Dear Sir/Madam,

Request for Quotation: Supply and Installation of Hydrometric Equipment in Botswana, Mozambique, South Africa and Zimbabwe, Limpopo Basin

Project Name: Integrated Transboundary River Basin Management for the sustainable development of the Limpopo River Basin (LIMCOM GEF7 IW)

Global Water Partnership Southern Africa (GWPSA) NPC, on behalf of the beneficiary, The Limpopo Watercourse Commission (LIMCOM), and the implementing agency, United Nations Development Program (UNDP), and the Global Environment Facility (GEF), is pleased to invite you to take part in a Request for Quotation (RFQ)/BID for the “Supply and Installation of Hydrometric Equipment in Botswana, Mozambique, South Africa, and Zimbabwe, Limpopo Basin” under the below conditions.

This opportunity has been advertised as an open tender process on the GWPSA Website and other water networking platforms and promotes equal opportunities among the research and development community. A quotation based on a fixed price and proposed activity schedule, is requested in the RFP/BID document REF: Bid No: ITB No. T00022/2023. The Bidder must submit two proposal documents in either PDF or word in a size that is transferrable via email to the GWPSA contact addresses in this Bid letter, i.e., one Full Technical proposal and one Full Financial proposal.

The deadline for submissions is 30 October 2023 at 12:00 midnight SAST and it is our intention to award the contract shortly thereafter. The start date is estimated for end of November 2023 and is set for a duration of 8 months. Any Bid queries must be raised before 17:00hrs on 15 October 2023 and should be directed to gwpsaprocurement@gwp.org copied to eriddell@limpopocommission.org & zmanyangadze@limpopocommission.org

Due to COVID-19 pandemic restrictions, Bids will be opened electronically and reviewed by the 12 November 2023 by the Technical Evaluation Committee, including representatives from the GWPSA procurement team as well as Focal points from the four member states. Bids received after the final date of receipt of tenders will be disregarded. GWPSA may extend the final date for submission of bids for any reason it deems necessary and will notify all bidders in this event.

GWPSA NPC shall, in terms of section 58 of the Botswana Income Tax Act CAP 52:01 (Act) deduct a withholding tax at the default rate of 15% or 10% for residents of South Africa or as per the applicable Double Taxation Avoidance Agreement (DTAA) for any other country. The tax so deducted shall be remitted to the Botswana Unified Revenue Service and the company shall issue the payee/contractor with BURS’ tax certificates, which may, depending on the tax laws of the country of residency of the
contractor, be used to claim foreign tax credits. For the avoidance of doubt, this withholding tax applies on management or consultancy fees, which is defined in the Act as meaning, ‘any amount payable for administrative, managerial, technical or consultative services or any similar services, whether such services are of a professional nature or not.’ The said term may alternatively be referred to as technical fees in DTAAs.

PROPOSED STANDARD TECHNICAL PROPOSAL EVALUATION CRITERIA

The technical proposal contributes 80% of the total and final evaluation score whilst the financial proposal carries 20% of the weighted score. The Proposal that scores 70% and more will proceed to the financial evaluation stage. This addendum provides a detailed breakdown of how the technical proposals will be evaluated and scored.

<table>
<thead>
<tr>
<th>Summary of Technical Proposal Evaluation Forms</th>
<th>Score Weight</th>
<th>Points Obtainable</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Expertise of Firm / Organization / Individual</td>
<td>30%</td>
<td>30</td>
</tr>
<tr>
<td>2 Proposed Methodology, Approach and Implementation Plan</td>
<td>40%</td>
<td>40</td>
</tr>
<tr>
<td>3 Management Structure and Key Personnel</td>
<td>30%</td>
<td>30</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100%</strong></td>
<td><strong>100</strong></td>
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Technical Proposal Evaluation (FORM I)

