AFRICAN DEVELOPMENT BANK GROUP

# PROJECT: RESILIENT WATER AND SANITATION PROJECT FOR IMPROVED LIVES AND HEALTH IN JUBA (RWSPILHJ)

# COUNTRY: REPUBLIC OF SOUTH SUDAN

## ENVIRONMENTAL AND SOCIAL MANAGEMENT SUMMARY

***JANUARY 2016***

| | | |
|---|---|---|
| Preparation Team | Team Leader: | Mr. A. MBIRO, Senior Water & Sanitation Officer, OWAS2/UGFO |
| | E&S Team Members: | Ms. Vera O. KINTU, Gender Focal Person/Macro Economist UGFO<br>Ms. K. P. NTOAMPE, Principal Environmentalist, ONEC3 |
| | OIC SSFO | Mr. A. MWENDA, EARC |
| | Sector Manager: | Mr. O. CHANDA, OWAS2 |
| | Sector Director: | Mr. M. EL AZIZI, OWAS/AWF |
| | Regional Director: | Mr. G. NEGATU, EARC |

**ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP) SUMMARY**

| | |
|---|---|
| **Project Title:** | Resilient Water and Sanitation Project for Improved Livelihood in Juba |
| **Project Number:** | P-SS-E00-002 |
| **Country:** | South Sudan |
| **Department:** | UGFO/OWAS |
| **Division:** | OWAS.2 |
| **Project Category:** | Category 2 |

## 1. Introduction

The Government of the Republic of Southern Sudan (GRSS) through South Sudan Urban Water Corporation (SSUWC) intends to improve and upgrade the water supply services in the capital city with the aim of contributing to the improvement in health and social wellbeing of its population. The proposed project's emphasis is on rehabilitating and enhancing the water supply system, strengthening institutional capacity, enhancing financial sustainability and commercial operations and addressing environmental sustainability. The SSUW, with support from the African Development Bank, aims to reduce the city's Non-Revenue Water (NRW), upgrade and rehabilitate the water distribution system, as well as strengthen community participation and buy-in.

About 25% of the Juba City population has access to piped water. The existing infrastructure is very old, constructed in 1937 with a distribution network and sections of the plant now long overdue for replacement. The remaining 75% of the inhabitants and transient communities are predominantly served by water tanker vendors. All tanker trucks in the city are competing for one operational tanker filling station. The unsatisfied high demand has led to vendors distributing raw untreated water from the Nile to the community. Non-Revenue Water (NRW) in Juba also stands at 43% due to leakages on the very aged distribution network and some cases of illegal connections. Consumers are not metered and currently paying low flat rates. High energy costs due to old, dilapidated, damaged and vandalized electro-mechanical equipment and machinery. There is inadequate institutional capacity and limited skilled manpower to operate and maintain the water infrastructure as well as inadequate revenue base owing to inadequate billing system and low collection efficiency. The annual cholera epidemics have been linked by the health sector to the overcrowding in areas supplied by water tankers. The outbreak of waterborne epidemics in Juba peak in the rainy season largely due to contamination of unprotected water sources

It is against this backdrop and with the aim of contributing to the improvement of health and social wellbeing of the city's population that the Resilient Water and Sanitation Project for Improved Livelihood in Juba (RWSPILJ) has been developed. The project is to be implemented over a forty-eight month period from 2016 to 2020, with a total project cost of USD 5.5 million. To maximize the benefits to be accrued as a result of the proposed project in terms of provision of more reliable and safe supply of water and sanitation services, an Environmental and Social Management Plan (ESMP) has been prepared to identify the environmental and social management and mitigation actions required to address any potential adverse impacts and to implement the project in accordance with the requirements of the African Development Bank (AfDB) and applicable national legislation and regulations of Republic of South Sudan. The ESMP provides an overview

of the environmental and social baseline conditions on the direct impacted areas, summarizes the potential impacts associated with the proposed project and sets out the management measures required to mitigate any potential impacts. The ESMP is to be utilized by the Consultants/Contractors to be commissioned by SSUWC for the project and will form the basis of site-specific management plans that will be prepared by the contractors and sub-contractors as part of their construction methodology prior to works commencing.

