CLIMATE MONITORING AND PREDICTION SERVICES IN SOUTHERN AFRICA


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Southern African Development Community
Format of Presentation

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INTRODUCTION

- The SADC has the Meteorology Sector which is a whole Chapter from Protocol of Transport, Communications and Meteorology.

- As part of the Protocol, the SADC Climate Services Centre (CSC) is an institution of Southern African Development Community (SADC) comprising 15 member states with well over 260 million inhabitants.

- The SADC countries experience recurrent climatic extremes such as droughts, floods, tropical cyclones, which often result in negative impacts on socio-economic development of the Member States.

- The region is also susceptible to epidemiological diseases such as malaria and cholera that are influenced by climatic factors.
Objectives of the Meteorology Sector

The objective for the Meteorological Sector is to establish systems and infrastructure that are fully integrated, efficient and cost effective to meet the requirements of the users, and to minimise adverse effects associated with the severe weather and climate phenomena.

This objective is espoused in the Meteorology Chapter of the SADC Protocol on Transport Communications and Meteorology.
The Priority areas for Meteorology Sector Programme as approved by the Meetings of Ministers Responsible for Transport and Meteorology:

- To implement Meteorology Projects.
- To facilitate regional and international cooperation in support of MASA in collaboration with the WMO and NMHSs.
- The Climate Services Centre priority is to provide services and products as agreed to from time to time by the diverse stakeholders.
- To convene SARCOF.
Climate Services Centre

SADC Climate Services Centre (CSC) is an institution of Southern African Development Community as a response to address:

- Widespread and recurrent climatic extremes such as droughts, floods, tropical cyclones, which often result in negative impacts on socio-economic development of the Member States.
HISTORICAL BACKGROUND OF DMC/CSC


- Central objective to have regional approaches in mitigating adverse climate impacts to socioeconomic developments.

- Initial funding from UNDP.

- Next funding from the Belgian Government, with a condition that SADC gradually takes over the funding of the then DMC Harare within the framework of the Protocol on Transport, Communication and Meteorology.

- Since April 2002, core activities are funded by SADC.

- However, programme activities are still being funded by cooperating partners: AfDB, WMO, USAID, NOAA, ISDR, WB, and others.
ROLE OF THE SADC CSC

1) OBJECTIVE

To contribute to mitigation of adverse impacts of extreme climate variations on socioeconomic development.

- This is achieved through the monitoring of near real-time climatic trends and generating medium-range (10-14 days) and long-range climate outlook products on monthly and seasonal (3-6 months) timescales.

- These products are disseminated in timely manner to the communities of the sub-region principally through the NMHSs, regional organizations, and also directly through email services to various users who include media agencies. Our products are readily available on our website: http://www.sadc.int, e.mail address is: dmc@sadc.int
The provision of products and services enables the formulation of appropriate strategies to combat the adverse effects of climate extremes on socio-economic development.

Since establishment, the center has played an important and useful role in providing the sub-region with weather and climate advisories and more importantly, timely early warning on drought, floods and other extreme climate events.
2. OPERATIONAL ACTIVITIES

- Developing and archiving of global, regional and national quality controlled climate databanks

- Providing of climate monitoring, prediction and application services,

- Conducting training and capacity building activities in the generation and application of climate products,

- Organizing the Climate Outlook Forum for the SADC region,

- Enhancing the interactions with the user through regional users workshops and application pilot projects.
3. CAPACITY BUILDING ACTIVITIES

- Training SADC (NMHSs) staff on developing climate monitoring and prediction techniques of NMHSs through Southern Africa Region Climate Outlook Forum (SARCOF) process.

- Developing synergies with sister organization in order to provide best practice in climate diagnosis & prediction.

- Strengthening links with users from sectors such as health, food security (early warning systems), water resources management, media, tourism industry, etc.
Climate monitoring & prediction at CSC

- Meteorology has come a long way in its endeavour to give usable seasonal or long range weather forecasts. Today, a good number of climate scientists are involved in providing in seasonal climate prediction.
- The basis for most long range rainfall predictions is the understanding that, large scale climatic anomalies lasting for several months are most likely to be a result of large scale and long-lasting anomalies in the ocean-atmosphere behaviour.
- The El-Nino/Southern Oscillations one such phenomenon and major volcanic eruptions are another possibility as well as variations in solar irradiance.
- The presence of large scale sea surface temperature anomalies (SSTAs) mainly in tropical areas of the world’s oceans can affect local and sometimes near-global atmospheric circulation.
TOOLS TO MONITOR AND PREDICT WEATHER & CLIMATE

Standardised mean Southern Africa rainfall anomalies with SOI

Fig. 2(a) Total rainfall in Southern Africa

Fig. 4: Rainfall forecast for the period February-March 2001
30 Year Mean OND and JFM rainfall

Westerly anomalies predominate across the southern sections of SADC during drier years.
Extensive droughts are depicted across most of southern Africa through the years.