<table>
<thead>
<tr>
<th>Expertise of the Firm</th>
<th>Score Weight</th>
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</thead>
<tbody>
<tr>
<td><strong>1.1</strong> Reputation of Organization and Staff / Credibility / Reliability / Industry Standing</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>General Organizational Capability which is likely to affect implementation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Financial Stability</td>
<td></td>
<td></td>
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<tr>
<td>- Loose consortium, Holding company or One firm</td>
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<td></td>
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<tr>
<td>- Age/size of the firm</td>
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<td></td>
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<tr>
<td>- Strength of the Project Management Support</td>
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<tr>
<td>- Project Financing Capacity</td>
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<tr>
<td>- Project Management Control</td>
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<tr>
<td><strong>1.2</strong> Extent to which any work would be subcontracted (subcontracting carries additional risks which may affect project implementation, but properly done it offers a chance to access specialized skills.)</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>Safety Health Environment Quality (SHEQ) assurance procedure/plan, proposed warranty period</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Technical Proposal Evaluation (FORM II)

**Proposed Methodology, Approach and Implementation Plan**

<table>
<thead>
<tr>
<th>2.1</th>
<th>To what degree does the Proposer understand the task?</th>
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<tbody>
<tr>
<td></td>
<td>Have the important aspects of the task been addressed in sufficient detail?</td>
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<tr>
<td></td>
<td>Are the different components of the project adequately weighted relative to one another?</td>
</tr>
<tr>
<td></td>
<td>Is the proposal based on a survey of the project environment and was this data input properly used in the preparation of the proposal?</td>
</tr>
</tbody>
</table>

| 2.2 | Is the proposed Installation project plan clear? |
|     | Is the scope of task well defined and does it correspond to the TOR? |
|     | Is the presentation clear and is the sequence of activities and the planning logical, realistic and promise efficient implementation to the project? |

**SUB-TOTAL** 40

### Technical Proposal Evaluation (FORM III)

**Management Structure and Key Personnel**

<table>
<thead>
<tr>
<th>3.1</th>
<th>Project Manager/Lead – Supply and Installation</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>General Qualification</td>
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<tr>
<td></td>
<td>Suitability for the Project</td>
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<tr>
<td></td>
<td>Experienced in Hydrometric Equipment installation</td>
</tr>
<tr>
<td></td>
<td>Experience in the SADC region river basin organisations (RBOs) and Limpopo basins with regards to scope of work</td>
</tr>
<tr>
<td></td>
<td>• Professional experience developing solutions/innovations for water resources management with regards to scientific/monitoring equipment</td>
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<tr>
<td></td>
<td>• Ability to facilitate learning and capacity transfer</td>
</tr>
</tbody>
</table>
• Capacity building experience at ministry and grass-roots level

3.2 Technical Specialist

- Experience with a range of telemetry/hydrometric equipment monitoring and logging systems (Data Loggers and Sensors, Servers and Software, Training and Installation, 5-10 years' experience in managing an installation crew of 2-10 people
- Experience in oversight of the safety, quality, and efficiencies of the installation crew
- Experience in the SADC Region River Basin Organisations (RBOs) and Limpopo basin with regards to scope of work

<table>
<thead>
<tr>
<th>Sub-Total</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grand Total</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 1. Technical Evaluation Criteria

We very much look forward to your response and appreciate your participation on this LIMCOM - GEF project.

Yours sincerely,
On behalf of GWPSA

Mr Mark Naidoo
Programme Operations Manager: Africa Water Investment Programme
1. BACKGROUND

The Limpopo Watercourse Commission (LIMCOM) was established in 2003 to manage the shared transboundary waters of the Limpopo River Basin (LRB). The LRB covers four riparian countries, the Republics of Botswana, Mozambique, South Africa, and Zimbabwe - with an estimated catchment area of 408,000 km². The river flows to the northeast from South Africa, where it creates the border between South Africa and Botswana and then the border between South Africa and Zimbabwe, before crossing into Mozambique and draining into the Indian Ocean. The distance from the confluence of the Marico and Crocodile Rivers in South Africa to the Indian Ocean at Xai-Xai in Mozambique is estimated at 1,750 km. The LRB is home to an estimated 18 million people in the four riparian states and is expected to be over 20 million in 2040. The basin’s population expansion is attributed to natural population growth estimated at around 2.3 per cent per year, as well as urban and transboundary migration, especially in Botswana and South Africa. The threats to the socio-economic and environmental services of the Limpopo River Basin, and their immediate underlying causes, can be summarized as follows:

- Increasing water scarcity and hydrological variability, exacerbated by climate change
- Water quality degradation
- Land degradation
- Increasing pressures on groundwater resources

Improved water resource management, including the equitable allocation of water between upstream and downstream areas and among urban and rural users, is a critical challenge for the future development of the Limpopo River Basin. The UNDP-GEF Limpopo Project Integrated Transboundary River Basin Management for the sustainable development of the Limpopo River Basin whose objective is “To achieve integrated cross-sectoral, ecosystem-based management of the Limpopo River to uplift the living standards of the basin’s population and conserve the basin’s resources and ecosystems” aims to undertake a suite of activities designed to strengthen joint management and planning capacity and practices at the transboundary basin level. These activities will be implemented under five (5) project components:

**Component 1**: strengthening the capacities of LIMCOM Member States and the LIMCOM Secretariat to support IWRM implementation at the basin level.

**Component 2**: addressing critical information gaps that prevent effective IWRM implementation; developing information management tools to consolidate information and present it to policymakers and other audiences to raise awareness of issues critical to the sustainable management of the Limpopo River Basin.

**Component 3**: carrying out a Transboundary Diagnostic Analysis - Strategic Action Program (SAP) process to build trust among countries through joint development of information, approaches and strategies.
**Component 4:** implementing pilot sustainable land management activities with the goal of reducing land degradation and demonstrating the link between SLM activities and reduced sedimentation, as well as promoting the replication of land degradation control activities in the basin; and,

**Component 5:** supporting knowledge exchange with other RBOs in the region to support the effective and efficient delivery of project results.

2. **Objectives**

The project aims to strengthen the hydrometric network for the Limpopo Watercourse Commission through the reinforcement of monitoring systems, the development of real-time operational tools and the improvement of rating tables. The ultimate goal is to improve transboundary water resources management for the rivers shared by the four (4) countries, especially with relevance to the Limpopo Flood Forecasting and Early Warning System (FFEWS).

The Limpopo Watercourse Commission through the Governments of Botswana, Mozambique, South Africa and Zimbabwe Governments with the support of the UNDP GEF - LIMCOM project identified eight (8) Hydrological stations to be equipped with Telemetry equipment. The objective of the project is to provide real-time data to support flood management as well as support the operationalization of the signed LIMCOM Agreement among the four (4) LIMCOM Member States of Botswana, Mozambique, South Africa and Zimbabwe and also intends to improve the accuracy of flow measurement among the four countries, through procurement of appropriate equipment.

GWPSA, on behalf of the beneficiary, is pleased to invite you to take part in a Request for Quotation for the GEF – LIMCOM project. This opportunity will be in the form of an open competitive bidding process. A quotation based on a fixed price and proposed activity schedule is requested in Annex A.

Please find below the requirements for your response and pricing, The scope of works, the scoring system and health and safety requirements.

**Bid submissions emails** should be addressed to:

The Programme Operations Manager:
Global Water Partnership Southern Africa
Ground Floor, Block A
Hatfield Gardens
333 Grosvenor Street
Hatfield, Pretoria

**Reference no.: Bid No: ITB No. T00022/2023**

emailed to gwpsaprourement@gwp.org and copied to eriddell@limpopocommission.org and zmanyangadze@limpopocommission.org (note email submissions should be in batches each less than 10Mb).