## 2. Brief Project Description and key Components

The overall objective of the project is to improve the health of the water users or beneficiaries in the city' institutions, clinics, markets and community groups in South Sudan. The design of the projects is configured to blend to an urban water supply system. The need and justification for the project has been prompted by the current water supply situation in the project areas outlined in the introduction above.

The RWSPILJ shall have three components as outlined below

| no. | Component name | Est. cost (UA) | Component description |
|---|---|---|---|
| 1 | **Institutional strengthening and Capacity Development** | 0.516m | ▪ designed to ensure sustainability of the installed infrastructure through; Strengthening institutional capacity; Improving financial sustainability and commercial operations and addressing technical and environmental sustainability. |
| 2 | **Water Supply Infrastructure** | 4.09m | ▪ to address the infrastructure improvement needs on the distribution network; distribution outlets; metering and refurbishing sections of the old Juba water treatment plant including the consultancy for designs and contract supervision of water works. |
| 3 | **Project Management** | 0.892m | • project management costs, logistics and routine project operating expenses, focussing on: Project supervision, accounting, monitoring & evaluation (M&E); Implementation of environmental and social management plan (ESMP); Project progress reporting and Project annual audits. |

## 3. Major Environmental and Social Impacts and climate change risk

Major environmental and social impacts are mainly positive owing to the nature of works envisaged and these include; better access to potable piped water supply; more efficient water utilization through reduced unaccounted for water; reduced cholera epidemics in the city; job creations for women entrepreneurs and higher school enrollment for the girl child.

The negative impacts envisaged include damage to road pavements and illegal building structures; disruption of public service utilities; sedimentation of storm water drainage and watercourses; water, air and noise pollution; and loss of flora and fauna; occupational health and safety risks;

Climate change effects caused by drought in upcountry areas, has led to increased migration to the city. The unplanned for urbanizations has put a strain on the meagre available social services like portable water. This is exacerbated by the growing number of urban poor including internally displaced people. Poor newcomers and the existing urban poor are affected by rising living costs accompanied by a lack of employment opportunities, services and declining wages. Squatting and land-grabbing have become major issues and many have experienced repeated demolitions of their homes, and have been relocated to the outskirts of the city creating unplanned slums. The slums and IDP camps are noted to have high incidences of malaria, water borne diseases and infant mortality rates.

## 4. Enhancement/mitigation measures and complementary initiatives

The enhancement and mitigation measures have been prepared to enhance the positive impacts as well as mitigate potential adverse environmental and social impacts. Effective implementation of the mitigation measures is critical for successfully addressing the projected environmental and social impacts. The Contractors are required to prepare construction environmental management plans (CEMPs) for their respective program areas to ensure effective implementation of mitigation measures. SSUWC will hire social and environmental experts who will oversee the effective implementation of mitigation measures.

