elements of the Investment Plan

Recommended actions presented in the Plan are organized into three 5-year planning periods covering the 15 years from 2015-2030. The Plan balances institutional reforms and strengthening with expansion and improvements to the physical management of fecal sludge in three important aspects: containment of fecal sludge at households and public toilets; collection and transport of fecal sludge; and, treatment and disposal of the fecal sludge.

- Containment of Fecal Waste: The Plan proposes construction of more household and public toilets to increase the coverage from the current 55% to 85% by 2030 using a demand

driven approach. The Plan proposes limited government subsidy only for the population that has a demonstrated inability to meet the full cost of constructing toilets. The Plan also proposes that management of public toilets be delegated to the private sector to ensure sustainable management even when construction is financed by the public sector.

- **Transportation of Fecal Waste:** In the short to medium term, exhauster tankers will remain the appropriate mode for transporting fecal waste to the Roton lagoon. Thus, the private sector will continue to have an important role in fecal sludge management, but would be overseen by a stronger regulatory regime focused on overseeing tanker routes, proper parking, penalties for pollution, and measures for worker safety. Transport of sewage via a sewer network is proposed to be phased in on an incremental basis in the out years of the planning horizon as conditions permit.
- **Treatment/Disposal of Fecal Waste:** The Plan proposes full utilization of existing wastewater treatment facilities, including prioritized expansion of the Roton Lagoon to its full design capacity and continued use of simple technologies like stabilization ponds. This is consistent with the experience of other African countries and makes best use of available resources including the land. The Plan proposes a stronger focus on operation and maintenance of the facilities for improved treatment effectiveness, sustainability of the facility and cost efficiency.
- **Institutional Arrangements:** The Plan proposes improvements in institutional arrangements to enable the sector to attract and effectively utilize funding. Regulatory functions would be centralized in the JCC whose technical and financial management capacity would be enhanced. Over the longer term, the Plan proposes to transfer responsibility for the management of existing and new treatment facilities to a new entity that will be created under the proposed water law to manage urban water and sanitation services.
- **Financing arrangements:** The Investment Plan is estimated to require approximately US\$ 207 million over the next 15 years. The Plan proposes that users of sanitation services and facilities pay for services while providers ensure value for money through reasonable tariff setting and regulation. It is expected that the private sector (including households) will finance household (including connections to the sewer network in the long term) and public toilets and exhauster tankers; the public sector will finance all public infrastructure including wastewater treatment facilities and a pilot sewer system. The public sector could also provide targeted subsidies to encourage poorer households to invest in their toilets. The Plan proposes that in order to support sustainability of service delivery, revenue generated from the sector, especially fees collected from the exhauster tankers, need to be ring-fenced within general accounts and reinvested in the sector.

4.2.4 Coalescing Stakeholder Action

The development of the Plan also provided a forum not just for discussing the sanitation problem and potential solutions, but has also led to a coalescing of action on priority issues. Four key actions have already been taken as a result.

Licensing of Exhausters

Until August 2014, licensing of exhauster trucks was undertaken on an annual rotational basis by the three city blocks, on direction from Juba County. However, by October 2014, licensing was transferred to Juba City Council partly due to the discussions engendered by the plan development process but also due to the establishment of the Department of Environment and Sanitation within Juba City Council. This represents the beginning of the process of centralizing and consolidation of the regulatory function within the city council.

Governance Council

The Juba City Council in March 2015 began the process of establishing a system for better

management of Roton lagoon. SUWASA developed a proposal that has been endorsed and an order issued by the Governor of CES in April 2015 to create a governance council that will oversee operation and maintenance of the lagoon with the possibility of engaging the private sector. The governance council is expected to include representatives from the Juba County, Ministry of Health, the City Council and other key stakeholders. The importance of this activity is related to the fact that its success would impact on the technical sustainability of the lagoon, safeguard revenues collected from exhauster trucks for reinvestment in the sector; and create a platform for government and donors to invest in the completion and expansion of the lagoon.

Focus on Completing Roton Lagoon

Even though no donor has come forward to finance the completion of the Roton lagoon, the process has generated significant interest with discussions ongoing between the City Council and USAID and the World Bank.

Encouraging renewed donor/government focus on urban sanitation

The process used by SUWASA has encouraged the donors to rethink their role in urban sanitation. The process and the studies are already being used as a foundation for doing more in urban sanitation in South Sudan. KFW is beginning to do work in Torit, Yei and Yambio and building on the SUWASA success.

