TERMS OF REFERENCE

Consultancy Services for Supervision of Construction works for Sake Water Supply System Phase II.

A. Background of the Project

The Government of Rwanda, recognizing the key role of Water and Sanitation in the protection of public health, socio-economic development and gender empowerment, has committed itself to achieving targets in water supply and sanitation, with the vision to attain 100% of these services' coverage.

In line with the above, through the loan received from African Development Bank (AfDB), WASAC Development Ltd representing of the Government of Rwanda intends to apply a portion of it to review of existing detailed designs, and the supervision of the **Construction works for Mugesera (Sake) Water Supply System Phase II.** The scope comprises: 14 water storage reservoirs, with a total capacity of 12,450m^3, 340.7 km pipe network, 67 community water points and three booster pumping stations. The project will serve 466,000 people in 7 sectors, complementing phase I, namely: Gashanda, Murama, Rukira, Kazo, Mutenderi, Kibungo and Rurenge sectors, hence achieve the full coverage of Ngoma District. The scope is subject to the adjustments based on results of reviewing existing designs, but the consultant is not allowed to change the scope.

B. Objective of the Present Consultancy Service

The key objectives of the assignment are to review the existing detailed designs and the supervision works for the **Construction works for Mugesera (Sake) Water Supply System Phase II.** This include developing final designs with drawings, construction details, cross-sections, final bill of quantities, costs, technical specifications, tender documents, ESMP and RAP preparation and implementation, and conduct the supervision of construction works. The designs will be carried out in accordance with applicable Rwandan, regional and international standards and guidelines.

C. Project Objectives

The principal objective of the project is 100% access to clean water supply. The proposed project will also contribute to enhanced hygiene and sanitation hence reduction of water borne diseases. This will also contribute towards alleviation of poverty within the area through the improvement of socio-economic activities in target.

D. Scope of Services:

To address the above objectives, the scope of the services work will comprise but not limited to the followings:

ASSIGNMENT 1:

Review of the exiting detailed designs of Construction works for Mugesera (Sake) Water Supply System Phase II, Preparation of Tender document, and ESMP and RAP Preparation and Implementation.

PHASE 1: Review of the exiting detailed designs for the Construction works for Mugesera (Sake) Water Supply System Phase II.

1.1 Review the existing Topographical, geotechnical and geological surveys

For data collection, the Consultant will have to use appropriate modern equipment like differential GPS, ArcGIS, Earth Google pro, Google map… to verify the location of all components of the system such as clean water reservoir, clean water pumping stations, the trunk main, storage reservoirs, distribution network, etc…

The consultant will have:

- To review the assessment of the suitability of the selected sites with regard to construction of water infrastructures (in consideration of wet and dry season), topography and geology, availability of construction materials;
- To review the collected geo-spatial data (tridimensional geographic coordinates) and field measurement related to the proposed water supply systems;
- To review processed data and produced maps in ArcGIS software for water supply systems layouts;
- To review produced plans and topographic profiles in AutoCAD.
- To review the inventory of possible compensation or expropriation (for each water supply system) and to review the established cost estimates of the property to be compensated for;
- To review General layout map for the whole project (with and without satellite images);
- To review Layout map for each water supply system (with and without orthophoto);

- To review topographic map for each water supply system and the topographic map for the whole project;
- The consultant will e-review geological and geotechnical investigation in order to ascertain that the soil conditions from these surveys ensure the guarantee of the civil works, in particular:
- To review the choice of materials and the conditions of installation of the pipe works and other structures in the WSS project according to the soil conditions in the region;
- To review realistic estimates of the classes of the soils, both in quality and quantity to determine the kind of earthworks or digging to carry out.

