TERMS OF REFERENCE FOR A SOLICITED WRC PROJECT

THEMATIC AREA: **Water Availability**

TITLE: **Updating of Climate Change Projections for South Africa: Resilience and Water Security Implications**

1. Rationale for the study

Climate change and climate variability have emerged as important challenges that confronts humanity with the impact extending to water resources; ecological and biodiversity systems; food security; socio-economic stability, human health, human settlement, and migration (IPCC, 2007). It is a complex cross-cutting issue which is associated with consequences that threaten modern day development and sustainability. Actions and interventions responding to development challenges in a changing climate require an in-depth diagnosis of the likely impacts while crafting strategies and positioning the sectors to respond to identified risks while examining options and opportunities. Therefore, climate change impacts on water resources and development cannot be undermined.

Determining how important climatic variables will change, quantifying their natural variability on multi-decadal or longer timescales, provides an opportunity for better risk management, reduce the cost of managing the impacts of climate change, and enable exploration of potential opportunities. Detecting and demystifying future changes in the climate will enable development sectors' informed decisions and planning for climate change response and a resilient approach to tackling the challenges in order to sustain economic growth. This proposed work brings to attention a focus on updating climate change projections to enable the water and sanitation sector to plan effectively with up-to-date information in order to improve the adaptive capacity to deal with the future climate.

2. Main objective

To provide an update of climate change projections for South Africa and its implications on future water availability.

Specific objectives

1. Provide an updated climate change projections for South Africa (inclusive of CMIP6 data amongst others).
2. Downscale the projections to catchment/local scale.

3. Provide implications on future water availability/water security.
4. Recommend appropriate response actions.

3. Deliverables

1. Bias corrected, updated climate change projections with particular emphasis on water security.
2. Downscale projections at catchment/local scale.
3. Implications for resilience (future water availability/water security).
4. Recommended appropriate response actions at the sectoral level.
5. Print-ready final report.

Outcomes:

The project outcomes should contribute towards guiding the resilience of South Africa's water and sanitation sector under the projected climate change.

Budget: R3 million
Year 1: R900 000
Year 2: R1 100 000
Year 3: R1 000 000

Duration: 3 years