



TERMS OF REFERENCE FOR

CONSULTANCY SERVICES FOR THE REVIEW AND UPDATE OF HYDROGEOLOGICAL MAPS SERIES AND INFORMATION BROCHURE OF SOUTH AFRICA: POLOKWANE MAP SERIES 2326

ZA-SADC-GMI-SUB-AGREEMENT-2003-008

a) **BACKGROUND**

After successful completion of the Sustainable Groundwater Management in SADC Member States Phase 1 project, the SADC-GMI is now implementing phase 2 of the same project, under the strategic guidance of the SADC Secretariat. The 4-year phase 2 project is financed by the Multi Donor Trust Fund Cooperation in International Waters in Africa (CIWA), in collaboration with the Global Environment Facility (GEF), through the World Bank, and comprises of the following key components:

Component 1: Capacity building for sustainable groundwater management
Component 2: Knowledge development, dissemination, and advocacy
Component 3: Building resilient livelihoods, and inclusive groundwater management.

Component 1 intends to build resilient livelihoods and inclusive groundwater management through the promotion and piloting innovative groundwater management solutions and infrastructure, which can be upscaled through an investment program. All grants are designed within the National and regional context, seeking to implement innovation and synergies with other national programs to maximize impact.

The base-grant scheme supports the piloting and upscaling of sustainable groundwater infrastructure approaches, including surface water harvesting, managed aquifer recharge (MAR) pilots and innovative borehole design for different environments or uses. It also supports the expansion of groundwater monitoring networks in national and transboundary aquifers to build the knowledge base on the quantitative and qualitative status of the groundwater resources. This approach helps to develop and pilot infrastructure solutions and management approaches for the long-term sustainable and inclusive use of groundwater that support socio-economic development while ensuring equitable benefits for women and other vulnerable populations.

The project devote attention to the ability of traditionally excluded groups to organize, adapt, monitor and enforce institutional arrangements that govern their use of natural

resources such as groundwater. It recognizes the central role of women as providers and users of water and guardians of the environment.

b) Objective of the Assignment:

1. The main objective of the proposed project is to update the Hydrogeological Map series and information brochure of South Africa within the Limpopo and reduce the scale from 1:500 000 to at least 1:250 000 or 1:100 000 or smaller where possible. The targeted map series is for Polokwane 2326 (Pietersburg).
2. The other objective is to develop methodology on updating existing hydrogeological maps of South Africa. The map will be an interactive map digitized and uploaded on the Ministry database and systems. The project will improve the current Hydrogeological Maps series of South Africa (completed in 2002) by using recent groundwater data and documenting of the methodology. The updating of the Hydrogeological Map series will provide a thorough understanding of the nature and occurrence of the groundwater resources in South Africa based on recent dataset. This project will provide a comparison analysis of change in some of the hydrogeological characteristics such as borehole yields from prior 2002 and current Hydrogeological Maps series in South Africa.

c) Task and Responsibilities of the Consulting Firm:

1. **Desktop assessment and review of current Hydrogeological Map-** Literature review; Review and assess existing Hydrogeological Map; Carry out detailed inventory on existing information &/ data that may be used to update the Hydrogeological Map; Identifying gaps and how to improve the current maps, including methodological approach.
2. **Compilation and updating of old and recent information-** Preparatory work for GIS related tasks (scanning, digitizing, geo-referencing); Prepare Hydrogeological characteristics (continuity, permeability, aquifer types, borehole yield, groundwater quality); Prepare borehole data (pumping and monitoring data).
3. **Stakeholders' consultation-** Identify relevant stakeholders; Send out official invitations; Setup and attend consultation meetings with stakeholders; Elect Editorial Committee.
4. **Updating of the Hydrogeological Map and information booklet-** Identifying and mapping out of various and relevant hydrogeological characteristics; Compilation of groundwater recharge map; Compilation of groundwater quality map; Create groundwater abstraction map/ quantification of groundwater

depletion (contour maps/ groundwater models); Compile Borehole Target Map; Provide Training/capacity development to the team on map design and update.

5. **Sharing of methodology, printing, and uploading the updated hydrogeological Map and information booklet to relevant platforms-** Final review by editorial board; Print detailed final updated map at a high resolution; Digitize the Map; Edit existing booklet (if available) accordingly- to incorporate the new changes; Recommendation on groundwater management and best practice; Upload updated Hydrogeological Map of relevant platforms- including shapefiles; Provide the division with both the raw information (from which the final data outputs are derived) as well as all the datasets used in the compilation of the final map; Capacitating DWS officials on the methodological approach.

d) Key Outputs

The consultancy firm is responsible for delivery of the following key outputs.

1. Kick-off Meeting with SADC-GMI and the department of water and Sanitation within 1 week after date of commencement of the contract
2. Inception Report within 6 weeks after contract commencement date
3. Updated Hydrogeological Map of Polokwane (interactive map, shapefiles, digital and physical maps) (54 weeks after contract commencement)
4. Explanatory brochure/booklet of the Hydrogeological Map of Polokwane. (58 weeks after contract commencement)
5. Detailed methodology that will be used to update existing maps in the future. (62 weeks after contract commencement)
6. Capacity development of DWS officials on the methodology and application. (64 weeks after contract commencement)

e) Eligibility

- i. This assignment targets a firm 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 consultancy firm must demonstrate experience in at least three projects undertaking, updating and developing Hydrogeological Maps in the SADC region.

f) 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.

1. Senior Hydrogeologist (Estimated 160-man days)

At least a Master's degree in relevant water related discipline and 10 years' experience working in the groundwater field. At least 6 years should have been in the field of groundwater development, monitoring and assessment. Demonstrate team leadership on at least 3 similar research projects. The Team Leader should be fluent in English.

2. GIS Specialist (Estimated 180-man days)

At least a bachelor's degree in GIS or similar and about 10 years' experience in the areas of assessing water and/ related data to information using GIS. Should have experience of at least two projects of a similar magnitude in Southern Africa. Proven experience in water related project is essential. Fluency in English is mandatory.

3. Graphic Designer (Estimated 150-man day)

To ideally possess at least a bachelor's degree in graphic design and related qualifications, with at least 5 years' experience in the field. Should have experience of at least two projects of a similar magnitude in Southern Africa. Proven experience in water related project is essential. Fluency in English is mandatory.

4. Other Experts

The Consultant may deploy additional experts and support staff in order to deliver the outputs within the time period allocated. However, value for money will be calculated only on the basis of the inputs of the key experts specified under this section.

g) Schedule and Duration of Assignment

This is a once-off assignment without any obligation for follow-up work and it is intended to be implemented in the period from contract signature for 64 weeks with an estimated aggregate level of effort of 490 person-days for key experts only.

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.

h) Liaison and Logistics

On a day-to-day basis, the consultant will liaise with the Department of Water and Sanitation through Mr. Fhedzisani Ramusiya.



i) Data, services & Facilities to be provided by the Client

The Consultants will be expected to work from their respective offices. All costs resulting from the execution of this assignment will be incorporated in the Consultant financial proposal.

j) Contract Management and Other Information

This is a lump sum contract since the scope of is well defined and the contract amount is fixed, and all payments will be linked to the contractual milestones. The Department of Water and Sanitation will provide the consultant with data and information to facilitate execution of the assignment including introduction letters to relevant stakeholders.