5.0 Lessons Learned

South Sudan as the newest country in the world presented significant development challenges including delivery of water supply and sanitation services that SUWASA was designed to address. Despite the significant security and other challenges, SUWASA was still able to influence the reform and institutional establishment of the water and sanitation sector in the country. In this regard, South Sudan offers some key lessons for those working on water and sanitation sector reforms in fragile or conflict impacted countries. Six key lessons are summarized below.

5.1 Take Account of Local Histories and Political Interests

It is important to understand and respect local and historical dimensions and build on dynamics of existing efforts. The setting up of the local water committees in Wau and Maridi is illustrative. Wau is a state capital whereas Maridi is a county headquarters. In Wau, the state government was quite involved and had been overseeing the water supply. It also created a Water Committee composed of departments of the Ministry of Physical Infrastructure to provide technical advice to the State Minister and serve as an instrument for response to cholera outbreaks. In this context, strengthening the water management committee by SUWASA meant figuring out how to expand the membership to include civil society organizations, the private sector and water consumers without a duplication of efforts. This required much more political engagement to help the stakeholders understand the value of expanding the committee. The limited time for implementation meant that the committee remains institutionally feeble and further support is required to mentor the expanded nascent committee to evolve into a broader representative body, including more than just government officials.

Maridi on the other hand is a secondary town in Western Equatoria State. From its inception, the Urban Water Corporation (UWC) station management had involved civil society organizations and the private sector, particularly the Chamber of Commerce. This approach had also prevailed during the establishment of institutional arrangements for the electric utility, MECO, whose successful structure served as a model for the UWC station. Consequently, creating a Water Management Committee that integrated all relevant stakeholders in the town was much easier and more successful in Maridi.

Similarly, in contexts such as Wau where the state government maintains a strong control over the

water sector, it is important that government officials be well involved in decision making to avoid conflicting positions and misunderstandings regarding UWC actions to advance urban water supply. In Wau planning of the SUWASA Small Investment Project (SIP) was undertaken in a participatory manner with all stakeholders in the town including the Ministry of Infrastructure and Physical Planning. An agreement was reached that customer metering was necessary for a fair, reliable customer billing and revenue collection system for more financially sustainable operations. However as the project progressed, the view of the local government evolved to a position that increasing the flat rate tariff from 15 SSP to 150 SSP per connection per month would more rapidly increase revenues and therefore help sustain operation of the water treatment plant. With this line of thinking, the Commissioner ruled, without further analysis regarding the revenues to be generated, that the flat rate would be used instead of the meter readings. The use of meters was therefore abandoned. SUWASA performed a rapid assessment and comparative analysis of the two scenarios showing that metering could potentially generate more revenue for the UWC than using the flat rate. However, due to the expiration of the SUWASA project it was not possible to assist UWC to reinstate the metering approach which has been shown to be more technically sound and financially viable.

5.2 Individual Agency May be Crucial

In a newly emerging country with limited institutions, there is a certain inevitability related to identifying and having champions who believe in the reform, especially at the beginning. This was the case in Juba where the mayor was clearly a champion helping to move the process despite the complicated institutional arrangements. However, for long term sustainability, it is important that effort is put into developing and strengthening systems that would anchor the reform in state/national/local institutions rather than in an individual. The idea of the sanitation working group and the ongoing effort to operationalize the sanitation governance council in Juba are crucial entry points into ensuring that the reform can retain its momentum.

5.3 Emergency Responses May Create Infrastructure but not Institutions

Post conflict cities can grow rather rapidly as seen with the case of Juba which in 11 years has grown by over 230% geographically and 3 times in population. This rapid growth far exceeds the capacity of government to provide municipal services. In this situation, emergency responses can produce physical infrastructure but setting up institutions requires much longer developmental interventions. Thus whilst Juba has a new and relatively large wastewater lagoon system, its functionality and sustainability are endangered by the limited institutional capacity of public agencies.

5.4 Institutional Arrangements Can be Very Complex

In a new country context like that of South Sudan, responsibilities for service delivery may not necessarily be allocated to the most relevant agencies. In Juba for instance, expediency led to handing over of the wastewater lagoon to the Juba County which has neither the jurisdiction nor technical capacity to manage the system. At the same time, Juba City council which has the legal mandate has limited capacity, whilst South Sudan Urban Water Corporation which has technical competence is not in any way involved with urban sanitation. At the policy level, urban water and sanitation are divided between two ministries making it difficult to attract investments as potential financiers are not clear where the mandate actually lies. Addressing these institutional issues is therefore critical to making progress in the sector.

