

Southern Africa Regional Climate Services Workshop

Towards Exploiting the Full Potential of Climate Services

29 November - 2 December 2016, Victoria Falls, Zimbabwe



Final Report



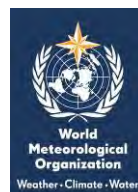
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Authors (alphabetical)

M. Bolele, SADC-CSC
E. Bungare, MSD
D. N. Faka, SADC-CSC
K. Fara, WFP
V. Graf, MeteoSwiss
J. Helmschrot, SASSCAL
F. Lúcio, WMO
A. Makarau, MSD & WMO
M. Merchandes, TMA
M. Mtalo, MALF
R. Mungra, MMS
B. Nyenzi, Climate Consult Ltd.
T. Pasipangodya, MSD
A. Rubli, MeteoSwiss
S. Sillayo, Consultant
B. Siwela, SADC
M. Stalder, MeteoSwiss
L. Unganai, OXFAM

Workshop Organizers

Federal Office of Meteorology and
Climatology MeteoSwiss

Global Framework for Climate
Services Office at World
Meteorological Organization

Meteorological Services Department
Zimbabwe

Deutscher Wetterdienst

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www.meteoswiss.ch/catcos/workshop
international@meteoswiss.ch

Acronyms

ACHM	Africa Centre for Holistic Management
AFS	Agriculture and Food Security
AISP	Agricultural Innovation Support Project
BMS	Botswana Meteorological Services
CUT	Chinhoyi University of Technology, Zimbabwe
DGM	Direction Générale de la Météorologie Madagascar
DMO	Drought Mitigation Operation
DRR	Disaster Risk Reduction
DWD	Deutscher Wetterdienst (Germany's National Meteorological Service)
GFCS	Global Framework for Climate Services
GIZ	German Corporation for International Cooperation
HYCOS	Hydrological Cycle Observing System
MALF	Ministry of Agriculture Livestock and Fisheries, Tanzania
Meteona	Namibia Meteorological Service
MeteoSwiss	Federal Office of Meteorology and Climatology MeteoSwiss, Switzerland
MetMalawi	Department of Climate Change and Meteorological Services, Malawi
MMS	Mauritius Meteorological Service
MoU	Memorandum of Understanding
MSD	Meteorological Service Department, Zimbabwe
OXFAM	Oxford Committee for Famine Relief
SADC	Southern African Development Community
SADC-CSC	SADC Climate Services Centre
SASSCAL	Southern African Science Service Centre for Climate Change and Adaptive Land Use
TMA	Tanzania Meteorological Agency
UNECA	United Nations Economic Commission for Africa
UNDP	United Nations Development Programme
WFP	World Food Programme
WIGOS	WMO Integrated Global Observing System
WMO	World Meteorological Organization

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1 Introduction

The workshop was organized jointly by the Federal Office of Meteorology and Climatology MeteoSwiss, the GFCS Office at the World Meteorological Organization (WMO), the Meteorological Services Department (MSD) of Zimbabwe and Germany's National Meteorological Service (Deutscher Wetterdienst, DWD) for the Southern African Development Community (SADC) region. The SADC is made up of 15 member countries namely, Angola, Botswana, DR Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, United Republic of Tanzania, Zambia and Zimbabwe. The SADC region is recognized as one of the world's most vulnerable regions to the impacts of climate variability and climate change. Members of SADC cooperate in many regional economic activities. Key sectors of economic development, including agriculture and food security, water resources, energy, health and transport, among others, are affected by these climate impacts. The region has been a pioneer in the provision and use of seasonal climate outlooks as the first seasonal climate outlook forum organized in the world took place in southern Africa. The outlooks are used in their development of contingency planning with respect to disaster risk reduction (DRR). However, DRR efforts to deal with the impacts are challenged with current trends of increasing frequency and severity of extreme events.

