Terms of Reference

IGAD Climate Prediction and Applications Centre

(ICPAC)

Project Name: Human Mobility in the Context of Disasters and Climate Change in the IGAD Region (MoDiaC)

Project ID Number: 81318745_FA_IGAD.

Project Implementation Unit: IGAD Disaster Risk Management Programme

Terms of Reference

for

Consulting Services to Assist ICPAC with Displacement Data Modeling

Client

IGAD Climate Prediction and Applications Centre (ICPAC)
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1. Introduction

The Intergovernmental Authority on Development (IGAD) is one of the Regional Economic Communities (RECs) of the African Union Commission. Established in 1986 as the Intergovernmental Authority on Drought and Development (IGADD) to coordinate the member states' efforts in combating drought and desertification. In 1996, IGAD was revitalized, expanding its mandate and renamed Intergovernmental Authority on Development (IGAD). IGAD has various divisions and specialized institutions including the IGAD Climate Prediction and Applications Centre (ICPAC) which provides climate services and applications, including disaster risk management (DRM).

The Mobility, Disasters and Climate Change Project (MoDiaC) aims to enhance regional cooperation and strengthen the technical and institutional capacities of IGAD and its member states in addressing disaster and climate-induced displacements. The project focuses on developing sustainable, data-driven solutions for managing climate and disaster-induced human mobility through improved early warning systems, risk modeling, and policy frameworks.

To support these efforts, ICPAC is recruiting a Senior displacement Data Modeler to support the development, integration, and application of disaster displacement risk models within the East Africa Hazards watch system. This role will enhance data quality, sustainability, and usability for decision-makers and policymakers in the IGAD region.

2. Objective of the Assignment

The goal of these consulting services is to assist the MoDiaC project in developing displacement risk models and integrating them into ICPAC’s Hazard Watch. This includes ensuring the integration of climate, environmental, and disaster data to support displacement risk assessment, monitoring, forecasting, and the implementation of anticipatory actions.

3. Scope of services and specific tasks

3.1- Scope of services

The consultant will develop displacement risk models and integrate them into ICPAC's Hazard Watch, including climate, environmental, and disaster data to support risk assessment and anticipatory actions.

3.2. Specific Tasks

The consultant will be responsible for undertaking the following tasks:

2.1. Develop, enhance, and operationalize displacement risk models to support early warning and anticipatory action for disaster and climate-induced displacement.

2.2 support the collection, aggregation, and analysis of disaster displacement data in the IGAD region.

2.3. Ensure integration of displacement risk data within the East Africa Hazards Watch system and IGAD Geoportal.

2.4. Support the development of disaster displacement forecasting methodologies that combine climate, socio-economic, and environmental factors to predict human mobility trends.

2.5. Assist in model simulations and automate data processing to ensure efficient and real-time analysis of displacement scenarios.

2.6. Engage with policymakers, partner organizations, and researchers to ensure the usability and effectiveness of displacement models for decision-making processes.

2.7. collaborate with developers, geospatial analysts, and climate scientists, and improve modeling systems and visualization techniques.

2.8. Provide technical guidance and capacity building to IGAD member states on integrating displacement risk assessments into national and regional policies.

2.9. Enhance data dissemination methods to ensure early warning information is delivered to relevant stakeholders on time.

2.10. Develop, Integrate, and automate existing drought and flood displacement models within the ICPAC Hazard Watch portal.

2.11. Ensure the timely and accurate transfer of displacement data from partner agencies to the ICPAC's systems.

2.12. Explore and apply advanced technologies and methodologies to enhance disaster displacement projections.

4. Duration and Location of the assignment

The assignment should be completed within six **(6) calendar months** from the start date of the contract, with the possibility of extension based on performance and funding availability.

The consultant will work and report from the ICPAC office in Kenya.

5. Results and Deliverables

The expected deliverables for the consultant include the following key outputs aimed at developing displacement risk models and integrating them into ICPAC's Hazard Watch.

Deliverables and Reporting Schedule (Six Months)

Deliverables/Report	Timeline after contract start (calendar days)	Format & Submission
Inception Report: Work plan, methodology, and timeline for reviewing and operationalizing displacement risk models	14	One electronic copy to supervisor; additional copies to Head of DRM Programme and ICPAC Director
Model Review & Selection Report: Assessment of existing displacement risk models and selection of those most suitable for the IGAD region (drought, flood, cyclone, etc.)	30	One electronic copy; technical presentation to DRM Unit
Draft Forecasting Report: Selected models integrated into ICPAC Hazard Watch and **producing initial displacement forecasts** (simulations, scenario runs)	45	One electronic copy; presentation at validation workshop
Operational Forecast Progress Report: Documentation of model runs, automated forecasts, and early warning dissemination to stakeholders	46	One electronic copy; short presentation in DRM coordination meeting
Final Forecasting & Recommendations Report: Refined, validated models **generating regular displacement forecasts**, with policy recommendations and sustainability plan	45	One electronic copy to supervisor; additional copies to ICPAC Director and MoDiaC Coordinator; presentation at final workshop

6. Required Qualifications & Experience

Education:

- Master's or PhD in Data Science, Spatial Modelling, Climate Science, Environmental Studies, Migration Studies, or a related field.
- At least 7 years of experience in environmental system modeling, data analysis related to displacement and migration, climate-related hazard monitoring, forecasting, and disaster displacement risk assessment
- Strong knowledge of human mobility, anticipatory action, and climate change-related aspects.
- Proven experience in displacement risk assessment, climate migration modeling, or early warning systems development.

Technical qualifications:

- Strong knowledge of statistical modeling, predictive analytics, and machine learning techniques for human mobility forecasting.
- Extensive experience in developing and applying disaster displacement risk models.
- Experience working with geospatial data, climate models, and socio-economic datasets.
- Proficiency in programming languages for data modeling and analysis such as Python, R, or MATLAB.
- Extensive experience with GIS systems (e.g., QGIS, ArcGIS) and remote sensing tools for spatial analysis.
- Experience in interacting with OGC geospatial frameworks, open data standards, and data interoperability techniques.
- Ability to translate complex model outputs into decision-support tools for policymakers.
- Knowledge of early warning systems, disaster risk reduction (DRR), disaster displacement, and anticipatory action frameworks.

7. Core competencies

- Strong analytical and problem-solving skills.
- Excellent communication and report-writing abilities.
- Ability to work in interdisciplinary teams and engage with diverse stakeholders.
- Adaptability, continuous learning and knowledge sharing

8. Reporting and Supervision

The consultant will be under the overall supervision of the Director of the IGAD Climate Predictions and Applications Centre. Technical reporting will be to the Programme Coordinator of the IGAD Disaster Risk Management program at ICPAC, and the Project Thematic Lead. The consultant will work closely with the ICPAC technical team, including climate scientists and geospatial analysts.