5.5 Look Out for Private Sector Involvement

Even in a post conflict situation, the private sector can respond quickly and facilitate a viable market for services as evidenced by the exhauster sludge truckers in Juba. However, this market emerges in an institutional vacuum meaning that there is no clarity on regulations to meet necessary social,

environmental and other safeguards. Therefore in an environment like Juba where the private sector has responded well, public agencies need to focus on creating an enabling environment and regulating the private sector.

5.6 Flexibility in Project Design and Approach is Critical

In December 2013, political unrest broke out in the country and international SUWASA staff were evacuated from South Sudan for 5 months due to security concerns. These challenges necessitated serious flexibility on the part of SUWASA. Firstly, SUWASA had to have ability to mobilize staff and have them settled very quickly. This was particularly the case after the crisis of December 2013. Secondly, the program had to have sufficient flexibility to allow implementation of both emergency responses as well as long term development interventions. In the case of Juba for instance, the cholera outbreak of May 2014, presented an emergency challenge to which SUWASA responded by providing training to the Juba City Council to respond and engage directly with management of fecal waste. The cholera crisis was also used as a platform for engaging the Mayor and the City Council on the need for a long term solution which involves planning for and mobilizing resources for sanitation improvements in the city. Finally, the program taking cognizance of the limited time for implementation, zeroed in on identifying those intervention areas where it could make quick gains and around which the sector players could rally to sustain increased focus on sanitation. SUWASA focused on highlighting the challenges faced in Juba, particularly the Roton wastewater lagoon to which most stakeholders could relate. This focus on an activity that was challenging but doable is what coalesced stakeholders to rally around the mayor in developing the investment plan and the consequent establishment of the governance council on sanitation.

6.0 Ways Forward

6.1 Urban Water Sub-sector

Significant progress has been made by the SSUWC and the stations at Maridi and Wau. More work however needs to be done to ensure that water service delivery is reliable and financially sustainable.

6.1.1 Sector Development

As the SSUWC now has a Corporate Plan, the next steps includes strengthened corporatization. A key first step is to restructure the Board of Directors so as to make it more in line with industry practice in the region. This would involve changing its composition so that it includes more lower-level civil servants (i.e. directors as well as incorporating other stakeholders particularly the local authorities, private sector and civil society). This would increase private sector ethos in the Corporation as well as being to build the foundation for transparency and accountability to the consumers.

The SSUWC also needs to begin implementing the corporate plan focusing on those elements that are doable without significant financing, whilst also mobilizing larger investments from development partners. As SSUWC continues to improve, it would also benefit from continued peer-peer learning from its regional and continental neighbors. This professional network building will help to keep the corporation abreast of developments in the sector as well as providing a forum for seeking assistance.

For the UWC stations, SSUWC needs to continue with the process of enhancing their autonomy including defining clearly their relationship with SSUWC Head Quarters. The aim is ultimately to get the stations to be self-reliant so that they can manage their operations and maintenance with revenue from their water sales. Additionally, there is the need for further capacity building in support of the two water management committees to make them effective as a way of progressively creating autonomy at the local level.

Finally, in order to entrench the gains made in the reform process, minimize institutional uncertainty

and attract investments to the sector, it is important for the Ministry of Electricity Dams Irrigation and Water Resources to fast track and finalize the development of the new water law.

6.1.2 Water Distribution Systems Operations

At the service delivery level, there is still need to improve technical operations and maintenance by monitoring service delivery issues. In particular it is important to have a continued focus on non-revenue water reduction through priority investment in distribution systems repair and extensions. In Wau for instance, there is an opportunity provided by the existence of water pipes that were supplied by the Khartoum government. These pipes can be a key input into both extensions of services to underserved areas as well as reduction of non-revenue water. This should go hand in hand with installation of more Individual connections and construction of more water kiosks to increase the customer base.

6.1.3 Support Commercial Orientation

Whilst the billing system provided by SUWASA is a platform for improved revenue collection, it is critical that this system be fully operationalized and understood by both the UWCs and the consumers. It should also be used as a basis for improving commercial operations through proper billing and customer account management. This will necessitate the development and operationalization of an accounting system for the UWC.

As revenues increase at the stations, it will be important to improve accountability and transparency so that both the SSUWC headquarters and the consumers can develop trust in the local system.