Initiatives have been taken to improve the delivery of climate services to assist sectors in factoring climate in the planning processes. It is noted however, that the present capacities for providing climate services do not exploit all that we know about climate. They fall far short of meeting current and future needs and delivering their full and potential benefits, especially in developing countries. This calls for more initiatives to be made by relevant authorities and stakeholders to find ways of improving climate services for their effective use in all sectors and for a closer relationship between the service providers, the intermediaries, as well as users. With the overarching long-term target to have frameworks for climate services in all SADC member states, the Southern Africa Regional Climate Services Workshop, held from 29 November to 1 December 2016, noted that the effective implementation of the pillars of the GFCS¹, including a fully functional framework involving user interface mechanisms is where most countries face difficulties and great challenges.

The workshop, in the spirit of the capacity development efforts, provided an opportunity to better coordinate the region on GFCS initiatives. It aimed to promote the use of climate-relevant data together with a better understanding of users' needs (including challenges) by bringing together providers of climate data and services with users of climate information. It was organised within the framework of the international cooperation project CATCOS (Capacity Building and Twinning for Climate Observing Systems), which contributes to filling important gaps in the global climate observing system. CATCOS is supported by the Swiss Agency for Development and Cooperation (SDC) and coordinated by the Federal Office of Meteorology and Climatology MeteoSwiss.

¹ <http://www.gfcs-climate.org/components-of-gfcs>

1.1 Objectives

The southern African region is already familiar with the concept of climate prediction, but additional efforts are needed to build appropriate capacity for the provision of effective climate services. Therefore the workshop was intended to promote the understanding and use of user driven climate services in southern Africa for the priority areas of agriculture and food security (AFS) and DRR.

The workshop participants had the opportunity to discuss possibilities to enhance the availability and quality of climate services in Southern Africa by addressing the entire value chain from supply to demand of climate services. The importance of long-term, high-quality climate observations as indispensable basis for climate services is emphasized. Exchanging successful examples and promoting the benefits of regional cooperation was central in the talks. The forum enabled the providers of climate services to identify specific needs of users from the selected priority areas and to identify gaps between existing and required climate services. Recommendations were formulated on how to build upon the good progress made in recent years, in order to exploit the full potential of climate services for the selected priority areas.

1.2 High Level Opening of the Workshop

Chair:

Ms Rebecca Manzou, MSD

Rapporteur:

Ms Mable Bolele, SADC-CSC

1.2.1 Opening Remarks by the Director of GFCS

Mr Filipe Lúcio opened the meeting by saying that the workshop has come at a time, when the last El Niño event (2015-2016) affected various parts of Africa. It caused food insecurity and other pervasive impacts to more than 52 million people in Southern and Eastern Africa. El Niño impacted many climate sensitive sectors, particularly agriculture and the environment, with cascading effects on the health sector, food security and disaster risk.

“In order to address the impacts of climate variability, such as El Niño, we need concerted efforts to ensure that the advances we have made in the past three decades in understanding and predicting the climate system and its impacts can be put to the benefit of vulnerable communities. This would require collaboration in strengthening the capacities of regional and national institutions to effectively develop seamless weather and climate information products and services and the corresponding advisories and warning that users can apply to minimize impacts”.

Moreover, an assessment conducted in 2009 by WMO identified nearly 70 countries around the world that do not have the appropriate capabilities to develop and apply climate services. Unfortunately, Africa has the weakest weather and climate monitoring system with only one-eighth of the monitoring density required by WMO. Many NMHSs across the continent do not have the necessary means to deliver accurate and timely weather and climate information and services to end-users. However, adequate provision and uptake of these services can play a crucial role in improving the livelihoods of African communities. Climate Services can contribute to

sustaining economic growth, as well as to mitigating natural disasters of hydrometeorological origin.

1.2.2 Opening Remarks by the Swiss Ambassador to Zimbabwe and Malawi

The Swiss Ambassador to Zimbabwe and Malawi, Ms Ruth Huber stated that unprecedented climate change and the related risks are a major challenge of this century. Therefore, the providers of weather and climate information have to ensure that the users receive timely and correct information. Moreover users of climate services from various sectors have to be supported in building up climate resilience. Switzerland believes that better climate information results in a better future for everyone. Since extreme weather events and climate variability are expected to increase in the future, Switzerland has realised that the provision of user-tailored weather and climate information is crucial, especially for farmers. The regional development strategy for Southern Africa, currently being elaborated by the Swiss Cooperation Office in Southern Africa, will better integrate climate change adaptation in the agriculture programme. Climate services will be a lynchpin for the success of this approach. Switzerland greatly values strategic partnerships in this endeavour.