The plans and maps shall be drawn on an appropriate scale so that provided information is accurate and clear (risible);
Topographic data of the layouts drawn for the water supply infrastructures such as WTP facilities include SCADA system with laboratory, Offices with its relocation from near the road to nearest farm, reservoirs, inspection chambers, pipelines and the distribution mains and showing among others, obstacles met in the corridors of passage of these pipelines;
The layouts identified and field limits shall be concretized by landmarks at as many points as possible (at most 100m of intervals);

1.2 Review and provide the missing elements for existing designs for hydraulic and sizing of civil infrastructures, Architectural design, Electromechanical design and equipment, basic maps, design drawings

Using the review data from topographic geology surveys report, the consulting firm will:

- Review hydraulic calculation and simulation for identified water supply system, taking into account economic aspects of Mugesera (Sake) Water Supply System Phase II (operation and maintenance, uses available local materials)
- Review the sizes of civil works for identified water supply systems, taking into account economic aspects;
- Review structural designs of civil structures to be functionally effective, enable economic operations, and require minimum maintenance.
- Considering the topographic conditions of the new selected site for the construction of Water Treatment Plant, review existing detailed design of water treatment plant including SCADA system;
- Conduct a detailed design for the access road for the eventual new WTP location;

- Review and provide drawings in AutoCAD and shape files in ArcGIS.
- Review the proposed crossing obstacles mode (roads, tracks, rivers, valleys etc...);
- Review the proposed protection of the pipe work against corrosion and thrusts;
- Review of the encoded and digitized infrastructure of existing as well as new drinking water networks
- Develop digitalized maps and basic plans for the facilities.
- Review the site plan with identification of works to build (civil and hydraulic engineering) with a scale 1: 10 000 or any other scale deemed exploitable.
- Review and provide, missing project elements, such as the electromechanical drawings and documents (eg: Studies and Calculations: General Description of the Electromechanical Project, Applicable Standards and Regulation, Local Constraints, Cable and Protections Calculations, Load Balance and Power Factor Correction, Transformer and Generator sizing, Generator fuel tank sizing, lighting calculations, Description of equipment to be installed, Description of Earth Network, Description of Lightning Protection System, Description of Trenches and buried electrical pipes.
- Specify the general principles of SCADA project development and indicate the locations where it will be integrated (Intake, WTP, Pumping Stations)

The drawings will have the following specifications:

- Plan of general location with identification of the existing and new drinking water supply systems to be carried out (civil works and hydraulic infrastructure). Scale of 1: 10 000;
- Plans for the civil works and water networks implementation on site. Scales from 1: 1000 to 1: 200;
- Plan view, elevation, technical cross-sections of the civil works at the scales of 1: 50 to 1: 200;
- Execution details, at the scales 1: 10 to 1: 25;
- Longitudinal Profile with natural terrain, installation of civil works and pipe works, piezo metric line of the network, at the scale of L = 1:1000, H = 1:100;
- Model Plans for the civil works such as tanks, water stand tap, valve chamber and inspection hole etc.;
- Outlines of the knots and characteristics of the hydraulic equipment;
- List of hydraulic nodes with detailed for each node;
- Design, calculations, detailed plans and lists of equipment for possible pumping stations;

- Review, Update and provide the electromechanical execution drawings: General Power Supply Diagram, Earth Network, Lightning Protection System, Cable Trays and Pipes, Trenches, underground pipes and Manholes, Equipment's and Panels Power Supply, Instrumentation and Control, Normal and Emergency Lighting, Sockets, Transformers and Substations, Generators and Fuel Tanks

1.3 Bill of Quantities

Review of bill of quantities for all works. The unit prices should be based on the current market survey. Separately, indicate in the BoQ the anticipated value added taxes (VAT).

1.4 Specifications for Equipment and materials

With reference and in harmony with the detailed design review, the consultant shall update a general technical specification indicating guidance on how each category of works should be done and the key parameters and considerations to be taken as well as guidelines to follow to make each category of work undertaken effectively and efficiently in compliance with standards, legal and regulatory tools in force. This document shall be clear in a way that there no ambiguity, confusion and misinterpretation in any activity to be undertaken for all steps of project construction.

In the same reference and harmony with the updated detailed design, the consultant will update all equipment and materials that will be used in the project a document composed of specific specifications for each of equipment and materials required to perform works in compliance with applicable standards and guidelines. In addition to the clear specifications of each equipment and material to be used for project works. The standards and guidelines referred to shall be mentioned.

Notice: After study review for the all components of project, consultant will provide the updated project for any change of different items before tender process.