The Work will be administered under a standard GWPSA Supply and Installation Agreement compliant with the Global Water Partnership South Africa (GWPSA) Procurement Policy.
A. Scope of Work
Following a scoping exercise, GWPSA on behalf of the member states (herein represented by the Governments of Botswana, Mozambique, South Africa, and Zimbabwe, and LIMCOM being the beneficiary entity) wishes to procure the services of an experienced contractor as itemized below:

A1: Telemetry equipment and Software
The contractor shall supply and install telemetry equipment and software in Botswana, Mozambique, South Africa, and Zimbabwe as follows:

i. Botswana
   ● Supply hydrometric equipment as specified in annex 1A;
   ● Supply and install appropriate receiving software at the Department of Water and Sanitation.
   ● Conduct test runs and ensure that the system is running efficiently;
   ● The contractors should provide detailed manual for equipment and processes thereof.

ii. Mozambique
    ● Supply hydrometric equipment as specified in annex 1A;
    ● Supply and install appropriate receiving software at Administração Regional de Águas do Sul (ARA-Sul).
    ● Conduct test runs and ensure that the system is running efficiently;
    ● The contractors should provide detailed manual for equipment and processes thereof.

iii. South Africa
    ● Supply hydrometric equipment as specified in annex 1A;
    ● Supply and install appropriate receiving software at the Department of Water and Sanitation Limpopo Province office.
    ● Conduct test runs and ensure that the system is running efficiently;
    ● The contractors should provide detailed manual for equipment and processes thereof.

iv. Zimbabwe
    ● Supply hydrometric equipment as specified in annex 1A.
    ● Supply and instal relevant Software (receiving software) at ZINWA Mzingwane;
    ● Conduct test runs and ensure that the system is running efficiently;
    ● The contractors should provide detailed manuals for equipment and processes thereof.

A2: Training/Capacity Building
The contractor shall organise and undertake oral and practical training sessions as follows:

● Undertake one oral training session followed by one practical training session with relevant staff on installation, operation and maintenance of data loggers and/or Radar and software in Botswana (Department of Water and Sanitation).
● Undertake one oral training session followed by one practical training session with relevant staff on installation, operation and maintenance of data loggers and/or Radar and software in Mozambique (DNGRH, ARA-Sul).
● Undertake one oral training session followed by one practical training session with relevant staff on installation, operation and maintenance of data loggers and/or Radar and software in South Africa (DWS Pretoria and Limpopo Province Office),
● Undertake one oral training session followed by one practical training session with relevant staff on installation, operation and maintenance of data loggers and/or Radar and software in Zimbabwe (ZINWA Head office, ZINWA Mazingwane)
● The supplier should also be reachable for technical support in case of technical problems arising.

A3: Technical Backstopping
The contractor shall provide technical backstopping for a period of at least one 1 year after the installation.

A4: Proposed Time/Activity Schedule
The contractor shall supply all equipment and accessories as per the Global Water Partnership (GWP) procurement guidelines; favouring the very shortest lead time allowable thereof. Due to the nature and geographical spread of the proposed work, the installation process for loggers at these sites is expected to take a maximum of 1 weeks per country. The contractor shall provide with this quotation a proposed programme of works.

A5: Responsibilities

i. The Client
For the execution of the assignment, GWP-SA/LIMCOM shall ensure the following:

● Provision of proposed sites for training
● Provision of staff for training
● Covering of costs related to training
● Provision of transport for equipment and staff to demo sites

ii. The Contractor/Service Provider
For the execution of the assignment, the Contractor/Service Provider shall ensure the following:

● Deliver services in accordance with the contract documents.
● Carry out the relevant training on installation, operation and maintenance
● Carry out all site works and off-site works
● Achieve the key milestones of the programme
● Propose a detailed work plan for the intended works before commencement of works
● The Contractor/Service Provider and his/her team will make their own arrangements on transport, security, accommodation, meals, equipment import permits and any other costs associated with the assignment.
● The contractor/service provider shall notify the GWPSA in writing of all subcontracts awarded under this contract if not already specified in the Quotation. Such notification shall not relieve the supplier from any liability or obligation under the contract. The Contractor shall remain responsible for providing the subcontracted portion of the works as if the work had not been subcontracted.
B. Contractor / Service Provider's Response

The Contractor/Service Provider shall provide a quotation consisting of the following information:

**Section 1**
Proposed technical details, warranties offered, methodology and approach to implement the proposed scope, including schedule of works.

