



TERMS OF REFERENCE FOR A SOLICITED WRC PROJECT

KEY STRATEGIC AREA	1&2 (Water resources and ecosystems)
THRUST	Thrust 3: Water Resources and Ecosystem Protection, Water Security And Utilization
PROGRAMME	National Dam Siltation Management Programme
TITLE	Demonstrating the use of the storage sustainability scoring system tool and dam operation model at Darlington, Hazelmere and Welbedacht Dams

Background and Rationale

The National Dam Siltation Management Programme is implemented by the Water Research Commission (WRC) and funded by the Department of Water and Sanitation (DWS). The Programme's overarching aim is to develop a strategy that will guide, advise, and ensure effective siltation management and with tools and models for the 320 plus DWS large state-owned dams. The programme also aims to produce knowledge and approaches to that will mitigate against future increases in siltation through the deployment of social, economic, technological, engineering and management systems tools and models.

The program is implemented in 3 phases:

- Phase 1. Development of a Siltation Management Strategy and related tools and models
- Phase 2. Piloting of the draft Strategy, tools, and models
- Phase 3. Review and revision towards a final strategy, tools, and models

Phase 1 entailed the development of the siltation management strategy as well as relevant tools, models, frameworks, protocols, guides and plans to assist with implementing the strategy. Four sub projects are currently underway in Phase 1 to develop methodologies for siltation management for pilot implementation—they are:

- Sub-project 1: Strategy Development
- Sub-project 2: Dam Sustainability and Classification Tool and Dam Basin Siltation Management Model
- Sub-project 3: Large Dam Sustainable Dredging
- Sub-project 4: Training and Capacity Development

Phase 1 is almost complete and Phase 2(piloting), is due to start in the new financial year - April 2022

Reports developed during phase 1 can be found in the link below, under TOR reports to provide context on phase 1:

<https://wrc.microsoftcrmpartals.com/call-for-proposals-info/tor-reports/>

Overview of proposed approach

Phase 2 will pilot and test the efficacy and veracity of the proposed draft sediment sustainability scoring system tool and dam operations model on 3 pilot dam sites (Darlington Dam in the Sunday's River Catchment, Hazelmere Dam in the Umdloti River Catchment and Welbedacht Dam in the Caledon and Modder River catchments).

Prototyping, testing and validation will be done in partnership with the DWS dam operators and DWS Provincial Offices at each site to ensure that they are trained to apply the methodology.

Objectives:

The aim of the project is to test the validity of the storage sustainability scoring system tool and the dam operations model and to identify changes and improvements.

The objectives of the project will be:

- To conduct a needs analysis on the catchments.
- To use the storage sustainability scoring system tool to determine the priority ranking of each dam.
- To classify each dam based on its sustainability and determine the level of detailed data required.
- To test the dam operations model on each dam, to identify interventions at the source, transfer and sink zones in the catchment area, and to prioritize the interventions and compare the most feasible interventions per site.
- To validate the storage sustainability scoring system tool and dam operations model.
- To identify monitoring, maintenance and operation activities needed to be implemented to ensure that interventions happen.
- To identify any changes, modifications that need to be incorporated into the sediment sustainability scoring system tool and dam operations model.
- To develop case studies on the work done at the 3 pilot sites (Darlington Dam, Hazelmere and Welbedacht Dam)
- To create awareness by conducting a training workshop with the catchment communities, scientific specialists and to transfer knowledge and skills by capacity building and training of DWS officials.

Deliverables:

1. Inception report, including a needs analysis of the dam catchment area pilot sites
2. A storage sustainability scoring system tool and operations model validation report
3. Case study report for each of the 3 pilot site (Darlington Dam, Hazelmere Dam and Welbedacht Dam)
4. Training and capacity building report
5. Print read final report

Time Frame: 6 months (April 2022 – September 2022)

Total Funds Available:

R750 000.00