The second phase: Elaboration of the Tender Documents

- **Elaboration of the Tender Documents (TD)**

The Consultant shall elaborate the tender documents for the project execution works. The TD must be clear and coherent to avoid any ambiguous interpretation. He shall work out a framework of a contract to be negotiated.

The TD shall be elaborated in accordance with applicable standard bidding documents.

The third Phase: Review of the elaborated resettlement action plan (RAP) and the supervision of Construction works for Mugesera (Sake) Water Supply System Phase II

Introduction

The tasks of the consultant during this assignment will be, but not limited to:

3.1. RAP Review, Properties Valuations and Assistance to the client during RAP Implementation.

Objective and Scope of the Assignment for RAP Review, properties valuations and RAP implementation.

3.1.1 Objectives

The investments foreseen by the project are likely to cause negative social effects in terms of expropriation, loss of land or other socio-economic assets. Therefore, the objective of the assignment is to review an existing detailed Resettlement Action Plan (RAP). The review of RAP will re-check and confirm the full range of people affected by the project. The review of the RAP will outline eligibility criteria for affected parties, establish rates of compensation for lost assets, and describe levels of assistance for relocation and reconstruction of affected households. However, any proposed changes must be in accordance with the RPF, which is the reference framework for the preparation of RAP.

3.1.1.1 Specific objectives of the RAP are to:

(i) Minimize, as far as possible, involuntary resettlement;
(ii) Ensure that affected persons are effectively consulted in a transparent atmosphere and be given the opportunity to participate in all key stages of the process of developing and implementing involuntary resettlement and compensation activities;
(iii) Ensure that compensation, if any, is determined in a participatory manner with the persons in relation to the impacts suffered, and in accordance to Rwanda expropriation law, in order to ensure that no person affected by the project is disproportionately disadvantaged;

(iv) Ensuring that affected persons, including vulnerable groups, are assisted in their efforts to improve their livelihoods and their level and living environment so that they are not left worse off than before the project.

3.1.2 Scope of the Assignment

The mission of the Consultant is to review a Resettlement Action Plan (RAP) for the Project which should take into account and refer to the studies already carried out and plans already endorsed.
The purpose of the mission will be to review RAP report to (i) identify the persons affected by the project (PAP), (ii) identify the nature, extent and value of losses (Iii) propose fair and equitable compensation measures and, if necessary, additional conditions for improving the quality of life of the PAPs.
Following the guidelines and the National expropriation law, and the AfDB's guidelines for RAP preparation as well as Operational safeguard of the Integrated Safeguards System (ISS), the consultant will undertake following works:

(v) Establish a meeting with WASAC Development Ltd, and Ngoma Districts to review works undertaken to date and further define the role of the RAP consultants and the works required,
(vi) Review of proposed and agreed of working schedule for RAP and related actions with relevant institutions.
(vii) Review the legal and institutional framework, review gap between national law, and AfDB lenders Policies in relation to involuntary resettlement;
(viii) Review and updating the existing data and review the Social Economic Baseline Information in the SEP by detailing the project affected people, their losses and vulnerability level;
(ix) Review the existing data and analyze the potential project social impacts and resettlement implications through identification of PAPs, their number, the number of household and evaluating the extent of the impacts of the project on them;
(x) Review existing consultation activities carry out and document public consultation with PAPs and relevant institutions involved in involuntary resettlement. The participatory approach should be in line with the provisions in the SEP, in particular in terms of tools and methods.
(xi) Review a census detailed inventory of PAPs properties and submit inventory report including the names of the owners, the characteristics of the houses and if possible, photos and GPS coordinates

(xii) Review and where necessary revise eligibility and entitlement criteria for compensation; prepare standards for compensation and restoration of the social and economic base of the PAPs to replace all types of loss, as appropriate. Establish options for culturally acceptable compensation packages, including housing, livelihoods and cultural activities (as applicable).

