



TERMS OF REFERENCE FOR A DIRECTED WRC PROJECT

KEY STRATEGIC AREA	KSA 3
THRUST	4 - SANITI
PROGRAMME	3 – Municipal Sludge Valorisation
TITLE	What are municipalities doing with their municipal sludge? Understanding the current practices and the cost associated with municipal sludge disposal with case studies

Objectives:

General:

Municipal wastewater sludge generation is an inevitable operational by-product associated sanitation service provision. Municipal sludge consists of wastewater sludge generated as a by-product from wastewater treatment and faecal sludge generated from containment in on-site sanitation systems. The disposal strategies for municipal sludge management guided by the WRC Sludge Management Guidelines of 2006 and 2009, which are currently used in Authorisations by the Authorities responsible for water and environmental affairs to stipulate the regulatory requirements for sludge management. In addition to disposal, stockpiling of sludges may occur.

Wastewater treatment works can generate various volumes of wastewater sludge depending on the volumes of wastewater treatment and requires subsequent sludge handling. The State of Waste Report (SoWR, 2018) produced a status quo of current sludge management practices. According to the report, there are 824 large-scale municipal and private wastewater treatment works generating around 632,749 tonnes of sewage sludge. Land application (unstable) represents the largest percentage disposal option used (30%) followed by on-site stockpiling (19%), off-site landfill (19%) and stabilized land application (18%). There is a need to understand the financial implications of current sludge management practices, understand the proportion of funds used for this practice and adherence to compliance requirements.

At the same time, the country has around 30% of the population using latrine and other on-site sanitation systems. Faecal sludge generated in these on-site sanitation systems can be classified as a hazardous waste due to its pathogenic nature. Municipalities have developed certain practices to safely dispose of sludge which can vary depending on the number of on-site sanitation systems that need to be managed. The disposal of these faecal sludges also has an important cost implication.

With landfill space declining and a large percentage stockpiling, there is a need to consider alternative options, including valorisation of municipal sludges. This research project a better understanding of how municipal sludge, including faecal sludges, is managed in the country and understanding the challenges

associated with sludge handling and disposal practices across the country. It is anticipated that the outputs will stimulate thought into better usage of by-product, including sludge valorization.

This study will provide a status quo of the financial costs associated with the management of wastewater and faecal sludges in municipalities across the country and unpack the financial implication associated with municipal sludge interventions across the full sludge management chain. The study will cover the costs associated with collection, transport, treatment, disposal / recovery / reuse, monitoring, quality control etc. The end-product will guide sludge management selection and implementation towards more cost-effective strategies for sludge management including sludge valorization.

Specific Aims:

The specific aims of the project are:

1. Provide a status quo of the financial implications associated with municipal sludge management.
2. Determine the expenditure associated with for municipal sludge interventions for both wastewater and faecal sludges
3. Unpack financial implications of compliance matters related to current sludge management practices
4. Identify any policy and regulatory gaps.

Deliverables:

1. Reports on key aspects researched as per specific objectives
2. Workshops
3. Dissemination material (papers, briefs)
4. Final Report

Lighthouse:

- The Green Economy

Knowledge Tree

- Informing policy and decision-making
- Sustainable Development Solutions

Budget: R700,000.00 (VAT inclusive). Year 1: R350,000, Year 2: R350,000.

Time Frame: 2-Years

Additional Notes:

- Visual aid graphics / mapping is desirable
- Have representation of different types of municipalities