NATIONAL WATER AND SEWERAGE CORPORATION

TERMS OF REFERENCE FOR CONSULTANCY SERVICES

Feasibility study, detailed design and construction supervision of Adjumani water supply and sanitation project

THE INTEGRATED WATER MANAGEMENT AND DEVELOPMENT PROJECT (IWMDP)

August 2018
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### Acronyms and Abbreviations

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<th>Full Form</th>
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<tr>
<td>BoQ</td>
<td>Bills of Quantities</td>
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<tr>
<td>CAD</td>
<td>Computer Aided Design</td>
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<td>CAPEX</td>
<td>Capital Expenditure</td>
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<td>DEA</td>
<td>Directorate of Environmental Affairs</td>
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<td>DSCR</td>
<td>Debt Service Coverage Ratio</td>
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<td>DWD</td>
<td>Directorate of Water Development</td>
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<td>DWRM</td>
<td>Directorate of Water Resources Management</td>
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<td>EIRR</td>
<td>Economic Internal Rate of Return</td>
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<td>ESIA</td>
<td>Environmental and Social Impact Assessment</td>
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<td>FIDIC</td>
<td>International Federation of Consulting Engineers</td>
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<td>FIRR</td>
<td>Financial Internal Rate of Return</td>
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<td>GoU</td>
<td>Government of Uganda</td>
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<td>IBRD</td>
<td>International Bank for Reconstruction and Development</td>
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<td>IDA</td>
<td>International Development Association</td>
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<td>IWMDP</td>
<td>Integrated Water Management and Development Project</td>
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<td>KfW</td>
<td>German Development Bank</td>
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<td>MWE</td>
<td>Ministry of Water and Environment</td>
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<td>NPV</td>
<td>Net Present value</td>
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<td>NRW</td>
<td>Non-Revenue Water</td>
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<td>NWSC</td>
<td>National Water and Sewerage Corporation</td>
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<td>O&amp;M</td>
<td>Operation and Maintenance</td>
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<td>OPEX</td>
<td>Operation Expenditure</td>
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<td>PDF</td>
<td>Portable Document Format</td>
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<td>RAP</td>
<td>Resettlement Action Plan</td>
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<td>ROA</td>
<td>Return on Assets</td>
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<td>ROE</td>
<td>Return on Equity</td>
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<td>SCADA</td>
<td>Supervisory Control and Data Acquisition</td>
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<td>WMDP</td>
<td>Water Management and Development Project</td>
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<td>WTP</td>
<td>Water Treatment Plant</td>
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1. INTRODUCTION

1.1 Overview of National Water and Sewerage Corporation (NWSC)
NWSC was established in 1972 as a government parastatal with the mandate of developing, operating and maintaining water supply and sewerage services in urban areas of Uganda. NWSC works under the Ministry of Water and Environment, and currently operates in about 250 towns. NWSC has been operating under three-year renewable performance contracts with the Government of Uganda (GoU) since 2000 and is currently operating under the fifth performance contract, running from 2015-2018. Each of the performance contracts defines activities, objectives and indicators that are to be achieved within the three-year contract period.

To meet the GoU performance requirements, NWSC, as part of its restructuring, undertook reforms aimed at improving operational, commercial and financial performance. Under the reforms, NWSC entered into Performance Contracts (PCs) with each of its operational areas with the aim of giving them more autonomy and accountability. This involved signing of Internally Delegated Area Management Contracts (IDAMC) and later Performance, Autonomy and Creativity Enhancement (PACE) contracts with each of the operational areas.

Currently, NWSC is operating under the second PACE contract with all its area management teams after phasing out the IDAMCs. These contracts specify a set of targets which are to be achieved within the next three years.

One of the major successes of the PACE / IDAMC arrangement is the improvement in performance and efficiency of operations in the respective NWSC towns. As the drive for target achievement heightens, with cost optimisation playing the central role, the need for cost effective investments is no longer a desirable but a key requirement. In undertaking the assignment, the consultant will be expected to treat this aspect as a central consideration.

1.2 Project Background

1.2.1 The Integrated Water Management and Development Project (IWMDP) funded by the World Bank
The MWE and the World Bank are currently preparing the Integrated Water Management and Development Project (IWMDP) as a successor to the Water management and Development project (WMDP) (2012-2018) through which improvements in the Gulu, Arua and Bushenyi water and waste water systems have and are being made.

Under the planned project (IWMDP), the NWSC has allocated funds for implementation of the following investment projects;
1) Water and Sanitation infrastructure measures in Adjumani town council and surrounding areas under the proposed Adjumani water and sanitation project
2) Mbale water supply and sanitation project
3) Full scale infrastructure measures in Gulu co-financed by the German Development Bank-KfW
4) Full scale source protection measures in Arua, Mbale, Gulu and Bushenyi

1.3 Background information on the proposed Adjumani water supply and sanitation project

1.3.1 Background Information on the Proposed Project Area

Adjumani district is found in West Nile sub-region of Northern Uganda and is bordered by Amuru district in the south and East, in the West by Arua and Moyo and in the North by South Sudan. The location of the district is indicated in Figure 1.

[Map of Adjumani District in Uganda]

Figure 1: Location of Adjumani District in Uganda

Adjumani district is host to a number of refugee settlements in Northern Uganda. Most of these refugees fled conflict in South Sudan, which has experienced political instability for over three decades, and escalated in the last three years. Various humanitarian organisations supporting refugee response programs have headquarters in Adjumani and Pakele town councils. This has spurred sustained economic and population growth in the areas. As part of indicators for population
and economic growth in the area, Pakele town board has been gazetted a town council in September 2017.

The developments have also led to an increase in Land prices, rental rates and other real estate costs in the area as demand for real estate in the town and surrounding areas has increased. Unreliable water supply service currently experienced in the area is one of the stumbling blocks to this expected development and service delivery to the population including refugees and host communities.

Drawing experience from developments in Gulu town, whose population and economic growth spurred during the conflict in Northern Uganda, the cessation of conflict in South Sudan may not affect economic development triggered by the same in Adjumani town and surrounding areas.

There is therefore need to improve the water supply situation to facilitate the expected developments in the area.

The proposed Adjumani water supply and sanitation project will be implemented in the urban areas of Adjumani Town Council and Pakele Town council, and rural growth centres of Ciforo rural and Dzaipi. and selected refugee settlement camps and their respective host communities in Adjumani district. Refugee settlement camps targeted include Agojo and Mungula refugee settlement camps. Other areas will be included as may be identified during the feasibility study in coordination with the MWE.

A brief description of the existing water supply situation in each of the sub-project areas is indicated in sections 1.3.1.1 to 1.3.1.6 below.

1.3.1.1 Adjumani Town Council

The water supply in Adjumani town council has been under the management of NWSC since 2014. The source of water for the system includes 5 boreholes. These have a combined capacity of 1,700m$^3$/day. Currently, only 3 boreholes all located in Buyaya, about 4kms from the reservoir are in operation with a combined capacity of 1,300m$^3$/day. These boreholes experience frequent breakdowns and low power voltage resulting in an average practical capacity of 450m$^3$/day.

The system consists of 4 reservoirs with a combined capacity of 600m$^3$ all located at Lajopicesia Hill. Disinfection, the only water treatment operation in the system is also carried out at the reservoir site.

Currently, the water supply system serves 65% of the population in the town council but the production is only enough to meet basic uses of the population as supply is about 13.3 litres per person per day. A summary of key service parameters in the Town Council are indicated in Table 1
With an increase in population in the town council, there is high likelihood that the quality of the water will deteriorate as settlements close in the immediate environs of the boreholes.

This supply regime cannot support existing and potential commercial and industrial establishments in the town council. As a result, most commercial and public establishments including hotels and Adjumani hospital have developed individual borehole based water supply systems to meet their water supply needs. Such boreholes in a high population density area have a high risk of contamination, thereby posing a risk to public health.

The rest of the population, especially the urban poor, meet their water supply needs from alternative sources including boreholes and ponds, especially in the rainy season. Most of these sources are not protected and potentially unsafe.