(xiii) Review the suggest an institutional framework that designates responsibilities, provides compensation, undertakes relocation work if needed, takes responsibility for income restoration, manages and monitors the implementation of land acquisition and resettlement, as appropriate. Recommend formation and training of a resettlement unit within the executing agency, if required;

(xiv) Review the prepared time frame and implementation schedule for land acquisition and resettlement in conjunction with the agreed implementation schedule for project components,

(xv) Review set up accessible Grievances Redress Mechanism (GRM) that ensures affordable and accessible procedures for settlement of disputes arising from the project. The consultant will ensure consistency between the proposed GRM in the SEP and the RAP.

(xvi) Review the provided costs and budget including costs for compensation, for RAP implementation and monitoring and livelihood restoration activities (if any) and monitoring activities. It will include also an indicative, detailed budget with land acquisition and resettlement costs.

(xvii) Review the prepared monitoring and evaluation plan, identifying the responsibilities, time frame and key indicators in line with the RPF. This will include ongoing monitoring by key agencies supplemented by an independent evaluation. Review the specified time frame for monitoring and reporting;

(xviii) Recommend any other relevant issues arising from the prepared RAP process that the consultant deems will enhance the RAP quality and outcome;

(xix) Land transfer process of compensated plots to WASAC Group Ltd.

3.1.3. PROPERTY VALUATION

3.1.3.1. OBJECTIVE OF THE MISSION

The main objective of the mission is to re-valuate the properties that are affected within the project area of the project (fulfill the individual form, with the copy of the document of the property owner)

3.1.3.2. THE TASKS

The scope includes and not limited to review collected data of project affected people (PAP), numbering including their exact ID number, non-movable property owned (houses, plants…) pictures (digital picture and video), map showing the number, the location, and the area of each property and any other additional required information.

The tasks to be performed by the consultant are the following:

- **a.** Effective mobilization of the project affected people;
- **b.** Identification and quantification of the affected properties to be compensated;
- **c.** Joint Verification of project affected people;
- **d.** Defining eligibility criteria establishing who is entitled to receive compensation according expropriation and compensation related laws and regulations of Rwanda (or other forms of assistance in lieu of compensation);
- **e.** Description of valuation procedures used to establish compensation rates for land, structures or other fixed assets;
- **f.** Display of list of entitled persons at prominent places;
- **g.** Preparation of Entitlement;
- **h.** Approval of Entitlement;
- **i.** Issue of Identity Cards to PAPs;
- **j.** Description of the compensation rates for all categories of land acquisition, for all affected areas;
- **k.** Description of the compensation rates for all categories of affected structures, for all affected areas;
- **l.** Description of the compensation rates for all categories of other fixed assets, for all affected
- **m.** Calculate amount to be compensated on each individual property.
- **n.** Negotiation with properties owners on the valuation and get approval by signature of all stakeholders (property owner, local authorities).
- **o.** Compile and complete report on the valuation including individual completed files signed by owners and approved by local authorities which are ready for compensation.
- **p.** Submission of final RAP and Expropriation report.

In addition, the property valuer to be hired should be registered in the Rwanda Institution of Property Valuers (RIPV).

Notice: The unit rates to be used in valuing will be provided by Ngoma District areas. Payments shall only be made on fully signed report by stake holders.

3.1.4 RAP Implementation

The RAP Implementation consists of payment of compensation and assistance before displacement, resettlement of DPs before start of civil work, replacement cost of land and asset, assistance to cover transition and translocation losses, minimum time lag between payment of compensation and assistance, productive utilization of amount received for restoration of livelihood.

Under the supervision and support of the client, the tasks of the consulting with regards to the assignment are:

a. Identifying and working with organizations or agencies primarily responsible for resettlement implementation;
b. Identification of alternate land for relocation in consultation with affected people;
c. Identification of alternate livelihood measures in consultation with affected people;
d. The provision of training for income restoration measures;
e. Description of arrangements for delivery of compensation to displaced people;
f. Implementation of disbursement process to project Affected people (PAPs);
g. Recalculation of compensation rates in case of prolonged delay in delivery of compensation.
h. Process all required documents for land transfer to client and ensure the land is fully transferred to the client. Based on obtained land titles, the consultant will have to request for the project construction permits on behalf of the client.

