TERMS OF REFERENCE FOR A DIRECTED WRC PROJECT

THEME	**Water Quality and Health**
TITLE	**Development and demonstration of a web-based decision support system for the South African water quality guidelines for domestic use**
TOR NUMBER:	**1010025**

Rationale

The 1996 South African Water Quality Guidelines (Volume 1) (SAWQGs) has been used by water quality managers and water resource managers as a primary source for decision-making to judge the fitness for use of water for domestic use. On the request of the water sector, the WRC commissioned a study to revise these guidelines to be risk-based and site specific[1]. One of the other requirements for the revision was the development of an easily accessible decision support system to enable risk-based and site-specific fitness for use and water quality requirements for various domestic uses. Thus, this project is follow-on study aimed at developing, testing and demonstrating a web-based decision support system (DSS) for the South African Risk Based and Site-Specific Domestic Use Water Quality Guidelines.

Scope of work

The scope of work may be structured (but not limited) into the following key tasks:

1. System Design & Architecture – This task involves designing a scalable, user-friendly web platform that integrates existing and new data on Risk Based and Site-Specific Domestic Use Water Quality Guidelines. Additionally, develop and test an interactive dashboard for risk calculation and reporting.
2. Data Integration – involves identifying new domestic water use / onsite water reuse cases; integration of relevant domestic water quality parameters, guidelines, and local data sources for risk-based water quality assessments and water quality requirements. Enabling the platform for data input from various water quality monitoring systems / platforms should be explored. In this case, collaboration with other WRC projects/national water quality imperatives is essential
3. Decision Support Tool development – involves the incorporation of relevant risk calculation models, predictive models for water quality risk assessment; scenario-based tools for decision-making in water safety.
4. User Interface and experience component – Consider intuitive interface design for diverse stakeholders (government, water utilities, citizens) and incorporate appropriate site-specific visualizations for informed decision-making.

[1] https://wrcwebsite.azurewebsites.net/wp-content/uploads/mdocs/TT%20802-1-19%20final%20web.pdf

5. Testing and Demonstration – obtain user feedback and pilot the usability of the DSS to demonstrate effectiveness. Gather feedback for system improvements and refine the platform accordingly.
6. Knowledge dissemination, training and documentation - create and administer training materials for end-users and develop system documentation to support long-term use and updates.
7. Monitoring and maintenance - establish a plan for regular system updates and data maintenance. Monitor system performance and user feedback to refine the DSS for future enhancements.

Objectives

1. To develop, test and demonstrate a web-based decision support system (DSS) for the South African Risk Based and Site-Specific Domestic Use Water Quality Guidelines
2. To develop content and facilitate training of end-users
3. To develop a long-term plan for regular system updates and data maintenance.

Deliverables

The deliverables below may be sub-divided by the proposers, into not more three deliverables per financial year consisting of the following reports:

- Web based demonstrator DSS
- Fully functional web based DSS platform
- User and system manuals.
- Final project report with recommendations for scaling up

The first-year deliverables may NOT include an advance. The final deliverable of the print-ready final report, valued at 20% of the Budget is required.

Total Budget: R 1 000 000.00 (Including VAT)
Year 1: R 400 000.00 (Including VAT)
Duration: 3 years