There is a low cost faecal sludge treatment facility in Adjumani owned by the town council. Its capacity is outstripped by increasing demand for faecal sludge services in addition to poor operation and maintenance practices. There is need to streamline faecal sludge management services, increase facility handling capacity as well as provide sustainable sanitation services for public places in the project area.

### 1.3.1.2 Pakele Town Council

The Pakele water supply system is managed by Pakele Sub county through an operator. The source of water for the system is one borehole powered by a solar power system. The capacity of the system is 70m³/day with an average production of 63m³/day and 204 active connections.

The operations of the existing system are affected by low and fluctuating voltage of the solar system. This limits availability of water to only about 6 hours a day.

The current water system has no water treatment and with an increase in population density as a result of urbanisation, the water source is now susceptible to pollution.
Pakele water supply system currently services 3 wards previously under the Pakele Town board. The Town board has been elevated to a Town council consisting of 9 wards. The increase in population as a result of expanded jurisdiction of the council has increased water supply demand which cannot be met by the already strained system.

There is currently no organised sanitation management system in Pakele town council.

1.3.1.3  Ciforo Township
Water supply in Ciforo township is managed by Ciforo Sub county through an operator. The source of water for the system is one borehole powered by solar power system. The capacity of the system is 50m$^3$/day with an average production of 37m$^3$/day serving 114 active connections.

The operations are affected by low and fluctuating voltage of the solar system. This limits availability of water to only about 6 hours a day. The system has no installed water treatment system and water quality safety currently depends solely on the security of the source catchment.

1.3.1.4  Agojo refugee settlement camp and the host community
Agojo refugee settlement camp is located in Ciforo sub county and has a total population of 4,782 refugees including 3,782 registered refugees and about 1000 non-registered refugees. They currently get water from River Nile for use by the refugee population and camp staff using trucks and with no standardized treatment. This poses a public health risk to users. To mitigate the risk, the camp administration has requested NWSC to supply the camp from the Adjumani water supply system. This request cannot be met because of the current limited capacity of the Adjumani water supply system. It is proposed that the refugees together with the host community be served under the proposed project.

1.3.1.5  Mungula refugee settlement camp and the host community
Mungula refugee settlement camp is located in Mungula sub county has a total population of 2,500 refugees. They currently use untreated water from R. Nile using trucks despite the associated public health risk. It is proposed that the refugees together with the host community be served under the project.

1.3.1.6  Dzaipi Township
The water supply system in Dzaipi Township consists of a motorized borehole with a capacity of 50M$^3$/day. The system currently covers part of Mbegere Parish and it is proposed to improve supply to Mbegere and expand the system to cover Logwang, and Adidi parishes but the current capacity is insufficient for the proposed service areas.
1.4 Overview of the Proposed Adjumani Water Supply and sanitation system.

The proposed system is expected to incorporate green, resilient and climate change sensitive technologies and smart systems to deliver sustainable and energy efficient water supply to the project area.

River Nile, a potential source of raw water for the project lies about 16 Km from Adjumani town council, one of the main project areas. Available records, including the feasibility study & detailed design reports for Adjumani town produced by Technology Consults Ltd on behalf of Ministry of Water and Environment also show that Adjumani has a medium to low ground water potential. Whereas there are challenges in operating multiple ground water sources spread throughout the project area, the requirement to manage source risks require that an optimum balance is sought between ground and surface water sources.

The consultant will therefore through a feasibility study and detailed design develop sustainable and energy efficient water supply and sanitations systems based on sound technical, environmental, social and economic assessment and should include the following as a minimum;

(i) A sustainable raw water source/s comprising both ground water and surface water sources.
(ii) Semi-Automated water treatment system
(iii) A water supply system that will provide sustainable water supply to all the proposed project areas.
(iv) Water supply for the urban poor
(v) Sanitation facilities at selected public areas, rehabilitation/expansion and operationalization of the faecal sludge treatment system in Adjumani town

2 PROJECT AIM AND OBJECTIVES
The aim of the consultancy services, for which this tender is to be carried out, is to develop a feasibility study, detailed design and construction supervision for improvement of water and sanitation service delivery in the project area.

2.1 Specific Objectives

1) To ensure adequate and sustainable water provision to the year 2040 for the urban areas
2) To ensure adequate and sustainable water provision for refugee and host communities in collaboration with the Office of the Prime Minister (OPM) and United Nations High Commission (UNHCR) for refugees
3) To ensure adequate and dedicated provision of potable water to the poor in the project area.
4) To ensure public sanitation services provision and management in the project are

3 SCOPE OF THE CONSULTANCY

The consultancy is divided into two discrete parts: (i) design of infrastructure measures; and (ii) tendering and construction supervision. Sections 3.1 to 3.2 outline the specific scope of works in detail.

3.1 Design consultancy

The design consultancy part of this work consists of (i) feasibility study; (ii) detailed design, (iii) preparation of tender documents and (iv) close collaboration with the consultants working on the Environmental and Social Impact Assessment (ESIA) and the Resettlement Action Plan (RAP).

3.1.1 Feasibility study

The work under this section includes but not limited to the following;

1. Collect and analyse socio-economic data and any other relevant information. This should include ability and willingness to pay for water and sanitation services and gender related issues to promote gender equality and enhance the Project’s development effectiveness. The analysis will also highlight key socio-economic issues related to refugee and host communities for consideration by the client’s attention.

2. Based on the collected information, project population and water demand trends to the year 2040 for urban areas. The Projection, disaggregated by sub-project area should be presented in 5-year steps. The projections must consider the physical expansion of the water service areas over time including considerations in the available physical development plans.

For refugee communities, the consultant will determine the planning horizon depending on the available data

3. Detailed hydrological and hydrogeological investigation to determine potential raw water sources. The investigation must include all surface and groundwater sources in the area including a water resources reliability assessment to meet 2040 demand. The investigations shall at the minimum include the following;

(a) Surface water

   (i) Detailed water quality analysis
   (ii) Determination and mapping of water intake locations and the alignment to the raw water pump station;
   (iii) Determination of raw water transmission routes
   (iv) Determination of the most appropriate water treatment location;
(v) Preliminary geotechnical and topographic surveys at locations proposed for
water intake and treatment locations;
(vi) Determination of treatment volumes, technology and processes required.
The treatment technology options analysis should include current best
practices in process technology to achieve cost effective, environmentally
friendly and efficient systems
(vii) Determination of sludge management mechanisms

(b) Groundwater:

i. Carry out a detailed reconnaissance survey of the project area and water
resources assessment of the water sources for the different existing
independent systems as described in section 1.3.

ii. Carry out detailed Hydrogeological investigations leading to the site
selection including:

a) study and analysis of existing data,
b) mapping of sources in the vicinity of the proposed location, study
   and analysis of the geology and the geological structures of the
   selected area,
c) study and analysis of the aerial photographs and or satellite images
   of the selected locations,
d) conducting a detailed Hydrogeological and geophysical
   investigation at the selected locations including the generation of 2-
   D resistivity plots of the selected area.
e) Determination of treatment volumes, technology and processes
   required. The treatment technology options analysis should include
   current best practices to achieve cost effective, efficient, user and
   environmentally friendly systems

Geophysical surveys shall be carried out employing methods including but not
limited to Magnetic, Electromagnetic and Resistivity. A combination of Traverse
and Vertical Electrical Sounding methods is recommended. The consultant shall
be required to use appropriate methods/techniques and sounding equipment to
carry out work in the field. All the surveys shall be carried out with an objective
of determining the site(s) with the highest potential for water productivity.

iii. Determination of recharge capacity and mapping of recharge area of
aquifer(s)/ identified;
iv. Determination and mapping of locations suitable for drilling of ground water production wells (considering technical, socio-economic, and socio-cultural factors);

v. Drilling of test boreholes (assume 6 boreholes distributed in the entire project area each with depths up to 150 metres in weathered crystalline ground), including completion with appropriately sized casing. This shall be done using correct drilling methods, tools and equipment according to standard drilling practice.

vi. Determination of safe yields through pump tests, as well as distance required between wells, number of wells, well depths, etc. (all raw data obtained shall be recorded and shown in a report);

vii. Determination of water quality in each of the trial boreholes (assume one samples each).