At the same time, these activities must be complemented with better customer care services and outreach activities. This activity can be supported by the local water management committees as they have an understanding and relationship with the consumers. Specifically for Wau, there is a need for more assistance to increase political level understanding of the value of household metering and volumetric tariff systems for operational cost recovery.

6.2 Urban Sanitation Sub-sector

Through a deliberate, planned and coordinated approach that draws in the government, households, private sector and development partners, Juba can address its sanitation problems and be an example to other cities in South Sudan and in Africa. SUWASA has provided the Juba City Sanitation Reform and Investment Plan as a first but important step in this direction. The Juba city council now needs to move to implement all doable actions whilst they are trying to mobilize large investments from other partners.

6.2.1 Promote Ownership of the Plan

A first key step is for the council to promote ownership of the plan amongst its staff by facilitating discussions and providing guidance and clarification on their respective roles in implementation of the plan. It may also be important to set up a program management team within the council that can be held accountable for implementation of the plan whilst also serving as a platform for team building around the plan.

6.2.2 Operationalize the Sanitation Governance Council

The council and the state government need to fast track the operationalization of the Governance Council in order to provide a mechanism for managing the Roton lagoon effectively. In addition, progress is required on setting up the mechanism for ring fencing revenues from the exhauster trucks and public toilets and re-investing them into the sector.

6.2.3 Begin Implementation of Doable Activities

The council also needs to begin immediate implementation of activities that do not require negotiation or financing including keeping the lagoon clean, ensuring that the tankers use the discharge bay properly and ensuring proper use of equipment which is already installed such as

the screens. This will be a good indicator of the seriousness of the council to tackle the sanitation problem.

These activities can go hand in hand with preparation and beginning to enforce bye laws to guide operation of all actors in the sector. Occupational health issues such as ensuring truckers use protective clothing, proper parking of exhauster trucks are among the issues that could be addressed.

6.2.4 Mobilize Resources

The investment plan is an ambitious document whose implementation requires significant funding. It is therefore incumbent on the local authority to organize itself to mobilize finances from the national and state government, the private sector, households and development partners.

7.0 Success Story

Foundation Set for Sustainable Water and Sanitation Reform in Maridi and Juba

For more than three years, USAID's Sustainable Water and Sanitation in Africa (SUWASA) program worked closely with the South Sudan Urban Water Corporation (SSUWC) and local government partners to improve water and sanitation services in South Sudan.

The project focused on establishing a clear national institutional framework for water and sanitation services, increasing financial and operational sustainability at SSUWC's stations in Wau and Maridi and improving sanitation services in Juba.

Reform demands time and sustained engagement from government agencies and partners. But efforts have already resulted in remarkable progress toward establishing a strong foundation for reforms in urban water supply and sanitation service delivery in South Sudan.

The SUWASA project began in September 2011 and ended in March 2015. Throughout the process, SUWASA, SSUWC and government agencies in Maridi and Juba followed a four-step process: understand the challenges, build coalitions, invest in tangible results and secure support for the continued improvement of systems and services.

Understanding the Challenges

In Maridi, the original infrastructure layout had linked the reservoir to 100 standpipes. However, a rapid situational analysis highlighted key operational weaknesses in the system. When the project started, the Maridi water treatment plant had a capacity of 3,000 cubic meters a day but was producing only 800 cubic meters a day. Water production was intermittent, mainly because of fuel shortages. Only 34% of the population had access to safe drinking water and only 9 percent of the population had access to individual water connections. More than 41% of households depended on wells for drinking water.

In addition, the station had almost no qualified staff and maintained no records of operation and maintenance. There was no customer metering. The result was an unreliable water supply with long periods of service interruption. Almost no revenue was collected and SSUWC's main office covered staff salaries, fuel and chemical costs.

In Juba, SUWASA performed a series of detailed diagnostic studies to better understand the sanitation challenges and establish a solid analytical basis for planning. The studies mapped the city's sanitation institutions and policy and regulatory provisions.

The studies found that only 55% of the population had access to adequate sanitation and that poor hygiene behaviors were common. As a result, Juba experienced high incidences of water borne diseases such as stomach ailments, diarrhea and cholera.

The studies also showed that piped sewerage was almost nonexistent and that the public relied on private mechanized exhausters to transport fecal waste. The Roton Wastewater Lagoon, the city's

only public waste facility, functioned poorly and was on the brink of exceeding its ability to handle the city's fecal waste.