1.2.3 Opening Remarks by the Permanent Representative of Zimbabwe with WMO

In his remarks Mr Makarau, the Permanent Representative of Zimbabwe with WMO, Director of MSD Zimbabwe and President of WMO Regional Association (RA) I, said that the pillars of the GFCS are applicable to all countries and call for more partnerships and for the region to come up with strategic roles to fill the gaps that exist. As President of WMO RA I, he also said he was aware that Germany, like Switzerland, was heavily involved in providing a significant amount of aid and support to Sub-Saharan Africa, particularly in the area of numerical weather prediction and automatic observing systems. He also thanked the WMO Secretariat for partnering with MeteoSwiss and DWD and coming to Southern Africa to organise this workshop saying that this was another clear manifestation of the desire by the Global Framework for Climate Services to walk the talk that no one should be left behind as enunciated in the Sustainable Development Goals as well as in the Africa's 2063 Agenda. The region must come up with robust strategic goals and objectives which will ensure that all members of the SADC region start working with all the relevant stakeholders to implement the National Framework for Climate Services in their countries.

1.3 Setting the Scene

1.3.1 Climate Services and its Regional Impacts

Mr Filipe Lúcio gave a background on the GFCS and urged countries to prepare themselves to deal with climate issues. Most countries lack the infrastructural, technical, human and institutional capacities to provide high quality climate services. Effort is needed to improve the current situation to better understand, monitor and predict climate. However, countries do not have the capability of doing this. In order to improve the current status, it is necessary to invest in the pillars of the GFCS in our countries.

Climate knowledge is the accumulation of knowledge of the past, present and future and climate services are different from climate information. The implementation of GFCS so far has been supported in seven West African countries (Niger, Burkina Faso, Mali, Senegal, Chad, Cameroon and Cote d'Ivoire), and four countries in Eastern and Southern Africa (Madagascar, Malawi, South Africa and Tanzania). Madagascar became the first country in the world to develop and approve a decree establishing its national framework for climate services. South Africa is to launch its framework at the beginning of 2017, while Tanzania has submitted a draft of the framework for the consideration of the government.

Technical support in the form of deployment of experts at national level and in regional climate centres has been provided by the GFCS to Burkina Faso, Niger and Senegal as well as to the African Centre of Meteorological Applications for Development (ACMAD) and the Intergovernmental Authority on Development (IGAD) Climate Prediction and Application Centre (ICPAC). A GFCS regional coordination unit was established in Dakar Senegal to support the coordination and implementation of GFCS activities in West and Central Africa. Countries intending to establish frameworks for climate services and development of action plans to deal with gaps are encouraged to request support from WMO.

There is the need for providers to make their data available and that the derived information should be translated into local languages, emphasizing that there is need for joint implementation which is complementary. Overall, good coordination between providers and users by ensuring involvement of all stakeholders is essential.

Points worth noting from the discussions

- GFCS is framework to ensure that services provided are designed for various users and it makes sure there is interaction. It also ensures that there is adequate capacity by meteorological services;
- The issue of warnings on potential impacts caused by climatic extremes should come from collaborating with the respective ministry (e.g., health for the case of heat wave). This ensures that warnings and advisories are integrated into the decision making processes of the relevant sectors;
- Regional climate centres should perform mandatory functions to be recognised as WMO regional climate centre;
- Countries are encouraged to develop national frameworks.

1.3.2 El Niño Impacts in Southern Africa: The 2015/16 Season

Mr Vhusomuzi Sithole, Data Analyst at UNDP Zimbabwe, stated that evidence has shown that Southern Africa's climate is influenced by a number of factors, including but not limited to: Tropical cyclone activities in the Indian Ocean, El Niño-Southern Oscillation (ENSO) prevalence and south easterly winds. These factors played a major role in the regional climate in the past seasons. 2014/15 was not a good season with a reduction in cereal production of 21% (33.81 million) compared to 2013/14 and the region received below normal rainfall accompanied by high temperatures that led to reduced crop yields, cattle deaths, low dam levels due to less inflows and sectors affected included food security, livelihoods, agriculture, livestock, nutrition, health and water, sanitation and hygiene (WASH). The worst affected countries are Angola, Botswana, Lesotho, Madagascar, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia and

Zimbabwe, Lesotho, Malawi, Swaziland, and Zimbabwe declared national drought emergencies, and Mozambique and Madagascar declared a red alert. 10 out of 15 countries appealed for international assistance.