**Section 2**
Outline programme for delivery of the scope including material procurement timescale. The potential phasing of activities and milestones should also be discussed.

**Section 3**
Outline assessment of Contractor/Service Provider -owned risks, including any assumptions that the Bidder makes in developing their outline programme and price, and border crossing risks and requirements.

**Section 4**
Fixed price activity schedule for the project (see Section D), with a breakdown of all key cost components. Where the Bidder believes any taxes are applicable, including withholding tax and VAT, this must be clearly identified by the Bidder in the submission.

**Section 5**
Contractor/Service Provider company documents including
- Company registration documents
- Quality control plan / quality certifications
- Health and safety policy / statement

**Section 6**
Adhere to National regulatory provisions as they apply to the supply, installation, operation training or any activities that may apply

C. Pricing

The drafting of the proposal/quotation will be for the suppliers’ own costs. GWPSA seeks the most economical programme of works and budget. The bidder is assumed to have taken into account all materials over and above those in the pricing documents. The Financial proposal must include a negotiable payment schedule. Any requests for advance payments must be supported by a letter of guarantee from the supplier's bank.

Bid totals should be inclusive of installation, labour, all applicable taxes, shipping, clearing, transport and forwarding to each of the four countries (landed cost). **All prices must be in United States Dollars.**

D. Bidding Lots

This tender has four bids, one each for Botswana, Mozambique, South Africa and Zimbabwe. Bidders may bid for one lot or all. See Annex 2 for the table and map of location of 8 stations in the Limpopo basin.
E. Basis of Evaluation
The assessment of the Quotations will be on the basis of price, programme and technical compliance. Only bids fully compliant with the scope and specification will be considered for award.

Award will be made to the lowest priced tender that is both technically compliant and proposes a timescale for delivery that the Client deems both reasonable and in alignment with the wider project development programme.

The Client is not bound to accept the lowest or any tender submitted.

F. Further Information
Health and Safety is a very important priority. The Contractor/Service Provider will promote and adopt safe working methods and shall strive to deliver solutions that provide optimum safety to all. The Contractor/Service Provider shall include their Health & Safety Policy, or a Health & Safety Statement to accompany their submission.

G. Defect Liability
The contractor shall ensure that the equipment supplied shall be defect free. The equipment should be tested on arrival at the proposed delivery site.

H. Relevant Experience
For a contractor to be accepted to participate in the tender process, they must adhere to the following in conjunction with Table 1. (Technical Evaluation Criteria):

- A team of experienced personnel whose composition has an expert with ideally 5 years or more of experience in installation, operation, maintenance and training on hydrometric equipment and software.
- Demonstrated experience of having worked in the four countries (Botswana, South Africa, Mozambique and Zimbabwe) will be an added advantage
- Proficiency reporting with a variety of systems
- A working knowledge of area regulations and compliance requirements
- Excellent safety record
- Familiarity with various processes of inquiry, research, consultations, and application of due diligence and safeguards in various public and private sector projects
- Analytical and organizational skills, sound judgment, tactful and diplomatic, and be capable of working under strict timelines; and
- The bidder shall provide evidence of satisfactory contract completion certificates.
- The bidder must also submit three references/reference letters with full details of client references.
By submitting a Quotation, the bidder confirms that the company:

- Is registered in the professional and trade registers in the country where the supplier is based (certificate may be requested by GWPSA);
- Has not been convicted of any criminal offence and is, if requested, able to produce an extract from a legal register, or in the absence of such a register, a certificate issued by an authorised legal or administrative authority in the country of origin or in the country where the supplier is based, as means of proof;
- Is not in debt with either the tax authority or the enforcement service regarding the payment of any required taxes and/or social security contributions (certificate(s) may be requested by the Buyer where appropriate). VAT-number, if any, should be stated;
- Is, if requested, able to present adequate papers proving that they have not been convicted of any crime concerning the exercising of a profession, been the subject of a legal verdict or been found guilty of gross misconduct whilst providing a professional service; and
- Is not bankrupt or currently the subject of bankruptcy proceeding, compulsory liquidation, compulsory management arrangement or accord. The bidder also confirms that they have not cancelled payments or been made the subject of a trading ban or any other similar arrangement.
- The bidder also confirms that the company has the financial capacity, as well as the technical, quality assurance, and abilities for the fulfilment of the bidder’s contractual obligations.