ASSIGNMENT 2. SUPERVISION OF WORKS

2.1 Supervision

The Consultant shall:

- ✓ With due diligence and efficiency, supervise fully the construction of the works which has to be executed in accordance with sound technical and administrative practices. The Consultant shall perform all duties associated with such tasks to ensure that only the best Construction practice is followed and that the final product is in all respects equal to that specified in the design and in accordance with the requirements.

- ✓ Ensure that the Contractor follows safe working practices in all operations and immediately draw attention to any instances where this policy is not followed, advising the contractor to carry out all such works deemed necessary in case of emergency affecting the safety of personnel, works and adjacent property.
- ✓ Whenever necessary, advice the contractor on measures to be taken to ensure that the minimum impediment is caused to the flow of traffic and that safe acceptable detours are provided and maintained at all times.
- ✓ Advise the contractor on any design changes that may be necessary or advisable during construction.
- ✓ At the request by the contractor, inspect for approval all the permanent works both under design, construction and completed, for compliance with the requirements and the agreed method of working.

2.2 Implementation of ESMP (Environmental and Social Management Plan)

The consultant shall monitor the implementation of the ESMP in collaboration with the client and other authorities, and ensure that potential adverse impacts are minimized and for which recommendations are made during construction phase.

2.3 Management of Works Contract

The consultant shall:

- ✓ Supervise the activities of the contractor in accordance with the contract between the client and the contractor.
- ✓ Organize a formal joint monthly meeting to be attended by the client, contractor, and the consultant to monitor the progress of works. The consultant shall take and disseminate minutes of all meetings for the project. Keep and maintain up-to-date detailed daily site diary and detailed records (making them available for inspection by the client or his representatives when requested to do so) of all contractual correspondence and data; all work stoppages or delays; accidents on site; official visitors to site; weather records; all activities in progress at any time on site showing the start and end time and full details of the resources employed per activity.
- ✓ Keep and maintain detailed records (and make available for inspection) of the contractor's equipment on site and its precise date of arrival or removal from site, its date of manufacture, previous hours worked and condition, the date commissioned to commence work, its

availability, and utilization, and establish equipment availability figures for each category of equipment.

- ✓ Take digital color photographs throughout the duration of the contract; keep and maintain an official photographic record (available for inspection) of monthly progress at set locations and also of any construction activity of technical or contractual interest at any time. Each photograph is to be captioned with; reference number, time, date, precise location, subject, and points of particular note. All digital data should be stored on CDs in a record system.
- ✓ Review and analyze all the contractor's applications for extension of time or claims for addition payment and furnish the client with the engineer's detailed analysis of such applications and recommended rulings and, subject to the client's approval (where necessary), advise the contractor accordingly.
- ✓ Check and verify, on a regular basis, the validity of all insurances/guaranties which the contractor is obliged to have in place.
- ✓ At quarterly intervals or as requested by the client, the consultant advise the client the progress and the payments made towards the construction works, and projections of when the project will be completed and the likely payments requirements and project costs.
- ✓ Prepare for the progress reports (monthly, quarterly and annually), special reports (to fully acquaint the client with all aspects likely to affect the technical and financial implementation of the project), and records and other relevant outputs regarding construction progress and the status of works contract and the consulting services contract. In addition to the reports stated above, an ESMP and ES reports shall be submitted, which indicates in detail all environmental and social impact mitigation measures proposed during the design and supervision periods and implementation of the same by the contractor.
- ✓ Preparation of the provisional hand over reports, final project reports and inspection reports during liability period.

2.4 Review and Validate Payment Requests and Other Related Issues

- ✓ Review and approve contractor's payment applications. After verifying the accuracy of the measurement and cost calculations and the sufficiency of the supporting documentation, prepare and issue interim payment certificates for processing by the client within 14 days of receiving such statement from the contractor.
- ✓ Monitor the payment process and alert the client when payment delays accrue to a point when: (a) interest charges will become due; and (b) the client will be in default for late payment.

- ✓ Prepare and issue final payment certificate.

2.5 Review and Approve Completion Activities and Remedial Works

- ✓ Arrange for a formal joint inspection of completed works with the contractor and the client for: acceptance and/or identification of defects and/or testing purposes, both at substantial completion and upon the expiry of the defects liability period; and issue of taking-over certificates and defect liability certificate.
- ✓ Review and submit to the client, two full sets of as-built drawings, prepared by the contractor, within two months of completion of the works. These sets shall be two in hard copy and two in softcopy (in original format editable by the client).