Cumulative rains for periods over selected stations in the SADC-ctd

Parts of Malawi and north Mozambique had rains picking up sharply in Dec 2004.
Rainfall was well below normal from October to December in DRC & Tanzania also.
Top) Standardized rainfall anomalies over Southern Africa juxtaposed with Southern Oscillation Index and bottom) Multivariate ENSO index.
SOUTHERN AFRICA REGIONAL CLIMATE OUTLOOK FORUM

• Since 1997 there have been efforts in southern Africa to develop long-lead climate forecasting with international partners. This seeks to maximise on the benefits of climate prediction to multisectoral users.

• The process which started in Zimbabwe is known as the Southern Africa Regional Climate Outlook Forum (SARCOF) process. It is now a regular activity in Africa and other parts of the globe.

• The reliability and usefulness of these outlooks to users - in emergency relief, agriculture, water management, health, media, etc. is still undergoing test.
SOUTHERN AFRICA REGIONAL CLIMATE OUTLOOK FORUM ctd

The SADC DMC/CSC organized the fifteen Southern Africa Climate Outlook forums (SARCOFs). These have:

- provided a consensus seasonal climate outlooks for the SADC region.

- strengthened interaction between the users and the climate scientists to enhance the application of meteorology to the reduction of climate related risks to food security, water resources and health for sustainable socio-economic development in the SADC region.
The SARCOF Process

In Addition

User (e.g. Media, Health, Agric, Water and Disaster) Workshops
SARCOF Consensus Outlook & Updates
Examples of SARCOF Outlook & Updates
Achievements

In order to fulfill its mandate, CSC carries out a range of interlinked priority activities as follows, among others:

• providing services and products as agreed to from time to time by the diverse stakeholders;

• ensuring that products are generated and disseminated in timely manner;

• developing and archiving of global, regional and national quality controlled climate databanks;

• developing synergies with international sister organizations;
Achievements ctd

- Conducting training and capacity building activities in the generation and application of climate products;
- Organizing of the SARCOF (Southern Africa Regional Climate Outlook Forums); and
- Enhancing the interactions with the users through regional users workshops.

However, there is need for the strength of staff complement has to be commensurate with delivery of products and services to the expectations of the multi-sectoral user-community.
Challenges

The following are the challenges of the Meteorology sector and the CSC:

• Continued human resource capacity constraints after the relocation. The timely generation and dissemination of user-driven associated products is being compromised.

• There is need for more tailor-made products: CSC therefore, requires an appropriate staff complement to do specific tasks such as collecting and processing relevant data from Member States and other sister scientific organizations, the preparation of regular products, ad hoc outreach products especially under extreme climate variations such as floods.
Opportunities

• Climate Monitoring and Prediction
  – Need for continuous consultation with end users for tailor-made products
  – Improved delivery systems
  – Training in the use of information
Opportunities

• Improved Seasonal Climate Forecasts
• Enhance disaster risk reduction
• Mainstream climate in development: A Global Issue
• Assistance from external sources which is still essential for the continuation of the programme activities.
Way Forward

Addressing the Challenges Going Forward
The vital and unique role played by CSC has helped the region in mitigating negative impacts of the perennial extremes in the climate conditions such as drought and flooding.

• Currently, the Member States though especially the NMHSs do depend on the critical expert advice provided by and through the CSC initiatives such as SARCOF. However, the lack of capacity at the Centre militates against its ideal effectiveness.

• SADC Ministers responsible for Meteorology and MASA have called for the strengthening of the CSC and to expand its activities in order to better prepare the region for dealing with impacts of climate variations and climate change. The recruitment of more staff needs to be undertaken if capacity constraints are to be overcome.
Way Forward ctd

• Consistent with similar developments in other regional economic groupings in Africa, there is need for the CSC to become a Regional Climate Centre in SADC within the GFCS in order for the region to play its rightful role in contributing to the Climate Change negotiations and programmes in Africa and worldwide.

• Capacity constraints at the CSC need to be urgently addressed in order for it to be able to fulfill this and other important functions.
Concluding remarks

• SADC is a region whose social and economic conditions are prone to dislocations due to extremes in climate variations.
• The SADC Protocol Chapter on Meteorology enables a more focused approach to meteorological issues of the subregion.
• The Climate Services Centre carries out activities that enable the region to minimize the negative impacts of extremes in climate variations in the region through providing climate information and prediction services.
• SARCOF process contributes to minimizing negative impacts of adverse climate.
• There are capacity constraints that need to be addressed.
THANK YOU