



TERMS OF REFERENCE FOR A DIRECTED WRC PROJECT

KEY STRATEGIC AREA	KSA 9: Advisory Services
THRUST	N/A
PROGRAMME	Advisory Services
TITLE	Demonstration of Greywater Treatment systems for households, community buildings and/or informal settlements
TOR	1010072

General context:

Rationale:

South Africa faces growing water scarcity due to recurring droughts, climate change, population growth, urbanization, aging infrastructure, and increasing demand from various sectors. As pressure is increasing on conventional freshwater sources, the need to shift towards alternative sources becomes more imperative. Emphasis is also being placed on improving wastewater treatment processes to reduce pollution discharged into rivers, wetlands and coastal environments in order to protect ecosystems and public health. In addition, decentralized and on-site water reuse systems are gaining attention as sustainable solutions to enable households, businesses, and industries to treat and re-use greywater and wastewater locally for non-potable purposes such as irrigation, flushing to reduce dependence on municipal water supply and support long-term water resilience.

The Water Research Commission (WRC), through its technology accelerator programmes (WADER and SASTEP) has been advancing and demonstrating, water and sanitation technologies to address some of the pressing challenges in the water sector. The portfolio of innovations includes, but not limited to, water-efficient toilets, greywater treatment, non-sewered sanitation, smart water management, NRW systems, and rainwater harvesting systems just to name a few. Despite these efforts, there is still a lack of simple and effective greywater treatment and management systems to deal with greywater generated from sinks, showers, handwashing and laundry for non-potable reuse such as toilet flushing and irrigation amongst other uses.

Objective:

To demonstrate and evaluate commercial and close to market greywater technologies or show successful demonstrations of greywater technologies in the market.

The purpose of this call is to identify available innovative greywater technologies that are appropriate for household, communal, and commercial buildings, which are suitable for rural, peri-urban, informal and urban settlement types and those that meet but are not limited to the following technology criteria:

- Nature-based systems
- Off-grid greywater treatment technologies
- Innovative disruptive technologies which could be advanced but cost effective emerging unit processes that could enhance current and existing greywater treatment systems
- Plug and play greywater systems

The call is open to commercial partners, innovators, technology developers and academics that have technologies at a technology readiness level 7 (TRL 7) and above and are ready to be demonstrated in an



operational environment or that have technologies already being piloted with communities that need to be validated further. It would be advantageous if proposed technologies meet fit for purpose water quality standards for greywater reuse which meets guidelines, regulations and standards such as WRC greywater guidelines, SABS standards, General Authorization limits, irrigation etc.

Requirements:

At a minimum the applicant should be able to:

- Demonstrate the underlying scientific principles behind the technology, provide the rationale supporting design features, fabrication and implementation costs, operations and maintenance requirements, level of readiness for operation, target location/site (rural, peri-urban and/or urban; household, communal, informal settlement or estate), and detail any previous demonstrations/implementation (number of units installed, performance metrics, location, scale, partners, performance outputs) and desire to commercialise and take technology to market.

This call will support between 2 to 4 demonstrations of greywater technologies which could include :

1) A demonstration project where a greywater technology is already being piloted at an existing site and funding is required to support further independent scientific and performance evaluation of the pilot as well to showcase the demonstration site.

Duration : Max 14 months

Total first year budget : R200 000

2) A full demonstration project which includes site selection, manufacturing, installation, commissioning and testing of operations, estimated cost evaluations, technical performance of system and social evaluation for a period of 6 to 12 months post commissioning (depending on complexity of system).

Duration : Max 30 months

Total first year budget : R300 000 to R400 000

(Note: The applicant should kindly list the type of support you are submitting for):

Deliverables:

The proposal should have a minimum of the following deliverables with acceptable timelines :

1. Inception report with detailed plan and sites
2. Two progress reports (inclusive of demonstration results and site visits or development of training materials and workshops for knowledge transfer)
3. Final report

Time frame

12 to 30 months

Total funds available



R 3 000 000 maximum to support between 2 and 4 proposals depending on scale of demonstration and complexity of technology and treatment processes.

Closing date and Proposal Template

The closing date for submission of proposals is specified on the WRC Call document.

Please apply on the standard WRC template, via the BMS system, details are provided in the Call Document.

Contact

Email Submissions: Sarah Ravhudzulo: sarahr@wrc.org.za

Queries: Manjusha Sunil or (manjushas@wrc.org.za) or Phillip Majeke (phillipm@wrc.org.za)

References

- 1) Guidelines for Greywater Use and Management in South Africa (WRC Report No. TT 746/17); www.wrc.org.za