4. Based on projected water demand figures, hydrological and hydrogeological investigations, undertake an options/alternatives analysis for both ground water and surface water combinations to provide reliable and energy efficient raw water source(s) for the project area. As part of alternatives analysis, the Consultant shall carry out and report on the financial, environmental, social, health and safety impact assessment of each option. An optimum combination of ground and surface water sources should be considered to mitigate climate change and water source risks.

5. Investigate the capacity of the current system and based on population distribution and demand forecasts, determine the required transmission, storage and distribution capacity including configuration that will ensure energy efficiency and cost optimization as necessary. This should include but not limited to the following

5.1 Determination and mapping of transmission and distribution routes, and storage locations

5.2 Preliminary geotechnical and topographic surveys at locations proposed for transmission routes and storage locations;

5.3 Preliminary determination of properties of transmission and bulk distribution pipeline (e.g. sizes, PN rating, material, etc.) and storage facilities (e.g. volume, type of tank, elevation, etc.);

The choice of pipe materials should include analysis of current best practices in water transport to achieve cost effective, environmentally friendly and efficient systems

5.4 Determination and mapping of connection points to existing system as applicable.

6. Investigate the feasibility of centralised or decentralised water supply to Dzaipi and Ciforo townships, Agojo refugee camp and its host community, Mungula refugee camp and its host
community and any other areas as may be determined under the feasibility study. This should include assessment of Operation and maintenance options and recommendations for sustainable management, taking into consideration the proposed options in the draft Government of Uganda O&M framework of water supplies in refugee communities.

7. Undertake a preliminary design of the treatment processes and units. The consultant shall include results of this design in the options analysis for the water supply system.

8. Undertake an energy audit and carry out an assessment of existing power supply and make recommendations for improvements and/ or other efficient options.

9. Carry out a sanitation needs assessment at public places in urban areas and rural growth centres and develop sustainable, practical and user friendly proposals for sanitation provision.

10. Assess the functionality of faecal sludge and public sanitation management chain including regulation, collection, containment, transport, treatment and disposal and recommend cost effective and sustainable management mechanisms. This should further include identification and evaluation of different options for faecal sludge treatment in terms of location, consolidation with other areas, and treatment.

11. Assess the functionality and capacity of the existing Faecal Sludge Treatment Facility (FSTF) to meet the current and future faecal sludge services demand requirements.

12. Clearly outline systems new build requirements and rehabilitation needs for both the water supply system and fecal sludge treatment facility.

13. Provide preliminary cost / benefit analysis for all measures proposed.

14. The consultant shall identify and provide cost estimates for appropriate source protection measures for the water sources that shall be identified and approved for development. These measures will provide input for the development of a comprehensive ESIA (see section 3.1.4) and source protection plans, whose physical implementation is foreseen during or at the tail end of the construction works.

3.1.2 Detailed design of infrastructure

The consultant shall, based on the feasibility study produce detailed designs for system requirements, to meet demand up to 2040. In particular, the services will have to include the following as a minimum for each of surface and ground water sources as determined in the feasibility study;

Surface Water Sources development

The infrastructure components to be designed under surface water sources include the following as a minimum; raw water intake, raw water transmission, water treatment plant, clear water
transmission, reservoirs, primary and secondary distribution lines, and boosters (where applicable) including all electrical and mechanical equipment. The activities listed will be carried out on each of the components here as a minimum;

1) Carryout detailed topographical surveys on sites selected for major infrastructure installations (intake, water treatment plant, reservoirs) and routes for transmission and distribution lines.

2) Carry out detailed geotechnical surveys at sites selected for major infrastructure installations (intake, water treatment plant, boosters, reservoirs) and at least 2 spots per km on routes for transmission and primary distribution lines. The number of testing points should be sufficient to allow design of intakes, water treatment plants, reservoirs and routes of transmission and distribution lines. The consultant is expected to advise, based on investigations on the suitability of different sites in view of structural, cost and construction management requirements

3) Carry out process designs including methods and calculations, system schematics and functions, formulation of design scenarios/configurations based on water treatment alternatives/methods together with their respective estimated Capital and Operation and Maintenance (O&M) cost estimates

4) Carry out hydraulic design of systems to optimise Capital and O&M costs

5) Carry out water hammer and surge analysis of the system

6) Design of transmission lines, reservoirs and distribution lines

7) Carry out structural designs of all structures and foundations

8) Identify problem areas along the transmission and distribution lines for special consideration (e.g. road and river crossings) and prepare appropriate design details

**Groundwater production well fields development:**
The infrastructure components to be designed based on ground water sources include well field development, raw water transmission, raw water collection sumps, pump houses and water treatment plant as determined, including clear water transmission, including all electrical and mechanical equipment. The activities listed will be carried out on each of the components here as a minimum;

1. Design of well fields and determination of the number of wells necessary for contributing sufficient raw water as defined in the water balance;
2. Design of ground water monitoring systems for boreholes to be developed
3. Detailed topographical survey and mapping of selected sites and alignments of transmission and connection pipes
4. Carry out detailed geotechnical surveys at sites selected for major infrastructure installations including pump houses and sumps.
5. Preparation of detailed standard well design (layout of well and pump house, sections, location of pump, hydraulic and electrical equipment).
6. Carry out process designs including methods and calculations, system schematics and functions, formulation of design scenarios/configurations based on water treatment alternatives/methods together with their respective estimated Capital and O&M cost estimates.
7. Carry out hydraulic design of systems to optimise capital and operation costs taking into consideration water hammer and surge analysis.
8. Design of transmission lines, reservoirs and distribution lines.
9. Carry out structural designs of civil structures and foundations.
10. Carry out design of electrical, mechanical and telemetry installations.

For all ground water and surface water sources, the detailed design should include the following:
1. Carry out design of system electrical and mechanical installations. Emphasis should be put on green and smart systems to achieve energy efficiency.
2. Carry out design of Supervisory Control and Data Acquisition (SCADA) or any other approved remote control system to manage the entire water system operation. The control system should, among others, be capable of carrying out real time water quality monitoring and automatic adjustment of chemical doses to achieve pre-set water quality standards. It should further allow for manual, semi-automatic and full automatic modes.

For sanitation provision and management in the project area, the consultant is expected to carry out the following:
1. Design sustainable and user friendly sanitation infrastructure for public places in urban and rural growth centres after identifying and evaluation possible options with the client.
2. Develop a cost effective and sustainable faecal sludge and public sanitation management chain including regulation, collection, containment, transport, treatment and disposal
3. Produce designs to increase capacity and effectiveness of the existing faecal sludge treatment plant or modifications/new build as recommended to meet the projected demand in line with the developed faecal sludge management strategy. 

For both water supply and sanitation,

1. Undertake full analysis of the economic and financial viability of the project. The following should be included as a minimum:
   a. Assessment of CAPEX and OPEX of the facilities proposed;
   b. Assessment of dynamic prime costs and specific investment costs related to number of population served.
   c. Assessment of present tariff system and extent of coverage by costs (e.g. operational cost coverage, operational and basic maintenance; full cost coverage including depreciation over 20 years and capital for future network expansion);
   d. Assessment of key financial performance indicators/ ratios such as operating cash flow CAPEX cover, operating cash flow debt service cover, NPV, FIRR, DSCR, ROE, ROA, debt to equity, and the EIRR.
   e. Statement of all assumptions the economic and financial tests were based on (e.g. inflation, billing efficiency, etc.).

2. Prepare a detailed project risk register. The register should list and quantify the possible monetary impact of each risk, propose parties responsible for each risk, and propose mitigation measures.

3. The consultant will be expected to prepare detailed engineering designs for each facility (detailed scheme layout, topographic and profile surveys, hydraulic profiles, detailed calculations (process, structural, hydraulic), engineering and structural drawings, overview plans, descriptions in text, etc.)

3.1.3 Preparation of Tender Documents for Construction Works

The consultant shall prepare tender documents for all infrastructure components designed. In particular, the consultant shall carry out the following as a minimum:

1) Prepare a complete set of tender documents for construction contracts according to FIDIC conditions of contract.