There was also little understanding of the roles and responsibilities that multiple departments had in the city's sanitation system. Technical capacity and financial resources to effectively manage the sector were also inadequate and there was no clear approach to reinvesting revenue generated from the private exhauster tanker business.

Building Coalitions

SUWASA worked with its partners to build a coalition of stakeholders who, in turn, developed local support for the project.

In Maridi, the coalition building started with stakeholder meetings of local government, community associations, the private sector, the local radio stations and the management of the water station. In the meetings, stakeholders agreed to act in the best interest of the community to ensure that safe water could be produced and delivered. They also rallied behind plans for customers to pay for metered connections. At the end of the project, a Local Stakeholders Water Management Committee was founded to contribute to customer service and the management of the Maridi water station.

In Juba, the mayor established a sanitation working group composed of representatives from the Juba City Council, Ministry of Lands, Housing and Physical Planning, Ministry of Electricity Dams, Irrigation and Water Resources, Juba County, the Ministry of Health of the Central Equatorial State and development partners. The working group held four stakeholder meetings to discuss challenges and reforms. It also oversaw the development of the Juba City Sanitation Reform and Investment Plan, 2015 - 2030.

Investment in Tangible Results

In Maridi, a Small Investment Project (SIP) helped the Maridi station increase its client base and extend and repair the water distribution network. Tangible results included success in connecting over 4,000 customers to water services and improving service for over 20,000. SUWASA also provided support to the utility as it connected the water treatment plant to the Maridi Electricity Corporation (MECO) power grid. Energy costs reduced substantially.

SUWASA also assisted with the installation of 100 household water meters and provided computers and training for billing and revenue services. The result was an increase in the utility's billing and collection efficiency and an improvement in its commercial viability.

The SUWASA project in Maridi also involved a peer-to-peer Water Operators Partnership (WOP) with the National Water and Sewerage Corporation (NWSC) of Uganda. The partnership focused on treatment processes, chemical dosing, performance of simple mechanical repairs and operational record keeping.

SUWASA helped advocate for ring fencing of revenues to allow SSUWC to retain control of finances. The efforts led to an interim mechanism that allowed SSUWC stations to retain and reuse revenues collected for provision of fuel, operations and maintenance.

The Sanitation Reform and Investment Plan defined the sanitation problem in Juba, outlines the needed investments and reforms and establishes a basis for capital improvements. The plan also sets out a framework for attracting investment from international donor agencies.

The planning process placed sanitation reform efforts in Juba on a solid footing. Successes include the establishment of a new Department of Environment and Sanitation overseen by the Juba City Council. The new department is responsible for sanitation in the city. It also licenses exhauster trucks, a task previously managed by multiple government agencies.

The Juba City Council also has begun to address management issues at the Roton Wastewater Lagoon. Plans include a new governance council to oversee operation and maintenance of the lagoon, possibly with private sector participation. Proposals include technical improvements, expansion of the facility and ring-fence financing to improve financial sustainability.

Endorsement for Improved Systems and Services

The improvement and reform efforts have received overwhelming support from water and sanitation service staff members, government officials and water sector stakeholders. In February 2015, efforts in Maridi and Juba were acknowledged in a workshop marking the end of the SUWASA project. SSUWC Managing Director Yar Paul Kuol said that the Maridi station had set an example for improvement and reform efforts.

“Maridi has set itself up to be a model that can be replicated in other stations and SSUWC is ready to support other stations that want to follow suit to become autonomous,” she said.

Chris S. Swaka, Mayor of Juba, reaffirmed government commitment to the Roton Wastewater Lagoon.

“SUWASA opened the eyes of Juba City Council,” Swaka said. “Together we made prescriptions and now it’s time to nurse and get to heal our challenges.”

Conclusion

Despite significant challenges in the sector and the difficult political climate in the country, the bulk of activities planned under SUWASA were undertaken and achieved the intended results. Key amongst these were operationalization of the Board of Directors of South Sudan Urban Water Corporation, including the development of a strategic approach through a Corporate Plan; strengthened operation of the Urban Water Corporation stations in Wau and Maridi leading to increased and improved access to water supply for at least 20,000 people; and strengthened understanding of the sanitation challenge in Juba with related prioritization of investment and reform activities through the Juba City Sanitation Reform and Investment Plan.

