forestry, fisheries & the environment
Department:
Forestry, Fisheries and the Environment
REPUBLIC OF SOUTH AFRICA

NAP Global Network

TERMS OF REFERENCE FOR CONSULTANCY CONTRACT

Development of Climate Change Adaptation Scenarios in support of the implementation of the National Climate Change Adaptation Strategy and Climate Change Act No. 22 of 20

BACKGROUND INFORMATION

Over the past decade, South Africa has experienced significant impacts from climate change, characterized by both environmental changes and socio-economic challenges. The country has experienced an average temperature increase of about 1.5°C for the past 10 years, with projections indicating further increases. Extreme weather events have become more frequent, affecting agriculture, water supply, health, infrastructure, etc. Climate change is predicted to be a major driver of environmental change which will exacerbate the existing threats on economy, environment, people, and social services. The increased frequency of extreme weather events, including heavy storms and floods, has caused damage to infrastructure and homes.

Communities across the country are expected to face substantial negative effects, with rural livelihoods particularly vulnerable in warmer and drier conditions, and urban and mixed rural/urban communities at risk in warmer and wetter conditions. Within communities, women and other people who face discrimination may experience higher vulnerability than others. To respond effectively to the impacts of climate change, the use of climate scenario for impact assessment is very important towards adaptation planning. Climate scenario information plays a central role in determining who or what is vulnerable and how to enhance the adaptive capacity for the vulnerable sectors and communities. They also serve as a potent tool enabling individuals, companies, and governmental bodies to expand their perspectives, envision potential futures, and skilfully plan for various outcomes.

South Africa has recently approved a Climate Change Act to enable the development of an effective climate change response and a long-term, just transition to a low-carbon and climate-resilient economy for the country. The Act further highlights the importance of developing climate scenarios grounded by scientific research and empirical evidence, to assist in identifying risks and vulnerabilities to predict impacts of climate change, and the development of well-informed adaptation strategies to enhance the countries adaptive capacity and build resilience.

The development of climate scenarios will also assist in the review or development of the National Adaptation Strategy, Sector Adaptation Plans, and the development of climate change needs and response assessment for the province, metropolitan or district municipality as required by the Act.

OVERVIEW OF THE ASSIGNMENT

The ultimate purpose of the assignment involves a four-step approach (or interconnected Work Packages) to support, science-based decision-making in the face of climate change. First, existing climate information, data and models will be analysed to establish a solid knowledge base. Next, this foundation will guide the development of refined climate scenarios that incorporate the latest science and reflect local conditions. Using these scenarios, comprehensive impact modelling will assess climate change effects across economic, social, and environmental sectors. The activities are grounded in stakeholder engagement, where efforts will be made to promote gender balance among the participants, to ensure representation of groups that face discrimination and are often excluded from climate decision-making, and to create space for dialogue that are accessible and facilitate meaningful participation by all.

DETAILED DESCRIPTION OF ACTIVITIES AND DELIVERABLES

Deliverable: 1 Project Work Plan

This activity involves developing a comprehensive work plan. The Terms of Reference will serve as a guide through detailed work timelines, stakeholder consultations, and reporting strategy.

- The detailed four work packages with identified key objectives and outcomes.
- Communication protocols, and meetings to monitor progress.
- Mapping Stakeholders, sectors for consultation and coordination mechanism.
- 4 x Expert consultation. 2 x virtual and 2 x physical. Comprising of academia, research institutions, officials from relevant sectors in the space
- Provinces to receive 3 stakeholder consultations, (27) consultations in total for the entire project with target audience of 50 participants per consultation.

Table 1: Stakeholder planning/consultations

Type of Consultation	Number of consultations	Target audience	Number of participants
-Provincial	3 x workshops per province (3 x 9) =27	-Provincial -District Municipality -Local Municipality -Community	50 per consultation
-Expert	**4 consultations** 2 x virtual meetings 2 x physical engagements	-Research institutions -Academia -Officials from relevant sectors	Maximum of 20 participants

Deliverable 2: Analysis of existing Climate Information, Data and Models

This activity involves a thorough review and synthesis of existing climate data, models, and scenarios. The objective is to establish a robust baseline of scientific understanding and identify knowledge gaps. The goal is to ensure that subsequent scenario development and impact modelling are grounded in the best available science, thereby enhancing credibility and relevance. This includes evidence on the social and gender dimensions of climate change impacts.

Activities to complete the deliverables.

- ***Literature Review and Policy Scan*** – Desktop research using academic databases, government websites, and international agency portals. Consult key policy documents, IPCC findings, and national climate strategies.

- ***Data, Models, Gaps, and Reporting*** – Engage with climate data repositories to assess data quality. Consult with climate scientists and review model outputs. Conduct stakeholder interviews and qualitative analysis to identify gaps. Draft a Situational Analysis report and organize a stakeholder validation workshop.
- ***Contingencies*** – Contingency fund administered by project manager for unforeseen costs.