| Project Stage and equipment/ material | Impacts and level of importance | Mitigation Measures | Responsibility for Implementation | Responsibility for Monitoring |
|---|---|---|---|---|
| Construction<br><br>(designs, road equipment, done after laying pipes) | Possible damage to road pavement<br><br>(high) | •Coordinate with road authorities to identify affected roads to plan restoration of damaged road pavements<br>•Properly plan construction works to avoid unnecessary crossings on important roads, under building structures and storm water drainages Develop construction management plan during detailed design. The design should focus on improving the existing roads leading to construction sites. | Ministry of Transport and Roads (MTR), Roads Authority, Juba City Council SSUWC | Ministry of Environment |
| Construction<br><br>(as built drawings) | Possible disruption of public service utilities ( medium) | •Coordinate with relevant authorities to identify and map the location of existing underground utilities such as power lines and telephone cables | Contractor/ASSUWC | Project consultant |
| Construction<br><br>(backfill material, ramming equipment, Dredging dump site | Soil erosion and sedimentation of storm water drainage / watercourses (high) | •To immediately resurface and stabilize exposed surfaces.<br>•To backfill trenches as soon as pipelines are laid<br>•Plant grass on exposed surface around WSP and Sludge ponds<br>•To properly Plan the disposal of surplus soils and demolition materials to designated areas | SSUWC/Contractors | Environmental compliance officer |
| Preparation/ Construction<br><br>Construction equipment , | Air pollution (medium) | •Operate construction vehicles, machinery / equipment at agreed time near sensitive areas<br>•Cover trucks hauling soils and dusty construction materials with tarpaulins during transportation. the contract during detailed | SSUWC or Contractor | Environmental compliance officer |

| | | | | |
|---|---|---|---|---|
| water bowsers, Dust masks, | | • Spray water on dusty roads and control vehicle speeds on dusty roads.<br>•Keep moisture on dusty construction materials to prevent them from being blown by wind.<br>•Minimize stockpiling of dusty construction materials on-site and cover stockpiled materials to prevent wind.<br>•Select transportation route to minimize impact on sensitive receptors (E.g. residential or business areas)<br>•Limit excavations and land levelling works to more or less wet seasons.<br>•Provide dust protection mask to construction workers.<br>•Carry out proper maintenance of engines and operate vehicles and machinery / equipment in good | | |
| Construction<br><br>First aid kits, Protection gear, | Construction related accidents (High) | •Ensure that machinery / equipment are operated by trained personnel.<br>•Provide First Aid Kit on-site administered by a qualified person.<br>•Provide personal protection equipment (PPE) | Contractor/ Project consultant | SSUWC / City health official |
| Construction<br><br>Traffic plan Flag bearers, Sign posts, | Disruption of traffic flow and public mobility (medium) | •Enforce traffic management plan in collaboration with Traffic Officers.<br>•Deploy flag personnel to guide traffic movement in critical points<br>•Use signboards to warn motorist<br>•Create alternative pathways for easier public mobility | Contractor/project consultant | Project consultant/ City traffic police |
| Construction<br><br>Low pitch equipment, Ear plugs, | Creation of noise nuisance and vibration (low) | •Avoid use of high pitch noise creating equipment (E.g. Jack hammer) in breaking concrete or road pavement. Instead, employ manual labour using shovels and pick axe.<br>•Limit use of noise creating or noisy construction activities in residential areas during night hours (18:00 to 6:00).<br>•Provide ear plugs to construction workers and avoid exposure of workers to noisy environment for a prolonged time | Contractor | SSUWC/ Public health officers |
| Construction<br><br>Sludge testing equipment | Risk of soil pollution (high) | •Direct backwash water from WTP into a designed wetland.<br>•Test dried Sludge to ensure that it meets or complies with agricultural standards.<br>•Toxic Sludge should be properly discharged in safe place approved by Resident Engineer.<br>•Fuel, oil , grease and haphazard materials from construction equipment should be careful disposed to designated areas | Contractor or project consultant | Environmental compliance officer |
| Construction<br><br>Lining material, Excavation equipment | Risk of ground and surface water pollution (high) | •Lining and sealing the base and sides of the ponds with impermeable material during construction<br>•Construct flood protection bunds around WSP<br>•Monitor ground water quality around the WSP through lab test<br>•Monitoring of effluent form WSP to ensure that it meets the national standards. | Contractor | Environmental compliance officer |

