



## **Terms of Reference For The Development of Groundwater Monitoring Systems in Strategic Aquifers in Southern Africa**

### **1. Background**

Southern Africa is home to about thirty (30) transboundary aquifers (TBAs) and numerous national strategic aquifers that support the primary water needs and livelihoods of a significant portion of the region's population. Because of climate change, reliance on groundwater has increased. Although there is a fair understanding of the strategic aquifers, increased data collection will enhance the capacity of institutions to sustainably manage groundwater resources. Furthermore, developing groundwater-specific data-sharing protocols among riparian states contributes to the integrated management of shared aquifers. There is a unique opportunity to establish groundwater monitoring networks and strengthen institutional frameworks for shared water management.

SADC-GMI, a subsidiary of the SADC Secretariat, is established as a Section 21 Not-for-Profit Company under South African law. The vision of the SADC-GMI is to ensure the equitable and sustainable use and protection of groundwater and be a Centre of Excellence in groundwater management and management of groundwater-dependent ecosystems in the region. The role of the SADC-GMI is to:

- Promote sustainable groundwater management and provide solutions to groundwater challenges in the SADC region through building capacity, providing training, advancing research, supporting infrastructure development, and enabling dialogue and exchange of groundwater information.
- Conduct and support the SADC Member States in groundwater research, and serve as a focal interlocutor with national, regional, and international groundwater initiatives.
- Promote the sustainable conjunctive use of surface and groundwater.

### **2. Objective of the Assignment:**

The overall objective of this assignment is to:

- i. Identify three strategic Aquifers across the SADC Region along three typologies viz: a Fractured or Karst TBA on mainland SADC; a Coastal Aquifer; and an Island State Aquifer
- ii. Develop the groundwater monitoring plan for the selected strategic aquifers, building on other work and initiatives that have been carried out.
- iii. Prepare procurement documentation for works, goods and services required to install a monitoring system for each of the three (3) typology aquifers for collecting data and processing it from one central point

### 3. Scope of work and specific tasks of the consultant

The tasks to be carried out under this assignment include, but will not necessarily be limited to, the following:

- a. Conducting a kick-off meeting with the SADC-GMI staff to clarify and understand the assignment, covering the detailed scope of work and specific tasks.
- b. Producing an inception report detailing the various tasks with important milestones, a table of contents of the proposed guidelines and a list of the stakeholders to be consulted in selecting the strategic aquifers and developing the monitoring plan.
- c. Undertaking a desktop study of the monitoring requirements for different aquifer systems that are the subject of this assignment to identify common or unique parameters necessitating monitoring in the Mainland SADC TBAs, Coastal Aquifers and Island State Aquifers, respectively.
- d. Developing criteria and a stakeholder engagement process to select the strategic aquifers.
- e. In consultation with regional groundwater experts, identify the parameters that can either simultaneously or independently be monitored across the three typologies of aquifer systems that are the subject of this assignment. Also, establish the viability of monitoring several combinations of parameters across the aquifer types.
- f. In liaison with SADC-GMI and Member State representatives, identify the priority aquifer suitable for installation of a Monitoring network on Mainland SADC, along the Coast and on an Island State.
- g. Developing the groundwater monitoring plan for the selected strategic aquifers.
- h. Conducting a workshop with SADC-GMI staff, RBOs, riparian states, stakeholders and interested parties to discuss the first draft of the groundwater monitoring plan.
- i. Producing a final version of the groundwater monitoring plan incorporating inputs from the Stakeholders for approval by SADC-GMI.
- j. Based on the approved Monitoring plan, prepare works, goods and services procurement documents and a Confidential cost estimate for the planned work.
- k. Support SADC-GMI with the bill of quantities (BOQs) of the installation of the works, goods and services required for the installation and commissioning of the monitoring networks.

#### 4. Key Deliverables and Outputs

The stated deadlines require the following deliverables:

- i. Minutes of kick-off meeting with SADC-GMI staff - 1 week after project start
- ii. Inception report detailing the various tasks to be undertaken with important milestones, a table of contents of the proposed guidelines and a list of the stakeholders to be consulted in selecting the strategic aquifers and developing the monitoring plan. – 5 weeks after project start
- iii. Report on criteria for selecting the aquifers to be monitored – 12 weeks after project start.
- iv. Report on the stakeholder engagement process to select the strategic aquifers – 25 weeks after project start.
- v. Report on the desktop study of the monitoring requirements for selected aquifer systems detailing common or unique parameters necessitating monitoring - 44 weeks after project start.
- vi. Draft report on the groundwater monitoring plan for the selected strategic aquifers – 60 weeks after project start.
- vii. Report on workshop with SADC-GMI staff, RBOs, riparian states, stakeholders and interested parties to discuss and approve the first draft of the groundwater monitoring plan – 65 weeks after project start.
- viii. Final version of the groundwater monitoring plans for the aquifers incorporating inputs from the Stakeholders for approval by SADC-GMI – 68 weeks after project start
- ix. Bill of quantities (BOQs) of the works, goods and services required for the installation and commissioning of the monitoring network – 68 weeks after project start.
- x. Project closure report – 72 weeks after project start.

**NB:** Completion deadlines stated above are the end dates and the Consultant can deliver outputs incrementally before the deadline date. The Consultant shall therefore define and provide a schedule of interim incremental deliverables and a breakdown of the associated Professional fees per completed and approved deliverable to enable the Client to make payments as and when interim deliverables are submitted and approved. E.g., if 5 outputs are to be delivered by week 10, the Consultant may deliver 1 output every 2 weeks and subsequently claim payment after completing each output.