Deliverable 3: Development of Climate Scenarios

This involves creating a suite of plausible future climate scenarios that build upon recognized global and regional and incorporate the latest scientific research and local context. The objective is to produce a set of narratives and quantitative pathways that reflect potential climate outcomes under varying trajectories, or adaptation measures.

Activities to complete the deliverables.

- ***Scenario Framework Design*** – Review IPCC or other source baseline scenarios. Select key parameters (e.g., temperature, precipitation, extreme events). Establish scenario axes (e.g., policy ambition, technology uptake)
- ***Data Downscaling, Regionalization, and Scenario Development*** – Use regional climate models (RCM) or statistical downscaling tools. Partner with meteorological agencies for data validation. Liaise with economists and policy analyst. Workshops with climate scientists and communication experts. Draft scenario storylines.
- ***Stakeholder Engagement and Consultation*** – Conduct participatory scenario planning workshops. Interviews/surveys with sector representative. Incorporate Indigenous and local knowledge and information on social and gender dimensions where applicable.
- ***Sensitivity Analysis, Uncertainty Assessment and Finalizing Scenario Output*** – Apply statistical analysis or scenario stress testing. Document key uncertainties and potential scenario deviations. Integrate quantitative and qualitative elements into final reports and communication materials.
- ***Contingencies*** - Discretionary fund managed by the project manager.

Deliverable 4: Impact modelling

This deliverable focuses on evaluating how the derived climate scenarios are likely to affect economic, social, and environmental systems—particularly those highlighted in the governing legislation or guidance (e.g., as per Schedule 2 of the Act). The objective is to link climate scenarios to sector-specific impacts, identifying vulnerability hotspots, risks, and potential adaptation needs.

Activities to complete the deliverables.

- ***Sector Identification and Prioritization*****:** Consult stakeholders to determine priority sectors (e.g. agriculture, water, biodiversity, infrastructure, health). Review policy documents (Schedule 2 of the Act) and regulatory requirements and confirm the scope and modelling boundaries.
- ***Data Integration and Pre-processing*****-** Consolidate outputs derived from climate scenarios, obtain data from credible sources like government agencies, research institutions and industry bodies. The data will be cleaned, converted to the required format and checked for quality purposes.
- ***Model Selection and Customization***- Review existing sector models and these will be adapted to local conditions and data. Output scenarios will feed into the sector models.
- ***Model Calibration and Validation***- Compare historical impacts with model output data using historical data. Conduct statistical validation assessments and gradually improve models by engaging with expert feedback.
- ***Scenario-Based Impact Simulation***- Run Agriculture and Water sectors models in batches of different timeframes (2030, 2050, 2070). Conduct a parallel computing process (breaking down modelling tasks and run them simultaneously). Compile scenario-specific impact projections, both qualitative and quantitative.
- ***Economic and Social Cost Benefit Analysis***- Integrate economic modelling tools to translate biophysical impacts to socio-economic impacts, disaggregating by gender and social groups wherever appropriate and feasible. Assign monetary value to environmental and social externalities where possible. Collaborate with economists and social scientists.
- **S*ynthesis and Reporting of Results*-** Draft a multi-sectoral impact report with sectoral policy briefs. Create visuals for impact data visualisation like GIS maps, infographics, and online dashboards. Conduct internal and external review sessions.
- ***Capacity Building and Knowledge Transfer*-** Conduct training workshops and webinars, develop use manuals and guidance documents. Assist decision makers in integrating findings into adaptation plans.
- ***Contingencies***- Establish funds that will be used for unforeseen tasks and the allocation of funds should be managed by the project manager.

Table 2: Timelines for the deliverables

#	Packages	Estimated duration	Start	End
1.	Workplan	1 Month	April	April
2.	Analysis of existing Climate Information, Data and Models	4 Months	April	July
3.	Development of Climate Scenarios	6 Months	April	September
4	Impact modelling	6 Months	April	September

BUDGET

The maximum budget for professional fees for the delivery of the assignment is ZAR 3.8 M. Other costs, such as workshops and any travel required, will be treated separately.

HOW TO APPLY

Prospective candidates may submit expressions of interest to info@napglobalnetwork.org with the subject line: *Expression of Interest: South Africa Adaptation Scenarios*.

The expression of interest should include:

- A cover letter describing relevant skills and experience for the assignment (max 2 pages).
- A technical proposal explaining your understanding of the assignment as described above, including key principles, approaches and tools that you would employ in its delivery (max 4 pages).
- A financial proposal outlining the fees for all team members involved in the assignment. Other costs such as workshops do not need to be included in the proposal.
- CVs for all team members.

Any documentation beyond that described above will not be reviewed.

Expressions of interest are due by COB on Monday, April 7.