| | | | | |
|---|---|---|---|---|
| Construction<br><br>Health check schedules, first aid kits, Fencing material, Sign posts | Occupational Health and Safety risk (high) | •Regularly check workers health<br>•Provide vaccine to prevent spread of communicable diseases.<br>•Establish and operate dispensary with sufficient medicine and equipment.<br>•Provide First Aid Kit complete with medicines and managed by a qualified personnel Provide regular training to workers on occupational health and safety.<br>•Construct fence around WSP to prevent encroachment by nearby residents, especially children.<br>•Put warning signs to discourage trespassing by people into WSP and Sludge ponds. | Contractor and project consultant | SSUWC / Health officers from the city |
| Construction | Health and Safety Risk – Disposal of AC Pipes(high) | •Safely dispose AC pipes to recommended standard | Contractor / Project Consultant | Health Officers from the City |
| Operation<br><br>Disposal sites<br><br>Simulation models | Creation of odour nuisance (Low) | •Ensure proper operation and maintenance of WSP.<br>•Plant trees to create green belt as buffer zone around WSP to minimize visual impact.<br>•Assess direction of odor nuisance by running a simulation model based on wind direction | Contractor | Environmental compliance officer |

**Table 2: Enhancement Measures**

| POSITIVE IMPACTS | ENHANCEMENT MEASURES |
|---|---|
| Creation of temporary employment to the local people during construction | Give employment priority to local people employment (men and women) during construction phase.<br><br>Offer project employment opportunities to men and women during operation, encourage women to apply and select candidates according to their competencies. |
| Increased income generation to local people, especially women and youth by selling food stuffs to construction workers | Give preference to getting service from the local inputs (food, basic materials, etc.)<br><br>Create enabling environment for food vendors through construction of temporary shelters with water supply and sanitary facilities. |
| Reduced incidence of water borne (E.g. cholera and diarrhea) and water washed diseases (E.g. skin infection) due to improved availability of water and improved hygiene and sanitation conditions among the local residents | Intensify awareness and education campaigns on hygiene and sanitation practices among the local residents.<br><br>Promote household connections to sewerage system in planned areas.<br>• Increase tanker filling stations.<br>• Increase PSP |
| Reduction in water losses and UfW | Promote campaigns to ensure that people are legally connected with meters and supply the meters.<br><br>Enforce legislation to prosecute people who are illegally connected.<br><br>Create awareness among the people to report leakages in water supply pipes and vandalism by unscrupulous people.<br><br>SSUWC will employ four more water supply network technicians to strengthen its water department with financial and human resources to carry out regular inspection to identify any possible leakages and repair immediately.<br>• Refurbish distribution net work |
| Improved ground and surface water quality | Promote awareness among the local residents to protect ground and surface water sources against pollution. |

| | |
|---|---|
| Abatement of nuisance of safe disposal of AC pipes and reduction of public health hazards in the serviced areas | SSUWC/Contractor will work with relevant toxic waste disposal organisations for safe disposal of AC pipes |

## 5. Environmental and social monitoring program

The project monitoring arrangements will includes monitoring the implementation of the mitigation measures to assess their efficiencies and development of alternatives or supplementary mitigations measures if the expected results are not reached. Contractors will be responsible for implementing the mitigation and improvement measures contained in the ESMP. To ensure social and environmental sustainability of the project, the Project Implementation Team (PIT), together with the SSUWC, will be responsible for monitoring all the identified potential impacts and ensuring that the proposed mitigation measures are implemented. The PIT will compile half-yearly environmental and social monitoring reports concerning implementation of measures adopted within the framework of the ESMP and the environmental and social problems encountered. The detailed E&S monitoring programme is as follows:

| Monitoring Parameter | Monitoring Location | Measurement Unit/method | Target level / standard | Monitoring Frequency | Responsibility for Monitoring |
|---|---|---|---|---|---|
| **Construction / Mobilization Phase** | | | | | |
| Compensation for Land acquisition | Along pipeline transmission WSP construction site | Area of land acquired | No complaints from affected people | Once before start of construction works | SSUWC assisted by local govt and Juba City Council |
| Public service utilities | Along water supply pipelines | Type of utilities | All public utilities relocated and/or restored immediately | Once before commencement of construction works | SSUWC assisted by Supervision Consultant |
| **Construction Phase** | | | | | |
| Dust and Exhaust fumes emission | Construction site Contractor's camp site and neighbourhood | Visual inspection | No complaints from residents on dust pollution.<br>workers wearing dust protection gears<br><br>No visible Black Smoke emitted from machinery | Daily / Monthly | Site Engineer / Project Manager Environmental / Safety Officer |
| Road pavement and Building structures | At Construction site | Visual inspection | All damaged road pavement/ structures restored to their original condition | Once | Supervision Consultant (Site Engineer) |
| Soil erosion and sedimentation of Storm water drainages | Storm water drainage site<br>At WSP construction site | Visual inspection | All excavated soils removed and disposed of, to approved site<br>Grass planted on bare areas and WSP site to prevent soil erosion | | Supervision Consultant (Site Engineer) |
| Construction related accidents | Accidents record book | No. of fatal and non-fatal accidents reported | Machinery operated by trained personnel.<br><br>Protection Equipment (for workers<br><br>First Aid by a Qualified person | After Every 1 month | Environmental Consultant |
| Traffic movement | Along WS pipes and Sewerage network routes<br>Along access roads to New proposed WSP | Visual inspection | Presence of Traffic management plan<br>Flag personnel deployed at critical points.<br>Warning sign boards positioned to guide motorists. | | Supervision Consultant (Site Engineer) and SSUWC, Juba Traffic |

| | | | | | |
|---|---|---|---|---|---|
| | | | No. incidence of traffic congestion | | |
| Noise nuisance | Construction site<br>Nearest settlements outside site boundaries<br>At Source Vehicle and equipment | Physical hearing | No complaints regarding noise nuisance.<br>Manual labour use shovels and pick axe for breaking concrete and road pavement.<br>Workers operating high pitch equipment provided with earplugs. | | Supervision Consultant (Site Engineer) |
| **Operation Phase** | | | | | |
| Ground water pollution | Monitoring boreholes around Wastewater Stabilization Pond (WSP) | SSUWC Laboratory | Tanzania Water Quality Standards | Weekly | SSUWC / MinEnv. |
| Water Quality from Boreholes | Water samples from boreholes | SSUWC Laboratory | Tanzania Water Quality Standards | Weekly | SSUWC Lab |
| Effluent Quality from WSP | WSP | MinEnv Laboratory | SSUWC Effluent quality Standards | Weekly | MinEnv. (Lab Technicians)) |
| Treated Sludge Quality | Sludge Treatment Site | SSUWC Laboratory | No toxic substances in the treated sludge<br>Sludge quality meets agricultural requirements | Weekly | SSUWC Lab |
| Occupational Health and Safety of Workers | WSP and distribution system O+M team | Health condition of workers<br>Presence and use of sanitary facilities, safety gears, first aid kit, etc | Workers are provided with medical services<br>Workers are provided and using clean sanitation facilities<br><br>First Aid Kit well equipped and being administered by a qualified person | Monthly | SSUWC |
| Odour Nuisance | Nearby residents | Presence of complaints about odour nuisance from nearby residents | No complaints about odour nuisance from nearby residents<br>Trees plant around WSP to minimize dispersion of odour due to wind action | Daily | SSUWC / Contractor |
| Industrial Effluents | Industrial sewerage system | SSUWC Laboratory | RSS Effluent Quality Standards | Weekly | SSUWC Lab |
| Downstream Environmental Flow | Distribution Network Zones | Water Flow Meter | Minimum Environmental water flow maintained | Monthly | SSUWC |

## 6. Public consultations and disclosure requirements

Public consultations began in January 2007 during the development of Juba Water Supply Master Plan, creating awareness among beneficiaries and the general public in the 4 Payams of Juba, Kator, Munuki and Rejaf. The community concerns out of the consultations included damage on private property, dust pollution, soil erosion grease and oil pollution. Other community concerns raised during the preparation and appraisal missions were the limited number of filling stations and PSPs, job opportunities and applicable tariffs.

