

TERMS OF REFERENCE FOR A DIRECTED WRC PROJECT

KEY STRATEGIC AREA	KSA 3: Water Use and Waste Management
THRUST	4: Saniti
PROGRAMME	2: Sanitation Sensitive Design
TITLE	Development of a Framework and Model for Designing Sanitation Sensitive Cities

Objectives:

General:

The vision of a Sanitation Sensitive City is one where water and sanitation and circular economy principles is given due prominence in the design of urban area. The premise is that future cities will need to transition into sustainable ecocities in which uses of resources are reduced, recycled and reused. At the same time, it aims to protect society from disease-causing and environmentally degrading waste and introduce business approaches linked to recycling and re-use. The aim is to enable economies and societies in general to become more sustainable, autonomous, sustainable and in aligned with the realities of limited environmental resources, including water, energy and food.

The vision is particularly relevant in South Africa and other developing countries that are struggling to address the challenge of rapid urbanisation, increasing population growth and resource scarcity. Water is recognised as a strategic national resource under considerable stress, with increasing concerns about future water supply and poor water quality within, and originating from urban areas. As water and sanitation are intrinsically linked to each other, there needs to be focus on sanitation as well. Inadequately treated sanitation waste plays a major role in deteriorating water quality and poses a threat to public health. There exists the opportunity to re purpose sanitation waste from a biological and environmental hazard into value-add products, such as energy, water and various chemicals. Multiple sanitation-derived products may be produced considering that most South African cities utilise a variety of technological approaches. Understanding the options based on a city needs may be key to long-term sustainability planning and management approaches.

It is clear that an innovative approach such as this, which involves the planning, design and implementation of ecocities that employ circular economies in both water and sanitation is required in South Africa. The proposed research aims to provide a framework and model for designing Sanitation Sensitive Cities and in doing so, describe a way forward for an integrated circular economy-based management approach for urban water and sanitation. The proposed research, supported by stakeholder engagement, would define what 'sanitation sensitive design' might mean in the South African context and outline the research, vision, narrative, and implementation support strategy that will be required in order to transition to sanitation-sensitive ecocities.

Specific Aims:

- 1. Develop the framework and model for designing sanitation sensitive cities.
- 2. Undertake stakeholder engagement to define and benchmark Sanitation Sensitive Design, including Circular Economy aspects, for the South African sector.
- 3. Outline the vision, narrative, research and implementation support strategy that will be required in order to transition to sanitation sensitive ecocities.
- 4. Produce dissemination material linked to outputs of study.

Rationale:

There is a need to put forward a conceptual framework for visualising and 'benchmarking' the evolution towards Sanitation Sensitive Cities. While concept of Water Sensitive Urban Design has been explored in South Africa, the sanitation component, specifically the latest developments around sanitation innovation (e.g. off-grid) and resource recovery from sanitation waste, has not been explored. As water and sanitation are intrinsically linked to each other, sanitation (and the latest advances) need to be included as part of the strategic planning and management of future cities. The proposed research would outline the research, vision, narrative, and implementation support strategy that will be required in order to transition to sanitation-sensitive ecocities.

Deliverables:

- 1. Reports on key aspects researched as per specific aims.
- 2. Workshop/s with key stakeholders to define and benchmark Sanitation Sensitive Design.
- 3. Draft Final Report.
- 4. Final Report.

Lighthouse:

• Water Sensitive Design

Impact Areas:

• Water and the Economy; Water and the Environment; Water and Society

Knowledge Tree

- Informing policy and decision-making
- Sustainable Development Solutions

Time Frame: 2-years

Total Funds Available: R600,000.00 (Year 1: R300,000, Year 2: R300,000) (VAT Inclusive)