Despite this progress, it is however also noted that a few activities did not go according to plan. Amongst these, the intervention to strengthen the relationships between the UWC station and local stakeholders in Wau did not materialize as it required more time to deal with the politics of expanding the existing technical committee. Similarly, provision of requisite capacity building support to the water management committees was inhibited by limited time. On a related matter, the second phase of the partnership with National Water and Sewerage Corporation of Uganda concerning the staff training on commercial orientation and customer care was not undertaken due to the December 2013 political crisis and resulting conflict. Whilst these activities could not take place, other activities such as procurement and installation of billing systems and the setting up of the water committee in Maridi were only completed towards the end of the project with resulting impacts yet to be measured.

It is also acknowledged that the country still faces massive water supply and sanitation challenges particularly the need for infrastructure to expand access to the populations. Seen from this perspective, the SUWASA intervention may be perceived as small. However, at the close of SUWASA, all actors noted that the gains made through this technical assistance are important for sector reform as they lay the foundation for attracting infrastructure which also needs viable institutional elements to work effectively. It is anticipated that the commitments made by all three beneficiaries of the SUWASA program namely, the Ministry of Electricity Dams Irrigation and Water Resources, South Sudan Urban Water Corporation and Juba City Council to implement key actions within their control whilst seeking support from external partners, will provide a strong foundation on which the Government of South Sudan can further develop the water and sanitation sector.

Annex I: Performance Indicators

Performance Indicator	Baseline Value	2014/2015 Target	End of Project Results
1. Number of people gaining access to an improved drinking water source (USAID F-indicator).	0	3,000	4,083 ¹
2. Number of people receiving improved service quality from existing improved drinking water sources (USAID F-indicator).	-	5,000	20,998 ²
3. Percentage of operations and maintenance costs for water supply and sanitation services covered through customers charges.	Maridi 62% Wau 15%	Average 20% increase over baseline	Maridi 112% ³ Wau 105% ⁴
4. Number of good practices identified, promoted and adopted.	0	3	5
5. Number of new policies, laws, agreements, regulations or investment agreements (public or private) implemented that promote access to improved water supply and sanitation (USAID F-indicator).	0	2	2
6. Number of staff trained and working in O&M and management	0	12	30 ⁵
7. Number of knowledge products produced and disseminated within South Sudan Water and sanitation sector	0	2	9
8. Number of water stations with a revised tariff structure	0	2	6

¹ 1,940 male; 2,143 female

² 12,089 male; 8,909 female

³ Excluding Salaries and chemicals paid by SSUWC HQ

⁴ Excluding Salaries and chemicals paid by SSUWC HQ

⁵ O&M 21; FSM 5; Billing 4

Annex 2: Staffing And Consultants

No.	Name	Title	Office	Start	End Date
1	Abdoulaye Baro	Team Leader	Juba	2 Nov 2011	31 March 2015
2	Barbara Senkwe	Urban Sanitation Devt Specialist	Juba	1 Oct 2013	28 March 2015
3	Japheth Mbuvi	Institutional Devt Specialist	Juba		31 March 2015
4	Richard Aludra	Monitoring & Evaluation Specialist	Juba	02Sept13	31Mar2015
5	Emmanuel Wudu	Deputy Finance and Office Administrator	Juba	24Jun2013	31Mar2015
6	Megabi M. Lambore	Finance and Administration Consultant	Juba	07Jan2015	31Mar2015
7	James Yakani Bullen	Driver	Juba	01Apr2012	31Mar2015
8	Wilson Alfred Philip	Driver	Juba	05Jan2015	31Mar2015
9	Joseph Amule	Finance/Office Administrator	Juba	14Nov2011	20Feb2015
10	Alex Lemi	Driver	Juba	11Nov2013	28Jan2015
11	Daniel Owudada Gbandi	Activities Coordinator	Maridi	06Aug2012	28Feb2015
12	Nambougo Madlin Sharon	Finance/Office Admin Assistant	Maridi	10Jun2013	28Feb2015
13	Peter Likambo	Driver	Maridi	17Sept12	28Feb2015
14	Andama Joel	Utilities Operations Specialist	Wau	03Feb14	28Feb2015
15	Deng William Tong	Finance/Office Admin Assistant	Wau	02Dec13	22May2014
16	Muhairwe William	Water Utility Management Consultant	Uganda	STTA	STTA
17	Andrew Woodcock	Investment Plan Consultant	USA	19 Aug 2014	30 Aug 2014
18	Emiko Guthe	ICT & E-Survey	USA	STTA	STTA

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