In conclusion, emergency response was costly and increasing the frequency of weather-related extreme events in the region demanded contingency plans every year. Timely dissemination of climate information is critical for contingency planning. The El Niño event and rainfall predictions for the 2015/16 season came on time, but they did not lead to effective preparedness and that early warning and early action are key to averting such calamities.

1.3.3 Climate Services for Managing Climate Variability and Change: The Swiss Approach

Mr Alex Rubli, Head of International Affairs Division at MeteoSwiss gave an overview of how Switzerland tackles the challenges of climate change and climate variability. The best visible sign for climate change in Switzerland is the retreat of the glaciers. These significant changes require a number of adaption measures, e.g. the protection of inhabited areas lower down in the valleys, glacier lake monitoring, slope stabilization, rock fall precautionary measures. However, Switzerland does not have the financial capacity to deal with all the challenges at the same time. Hence the available measures are in competition with each other with respect to the available resources. Taking this into account, it has become clear that the decisions regarding the selection of protection measures must be based on sound information about the expected change of climate and its impacts. He added that as we speak about climate services, we should not only think of climate change and also keep in mind that climate variability is an important issue as well.

Points worth noting from the discussions

- An enhanced exchange between providers and users of climate services is needed to bridge the gap;
- There is an increasing need for reliable and regularly updated climate information at the national and regional level where long-term funding and institutional structures are required;
- Systematic climate observation (e.g. CATCOS) and continued research are crucial to improve the quality of climate services;
- First half of the season was the driest and had implication on a number of sectors. When forecast was done in 2015, not enough information was disseminated especially on the El Niño. Sectors which had to respond to information did not act. Was it a management failure?
- There is need for funding opportunities for strategies such as disaster plans development. In the case of the 2014/15 El Niño event, early warning did not translate in to early action;
- Lack of trust – there is need for more dialogue; a two - way communication has to be established.

2 Sessions

The workshop was divided into 5 sessions, each filling half a day of programme. The following chapters contain the summaries of all sessions.

2.1 Session 1 - Observation Data Capacities for Climate Services

Co-chairs:

Mr Filipe Lúcio, GFCS Office, WMO

Mr Jörg Helmschrot, SASSCAL Regional Secretariat

Rapporteur:

Mr Dieudonne Nsadisa Faka, SADC-CSC

2.1.1 Session Objective

The objective was to provide a better understanding of the roles of climate service providers plus the need to ensure that initial data (observations) is crucial for the products they ultimately provide to users, especially in the selected priority areas AFS and DRR. It was to provide insight into the Malawi-Tanzania GFCS Project which dwells on capacity development to use available data to generate services in support of DRR, health and agriculture. A communication strategy developed for the region was to be presented. The session also explored the benefits of regional cooperation in the SADC region in the GFCS priority areas.

The importance of long-term, high-quality climate observations as indispensable basis for climate services and entire value chain from the supply to the demand of climate services was emphasized. The session enabled the providers of climate services to identify specific needs. The gaps between existing and required climate services were also pointed out. The workshop discussed on the ways to promote regional cooperation on the implementation of GFCS in SADC Member States. The discussion stressed the need of regional cooperation in the implementation of GFCS in SADC region.

2.1.2 Summary of Presentations

2.1.2.1 SASSCAL WeatherNet and Regional Relevance

Mr Helmschrot from SASSCAL Regional Secretariat in Namibia pointed out the effort made by the programme to improve the observation network in 5 countries of the SADC region. SASSCAL has already installed 161 Automatic Weather Stations, 131 of them provide data online. It further indicated the new initiative on the Data Rescues (DARE) project which has started in the SASSCAL countries. The pending issue raised by the presenter was on the registration and compliance of those stations with WMO requirements.