Tender documents shall conform to the prevailing guidelines for procurement of works under IBRD loans and IDA credits as issued from time to time by the World Bank.

The tender documents shall be packaged in accordance with World Bank Procurement Regulations for IPF Borrowers, Procurement in investment Project Financing; Goods, Works, Non-Consulting and Consulting Services, July 2016. The Consultant shall use the SBD-Procurement of Works &
Users Guide dated April 2015 and updated January and October 2017 and ensure incorporation of Environmental, Social, Health and Safety (ESHS) aspects to enhance ESHS performance. In addition, the Contractors and supervision Consultants to be procured shall be required to develop and implement Construction Environmental and Social Management Plans (CESMP), including hiring qualified Environmental Specialists, Health & Safety Specialist and Social specialists on their project teams.

3.1.4 Close Collaboration with the Consultants Working on the ESIA, RAP and Source Protection

The overall project concept and the detailed designs will be subjected to an Environmental and Social Impact Assessments (ESIA) and these will result in (i) an Environment and Social Management Plan (ESMP); and (ii) a Resettlement Action Plan (RAP). Independent consultants that are specialised in these fields of work will undertake work on these assignments.

The feasibility study and detailed design consultant shall cooperate with the consultants commissioned to work on the ESIA and the RAP and provide full access to all project data that may be relevant for a comprehensive undertaking of the work. The design consultant shall review and include in the design the salient environmental and social aspects recommended in the ESIA and amend designs upon approval by the client.

3.2 Tendering for works contract and Construction Supervision

3.2.1 Tendering for works contract

The consultant shall participate in the entire tender process. In particular, the tasks will include but not limited to the following:

1) Participate in pre-tender site visit and meeting

2) Respond to queries raised by bidders

3) Participate in tender evaluation. This will include review of the tenderers technical capacity and financial capacity, experience in projects of similar complexity, and availability of staff suitable for the project.

4) Review of the tenderers proposed construction methodologies.

5) Review of tenderers proposed programme of work.

6) Analysis of costs cited by the tenderers.

7) Preparation of tender analysis report for the client and the World Bank.
8) Assist the Client during negotiations with the successful tenderer.

3.2.2 Construction Supervision

The consultant shall, following the signing of the works contract, prepare for the commencement of the works; and subsequently supervise the construction Contract as the “Engineer”. The terms and conditions for construction works shall be as stipulated in the latest harmonised version of the FIDIC conditions of contract.

Construction supervision will also be in line with the ENVIRONMENTAL AND SOCIAL POLICY in ANNEX 2 and CODE OF CONDUCT in ANNEX 3.

The consultant shall put in place quality assurance, risk and environmental management systems to ensure compliance with construction standards. Construction supervision covers four areas: (i) Pre-construction and mobilisation phase; (ii) construction phase and (iii) defects liability phase (iv) compliance with legal health, safety and environment.

3.2.2.1 Pre-construction and Mobilisation Phase

During the pre-construction and mobilisation phase, the consultant’s task shall include, but not be limited to the following:

1) Review the contractor’s work programme and method statements and highlight areas that may pose a risk to timely and in-budget project completion.

2) Review the contractor’s proposed staffing, equipment, insurance, performance securities, advance payments guarantee, and recommend appropriate actions to the client.

3) Review and make recommendations on the contractor’s procurement schedule.

4) Review and approve the contractor’s proposed procurements during mobilisation, ensuring that all materials are from the right source, quality and of sufficient quantities.


6) Carryout due diligence on and approve contractor’s proposals for construction materials acquisition sources.

7) Carryout and/or supervise any pre-construction sensitization activities to address to associated environmental and social towards potentially affected communities and contractor/sub-contractor staff.
8) Monthly progress reporting to the client, and immediate reporting should any issues be identified that could impact on the project completion schedule.
9) Development and confirmation of training plan with the MWE and NWSC

3.2.2.2 Construction Phase
The consultant shall represent the client on site and supervise the entire construction process in close cooperation with NWSC’s Project Manager. During the construction period, the consultant’s task shall include, but not be limited to the following:

1) Supervise the contractor’s work progress vs. the planned project time schedule and ensure that delays are being kept to minimum and, wherever possible, the contractor takes measures to make up for time lost and pull the project back to planned schedule.

2) Timely issuance to the contractor of all necessary correspondences related to information, instructions, clarifications and suggestions so as to ensure consistency in quality, positive progress and planned costs.

3) Inspect, determine and approve the part of works, before, during and after construction of part and or whole of the works to ensure all time compliance with the specifications and standards.

4) Supervise the contractor’s procurements, ensuring that all materials and equipment are from the right source, quality and of sufficient quantities. In addition, the consultant shall prepare/modify specifications for equipment to be procured for the project as necessary.

5) Supervise the contractor’s construction activities, ensuring that all construction is undertaken as designed, or in accordance with client approved variations to the original design, and that all quality standards are met.

6) If necessary, make amendments to the design with approval from the client.

7) Ad measure and certify all quantities invoiced by the contractor. Certify payment certificates for payments of completed works or parts thereof. Prepare the contractor’s payment statement including certificate in accordance with General Conditions of Contract and Particular Conditions.

8) Inspect and certify all completed works.

9) Prepare snag lists after substantial completion of works.

10) Advise the client on contractual obligations and establish early warning systems to minimise financial impacts from compensation events and subsequent claims.
11) Ensure that the contractor works within the environmental and social frameworks and meets all relevant Environment, Social, Health and Safety (ESHS) requirements as detailed in this document and in the project’s Environmental Social Impact Assessment (ESIA) and environmental and social management plan (ESMP) and the resettlement action plan to be prepared.

12) Periodically review the status of the contractor’s real vs. required staffing, equipment, insurance, performance securities, advance payment guarantees and recommend appropriate actions to the client. Specific assessment should be made on the contractor’s capacity to address the recommended social and environmental mitigation measures.

13) State all methods and procedures that are intended to ensure robust quality control of work on site, execute all procedures accordingly, and report on all quality control undertakings and their results to the client.

14) Enforce the developed quality control of work on site and enforce remedial action on such works the contractor deviates from the agreed/specifed quality standards

15) In addition to continuous construction supervision, schedule and organise a weekly formal visitation of activities with the contractor’s representative and agree with the contractor on progress made as compared to the previous week.

16) Develop and maintain a project progress reporting format that is both, concise and in accordance with the client’s and the development partner’s requirements.

17) Monthly progress reporting to the client, and immediate reporting should any issues be identified that could impact on the project completion schedule.

18) In consultation with the client, and if necessary, prepare variation orders.

19) Schedule and organise witness testing events, including contractual tests for the completed works.

20) Maintain daily site records on prevailing weather conditions, labour, availability and operational condition of key plant, and all other observations that may be of importance in case of any arbitration or legal disputes.

21) Prepare the ‘substantial completion report’ prior to technical handover.

22) Mentor and transfer knowledge to trainees including endorsement of monthly training reports to be submitted to NWSC as appropriate
3.2.2.3 Works Commissioning

The Consultant will implement works commissioning including:

1. Preparing the completion report for the works, which will be based on the record maintained during construction design and work supervision phases. It will include the environmental completion report which will be submitted to NEMA and the World Bank for compliance with initial recommendations for environmental mitigation measures. The consultant will be expected to include a project outputs delivery report on areas agreed with the Project Manager (client) as a key component in the completion report. The outputs report will form the project operational baseline data summary report for operation improvement tracking purposes.

2. The Consultant will ensure the preparation of ‘as-built drawings’ by the Contractor during construction of works. On completion of the Project, the Consultant will check, approve and submit to the Project Manager for the Client’s retention, complete sets of all detailed drawings and electronic CD-ROM copy and computations in accordance with revisions made during the construction.

3. Based on the information and booklets received from the Contractors, Manufacturers, Suppliers and his own experience, the Consultant will ensure preparation and submission of the Operation and Maintenance Manuals by the Contractor. The consultant will ensure the manuals are complete with the O&M recommendations identified during construction and that all relevant technical booklets of scheme components are provided in English.