During the ESMP implementation, SSUWC will on a quarterly basis consult stakeholders and involve then in the planning, implementation and monitoring of the project as well the ESMP. These consultations will aim to:

SSUWC will use its Public Relation Unit to coordinate the consultation process, with a consultation schedule for each component of the project. In terms of public disclosure, copies of ESMP and its summary shall be shared with relevant stakeholders in communities, government institutions, schools, hospitals, civil society organizations among others.. Specific consultative issues and respective actors are shown in table 3.

| Mitigations/Enhancement Measures | Stakeholders to be to Consulted | The Goal of Consultation | Timing of Consultation |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Land and property compensation | - All land and property owners affected by the project<br>- City and district council land officials | • To facilitate a smooth process of compensation<br>• To avoid social conflict that may affect the proper implementation of the project | During project preparation |
| Restoration of damaged roads, pavements and underground utilities | - City and district council officials<br>- TANROADS<br>- Affected communities | • To manage conflicts and grievances<br>• To facilitate smooth compensation if necessary<br>• Ensuring timely and proper restoration | During project/ESMP implementation phase |
| Traffic management plan | -TANROADS<br>- The traffic policy<br>- The Contractor | • To ensure proper and timely movement of public transport system and public mobility<br>• To avoid accidents and property damage | In all phases of the project and ESMP implementation |
| outbreak of diseases | - City public health officials<br>- The contractor | - To control incidents of STD/HIV-AIDS epidemic | In all phases of project and ESMP implementation |
| Soil erosion and sedimentation of storm water drainages | - Contractors and sub-contractors<br>- City and district environmental officials | - To avoid and minimize unwarranted environmental degradation | During the construction of the project |
| Disturbance to public utility users and traditional water stream users | - Communities affected<br>- Providers of public services such as TANESCO, AUWSA | - To ensure that the public is not serious affected<br>- To reduce public compliances and grievances | During the construction of the project |

## 7. Institutional arrangements and capacity building requirements

SSUWC as an implementing agency of this project is the key actor in ensuring effective implementation of the project and ESMP in its entirety, however, other parties have a stake. SSUWC will ensure that project implementation has minimal negative effects and maximizes positive impacts to the environment. It is thus expected that SSUWC will put in place adequate capacity and sufficient internal mechanisms to ensure implementation, supervision and reporting of the ESMP.

| | Organization | Designation | Responsibility |
|---|---|---|---|
| 1 | AfDB | Development Partner /Funder | • To provide financial support to the project and ESMP<br>• To provide technical and supervisory support<br>• To review environmental and social impacts Report regularly |
| 2 | SSUWC Management | Borrower & Executing Agency | • To oversee and assist the Contractor and Environmental experts in ESMP Implementation during construction<br>• To ensure the effective implementation of ESMP by putting in place monitoring and evaluation programs for ESMP<br>• Provide strategic, policy and operational guidance |
| 3 | Contractor | Contactor | • To executive the implementation of the project<br>• To implement the ESMP during Construction |
| 4 | SSUWC – PIU & ESIA Consultant | Supervisors | • Co-ordinates implementation of ESMP i.e.<br>• Implementation of mitigation Plan<br>• Monitors mitigation plan and health safety management plan (implementation of monitoring plan)<br>• Provides progress report of implementation of ESMP to SSUWC management and MinEnv.<br>• Oversee the inter-institutional coordination for environmental mitigation, monitoring and supervision |
| 5 | Municipals and local government units | Supervisors | • Supports implementation of mitigation Plan through regular monitoring<br>• Supports monitoring of the mitigation plan and health safety management plan<br>• To ensure that the project and the contractor do not violate all public policies/ rules and regulation |

| | | | |
|---|---|---|---|
| 5 | Local community water CBOs | Supervisory and advisory roles | • Liaison with the contractor and SSUWC in the implementation of ESMP<br>• Provide specific and localized advise on water resources management, and especially in the catchment areas |
| 6 | MinEnv./the ministry of Water | Supervisory and advisory role | • To ensure SSUWC and Contractors adhere to the existing environmental policy requirement in the course of Project and ESMP implementation<br>• To conduct planned and unplanned site inspection so as to enforce environmental policy compliance |