During the discussion, questions were raised such as on the use of satellite data estimate to fill in data gaps; on the criteria of the selection of membership of the programme; on how SASSCAL programme is linked to the existing initiatives in the region and on the concern of SASSCAL running a parallel data collection system without involving National Meteorological Services (NMSs) as the only custody in the region.

The presenter responded to all queries by pointing out that the selection of membership of the programme was a political decision, while there is still willingness to extend to other countries. Regarding the use of satellite data estimate, this technique still requires the ground network for validation of the products. In connection with the parallel data collection system in the region, SASSCAL assured the audience on their effort to work with NMSs, such as in Botswana and Zambia where the network are already incorporated to the national one.

WMO representative invited SASSCAL to comply with WMO requirements before availing the data for operational purpose.

2.1.2.2 Indigenous Knowledge Systems (IKS) in synergies with Climate Services and Adaptation

Mr Matowanyika from CUT showed the link between the atmospheric condition and IKS through examples such as the migration of birds, observation of plants, and position of bird-nest close to water which were indicative of rainfall onset. The presenter recommended integration of IKS to climate services especially for data collection and on the observation of natural phenomena which could be linked to atmospheric systems. During the discussion, the following recommendations were made:

- Start the experimental indigenous forecast as an input to SARCOF products;
- Investigate and document IKS, as Decision Support System Tool (DSS) in the context of climate change.

2.1.2.3 Overview of the Implementation of the GFCS in SADC region

Mr Faka from SADC-CSC showed that SADC-CSC's efforts on the implementation of GFCS are based on:

- The continuation of SARCOF process as contribution to the dialogue between users and producers;
- The development of climate information generation and dissemination system;
- Capacity building of national experts on climate information generation.

The CSC has contributed to improve the observational network by providing 10 Automatic Weather Stations to 10 countries. The improvement of SADC-CSC climate information system and its regional data bank was made under the Institutional Support to African Climate Institution (ISACIP) project; an African Development Bank funded initiative. In order to strengthen CSC, the Council of SADC Ministers in charge of water resources management and meteorology have endorsed decisions to integrate the hydrological HYCOS network, satellite Earth Observation system (MESA project) to SADC-CSC data management system. This new conglomerate will enhance the quality of data for climate service generation and support the accuracy of SADC CSC products and services.

Three areas were identified by SADC-CSC in terms of its needs for improving the early warning system (EWS) products and services in the region:

- Human resource development for running the advanced EWS equipment;
- Services development underpinning the need to meet of users' needs;
- Tools development for new application of climate information to socio-economic development.

2.1.2.4 ClimDev-Africa Initiative

Mr Intsiful from the African Climate Policy Centre focused on how to support the decision making process in facing the threat of climate change. The project was built under the Climate for Development (CLIMDEV) framework. The main key areas of ClimDev implementation are the translation of Climate Information System (CIS) generation to the decision making process and advocacy; Support to countries on capacity building on e-infrastructure of CIS; upgrading of meteorological observation system; and the establishment of experimental high resolution of Numerical Weather Prediction (NWP) products (medium and long terms forecasts). Thanks to the open source cloud based information codes, the Weather on Demand (WOD) was made available with limited resources. Those products were tested for Mauritius and other islands. African Climate Policy Centre (ACPC) is partnering on wireless connectivity telecommunication facilities. This innovative solution with IT support is available for any support to African country on request.

2.1.2.5 Climate Services Adaptation Programme in Tanzania

On the experience of GFCS in Tanzania, Ms Merchandes from TMA focused on the achievements of phase one of the Climate Services Adaptation Programme:

- Capacity building of three thousand agricultural extension workers;
- Training of one hundred trainers, on the interpretation of probability forecast;
- Support for twelve Master of Sciences students;
- Timely localized downscaling forecasts.

Some challenges met during the first phase of the project included the need for higher resolution of climate information and translation of the forecast in local languages.