3.2.2.4 Defects Liability Phase

During the defects liability period, the consultant’s tasks which will be performed in close cooperation with operation staff shall include, but not be limited to the following:

1) Supervise and certify the contractor’s addressing of the entire snag list, as agreed at substantial completion.

2) Monitor the performance of all plant, notify both the contractor and the client on defects identified, and recommend remedial actions.

3) Supervise and certify the remedying of any defects that become apparent during the defects liability phase.

4) Review and supervise the agreed upon ‘on the job’ training programme of NWSC operational staff by the contractor.
5) Ensure that the contractor supplies complete sets of all works manuals, drawings, models, warranties, and other relevant plant documentation to the client. The supervision consultant should point out all items missing and recommend actions to be taken to the client.

6) Review, approve, and certify ‘as built’ drawings.

7) Review and certify the final statement of accounts.

8) Develop and maintain a defects liability reporting format that is both, concise and in accordance with the client’s and the development partner’s requirements.

9) Quarterly site meetings with the contractor where all defects identified are recorded and a time schedule for remedying these shall be agreed.

10) Monthly progress reporting to the client on the operational status of plant.

11) Where necessary/required, ensure rehabilitation/restoration of any site(s) directly/indirectly degraded by the project or its associated activities.

12) Prepare final completion report including an updated asset register.

13) Assist the client in the final handover and acceptance process, including all associated administrative work, such as the discharge certificate for the contractor.

3.2.2.5 Compliance with legal, health, safety and environment requirements.

During the pre-construction and mobilisation, construction and defects liability phases of the project, the consultant will ensure that the contractor adheres to legal, health, safety and environment requirements as follows;

1) Review the contractor’s proposed staffing capacity to address legal, health, safety and environment requirements.

2) Ensure that the contractor continuously meets legal, occupational health and safety standards including compliance with labour laws.

3) Ensure that the contractor continuously meets social and environmental safeguard requirements according to World Bank guidelines and as defined in the Environmental and Social Management Plan (ESMP).

4) Maintain daily site records on disputes between employers and staff as well as between contractor and local residents, and all other observations as necessary.

The consultant's tasks for execution of this assignment have been outlined and detailed to the extent possible. However, the consultant shall bear in mind that the list of tasks and activities can by no
means be considered as a complete description of the consultant's duties. It is therefore has the consultant’s responsibility to critically verify the scope of services indicated and where necessary propose amendments or changes based on professional judgment. It is to be understood that the consultant shall perform all duties of the Engineer as outlined in FIDIC pink book and Environmental and Social Policy and shall perform all the work that is necessary to meet the objectives of the project.

4 ORGANISATION OF THE ASSIGNMENT

4.1 Contractual arrangements
The contractual arrangements for this project shall be:

1) Design phase and tendering for works’ contract shall be lump sum

2) Construction supervision and defects liability phase shall be time based.

The consultant shall show the costs of his proposed services in accordance with these contractual arrangements.

Note that continuation from the design phase to tendering and construction supervision phase shall be subject to successful completion of the design phase. This will be measured in terms of deployment of right skills and timely delivery of project outputs.

4.2 Logistical setup and staffing
Within the technical proposal, the consultant shall elaborate on the envisaged logistical setup and deployment of appropriate skills for the execution of the assignment. The consultant shall present the staffing schedule in a manner that clearly shows the stage, activity and duration where each of the proposed team members is planned to be involved on the project.

The consultant is encouraged to include local expertise into his team and to clearly indicate in the proposal which services will be rendered by such experts. An organogram reflecting the responsibilities of each staff member and line management setup of the proposed team shall be part of the proposal.

The minimum number of key experts and mandatory non-key experts including the minimum time input and minimum qualifications of each are indicated in sections 4.2.1 and 4.2.2.

The consultant is free to propose additional skills as are deemed necessary to execute the assignment within their stated methodology.
3.2.3 **Experts-Design Phase**

Key experts for the design phase are indicated in **Table 2**.

<table>
<thead>
<tr>
<th>Expert</th>
<th>Minimum relevant experience (years)</th>
<th>Minimum staff input (month)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team leader design</td>
<td>10</td>
<td>06</td>
</tr>
<tr>
<td>Water treatment process expert</td>
<td>10</td>
<td>03</td>
</tr>
<tr>
<td>Socio-Economic expert</td>
<td>05</td>
<td>03</td>
</tr>
<tr>
<td>Hydro-geologist</td>
<td>07</td>
<td>03</td>
</tr>
<tr>
<td>Hydrologist</td>
<td>07</td>
<td>03</td>
</tr>
<tr>
<td>Water supply/hydraulic expert</td>
<td>07</td>
<td>03</td>
</tr>
<tr>
<td>Electro-mechanical expert</td>
<td>07</td>
<td>02</td>
</tr>
<tr>
<td>Civil works/ Structural Engineer</td>
<td>05</td>
<td>03</td>
</tr>
<tr>
<td>Sanitation Expert</td>
<td>05</td>
<td>03</td>
</tr>
<tr>
<td>Environmental safeguards expert</td>
<td>07</td>
<td>02</td>
</tr>
<tr>
<td>Social safeguards expert</td>
<td>07</td>
<td>02</td>
</tr>
</tbody>
</table>

Mandatory Non-key Experts for the design phase are indicated in **Table 3**.

<table>
<thead>
<tr>
<th>Expert</th>
<th>Minimum relevant experience (years)</th>
<th>Minimum staff input (month)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geotechnical engineer</td>
<td>05</td>
<td>01</td>
</tr>
</tbody>
</table>
3.2.4 **Experts- Tendering and Construction Supervision Phase**

Key experts for the Tendering and Construction Supervision Phase are indicated in **Table 4**

<table>
<thead>
<tr>
<th>Expert</th>
<th>Minimum relevant experience (years)</th>
<th>Minimum staff input (month)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team Leader Supervision</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>Resident Engineer</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Social safe guards expert</td>
<td>07</td>
<td>18</td>
</tr>
<tr>
<td>Electro-mechanical expert</td>
<td>07</td>
<td>04</td>
</tr>
<tr>
<td>Environmental safe guards expert</td>
<td>07</td>
<td>18</td>
</tr>
<tr>
<td>Water treatment process expert</td>
<td>10</td>
<td>02</td>
</tr>
<tr>
<td>Hydro-geologist</td>
<td>07</td>
<td>03</td>
</tr>
<tr>
<td>Water supply/hydraulic expert</td>
<td>07</td>
<td>01</td>
</tr>
<tr>
<td>Civil works/ Structural Engineer</td>
<td>05</td>
<td>01</td>
</tr>
<tr>
<td>Sanitation Expert</td>
<td>05</td>
<td>01</td>
</tr>
</tbody>
</table>

The mandatory Non-Key experts for Tendering and Construction Supervision are indicated in **Table 5**

<table>
<thead>
<tr>
<th>Expert</th>
<th>Minimum relevant experience (years)</th>
<th>Minimum staff input (month)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surveyor</td>
<td>05</td>
<td>04</td>
</tr>
<tr>
<td>Geotechnical engineer</td>
<td>05</td>
<td>01</td>
</tr>
<tr>
<td>Inspector of Works-Civil Works</td>
<td>07</td>
<td>30</td>
</tr>
<tr>
<td>Inspector of Works -Pipeline Works</td>
<td>07</td>
<td>25</td>
</tr>
<tr>
<td>Inspector of Works -Electromechanical Works</td>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>
3.2.4.1 Qualifications of Experts

The consultant shall provide all the personnel necessary for the completion of the assignment. The following are the minimum qualification requirements for the proposed consultant’s personnel:

1. **Team Leader design:** The position holder shall have a master’s degree in civil/hydraulic engineering or an equivalent and a minimum of 15 years’ overall experience and 10 years’ specialist experience in design of water supply infrastructure and team leadership on at least 3 projects. Experience in Sub-Saharan Africa will be an added advantage.

