



## **TERMS OF REFERENCE FOR ATLAS CONSULTANCY**

### **1. BACKGROUND**

The Protocol Agreement between the African Development Bank Fund (ADF) and the African Centre of Meteorological Applications for Development (ACMAD) in connection with the Institutional Support to African Climate Institutions Project, and that between ACMAD and the Southern African Development Community (SADC) has approved a Grant for the Institutional Support to African Climate Institutions Project (ISACIP).

This ISACIP will support the first component of the ClimDev-Africa program, which seeks to enhance the capacity of African climate centres to generate and make widely available relevant climate-related information to end users. These centres are: the African ACMAD, the Agro meteorology and Hydrology Regional Centre (AGRHYMET), IGAD Climate Prediction and Application Centre (ICPAC) and SADC Climate Services Centre (CSC) former Drought Monitoring Centre (DMC). It will also enhance the capacities of selected African scientists to generate appropriate climate-relevant information and disseminate these through appropriate channels to intended end-users.

SADC CSC is the Regional climate organization hosted by the Botswana Department of Meteorological Services (BDMS) since its relocation to Gaborone. The purpose of the SADC CSC is to ensure that a sub regional mechanism for monitoring and predicting extremes in climate condition is operational. The CSC carries its mandate through development, generation and dissemination of meteorological, other environmental and hydro-meteorological products. The products have also made valuable contribution to increasing the region's disaster preparedness for and efficient management of weather and climate-induced calamities which constitutes more than 80% of all natural disasters worldwide. It trains personnel from principally the SADC national Meteorological/Hydrological Services (NMHSs) in climate prediction and the user-communities in the region in application of climate products and services for optimum socio-economic development which is highly sensitive to vagaries of weather and climate. One of the sub-component of the project is conducting of the Hydro-climatic Atlas of the Southern Africa Development Community Region.

## **2. Description**

The SADC CSC has the idea of developing a Southern Africa Hydro-climatic Atlas with a focus on the observed and modeled climate of Southern Africa. The Atlas should have at least eleven parts, with a one part on FAQs on African Climate in draft form. Parts I and II are on the observed climatology over Southern Africa. Part III deals with homogeneous zones in term of climatic system. Part IV depicts key water basin, Part V describes coastal and island features. Part VI will deal with agro-ecological zone in the SADC Region. Part VII will map the climatic risk in the region. Part VIII will feature on climate and pollution. Part IX will project the future climate scenario. Part X will assess the climate impact on socio-economic sectors. It is a working tool for

- engineers and architects,
- meteorologists and climatologists,
- agronomers and biologists,
- settlement-planners
- landscape designers
- teachers and students,
- journalists and
- politicians.

The Hydro-climatic Atlas is intended to satisfy readers' curiosity in the update of the current status of climate variability and extreme and answer how will our climate system change over the next 50 to 100 years? It is the showcase for the state-of -the-art earth system which induces the climate phenomena. The atlas focuses on both the observed current climate system and the projection of the future climate system change to 2100 using the scenarios based on climate models. This provides the research and application community interested in the impact of climate change on fields such as agriculture, ecosystem, environment, water resources, energy, health, economy, risk governance and international negotiation, etc. with the newest climate change projection information. Additionally, the atlas will show the reanalysis climate data over the region. The consultant will update the old existing atlas at the national level and will create an e-Atlas version with an easy friendly interface.

## **3. Terms of the Consultant**

Within the specific context of Southern Africa Region the following are the Terms of Reference for the Consultant

### **3.1 Objective:**

The main objective for the consultant is to assess the current status of the hydro-climatic parameters within the framework of the climate variability and predictability (CLIVAP). He/she should identify appropriate database that would lead to a development of a regional hydro-climatic atlas in line with the specifications of the observed and modelled database for Southern Africa with the purpose for developing regional network. He/she must furthermore assess the status of major policy barrier in the sharing of the climate

information in the context of WMO information system (WIS) and come out with a synchronized agreement in sharing of climatic data among the Member States within the region. The task entails the provision of an overview of the global data sets available, including a short description of their coverage and scale, and a short assessment of the main information gaps. In order to have a consistent data format across all participating countries, this task will also identify the metadata fields required for each data set available. The mock-up will be prepared as a simple web-based demonstration site that shows several regional data sets that can be integrated for analysis. The final activity is the production of a working prototype, with a user interface and the underlying database.