Certificates and other proof, as stated above, may be requested by the GWPSA where appropriate. Please note that certificates should only be supplied upon request from GWPSA. Bidders failing to produce proof if requested by GWPSA may be disqualified.
ANNEX 1A: SPECIFICATIONS AND QUANTITIES FOR LIMCOM (BOTSWANA, MOZAMBIQUE, SOUTH AFRICA, AND ZIMBABWE).

<table>
<thead>
<tr>
<th>Data Loggers and Sensors Equipment</th>
<th>Quantity</th>
<th>Description / Requirements</th>
</tr>
</thead>
</table>
| Water level sensors including Cables (+150m) | 4 | • Range: 0 - +10 m, unless otherwise specified in the gauging station schedule.  
• Resolution: 1mm  
• Accuracy: ≤ 0.1% of full range = 10 mm for a 10 m range sensor.  
• Minimum of specification: IP 68 protection.  
• Operating temperature: -10 to +70°C.  
• Power consumption: sleep - < 600 μA; active - < 4.0 mA.  
• Maximum dimensions of sensor head: 200 mm long and 25 mm diameter  
• The pressure transducer shall be vented to atmosphere  
• Provision shall be made to prevent the ingress of moisture into the breather vent tube e.g. changeable desiccant container with reusable desiccant.  
• The sensor should be calibrated, temperature compensated and provide amplified analogue output signals for 4-20mA output  
• The pressure sensors shall be calibrated by the Contractor prior to installation.  
• All necessary accessories and cabling |
| GPRS/GSM telemetry loggers | 4 | • The logger must be robust, reliable and well proven in similar environments.  
• The data logger must be universal i.e., it can be used for various hydrological field station parameters  
• The multi-channel data logger must have at least four channels that can be user configurable to simultaneously record 4-20mA inputs from water level sensors, digital pulse inputs from tipping bucket rain gauges and internal battery voltage of the data logger.  
• Operating temperature: -10°C to +70°C.  
• Recording frequency shall be changeable (minimum 5 minutes), but 1 hour is probably adequate for the majority of gauging stations.  
• A multichannel data logger with integrated GSM/GPRS modem and power supply is the basic requirement.  
• Facility to set alarms into the GPRS logger e.g., if the water level rises to a certain threshold or a certain rainfall amount occurs in a given time; if battery levels are getting below a critical level. |
• The alarm management system shall include the ability to undertake SMS messaging to at least 8 different mobile phone numbers or by email (GPRS) or to a fax.
• Suitable web-based software shall be provided with the telemetry/GPRS loggers so that the data can be reviewed, checked, quality controlled checked and transferred to the DNGRH, Instituto Nacional de Meteorologia (INAM) and ARAs database at the appropriate receiving office.
• The data logger must be compact and should if possible be able to fit into a small diameter pipe (< 100 mm diameter) or small box.
• The data logger must be universal i.e. it can be used for various hydrological field station parameters – the minimum shall be water level, and rainfall. Therefore, it must have impulse input for the rain gauge.
• Minimum protection IP65 – higher specification preferred (It should be noted that the loggers may need to be installed in a tube on a river bank).
• Power supply internal lithium battery, sufficient for > 5 years preferred. Preference will be given to systems that do not require the use of solar panels and external batteries.
• Serial flash; no loss of data in case of power failure.
• Minimum memory capacity of 4 MB (more than 250,000 values).
• Real time clock, battery buffered, with accuracy of +/- 1 minute per month.
• Exact free definable time range for downloading of data without erasing old data.
• Must have an integrated GSM/GPRS modem with FTP data push option (different protocols). Contractor will be responsible for ensuring that the proposed system is compatible with Botswanan, Mozambican, South African, and Zimbabwean networks.
• Option for Bluetooth interface. User friendly, robust and intuitive software.
• Optional external antenna.
• Automatic reset of modem in case of network failure.
• All control and set up options, data download and programming of data logger shall also be done by online session similar to all functions at site by direct connection to a PC without any difference.
• Different recording modes: min. time-, and event controlled.
• Ability to download data without ceasing measurement.
• At least one RS232 interface for operation, one RS485 sensor interface.
- Options for SDI-12 sensor and Bluetooth interfaces.
- Full control, operation and adjustment of data logger by palmtop, portable PC or via online connection.
- Lightning protection to be provided.
- All necessary accessories and cabling.
- Training required for installation, troubleshooting and operation in Botswana, Mozambique, South Africa, and Zimbabwe.