2. **Water treatment process expert:** The position holder shall have a minimum of a Master’s degree in Civil/ process engineering or an equivalent and a minimum of 15 years’ overall experience and 10 years’ specialist experience in water treatment process design in similar contexts.

3. **Hydro-geologist.** The position holder shall have a minimum of a bachelor’s degree in civil/water resources engineering/geological sciences or equivalent and a 10 years’ overall experience and 7 years’ specialist experience in ground water investigations, exploration and development.

4. **Hydrologist** The position holder shall have a minimum of a master’s degree in water resources engineering or an equivalent and a 10 years’ overall experience and 5 years’ specialist experience in surface water investigations, exploration and development.

5. **Water supply/hydraulic expert:** The position holder shall have a minimum of Bachelor’s degree in Civil/ hydraulic engineering or an equivalent and a 10 years’ overall experience and 7 years’ specialist experience in design of water supply networks and or hydraulic/surge analysis.

6. **Social economic expert:** The position holder shall have a Bachelor’s degree in Civil engineering/social sciences/economics or an equivalent and a 7 years’ overall experience and 5 years’ specialist experience in carrying out socio economic studies for development projects with specific experience in the East Africa region. Experience working in or with work in refugee hosting communities or similar contexts will be an added advantage.

7. **Electro-mechanical expert:** The position holder shall have a minimum of a bachelor’s degree in electrical / mechanical / instrumentation engineering or an equivalent and 10 years’ overall experience and 7 years’ specialist experience in design/installation of electromechanical equipment for water supply projects. The position holder should have prior experience in design/installation of SCADA systems.
8. **Civil works/ Structural Engineer:** The position holder shall have a master’s degree in Civil / structural engineering or an equivalent and a 7 years’ overall experience and 5 years’ specialist experience in design of foundations and structures.

9. **Geotechnical engineer:** The position holder shall have a bachelor’s degree in Civil /structural/geotechnical engineering or an equivalent and a 7 years’ overall experience and 5 years’ specialist experience in geotechnical investigations.

10. **Sanitation Expert:** The position holder shall have a minimum of a bachelor’s degree in Civil or sanitary engineering or an equivalent and a 7 years’ overall experience and 5 years’ specialist experience in design of sanitation systems. Previous experience in design of faecal sludge systems is an added advantage.

11. **Team Leader Supervision:** The position holder shall have a minimum of bachelor’s degree in civil engineering/construction management or an equivalent and a minimum of 15 years’ overall experience and 10 years’ specialist experience in supervision of water supply infrastructure and project management. Experience in Sub-Saharan Africa will be an added advantage.

12. **Resident Engineer:** The resident engineer shall have a minimum of a bachelor’s degree in civil engineering or an equivalent and a minimum of 15 years’ overall experience and 10 years’ specialist experience in supervision of water supply infrastructure and project management particularly in sub-Saharan Africa or similar context.

13. **Environmental safeguards expert:** The position holder shall have a minimum of a bachelor’s degree in environmental engineering, environmental sciences, or equivalent, and 7 years’ overall experience and 5 years’ specialist experience in assessing environmental compliance of infrastructure projects. The person shall be a NEMA-accredited environmental practitioner, have familiarity with World Bank’s environmental safeguards policies from similar works financed by the World Bank.

14. **Social safeguards expert:** The position holder shall have a minimum of a bachelor’s degree in social sciences or equivalent, and 7 years’ overall experience and 5 years’ specialist experience in enforcing social safeguards compliance of infrastructure projects in sub-Saharan Africa. The person shall have familiarity with World Bank’s social safeguards policies from similar projects financed by the World Bank.
15. **Surveyor** shall have a minimum of a bachelor’s degree in land surveying and 7 years’ overall experience and 5 years’ specialist experience in carrying out topographic surveys, route surveying and cadastral surveys.

16. **The clerk of works (Civil/Pipelines)** shall have a minimum of a higher diploma in civil engineering and at least 10 years’ general experience and 7 years’ specialist experience in supervising major water infrastructure projects involving similar scope. Most of the experience should have been gained in sub-Saharan Africa, preferably Uganda.

17. **The clerk of works (Electro-mechanical)** shall have a minimum of a higher diploma in mechanical/electrical engineering and at least 7 years’ general experience and 5 years’ specialist experience in installation and maintenance of electromechanical equipment in water infrastructure projects.

4 **FAMILIARISATION WITH THE ASSIGNMENT**

To familiarise consultants with the services to be provided under this consultancy, a pre-bid meeting will be held in Adjumani and it will include a tour to the project sites. It is at the consultant’s discretion to make additional visits to the project area, in case they feel there is need to gather more information. It should be understood, that any cost incurred by the consultant in this regard shall not be reimbursed.

5 **DURATION OF THE ASSIGNMENT**

The assignment is expected to last 48 months and the time estimates for the various components is as follows:

1. Feasibility study and detailed design – 8 months.
2. Works tendering – 6 months
3. Pre-construction – 3 months
4. Construction supervision – 18 months
5. Defects liability period – 12 months
6. Final reporting and project closure – 01 months

The above stated durations are to be understood as guidance and it is the responsibility of the consultant to establish a detailed work program within the above time frame. The estimated staff time inputs should be provided in accordance with the consultant’s professional judgment and knowledge of the local conditions and needs.
6 REPORTING AND MEETING REQUIREMENTS

The Consultant will report to:

The Project Manager – Adumani Water Supply Project
Telephone: 0414315100
E-mail : info@nwsc.co.ug
Plot 39 Jinja Road. P.O. Box 7053, Kampala

The consultant will be required to produce and submit the following principal reports and documents in the quantities, formats and timing in Table 6. The reports and documents shall meet the minimum requirements stated in section 7.1. The consultant shall also be required to submit to NWSC and World Bank an electronic copy, using software specified by the client. In addition, all data collected during the assignment shall be availed on request by the client at any stage of the project.

NWSC and the World Bank shall review draft reports and approve/give comments within two weeks of submission.

6.1 Reporting Requirements and Content

6.1.1 Reporting Requirements and Content – Design Phase
During the design phase, the consultant shall submit reports as stated in Table 6.

Table 6: Reporting requirements-Design

<table>
<thead>
<tr>
<th>Description</th>
<th>Timing in months from contract effectiveness</th>
<th>No. of hard copies to</th>
<th>Electronic copies to NWSC contact person</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inception report</td>
<td>1</td>
<td>1</td>
<td>Word; Excel (all tables)</td>
</tr>
<tr>
<td>Draft Feasibility study report</td>
<td>4</td>
<td>1</td>
<td>Word; Excel (all tables); CAD (all drawings); Copy of all documents in PDF</td>
</tr>
<tr>
<td>Draft Detailed design report</td>
<td>6</td>
<td>1</td>
<td>Word; Excel (all tables); CAD (all drawings); Copy of all documents in PDF</td>
</tr>
<tr>
<td>Final detailed design report</td>
<td>7</td>
<td>1</td>
<td>Word; Excel (all tables); CAD (all drawings); Copy of all documents in PDF</td>
</tr>
</tbody>
</table>
The reports shall, as a minimum, have the following contents:

1. **Inception report**

   The inception report shall define the design criteria and assumptions that are agreed by NWSC as the basis of design for the design component of the project. This may include revisions and alternatives to the relevant technical manuals where appropriate. It will also include initial findings from their visual and risk assessment, and include a detailed site inventory and photographic record, consultant’s revised time schedule.

2. **Feasibility study report**

   The report shall present results of socio-economic, hydrological and hydro-geological studies as outlined in the scope and shall include willingness to pay and affordability studies. The feasibility study report shall also include preliminary calculations and layouts of all measures proposed. Furthermore, appendices showing all raw data utilised as well as photographs of project related areas should be part of the documentation. The basis of all proposals shall be clearly cross referenced to results gained during the economic feasibility studies, as well as all technical investigations. In addition, all standards and criteria applied for each solution proposed shall clearly be stated. The feasibility study should enable the client to choose feasible options for infrastructure development and the options chosen at this stage will be carried forward to the detailed design stage.