### **3.2 Specific duties:**

- Review of relevant literature in the area of climate database and policy;
- Assess the current representatives of climate monitoring system in the region;
- Provide specifications and the cost for state of the art of weather and climate measurement stations;
- Undertake Global Data Inventory and building of Metadata Standards
- Conduct a water Basin-Level Data Inventory
- Identify data sharing barrier policy
- Developing a Mock-Up of the E-Atlas
- Convene a validation workshop;
- Produce a Prototype

### **3.3 Scope of Assignment:**

The consultant will work under the coordinator of the project and will maintain close collaboration with Database specialist of each Member States.

He/she will organise meetings with the national database experts and field trips to the various measuring/monitoring stations. Most of the work will need to be conducted in capital city of Member States in order to facilitate close collaboration with the national database expert and in order to have easy access to local technical experts working involved in data management.

### **3.4 Deliverables:**

1. The main deliverable is a comprehensive report detailing the findings of the assessments including recommendations including at least the following context:

Part I- Climatology

Part II- Anomalies

Part III- Homogeneous zones  
Part IV- Key water basin areas  
Part V- Coastal and Island zones  
Part VI- Agro-ecological zones  
Part VII- Climate Risk Mapping  
Part VIII- Climate pollution  
Part IX- Regional Climate Scenario  
Part X- Regional Climate Impact assessment  
Annex I- FAQs

2. All documentation and reports must be given to the client in both electronic and hard copy.
3. Presentation of all findings and recommendations of the consultancy to stakeholders prior to completion of the assignment.
4. Final Report incorporating all comments and corrections from stakeholders provided.

### **3.5 Timeline**

The assignment is expected to start around 1<sup>st</sup> March 2014. The consultant is expected to spend 60 days collecting background information, and 120 days to carry out the assessments and to produce the expected deliverables.

### **3.6 Required skills and experience**

The team will be compound by:

- (i) A Lead Consultant,

Provides leadership of the overall assignment and provide technical guidance and coordinate the work of the national Database experts. The lead consultant shall be a climate scientist or equivalent with at least 15 years working in areas relevant to the consultancy. Other competences include evidences of having undertaken similar assessments in the past,

The lead consultant will be responsible for producing the final report.

- (ii) National Experts

At least one expert from each of the fifteen (15) SADC-CSC member countries. The national database experts should have good knowledge of the NMHSs, and must have

undertaken similar tasks in the past. He/she should have a working experience of not less than 10 years

**Education:**

- Post graduate university degree in physics, Meteorology, environmental science, engineering, or acceptable qualification in relevant field, plus specialization in Database management, GIS, environment and climate change or related area is desirable.
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**Experience:**

- At least 10 years of professional experience in the area of Climatology with specialization in GIS, climate adaptation of natural systems to climate change and climate change vulnerabilities;
- Demonstrated experience in climate data management, analysis and interpretation;
- Excellent understanding and familiarity with technical equipment required for WIS;
- Demonstrated understanding of international policies and programmes as they relate to climate variability and predictability;
- Ability to communicate effectively orally and in writing in order to communicate complex, technical information to both technical and general audiences;
- Demonstrated experience in designing, coordinating and managing research projects/activities;
- Excellent communication, writing and reporting skills;
- Demonstrated effective interpersonal and negotiations skills and ability to coordinate complex, multi-stake-holder projects;
- Maturity and confidence in dealing with senior and high-ranking members of international, regional and national institutions;
- Good team player and has ability to work under minimum supervision and maintain good relationships;
- Computer literacy;
- Excellent written and spoken fluency in English.