Consultancy: Consultant for Developing an IGAD Resilience Measurement Dashboard

Organization: IGAD Climate Prediction and Applications Centre – ICPAC

Project: IFRAH – ICPAC

Contract type: Individual Consultancy

Closing date: **06 October 2023 at 17h00 East Africa Time**

Consultancy duration: no more than 20 days

Background

The likelihood of high-impact weather events and climate extremes occurrence, such as droughts and floods, determines the mode of livelihood pursued by communities and the success of strategies in the face of climate shocks. In particular, droughts, which are complex natural hazard that are global in nature, affect food security through their influence on setting up decision priorities, such as adoption of agricultural methods, aggregate production, commodity prices and economic development policies and strategies and hence the ability of individuals, communities and nations to produce and/or purchase food.

A large proportion of Africa's landmass is arid and semi-arid lands (ASALs) – an ecosystem that climate change projections predict would face increased frequency and intensity of drought events. For example, over hundred million people in Africa are projected to be exposed to increased water stress due to decreases in precipitation and more frequent hot extremes as a result of climate change. Similarly, yields from rain-fed agriculture is predicted to be reduced significantly (up to 50%), severely affecting the food security and worsening malnutrition. The IGAD region, over two-third of which comprises arid and semi-arid lands, is characterised with frequent and high-risk drought-related disasters that pose considerable threat to the livelihoods of pastoralists, agro-pastoralist and subsistence farmers.

In particular, the 2011 Horn of Africa drought, that affected more than ten million people, put extreme pressure on food prices, livestock survival and water and food availability in some parts of IGAD region, exposing the damaging impact of recurrent droughts and their dire humanitarian consequences. As vulnerability to drought has increased regionally, greater attention and priority have lately been accorded to reducing risks associated with its occurrence. The Heads of State and Government of countries in the Horn of Africa, international development partners and other stakeholders convened a Summit in Nairobi in late 2011, in which they introduced an IGAD Drought Disaster Resilience and Sustainability Initiative (IDDRSI) to end drought emergencies.

To this end, understanding the past, present status and future dynamics of resilience in the IGAD region is critical to inform policies, and shape resilience programming in the region. Against this backdrop, the IGAD Climate Prediction and Application Centre (ICPAC) is, through IGAD Food Security, Nutrition and Resilience Analyses Hub (IFRAH) and with the support of the USAID, developing a dashboard to visualize the IGAD region's state of resilience.

Importance of Resilience Measurement Approaches

The dynamic nature, complexity and continuity of shocks (natural or otherwise) in the Horn of Africa (HoA) undermine the state of food security and well-being of the communities living in the region. Policy makers, implementers and researchers are, therefore, increasingly recognising the importance of adopting long-term approaches in responding to climate change implications on the vulnerable communities' livelihoods. Such approaches are required to facilitate the investments necessary for appropriate and sustainable development, allowing the vulnerable pastoralists and subsistence farmers either to adapt to their changing environment or transition into alternative and more resilient livelihoods.

Although, resilience has multiple definitions, it is generally understood as the 'ability to anticipate, plan for, avoid, cope with, recover from and adapt to climate related shocks and stresses (Bahadur et al, 2015). Holling, described it as "the degree to which a system is capable of self-organisation, learning and adaptation: a measure of the ability of systems to absorb changes of state variables, driving variables, and parameters, and still persist". DFID defines resilience as: "the ability of countries, communities and households to manage change by maintaining or transforming living standards in the face of shocks or stresses without compromising their long-term prospects (DFID, 2011). Within the UN (Combaz, 2014) system it is thought of as "the capacity of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner".

As a capacity, resilience is comprised of a set of *ex ante* attributes that should shift the likelihood function that describes the relationship between shocks and development outcomes, such as food security, positively. Shocks and particularly their magnitudes are inversely related to the well-being of individuals or systems. The following function highlights the relationship among well-being (such as state of food security), resilience capacity and shocks.

$$Well - being = f(Resiliencecapacity, Shocks)$$

The above function seeks to define resilience as a capacity that prevents individuals, households, communities or systems from falling below a defined level (threshold) for a given shock with a known severity (e.g., drought, flood, earthquake), below which the well-being of individuals, households, communities or systems is unacceptable. It is however, important to know that, while defining threshold is useful, the majority of communities in the shock-prone environments fall below the well-being threshold, both before and after being exposed to shocks. Resilience measurement methods should therefore contain indicators and criteria that help one identify those instances when the return to a prior state is and when it is not desirable.

Indeed, the configuration of capacities that constitutes resilience will differ depending on the shock against which those capacities are indexed.