Expected Outputs for the supervision phase (Please, refer to Terms of reference**)**

Expected Outputs for the design review

The Consultant will review the following reports:

- **Inception report**

The inception report should include Consultant's revised work plan, data collection tools and methodology, interview guide project for discussion groups, site investigation, detailed schedule for data collection and analysis.

The consultant shall submit the inception report in four copies in English Versions to the client not later than two weeks following the commencement of the designs subject to the approval after being examined in a validation meeting presentation by the team leader provided in key personnel section.

- **Draft revised detailed design report and draft tender document**

The draft report will include but not limited to:

- The updated studies and calculations
- The data collected and maps produced;
- The environmental impact assessment;
- The drawings for the works execution and shopping drawings;
- List of hydraulic nodes with detailed for each node;

- The financial reports and the detailed bill of quantities;
- Specifications and the performance requirements related to the engineering designs;
- Incorporating the details of works and activities undertaken as well as the schedule of implementation.

The report will be submitted in four copies in English Versions and will be examined in a validation meeting presentation by the team leader provided in key personnel section.

The complete set of the report shall consist of:

(i) Volume I – Main Report
(ii) Volume II – Drawings/Maps
(iii) Volume III – Calculations and type designs
(iv) Volume IV– Bill of quantities and cost estimation

- **Revised Final detailed design Report, final tender document and RAP report**

Following the reception of the observations on draft report from the Client, the Consultant will submit a final report in four (4) copies English Version. Apart from the bound report, the consultants shall submit soft copies (electronic copies) of the final report in CD-ROMs or Flash Disk.

While preparing the Final Report the consultants shall consider the comments/suggestions and make corrections or amendments if required. However, it does not relieve the consultants of their responsibility over the technical content of the design.

Note that the submitted report is to be subjected for approval to the client followed by submission of (4) copies of tender document in English version for hiring a contractor no later than deadline of the service and will be approved by the client.

- **Written Sections:**
  - Note of calculation of the costs of the work;
  - Characteristics of the civil works and equipment;
  - Characteristics of the electrical and electromechanical materials and equipment**.**
  - Detailed estimate of quantities of civil works and equipment, determination of the cost of a cubic meter at the time of production;
  - Planning and execution of the project;

- Operation and maintenance plan;
- Confidential Cost estimate of the works
- Environmental Impact Assessment
- Socio-economical and institutional designs.
- Economic and financial analysis
- Implementation plan
- Investment plan

- **Drawing Parts:**

  - Plans of the location;
  - Longitudinal Profile of the pipe work and connections;
  - Reduced longitudinal profiles: piezometric lines, lines of overpressure and depression;
  - Overall Plan of the engineering works; ·
  - Plans of acquisition of equipment, ·
  - details with the knots; ·
  - List of hydraulic nodes with detailed for each node,
  - Plans of the water supply network of the villages supplied;
  - Longitudinal profiles of sanitations serving targeted villages;
  - Reduced longitudinal Profiles of the stations supplying targeted villages: piezometric lines, ·
    Standard Works (suction cups, draining valves, tap systems, crossing obstacles, etc...).
  - The electromechanical execution drawings: General Power Supply Diagram, Earth Network, Lightning Protection System, Cable Trays and Pipes, Trenches, underground pipes and Manholes, Equipment and Panels Power Supply, Instrumentation and Control, Normal and Emergency Lighting, Sockets, Transformers and Substations, Generators and Fuel Tanks

The report will be submitted in four copies in English Versions and will be examined in a validation meeting the presentation by the team leader provided in key personnel section.

The complete set of the report shall consist of:

(i) Volume I – Main Report
(ii) Volume II – Drawings/Maps
(iii) Volume III – Calculations and type designs
(iv) Volume IV– Bill of quantities and cost estimation

1. RAP Preparation

The following documents are expected to be submitted to client by the consultant in six copies:

- Compiled and completed report on the valuation
- soft copies of report, maps, video (DVD) and pictures of the valuated properties
- Individual completed files signed by owners and approved by Concerned stakeholders (District, Executive secretary of cell and Sector and Consultant) which are ready for compensation
- Final RAP report.
- Final expropriation report;
- Ad-hoc report as may deemed necessary

Tender document: The tender document will be prepared following standard bidding document to be provided by the client.