3. **Draft design report**

   The report shall be based on the recommendations of the feasibility study. The report shall provide design criteria, detailed designs for all key structures, such as Intake, Water Treatment Plant (WTP), transmission and distribution mains, main storage facilities, booster stations where applicable, electromechanical equipment and accessories etc. and include detailed dimensioning of all systems and structures, technical specifications, cost estimates, implementation schedules, site maps. It should further include as Appendices to the report; Schematic drawings, structural drawings, hydraulic and profile drawings, as well as detailed calculations and geotechnical investigations reports.
4. **Final design report:** The final design report shall have the same contents as the draft design report. The report shall reflect all changes requested by and agreed with the client.

5. **Draft tender documents:** The draft tender documents shall be in accordance with the applicable World Bank requirements.

6. **Final tender documents:** The final set of tender documents shall have the same contents as the draft documents. The documents shall reflect all changes requested by and agreed with the client.

6.1.2 **Reporting Requirements and content – Tendering and Construction supervision phase**

During the construction phase, the consultant shall submit reports as stated in Table 7

<table>
<thead>
<tr>
<th>Description</th>
<th>Timing in months from starting date</th>
<th>No. of hard copies</th>
<th>Electronic copies to NWSC contact</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>NWSC</td>
<td>World Bank</td>
</tr>
<tr>
<td>Tendering for works contract</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tender evaluation report</td>
<td>12</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Contract documentation</td>
<td>14</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Construction Period</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monthly construction progress reports</td>
<td>17 - 35</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Substantial project completion report</td>
<td>35</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

The reports shall, as a minimum, have the following contents:

1) **Tender evaluation report:** The tender report shall be in accordance with the standard World Bank reporting format and guidelines.

2) **Contract documentation:** Contract documentation shall be in accordance with World Bank requirements.

3) **Monthly construction progress reports:** The monthly progress reports shall state the status of project implementation (i.e. actual vs. planned physical progress; actual vs. planned expenditures), actual staffing levels and deployment of equipment by the contractor against planned, financial information, all agreed and all new variation and compensation events, all issues requiring client attention, health and safety information,
social and environment safeguard management information and other information that may have an impact on project progress. The report shall include a Gantt chart and should include photographic evidence of progress as well as key lessons. In addition, the report should project cash flows and work progress over the next three months. The report shall also include information on training of sector professionals undertaken as part of the project.

4) **Substantial project completion report**: The substantial completion report shall state the project scope, principal activities by the consultant and the contractor (including deployment of resources during project implementation), the contractor’s performance, all project relevant observations of the consultant, safeguards performance, major issues that were encountered and lessons learnt during project implementation and how these were solved, the project schedule citing all delays if any, and financial information. Most importantly, the substantial completion report shall include a list of all snags to be addressed during the defects liability period, if any, and propose a time schedule for addressing the issues that have been identified. Recommendations should also be made to NWSC on how to improve service provision. The substantial completion report should also include a presentation on the report to be made by the consultant to NWSC.

6.1.3 **Reporting Requirements – Defects Liability Period**
During the defects liability phase, the consultant shall submit reports as stated in Table 8

<table>
<thead>
<tr>
<th>Defects Liability Period</th>
<th></th>
<th></th>
<th>Word; Excel (all tables)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interim report (quarterly)</td>
<td>(35-47)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Operational manuals</td>
<td>45</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>As build drawings</td>
<td>45</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Completion of training report</td>
<td>45</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Final completion report</td>
<td>48</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

The reports shall, as a minimum, meet the following requirements:

1) **Interim progress reports**: The interim progress reports shall state progress of the contractor on addressing items on the snag list, all observations on the performance of the project installations, system weaknesses and defects, and warranty issues and measures taken by the contractor to address the defects. In addition, the report shall indicate the consultant’s and/ or the contractor’s progress on the undertaking of staff training.
2) **Operational manuals:** The consultant shall, through the contractor ensure that suppliers / manufacturers submit all operational manuals in English to the client in the formats and numbers of copies specified in Table 8. The Consultant shall prepare an O&M manual for the system as constructed including any changes / modifications made during the system commissioning phase and recommendations for future operations.

3) **As built drawings:** The consultant shall submit all ‘as built drawings’ to the client in the format and numbers of copies specified in Table 8.

4) **Completion of training report:** The completion of training report shall state the training obligations of the consultant and the contractor, as agreed with the client, the type and duration of training activities undertaken, the number of participants in each training and their professional background, training outputs and achievements, as well as recommendations for further / continued training if any.

5) **Final completion report:** The final completion report shall include the same type of information as outlined for the ‘substantial completion report’. In addition, it shall show the status of all outstanding actions that were to be completed during the defects liability period. The report should not include any outstanding actions.

6.2 **Meeting and workshop requirements**

Following the submission of the inception report, the consultant will avail appropriate personnel for review meetings with the client and the environmental and social impact assessment (ESIA) consultant during the entire project period. The review shall be for the purposes of:

1) Assessing progress.

2) Obtaining signoffs on proposals made to the design consultant in respect of minimising project’s social and environmental impacts

3) Exchanging information and data relevant for the successful accomplishment of the entire assignment.

The nature of the meetings, locations (e.g. site, NWSC offices, and consultant’s offices) and agenda shall be agreed upon by the consultant’s and the client’s project managers in agreement with the ESIA consultant.

For ensuring organizational and stakeholder wide appreciation and ownership of the proposed recommendations, the consultant shall be required to organise coordination workshops for presentation of key reports after each project milestone to a representative group of stakeholders that is to be agreed with the client. A minimum of three workshops is proposed and shall include presentation of project inception, draft feasibility study and draft detailed design reports. Two
workshops will be held in Adjumani and one will be held in Kampala. For costing purposes, it shall be assumed that each workshop will be attended by 35 people.

7 DATA, SERVICES AND FACILITIES TO BE PROVIDED BY THE CLIENT
To the extent possible, the client will provide free of charge all existing information, data, reports and maps in the custody of the client and will assist the consultant in obtaining other relevant information, materials and services from governmental institutions and state authorities as far as possible. The data and services shall include (but not be limited to) the following:

1) Feasibility study & detailed design reports for Adjumani town council by technology consults ltd.

2) Assist the consultant in obtaining work permits for the projects’ Key Experts

The information, data, reports, etc., will be available for the consultant's unlimited use during execution of the proposed services.

8 SERVICES AND FACILITIES TO BE PROVIDED BY THE CONSULTANT
In carrying out this assignment, the consultant shall provide the following services and facilities, among others, which should be duly provided for in the consultant’s proposal:

1) Suitable office space and furnished for the consultant’s team engaged on the assignment.
2) Office supplies, as required for the period of services.
3) Utility services and costs.
4) Long term accommodation for the consultant’s staff while in Uganda and hotel accommodation for short term experts.
5) Subsistence (or per diem) payments for official travel for consultant’s staff.
6) Secretarial and administrative support staff.
7) International and local telephone services for official communication only.
8) Transport for the duration of the lump sum contract
9) Aerial photographs and maps, meteorological and geological data.

NB: The consultant shall include in their costs, the full cost for the purchase as well as operation and maintenance of a double cabin pickup for the entire duration of the lump sum assignment. Any other transportation which the consultant deems necessary for the assignment shall be hired and the costs for hire of such transportation shall be included in the proposal.

9 SERVICES AND FACILITIES TO BE PROVIDED BY THE CONTRACTOR
Upon commencement of the work’s contract, the contractor will provide the following services to the consultant;
1) A fully furnished site office measuring at least 150m²
2) Survey equipment
3) Transport for official work of the consultant

10 ACTIONS REQUIRING CLIENT CLEARANCE DURING CONSTRUCTION SUPERVISION

1) The consultant shall note that taking any action under a civil works contract designating the consultant as “Engineer” for which action pursuant to such civil works contract to the written approval of the client as “Employer” is required for the following actions:
2) Use of provisional sums
3) Variations to works that materially differ in technology, geography, plant layout, etc. from the design agreed upon for the works contract.
4) Variations to works that increase the contract sum by more than the maximum allowable sum stated in the special conditions of contract of the works contract document.
5) Certification of any construction related claims by the contractor including extension of time.
6) Certification of substantial project completion

11 ENVIRONMENTAL AND SOCIAL POLICY

The consultant shall be guided by the environmental, social, health and safety policy (attached in ANNEX 2) during supervision of the works.