It is rightly said that "what gets measured gets improved". It is important, therefore, to highlight that if we cannot measure resilience, it is impossible to know the effectiveness of our resilience-strengthening interventions or to make data-driven decisions to manage and conceptualize resilience and improve it as necessary. While progress has been made globally, on resilience measurement and analysis, how evidence from such measurement activities may support country and regional level decision making requires a focused response. That is, to be effective, resilience measurement evidence is required to be more directly connected to decision making within countries and across regions.

The Rationale of the IGAD Protocol for Resilience Measurement (IPRM)

The rise of interest in resilience has surely, led to calls for dynamic ways of measuring resilience at different levels. As resilience is a latent variable, which cannot be directly observed in the survey, it must be estimated through observable variables, with the assumption that the observed variables are manifestations of an underlying unobserved concept.

There is a number of frameworks and tools intended for resilience measurement. For example, the Technical Assistance to NGOs, International (TANGO) resilience measurement practice relies on a conceptual framework whereby resilience capacities are broken down into three dimensions - Absorptive capacity (*ex-ante*), Adaptive capacity (*ex post*) and Transformative capacity. Similarly, BRACED[1] divides resilience capacities (Bahadur et al, 2015) into interlinked absorptive, anticipatory and adaptive capacities, assuming a system with these capacities is less likely to be undermined by shocks and stresses. Within the context of BRACED, transformation is not considered a capacity that contributes to resilience in the same way as the anticipatory, absorptive and adaptive capacities do. Transformation is viewed as an approach to holistically and fundamentally build, reshape and enhance people's capacity to adapt to, anticipate and absorb shocks and stresses

Although, FAO's RIMA II[2] acknowledges the theoretical validity of the above frameworks, it practically introduces "resilience pillars" which breaks resilience capacity into four pillars – namely access to basic services; assets; social safety net; and adaptive capacity. Each pillar falls at least under one of the three capacity types of TANGO's and BRACED's conceptual frameworks.

However, despite the overwhelming interest and investments in the subject, Member States and IGAD institutions do not have a structured (evidence-based) and agreed upon framework for measuring and analysing resilience in the region. This gap was highlighted in the review of the first phase of IDDRSI (2013-2018) and emphasised in the IGAD regional strategy (2016-

[1] Building Resilience and Adaptation to Climate Extremes and Disasters
[2] Resilience Index and Measurement Analysis - II

2020), with renewed interest to have a regional approach in resilience measurement and analysis.

Therefore, developing a dashboard to visualize the IGAD state of resilience will provide a number of benefits for the organization and its stakeholders. Such a resilience visualizing dashboard will play a crucial role in monitoring and enhancing the region's capacity to withstand and recover from various challenges, including natural disasters and economic shocks. It will provide a centralized platform to collect, analyze, and present data related to the resilience of IGAD member states in a manner that enables informed decision-making, as policymakers and stakeholders can identify trends, vulnerabilities, and areas of improvement. In addition, a publicly accessible dashboard promotes transparency by sharing information about the resilience efforts and progress of member states. This will help hold governments and organizations accountable for their commitments to building resilience.

Similarly, by aggregating data on various indicators such as weather extreme events, economic indicators, and social factors, the dashboard will serve as an early warning system, allowing for timely response and intervention to prevent or mitigate the impact of crises. The dashboard will also support identifying the sectors that are most vulnerable or require immediate support and will therefore assist in assist in allocating resources effectively. It is also important to highlight that the visual representation of resilience data will facilitate cross-border collaboration and knowledge sharing among member states. Countries will be able to learn from each other's experiences and strategies to improve their own resilience initiatives.

Objectives of the Dashboard

The primary objective of the dashboard is to track the progress of resilience-building efforts over time. This includes assessing changes in vulnerability levels, capacity to cope with shocks, and recovery rates after incidents. It will help identify trends and patterns in resilience-related data. This could, for instance, involve tracking correlations between economic growth and disaster impacts. Moreover, with the dashboard, the effectiveness of the resilience-strengthening interventions and policies will be evaluated by measuring their impact on various resilience indicators.

More importantly, the dashboard is intended to provide decision-makers with actionable insights, by presenting information in a clear and understandable manner. It will engage a wide range of stakeholders, including governments, NGOs, researchers, and the public and serve as a platform for sharing knowledge, fostering partnerships, and encouraging collective action. The dashboard will furthermore, raise awareness about the importance of resilience and its connection to various aspects of development. It can also advocate for increased investment in resilience-building efforts.

Objectives of the consultancy service

The consultant will be responsible for developing a functional and interactive dashboard that accomplishes the following objectives:

a) Utilize the IGAD Protocol for Resilience Measurement (IPRM) framework to visualize the calculated resilience indexes for each member country.

b) Combine the normalized scores of the nine high-level indicators to derive an overall resilience index for each country.
c) Implement a color-coded system to interpret the overall resilience index, categorizing countries as crisis (red), concern (orange), moderate (yellow), and resilient (green) based on specific index ranges.
d) Provide an intuitive and visually appealing interface that allows users to explore the resilience data, compare countries, and access detailed information on criteria and sub-criteria.