## 5. Eligibility

- i. This assignment targets a firm or individuals with a track record of more than 10 years of proven experience in transboundary water governance in sub-Saharan Africa, particularly having at least 5 years of experience in the groundwater sector within the SADC region.
- ii. The proposal must demonstrate experience in at least three projects undertaking detailed work in a TBA context in the SADC region.

## 6. Team Composition

The minimum qualifications, skills and experience for key experts, whose CVs are to be evaluated as part of the assessment of proposals, are as defined below. The Services are expected to be performed, for the most part, virtually, with occasional travel to the SADC Member States to convene workshops and to gather data as necessary.

Team composition with an estimate of key experts' input

### **Key Expert 1: Principal Researcher - Team Leader (estimated 100 workdays)**

The key expert must have at least a master's degree in Hydrogeology and 15 years of experience working in groundwater. At least 5 years should have been in groundwater governance research and development. Demonstrated team leadership on at least 3 similar research projects, 1 of which should have been in the SADC region at the Member State or regional level. The expert must have proven proficiency with the conjunctive water resources management concept and engagement of multi-country transboundary watercourse stakeholder institutions and issues. The Team Leader should be fluent in English. Professional proficiency in the other SADC Languages (French and Portuguese) is an advantage.

### **Key expert 2: Water quality expert (estimated 60 workdays)**

The water quality expert must have at least a master's degree in Hydrogeology (or any relevant field) and 10 years of experience working in groundwater. At least 5 years should be in groundwater quality monitoring. They must have demonstrated experience in the implementation of at least 3 similar projects, 1 of which should have been carried out in the SADC region at the Member State or regional level. The expert must have proven understanding of the conjunctive water resources management concept and engagement of multi-country transboundary watercourse stakeholder institutions and issues. They must be fluent in English. Professional proficiency in the other SADC Languages (French and Portuguese) is an advantage.

### **Key expert 3 – Data/IT/Instrumentation Specialist (30-days)**

The Data/IT/Instrumentation Specialist expert must have at least a master's degree in Hydrogeology (or any relevant field) and 10 years of experience working in groundwater. At least 5 years should be spent on the installation of groundwater monitoring systems. They should have demonstrated experience in at least 3 similar research projects, 1 of which should have been in the SADC region at the Member State or regional level. The expert must have proven proficiency with the conjunctive water resources management concept and engagement of multi-country transboundary watercourse stakeholder institutions and issues. The expert should be fluent in English. Professional proficiency in the other SADC Languages (French and Portuguese) is an advantage.

## Non-Key/Other Expert Staff

The consultant shall select and hire other experts and support staff as required according to the deemed requirement to deliver the Services. CVs for such other experts should not be submitted in the Technical Proposal. Although hiring other expert staff will not be subject to the prior review of the Client, such staff shall otherwise meet the professional standards and possess the adequate experience to conduct their work safely and professionally.

NB: The Consultant shall include in their submission a refined proposal for the deployment of the key experts and any non-key experts deemed necessary to timely deliver the objectives of the assignment.

## 7. Schedule and Duration of Assignment

This is a once-off assignment without any obligation for follow-up work and is expected to run for eighteen (18) months with an estimated aggregate level of effort of 190 person-days for key experts only, all-inclusive of field, travel and office work.

The Consultant shall include in their submission a proposal for the deployment of the key experts and any non-key experts and support staff deemed necessary to timely deliver the objectives of the assignment.

## 8. Liaison and Logistics

On a day-to-day basis, the consultant will liaise with the SADC-GMI through the Senior Groundwater Specialist and will be ultimately accountable to the Executive Director of SADC-GMI.

Logistics pertaining to international air and road travel and cross-border travel are the responsibility of the consultant. However, if required, SADC-GMI can arrange and directly pay the costs for lodging, car hire, road and air travel as necessary. If also required, SADC-GMI can also issue letters of support to facilitate the authorities issuing necessary access to the Member States. The Consultants will meet visa and necessary cross border charges. These should therefore be included in the Consultant's technical and financial proposal.

## 9. Submission Proposals

The shortlisted Consultants should send the following documents:

- a. A Technical Proposal describing how they intend to deliver the services foreseen in these TOR. Particularly the technical proposal should contain at least the following:
  - i. The Consultant's interpretation and understanding of these Terms of Reference.
  - ii. The Consultant's capabilities for the assignment. This should include Company



- registration documents; Previous and current clients for whom similar services are provided both nationally and regionally;
- iii. Consultant's Method Statement. How the Consultant intends to execute the tasks foreseen. This should include a draft work plan demonstrating capability to complete the assignment within the stated duration; measures to effectively manage the cross-border travels and lodging as well as means to engage key stakeholders concerned with the assignment, capacity building and knowledge transfer to the national institutions;
  - iv. The deployment of the team of experts to deliver the services. This should describe who will lead the team, project management arrangements, quality assurance, risk management and the availability of each team member for this assignment for fieldwork and office-work.
  - v. CV(s) of the key experts that will be deployed for the assignment and a table describing their respective roles and availability for this assignment are required.
- b. A Financial Proposal detailing the fees that SADC-GMI will pay for the services that will be rendered. All services foreseen in this document must be priced. Consultants that omit any aspects may be penalized.

The Technical and Financial proposals should be electronically sent (in Pdf format) to:  
Procurement at SADC-Groundwater Management Institute, e-mail address:  
[procurement@sadc-gmi.org](mailto:procurement@sadc-gmi.org), on or before **12:00noon (Pretoria Time) on 31 March 2023.**

Proposals arriving after the deadline will automatically be disqualified.  
Only requests for clarification received at the above email address before 17:00hrs on 31 March 2023 will be responded to.