2.1.2.6 The Link between WIGOS and GFCS in RAI

Mr Makarau from MSD and President of RAI of WMO respectively, showed that the aim of WIGOS is to coordinate the implantation of a new observation network in compliance with WMO requirements. It was emphasized that WMO needs to work with all data source providers and that WMO would like to make sure that quality management is implemented. The presenter assured that all data providers are responsible for their own networks, but requested them have a unique data base system with code sharing for data dissemination within each country, instead of having separate databanks.

Mauritius shared their experiences of sharing data. They share for free for national interests, but for private needs, they recover the costs.

2.1.3 Session Conclusions and Recommendations

All members of SADC should develop framework for climate services so that users and provider have a common platform.

Action 1: Countries should develop NFCS immediately. GFCS can support countries as done in South Africa and Madagascar;

Action 2: NHMSs should create awareness on the use of climate information.

Sustainability of GFCS programmes beyond the current funding is a challenge to many recipient countries. UNECA has taken the initiative to educate parliamentarians. Involvement of key players and stakeholders in the entire process is crucial. Implementation plans should have a coordinated approach and be aligned to Agenda 2063, so as to be relevant to Government plans.

Action 3: In order to receive political support, NMHSs need to inform their policy-makers.

Coordination is one of the challenges at regional and global level – example from Tanzania presentation and SASSCAL where its network is not WMO registered and therefore NMHSs do not benefit from their data for operational purposes. Key players have to move into an environment of joint programming taking into account different interventions.

Action 4: Close coordination and collaboration of initiatives at national and regional level needed; NMHS have to take a lead in coordinating all efforts in their country;

Action 5: Implementation of the Global Climate Observing Systems in countries so that data from all sources becomes available for improved forecasting systems.

Operational meteorologists do not have training on disaster management

Action 6: Updating the curricula for SADC universities to include courses on meteorology for DRR.

2.2 Session 2 - User's Perspective: Climate Services for AFS and DRR

Co-chairs:

Ms Katuscia Fara, WFP

Mr Blessing Siwela, SADC Secretariat

Rapporteur:

Ms Mecklina Merchades, TMA

2.2.1 Session Objective

The second session's objective was that users of climate services in the two sectors outline their experiences and highlight needs in the two priority areas from their perspective. This included: presentations on how climate services are utilised including their use for planning purposes; potential benefits of climate services for decision-making and recommendations on desired new services and products most useful to users or where a higher quality/frequency of a service is desired.

2.2.2 Summary of Presentations

2.2.2.1 GFCS Adaptation Programme for Africa and R4 – experience from Malawi

Mr Longhurst from WFP, Malawi presented experience from Malawi on the GFCS Adaptation Programme for Africa and R4, including both, DRR and AFS. A baseline survey in a village in Malawi showed that population relied mainly on agriculture with low livestock ownership. Key risks include droughts, floods, soil erosion and soil infertility with poor capability to tolerate shocks when they strike. They also are using remedial actions like selling livestock, reducing meals and off-farm labour. They mainly use traditional knowledge to make their crop and livestock management decisions because of low trust in governmental or scientific information. Moreover, the traditional knowledge is nowadays becoming unreliable and ineffective. Today farmers in Malawi want access to inputs from extension officers as an adaptation and resilience measure. Farmers mostly need:

- Forecast of onset of rainfall;
- Frequency of extreme events;
- Distribution of rainfall over the agricultural season,
- End of the rainy season.

Lessons learnt: When climate services are integrated to resilience and development programmes to enable households to adapt they are readily accepted. Adaptation is an opportunity; climate change is not only a threat. Change, as ever, mostly comes through practical demonstration – extension, improved practice, asset building and better living conditions. When climate services are integrated into sectoral strategies it becomes better and easier to be implemented.

2.2.2.2 FoodSECuRe pilot in Zimbabwe to strengthen resilience to El Niño and future needs for climate services

Mr Manja from WFP Zimbabwe informed about the pilot project FoodSECuRe in Zimbabwe to strengthen resilience to El Niño and future needs for climate services. This covers both, DRR preparedness and Food Security. The links between unexpected environmental events (shocks),

environmental degradation, decreased food production and hunger create a vicious circle. Negative coping mechanism worsens the situation. The three pronged approach (National to sub-national and then local level) is used in a pilot project in Zimbabwe in building resilience through asset creation and complementary programmes.

