



TERMS OF REFERENCE FOR A SOLICITED WRC PROJECT

THEME: **Water Availability**

TITLE: **Development of groundwater management plans for priority aquifer systems in South Africa**

TOR NUMBER:

1. Rationale for the Study

Groundwater is a critical but often underutilised resource in South Africa's water supply system, particularly in rural and drought-prone areas. Despite its importance, groundwater remains poorly integrated into catchment-level planning and national water resource strategies. The Department of Water and Sanitation (DWS) has recognised the urgent need for site-specific and standardised groundwater management plans to inform licensing decisions, guide protection measures, and support sustainable development. Current approaches are fragmented and inconsistent, lacking a nationally accepted methodology. This has resulted in varied implementation across regions and left key aquifer systems vulnerable to over-abstraction, contamination, and inefficient use. As climate change, land-use shifts, and increasing water demand continue to intensify these pressures, the absence of a coherent planning mechanism poses a growing risk to groundwater sustainability. Past groundwater studies have often been hindered by data scarcity, which has contributed to suboptimal outcomes. In some cases, consultants have used poor data availability as a justification for delivering poor or incomplete work. To address this challenge, the project will include a dedicated assessment of data availability and quality in each pilot area. Service providers will be required to propose clear strategies for managing data limitations. Furthermore, the national framework developed through this project will include practical guidance on dealing with data constraints in future planning efforts. This project seeks to fill existing gaps by developing a replicable, adaptable national framework for groundwater management planning. The framework and pilot plans will be co-developed with key stakeholders to ensure practicality, policy relevance, and implementation readiness across diverse South African contexts.

2. Main Objective

To develop a practical and adaptable national framework, along with pilot groundwater management plans for selected catchments and aquifers in South Africa, by integrating



hydrogeological understanding with water use, recharge, risk, data availability, and regulatory requirements.

Specific Objectives

1. Review and synthesis of national and international groundwater planning approaches and tools, with a focus on applicability to the South African context.
2. Identify and prioritise aquifer systems and catchments that require management plans based on water security, vulnerability, and strategic importance.
3. Co-develop 2–3 pilot groundwater management plans in partnership with Catchment Management Agencies (CMAs), municipalities, and DWS regional offices, ensuring that the selected pilot areas represent a range of hydrogeological and climatic contexts (e.g., different aquifer types, recharge mechanisms, land uses, and climatic zones) to maximise the national applicability and scalability of the planning framework.
4. Assess the availability, accessibility, and quality of existing groundwater data in pilot areas, and require service providers to propose appropriate solutions to address data limitations.
5. Design a replicable national planning framework/template that guides the consistent development of groundwater management plans across regions.
6. Incorporate climate resilience, recharge estimation, groundwater-related ecological requirements, land use impacts, and institutional responsibilities into the planning approach.
7. Engage stakeholders at local and national levels to ensure alignment, legitimacy, and implementation readiness.
8. Produce policy guidance and implementation recommendations for DWS to embed the framework within regulatory and planning processes.

3. Deliverables

- Desktop review report of existing national and international approaches to groundwater planning.
- Prioritisation matrix for aquifer and catchment selection
- Co-developed pilot groundwater management plans
- Assessment report on data availability and proposed strategies to address identified gaps, with lessons integrated into the national planning framework.
- National groundwater planning framework/template
- Stakeholder engagement and learning reports
- Policy and implementation guidance brief for DWS



- Print-ready final report

5. Budget and Duration

Total Budget:	R 1 500 000.00
Year 1:	R 800 000.00
Year 2:	R 700 000.00
Duration:	2 years