Table: calendar of deliverables

Deliverables	**Period required**	**Submission date**	**Review time by the client from the submission dates**
Inception report	0.5months	0.5 months from the starting date	2weeks
Draft detailed design report	2 months	3 months from the starting date	2weeks
Final detailed design report+ tender documents+ RAP Preparation	0.5 months	4 months from the starting date	2weeks

Approach and Methodology for use in this Assignment

- Organisational, technical, sampling, tests, tools, equipment and logistical aspects including time schedule of works, planning of human resources required for this service
- Detailed descriptive tasks assigned to each expert/ professional employed by the Consultant.
- To produce a progressive reporting structure and model

- Before the preparation of their proposals, the Consultants are advised to analyse the technical and logistical conditions, which may cause difficulties to the performance of their work.

Language

Official communication and reporting language shall be in English.

Key Personnel and Inputs

The consulting firm will field an appropriate team with qualified members to undertake the services outlined above. The team should include key experts including the team leader with qualifications described below. The firm is welcome to propose additional experts for efficient implementation of the assignment. CV of other experts will not be rated for the evaluation of proposal. However, team composition will be evaluated as part of "understanding of the terms of reference and methodology".

Personnel requirements for feasibility designs, technical design and preparation of tender document

Consultants shall propose teams that are complete in all respects to deliver the required services. While Consultants shall propose the best team to meet the anticipated needs, we provide below an indicative key supervision consulting team composition.

1 Team Leader *(1)*

He /she shall have at least Master's Degree in Civil Engineering or Water Supply Engineering with 12 years of general experience and at least 8 years of experience as team leader in the related field of expertise and he /she must have a proven work experience in similar assignments. Having a specific experience in similar works for at least 2 projects of such magnitude.

2 Civil Engineer *(1)*

He /she shall have at least Masters in Civil Engineering and he will be the permanent supervisor with 8 years of General Experience and 6 years related experience in the field of expertise and he /she must have a proven work experience in similar assignments. Having a specific experience in similar works for at least 2 projects of such magnitude.

3 Environmental Expert *(1)*

He /she shall have a minimum of a Master's degree in Environment Engineering or environmental sciences. The consultant must have with general experience of 8 years and minimum of 5 years related experience in the field of expertise and he /she must have adequate experience in conducting a comprehensive Environmental impact assessment and analysis, as well as being able to identify in advance the shortcomings, which might hinder the smooth implementation of the project and the best ways to mitigate the problems. Having a specific experience in similar works for at least 2 projects of such magnitude.

4 Quantity Surveyor *(1)*

He /she must have at least BSc. in quantity survey engineering with general experience of 8 years and 6 years related experience in the field of expertise and he /she must have a proven work experience in similar assignments.

5 Topographic Surveyor *(1)*

He /she must have at least BSc. in topography with general experience of 8 years and 5 years related experience in the field of expertise and he /she must have a proven work experience in similar assignments. Having a specific experience in similar works for at least 2 projects of such magnitude.

6 Resettlement Specialist *(1)*

Qualifications and skills: Should have a Master's Degree in environmental, sociology or public administration.
Professional experience: Should have general experience of 8 years with minimum of 5 years of experience in the field of expertise, including resettlement and land acquisition issues. Having a specific experience in similar works for at least 2 projects of such magnitude.

7 Electromechanical Engineer *(1)*

He /she shall have at least Masters Degree of electromechanical Engineering with general experience of 8 years and 6 years related experience in the field of expertise and demonstrated experience in electro-mechanical installation and electrification of water treatment plants. Having a specific experience in similar works for at least 2 projects of such magnitude.

8 Geotechnical Engineer *(1)*

He /she must have at least Master's Degree in Geotechnical engineering with general experience of 8 years and 6 years related experience in the field of expertise and he /she must have a proven work experience in soil strength investigations. Having a specific experience in similar works for at least 2 projects of such magnitude.