## 8. Estimated costs

The total cost for ESMP implementation with the various proposed measures, monitoring program, and consultations is estimated at UA 197,000

## 9. Implementation schedule and reporting

The SSUWC – the Implementing Agency of this project – will be involved with the construction supervision team to oversee the implementation of the environmental monitoring plan. The implementation of ESMP monitoring plan and appropriate reporting schedules shall be developed by phases and in co-ordination with the overall project implementation plan. SSUWC will engage an independent environmental consultant to carry out environmental compliance monitoring. The Contractor shall be responsible for implementation of environmental and social mitigation measures under the Supervision of Resident Engineer and Environmental consultant. This is to ensure that technical and environmental clauses are followed and well implemented by the Contractor. The Bank during its supervision missions will review the ESMP reports and provide guidance's where necessary.
All mitigation and enhancement measures should be implemented whenever necessary in all phases of the project. As mentioned earlier, progress on the implementation of the ESMP will be included in the overall periodic progress reports, midterm review and monitoring and evaluation reports of the project that is to be sent to the RSS Ministry of Environment and the AfDB.

In terms of the proposed ESMP, the contractors will have to prepare quarterly compliance reports. SSUWC, through the environmental consultants will also prepare quarterly report on the status of the implementation of the proposed ESMP, and propose appropriate measures for improvement.

Other measures which have been proposed in this ESMP will need separate implementation and reporting separately due to the fact that will not be implemented by the contractor. These separate measures include:

- Environmental conservation education to all communities living closer to water sources
- Facilitation of formation and maintaining community based environmental conservation clubs.
- Development of Water Resources management plan
- Preparation of Climate Change adaptation measures

The above mentioned measures will be implemented by the consultant and reported directly to the client and financier (AfDB) and assessment criteria will be determined during project implementation.

## 10. Conclusion

This project involves improvement of access to water supply through infrastructure rehabilitation and reduction in non-revenue water /Unaccounted for Water (UFW) in the city of Juba, South Sudan. The overall objective is to improve water supply service coverage in the City. The aim is to improve the urban environmental quality and health of the urban residents.

In general, the project has been found to be environmentally, socially and economically beneficial and is expected to contribute towards poverty alleviation. The socio-economic benefits accrued from the project include improved health and quality of life among the local residents due provision of reliable and safe water supply services. The health of the urban residents is expected to improve due to increased access to clean, safe potable water. Economically the urban residents will benefit due to savings from money spent on medical services due to reduced incidence of water borne diseases, and increased productivity due to increased availability of water supply for various productive activities within the city. Another economic benefit will accrue from increased revenue collection due to improved billing system.
The project will also help to promote awareness among the local communities on the importance of protecting catchment areas as part of the integrated water resource management.

## 11. References and contacts

**African Development Bank**

Kelello Ntoampe, Principal Environmentalist, ONEC3, African Development Bank, Abidjan, Ivory Coast
Email: k.ntoampe@afdb.org, Ext. 2707

Andrew Mbiro, Senior Water and Sanitation Officer, Water and Sanitation Department, African Development Bank, Uganda Field Office, Kampala, Uganda
Email: a.mbiro@afdb.org Tel: +256 414236166/7 Ext. 6772

**South Sudan Urban Water Corporation**
Eng. Lawrence Lopula Busuk Muludyang
**Director General Planning and Projects**
Email: busuk.lawrence@gmail.com Tel: +211955783903
P.O. Box
Juba, South Sudan