Scope of Work

The consultant's responsibilities will include, but not be limited to:

a) Collaborating with IGAD stakeholders to gather requirements and understand the technical specifications of the dashboard;
b) Designing and developing an interactive dashboard that accommodates the IPRM framework, including the calculation of high-level indicators, sub-criteria, and overall resilience indexes;
c) Implementing data visualization techniques, including graphs, charts, and maps, to effectively present the resilience data;
d) Integrating a color-coded system that clearly represents the interpretation of the overall resilience indexes;
e) Ensuring the dashboard is user-friendly and responsive, accessible on various devices and browsers;
f) Incorporating a search and filtering functionality for users to explore specific countries, indicators and criteria;
g) Providing an option for users to access detailed information on the criteria and sub-criteria contributing to the resilience indexes;
h) Testing the dashboard extensively to identify and rectify any bugs or performance issues;
i) Documenting the dashboard's architecture, design decisions, and usage instructions for future reference.

Deliverables

The consultant is required to provide the following deliverables:

Inception Report

- This report will provide a comprehensive outline of the consultant's proposed plan. It will detail the step-by-step sequence of activities, the methodology that will be employed, and the projected timeframe for each phase.

Regional Resilience Dashboard

- The consultant will create a fully operational dashboard that is built upon the IPRM (Integrated Peace and Resilience Management) framework. This dashboard will serve as a dynamic tool to assess and enhance the resilience of the IGAD region. It will offer real-time insights and data visualization to aid decision-making.

Source Code and Technical Documentation

- A complete set of source code for the dashboard will be provided, accompanied by detailed technical documentation. This documentation will not only explain the development process and underlying technologies but will also include a comprehensive Standard Operating Procedure (SOP) for maintaining and updating the dashboard.

User Documentation

- The consultant will prepare user documentation that provides clear instructions on how to effectively navigate and utilize the dashboard. This will ensure that IGAD stakeholders can make the most of the tool's features and functionalities, enabling them to gather insights and make informed decisions.

Presentation to Stakeholders

- The consultant will conduct a presentation to showcase the dashboard's various features and capabilities. This presentation will be targeted at IGAD stakeholders, demonstrating how the dashboard works, how it can be customized to meet specific needs, and how it contributes to the region's resilience goals.

Qualifications

The candidate applying for the consultant role is expected to meet the following qualifications and requirements:

Educational Background:

- The ideal candidate is required to hold a Postgraduate degree, at the Master's level or higher, in a field that is pertinent to the role. This degree must be from a recognized and accredited university.

Expertise in Interactive Data Visualization:

- The candidate should possess a proven track record of expertise in creating interactive dashboards and crafting data visualization tools. Their experience in this domain should be well-demonstrated and impactful.

Proficiency in Programming Languages and Visualization Libraries:

- The consultant must have a strong command of relevant programming languages, such as JavaScript and Python, which are fundamental for creating dynamic and engaging visualizations. Additionally, proficiency in using visualization libraries like D3.js and Plotly is essential for translating data into meaningful visual representations.

Knowledge of Resilience Measurement Frameworks:

- An understanding of resilience measurement frameworks and associated concepts is desired. The candidate should be familiar with the methodologies and principles used in assessing and quantifying resilience.

Effective Communication and Stakeholder Engagement:

- Excellent communication skills are a must. The candidate should be adept at conveying complex insights through clear and concise communication. Additionally, the ability to collaborate seamlessly with various stakeholders is crucial for the success of the role.

Reporting

The consultant will report to the Dr Getahun Kassa (getahun.kassa@igad.int), the Regional Resilience Analyst, providing regular updates on progress and seeking clarification on requirements when necessary.

Budget

The budget for this consultancy will be discussed and negotiated based on the consultant's proposal and IGAD's available resources. Interested consultants are invited to submit their detailed proposals, outlining their approach, methodology, timeline, and budget.

Application Process

All applications must be received in email (Hard copies will not be accepted) with subject line ‘‘Individual consultancy - Consultant for Developing an IGAD Resilience Measurement Dashboard’’. Applications should be received by **06 October 2023 by 1700HRS EAT**, Include Technical proposal (clearly outline your approach, methodology and timeline) and Financial proposal to the following Address: procurement@icpac.net .

The financial proposal should be separate and password protected. Password should be sent to the Procurement Person when requested through official email(procurement@icpac.net). Please ensure that the proposals are attached as files. The subject of the email must clearly specify the title of the Consultancy. The proposals will be evaluated based on experience, methodology, and budget.

ICPAC looks forward to collaborating with a consultant who can develop a robust and user-friendly dashboard that effectively communicates the IGAD region's state of resilience using the IPRM framework.