9 Water Supply Engineer *(1)*

He /she must have at least Masters Degree in water supply engineering / Hydraulic Engineering with general Experience of 8 years and 6 years related experience in field of expertise and he/she must have proven experience in design of raw water retaining infrastructures, water treatment plants design, hydraulics and high-pressure pipe calculations for at least five projects at due position. Having a specific experience in similar works for at least 3 projects of such magnitude at due position.

10 Clerk of works *(3)*

He/she should at least A_2 certificate in public works or related field and should have general experience of 6 years with minimum of 3 years of experience in the field of water supply projects implementation or operations.

11 . Stakeholders/Community Engagement Specialist

He /she must have at least BSc. in sociology or related field with general Experience of 4 years and 3 years related experience in field of expertise and he/she must have proven experience in community and stakeholders' engagement. Having a specific experience in similar works for at least 2 projects.

12 Property valuation Expert *(1)*

He/she should be a certified property valuer with at least Bachelor's Degree in quantity surveying and should have general experience of 10 years with minimum of 5 years of experience in the field of expertise, including property and land valuation he /she must have a proven work experience in similar assignment at due position for at least three projects Having a specific experience in similar works for at least 2 projects of such magnitude.

13 **The Automation Engineer – SCADA** *(1)*

The Automation Engineer should possess at least Bachelor's degree in an engineering discipline. Minimum 2-5 years of related automation experience with Human Machine Interface (HMI's), Programmable Logic Controller (PLC's) and general SCADA (Supervisory Control and Data Acquisition) integration. 2 similar assignments in project supervision with proven success as an Automation Engineer-SCADA. He/she should be registered by relevant professional Board.

N.B

A notified copy of diploma, a reviewed CV, availability letter signed by assigned personnel or the authorized representative of the consulting firm are required for evaluation of proposals.

1. **Participation by nationals among proposed Key Experts** *[10pts]*

Calculated as a ratio of the national Key Experts' time-input (in person-months) to the total number of Key Experts' time-input (in person-months) in the Consultant's Technical Proposal

Personnel time inputs (home-months on field)

Key expert	**Person-month for design review and Update, Tender documents preparation and RAP Preparation**	**Person-month for RAP Implement ation**	**Person-month for the supervision**	**Person-month for liability period**
Team Leader	2		24	1
Resident Engineer/Civil Engineer (2)	4 (2 per each)		48 (24 per each)	2 (1 per each)
Water Supply Engineer/ Hydraulic Engineer	3		12	1
Automation Engineer – SCADA	1		3	1
Environmentalist			24	1
Quantity Surveyor	2		3	
Topographic Surveyor	2		3	

Resettlement Specialist	2	3		
Electromechanical Engineer	1.5		4	1
Geotechnical Engineer			3	
Stakeholders/Community Engagement Specialist	1		24	
Property valuation Expert	1	3		
Clarks of Works (3)			72 (24 per each)	
Total	19.5	6	220	5

Defect Liability

Responsibility for survey and design

Submission of the final reports does not relieve the consultant from their responsibility to the design. However, they shall bear full responsibility for the following:

- Authenticity of all the field data including environmental, topographic, Hydrological and geological information;
- Correctness of the design and all the calculations (except for the Standard Design, if used);
- Correctness of the drawings;

The Designs Area

This design will be conducted in Ngoma Districts.

Duration of Consultancy Services

This task should be completed within **47 months including 4 months** for design review, **6 months for the recruitment of contractor24 months** for supervision works period, **12 months** for the liability period and **1 month** of reporting.

Methodology

A National or International Engineering Consulting Company will carry out the provision of services, under the supervision by WASAC Development Ltd

Staff Intervention

The consulting firm will avail calendar of intervention of staff/expert based to the proposed methodology and cost per month of each proposed expert's intervention.

List of Documents Available for Consultation by the Consultant

- Existing feasibility study and Detailed Designs for **Construction works for Mugesera (Sake) Water Supply System Phase II** ;
- National Policy & Strategy for Water Supply and Sanitation Services (2016).