12 CODE OF CONDUCT

The code of conduct in ANNEX 3 has been set out to take into account considerations of Environment, Social and Health issues, Occupation Health and Safety of experts, client’s and contractor’s personnel and the community.

The code of conduct should be signed by each Expert to indicate that they have:

1) received a copy of the code;
2) had the code explained to them;
3) acknowledged that adherence to this Code of Conduct is a condition of employment; and
4) Understood that violations of the Code can result in serious consequences, up to and including dismissal, or referral to legal authorities.
The Consultant will ensure the Contractor’s ESHS performance is in accordance with good international industry practice and delivers the Contractor’s ESHS obligations. This includes

1. Recruitment of qualified personnel in the positions of Environmental Specialist/Officer, Health and Safety Specialist/Officer, Social Development Officer;

2. Review and approve the C-ESMP, including all updates and revisions (not less than once every 6 monthly);

3. Review and approve ESHS provisions of method statements plans, proposals, schedules and all relevant Contractor’s documents;

4. Review and advise the relevant person on the ESHS risks and impacts of any design change proposals and the implications for compliance with ESIA, ESMP, consent/permits and other relevant project requirements;

5. Undertake audits, supervisions and/or inspections of any sites where the Contractor is undertaking activities related to the Works, to verify the Contractor’s compliance with ESHS requirements, with and without contractor and/or client relevant representatives, as necessary, but not less than once per month;

6. Undertake audits and inspections of Contractor’s accident logs, community liaison records, monitoring findings and other ESHS related documentation, as necessary, to confirm the Contractor’s compliance with ESHS requirements;

7. Agree remedial action/s and their timeframe for implementation in the event of a noncompliance with the Contractor’s ESHS obligations;

8. Attend meetings including site meetings, progress meetings to discuss and agree appropriate actions to ensure compliance with ESHS obligations;

9. Check that the Contractor’s actual reporting (content and timeliness) is in accordance with the Contractor’s contractual obligations;

10. Review and critique, in a timely manner, the Contractor’s ESHS documentation (including regular reports and incident reports) and to provide advice to ensure the accuracy and efficacy of the documentation;

11. Undertake liaison, from time to time and as necessary, with project stakeholders to identify and discuss any actual or potential ESHS issues.
12. Ensure that contractor develops and implements a Labour Influx Management Plan and Workers’ Camp & Accommodation Management Plans as part of C-ESMP. This should include the following actions: all workers to sign employment contract including Code of Conduct (Annex H in ESIA—example); establish a Grievance Committee for Workers; sensitize workers on community based social behaviour and conduct; sensitize workers to not engage in sexual relations with underage girls and married women; establish a Grievance Redress Committee to act as link between community and the project; local leadership should always be sought as a first priority in solving issues. Refer to ESIA and RAP for additional information.
ANNEX 2
ENVIRONMENTAL AND SOCIAL POLICY

The Works’ policy goal is to integrate environmental protection, occupational and community health and safety, gender, equality, child protection, vulnerable people (including those with disabilities), gender-based violence (GBV), HIV/AIDS awareness and prevention, wide stakeholder engagement, land acquisition and compensation of project affected persons in the planning processes, programs, and activities of the parties involved in the execution of the Works.

The Environment and Social Management Plan for the Project and the Contractor’s Site Specific Environment and Social Management Plan will be used for monitoring, continuously improving processes and activities and for reporting on the compliance with the policy.

The policy is derived from different international and/or national policies within legal frameworks some of which are highlighted below. It is expected that during the supervision of the works, the consultant will commit to;

1. Apply good international industry practice to protect and conserve the natural environment and to minimize unavoidable impacts (National Environment Act 1995);
2. Provide and maintain a healthy and safe work environment and safe systems of work as stipulated in the draft National Occupational Safety and Health Policy in the framework of the Occupational Safety and Health Act 2006;
3. Protect the health and safety of local communities and users, with particular concern for those who are disabled, elderly, or otherwise vulnerable;
4. Ensure that terms of employment and working conditions of all workers engaged in the Works meet the requirements of the ILO labour conventions to which the host country is a signatory (Employment Act 2006 and Occupational Safety and Health Act 2006);
5. Be intolerant of and enforce disciplinary measures for illegal activities. To be intolerant of, and enforce disciplinary measures for GBV, child sacrifice, child defilement, and sexual harassment (Employment Act 2006);
6. Incorporate a gender perspective and provide an enabling environment where women and men have equal opportunity to participate in, and benefit from, planning and development of the Works (The Uganda National Employment Policy 2011, The National Equal Opportunities Policy 2006, Uganda Gender Policy);
7. Work co-operatively, including with end users of the Works, relevant authorities, contractors and local communities;
8. Engage with and listen to affected persons and organisations and be responsive to their concerns, with special regard for vulnerable, disabled, and elderly people;
9. Provide an environment that fosters the exchange of information, views, and ideas that is free of any fear of retaliation;
10. Minimize the risk of HIV transmission and to mitigate the effects of HIV/AIDS associated with the execution of the Works (The National HIV/AIDS and The World of Work Policy 2007);

11. Acquisition or restriction of land to mitigate unavoidable adverse social and economic impacts through incorporate compensation of project affected persons and community engagement throughout the works implementation.
ANNEX 3

CODE OF CONDUCT

This code of conduct is to be followed by all Consultant’s Experts. It should be read together with the Environment and Social Policy, the World Bank Group Environment Health and Safety Guidelines. The experts are expected should;

1. Be Compliant with applicable laws, rules, and regulations of the Republic of Uganda.

2. Be Compliant with applicable health and safety requirements to protect the local community (including vulnerable and disadvantaged groups), the Consultant’s Experts, the Client’s personnel, and the Contractor’s personnel, including sub-contractors and day workers (including wearing prescribed personal protective equipment, preventing avoidable accidents and a duty to report conditions or practices that pose a safety hazard or threaten the environment)

3. Not use of illegal substances

4. Be non-discriminatory in dealing with the local community (including vulnerable and disadvantaged groups), the Consultant’s Experts, the Client’s personnel, and the Contractor’s personnel, including sub-contractors and day workers (for example, on the basis of family status, ethnicity, race, gender, religion, language, marital status, age, disability (physical and mental), sexual orientation, gender identity, political conviction or social, civic, or health status)

5. Have acceptable and appropriate interactions with the local community(ies), members of the local community (ies), and any affected person(s) (for example to convey an attitude of respect, including to their culture and traditions)

6. Avoid unethical and unbecoming behaviour such as use of rude, abusive and obscene language, indecent dressing, hard supervision and sexual suggestive gestures which constitute sexual harassment (for example to prohibit use of language or behaviour, in particular towards women and/or children, that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate). A child/children means any person(s) under the age of 18 years.

7. Avoid violence, including sexual and/or gender based violence (for example acts that inflict physical, mental or sexual harm or suffering, threats of such acts, coercion, and deprivation of liberty

8. Avoid exploitation including sexual exploitation and abuse (for example the prohibition of the exchange of money, employment, goods, or services for sex, including sexual favours or other forms of humiliating, degrading behaviour, exploitative behaviour or abuse of power)

9. Promote protection of children (including prohibitions against sexual activity or abuse, or otherwise unacceptable behaviour towards children, limiting interactions with children, and ensuring their safety in project areas)

10. Ensure sanitation requirements are provided like toilets are acceptable and approved and are gender sensitive (for example, to ensure workers use specified sanitary facilities provided by their employer and not open areas)
11. Avoid conflicts of interest (such that benefits, contracts, or employment, or any sort of preferential treatment or favours, are not provided to any person with whom there is a financial, family, or personal connection)

12. Respect reasonable work instructions (including regarding environmental and social norms)

13. Protect and use any project property properly (for example, to prohibit theft, carelessness or waste)

14. Report any violations of this Code

15. Ensure that there is non-retaliation against personnel who report violations of the Code, if that report is made in good faith