**RADAR SENSORS**

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<tr>
<th>Radar Sensor</th>
<th>4</th>
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**WATERLEVEL MEASUREMENT**

- Measurement range 0 ... 15 m standard version / 0 ... 35 m extended version
- Resolution 1 mm
- Deviation ≤ 2 mm
- Radar opening angle 10°
- Radar frequency 26 GHz (K-Band)
- Output signal 4 ... 20 mA/HART
- Mounting connection Thread G1, 1 NPT, R1
- Process pressure -1 ... +3 bar (-100 ... +300 kPa/- 14.5 ... +43.51 psig)
- Process temperature -40 ... +80 °C (-40 ... +176 °F)
- Ambient temperature -40 ... +80 °C (-40 ... +176 °F)
- Bluetooth standard Bluetooth 5.0 (downward compatible to Bluetooth 4.0 LE)
- Effective range Bluetooth typ. 25 m (82 ft)
- Operating voltage 12 ... 35 V DC
- Protection rating IP66/IP68 (3 bar) acc. to IEC 60529, Type 6P acc. to UL 50
- Data storage for at least 5 years
- Data logger should have a display
- Cellular Communication Modem (GPRS/GSM)
- Direct communication with the data logger to download data using a laptop with not more than 1 hour delay. E.g. 1000 hrs reading to be viewed latest by 1100 hrs.
- Should be able to send a signal or alarm when a river reaches a certain threshold to at least 20 stakeholders/ people.
- Battery in built and long lasting for at least 3 years and an additional spare battery (N.B) solar powered system susceptible to vandalism)
- Single channel (water/ river level) data logger with high resolutions
- Critical spare components should be provided
- The radars should come with a Three (3) Years’ on-site warranty
<table>
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<tr>
<th><strong>Radar logger</strong> should have a waterproof protection device and anti-vandalism protection.</th>
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</table>

**VELOCITY MEASUREMENT**
- Measurement range 0.10 ... 15m/s (depending on flow conditions)
- Accuracy +/- 0.01 m/s; +/- 1 % FS
- Resolution 1 mm/s
- Direction recognition +/-
- Measurement duration 5 ... 240 sec.
- Measurement interval 8 sec. ... 5h
- Measurement frequency 24 GHz (K-Band)
- Radar opening angle 12°
- Distance to water surface 0.50 ... 35 m
- Necessary minimum wave height 3 mm

**Interface**
- Analogue Output 4 x output 4 - 20 mA for water level, velocity, discharge and AUX
- Training is required for installation, troubleshooting and operation in Botswana, Mozambique, South Africa and Zimbabwe.
ANNEX 2: Location Map and Table of the 8 priority stations.

1. Location Map

2. Table of the 8 priority stations

<table>
<thead>
<tr>
<th>Country</th>
<th>River Name</th>
<th>Station Name</th>
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<tbody>
<tr>
<td>Botswana</td>
<td>Lotsane</td>
<td>Seleka</td>
</tr>
<tr>
<td></td>
<td>Bonwapitse</td>
<td>Buffel's Drift</td>
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<tr>
<td>Mozambique</td>
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<td>South Africa</td>
<td>Levuvhu</td>
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<td>Beitbridge Pump Station</td>
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