



TERMS OF REFERENCE FOR A DIRECTED WRC PROJECT

KEY STRATEGIC AREA	KSA 3: Water Use and Waste Management
THRUST	4: Saniti
PROGRAMME	3: Municipal Sludge Valorisation
TITLE	Development of Curricula for Non-Sewered Sanitation & Sludge Valorisation

Objectives:

General:

The *Water Research Commission* (WRC) has generated a plethora of world-leading research into non-sewered sanitation. This includes ground-breaking research into pit latrine science, the drying kinetics of faecal sludge and the development and science advancement of various novel household and community-based sanitation systems. Despite the generation of this knowledge, there has little uptake of this research into university curricula with conventional systems, specifically sewerage system design, remaining entrenched within the academic learning space. Under the constrained resource availability and urbanisation trends expected, the next generation of sanitation engineers, scientists and decision-makers need exposure to alternative approaches in this field.

It is well-known that developing countries have cities and towns that use more than sanitation technology and that non sewered sanitation approaches are equally as important as sewerage approaches in delivering sanitation services. The development of a curricula on non-sewered sanitation would serve several vital functions that are critical to the needs of the country:

- Building the next cohort of skills to support non-sewered sanitation.
- Introduce learners to Faecal Sludge Management and its importance as part of Public Health.
- Provide the scientific and engineering fundamentals and required information for the design and selection of non-sewered approaches.
- Introduce learners to new and latest innovative non-sewered sanitation approaches, including circular economy principles.
- Provide a dissemination and learning platform for WRC non-sewered sanitation products.
- Stimulating and developing grassroots engineering and scientific capacity in non-sewered sanitation.
- Would assist current and / future municipal and government employees in understanding integrated sanitation planning that includes sewerage and non-sewered approaches.

The development of the curricula through the WRC would allow universities and other learning centres to make use of the material that will be designed and formatted for learners. There is also opportunity to have the developed material used as virtual courses, including *Massive Open Online Courses* (MOOCs). The effects of the COVID-19 pandemic has shown the benefits of virtual learning tools during social distancing

measures. While there are other MOOCs available for internationally for Faecal Sludge Management, there is a need to have content that is tailored to the South Africa context and be aligned to the WRC's vision and strategy for sanitation.

Specific Aims:

1. Develop a curricula on Non-Sewered Sanitation that includes WRC Reports, Circular Economy principles and latest non-sewered engineering approaches.
2. Provide a support and implementation strategy for learning (including virtual platforms) based on the material developed.
3. The design of the learning material must be formatted to according to learning approaches.
4. Produce marketing material linked to outputs of study.

Rationale:

Non-sewered sanitation systems is not covered within curricula for grassroots engineers and scientists who will eventually be involved in sanitation decision-making. Most cities in South Africa are not fully sewered; the development and adoption of the learning material will allow for knowledge transfer and exposure to alternative sanitation approaches at grassroots level.

Deliverables:

1. Reports on key aspects researched as per specific aims.
2. Draft Final Report.
3. Final Report.

Lighthouse:

- Water Sensitive Design; Water-Energy-Food Nexus

Impact Areas:

- Water and the Economy; Water and the Environment; Water and Society

Knowledge Tree

- HCD in Water and Science Sectors
- Sustainable Development Solutions

Time Frame: 2-years

Total Funds Available: R500,000.00 (Year 1: R250,000, Year 2: R250,000) (VAT Inclusive)