2.2.2.3 Tailored Climate Services for Smallholder Farmers in semi-arid Regions of Zimbabwe

Mr Unganai from OXFAM Zimbabwe presented a project aiming at reducing the vulnerability of smallholder farmers with regard to impacts of climate change. It was implemented in three districts in south east of Zimbabwe. The strategy was to increase knowledge and understanding of climate variability and change induced risks in the targeted areas. The project has invested in improving meteorological observation network by providing rain gauges. Through collaboration, it has defined farmer's requirements of climate and weather. They co-designed and developed a climate dissemination system and also actionable weather advisories. The project has demonstrated that for actionable weather/climate services to smallholder farmers, a partnership approach is required involving climate experts, extension officers, researchers and farmers.

2.2.2.4 Agricultural Innovation Support Project and Drought Mitigation Operation

Ms Stumpf from GIZ Zimbabwe presented a project that identifies several adaptation measures used to deal with drought in Zimbabwe. It comprised of interventions like small scale irrigation schemes, a variety of seed selection and improved access to water by rehabilitation of wells/bore holes. The project went a long way into fostering closer coordination to more stakeholders.

Resilience is defined as the capacity of actors to access capital in order to cope with and adjust to adverse conditions and also be able to search for and create options and develop increased competence in dealing with threats. The project addressed several areas in trying to close identified gaps where GIZ operates in Zimbabwe.

A comprehensive M&E approach was also developed using Geographic Information System and WhatsApp giving as feedback detailed information about farmers.

2.2.2.5 Experiences from the Mainstreaming Climate Change Adaptation in Zimbabwe's Agricultural Extension System Project

Mr Muchedzi from Practical Action shared his experience of how AGRITEX approach farmers long before season, just before and at the start and during the season. Engaging farmers to understand the presence and effects of climate change appears to be a successful entry point to influencing farmer practices. Their teams have trained over 6000 smallholder farmers. Together with the farmers they have explored mechanisms for effective and rapid dissemination of seasonal and 10 day weather forecasts and developed simple materials for farmers and agriculture extension officers in local languages.

2.2.3 Session Conclusions and Recommendations

Different users need different types of information.
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Farmers, pastoralists, local communities need information and advisories on rainfall patterns. Farmers especially need to know the start and end of rainy-season, duration of dry spell etc. They also need to have tailored (co-production) climate services to understand impacts of changes. They require better information especially with regard to weather extremes, changing rainfall patterns and length of seasons. Farmers require better information on the forthcoming season i.e.

information on overall rainfall amounts, but not necessarily on how it is distributed spatially and temporally: They also require higher temperatures estimates, the number of hot days, longer seasons and how this impacts livestock and crops – need for specific products to support decision-making. They need reliable, locally derived forecasts and advice/implications of the forecast – showing how the information received translate into farmers/pastoralists/local communities day to day activities. It is important to have ‘advice/advisories’ to accompany the forecasts. This calls for co-production/tailoring of products through a content development committee at national level. Good examples are Malawi and South Africa that have task forces for different sectors working through a Memorandum of Understanding with extension services, FAO, WFP, representatives from different value chains, etc.) – They look at different climate information and apply to their specific sector to develop key messages with advice to their sectors.

Information Packaging: In the development of a product it is essential to firstly identify the needs of the sector or community. Is there need for a tailored service? Do we have to translate or simplify it further? How do we communicate it to the users?

In most cases, information should be context specific. It is important to take into account different timeframes/spatial scale/needs of different users when thinking of how to tailor the services/package the information. At community level you need to understand how different groups prefer to access information. Most of the times, it is important for intermediaries (extension, NGOs, etc.) to build on existing events/activities as the entry point to share information (i.e. cultural events/ traditions linked to specific seasonal cycles) rather than have additional standalone meetings.

The following aspects are important for the communication of climate services to the users:

- When it becomes necessary to translate products into local languages we have to bear in mind that while it is important it may not be enough, we need to understand the technical terms used by ordinary people in the community/village.
- There is need for simplifying terminology/understanding of natural phenomenon in indigenous language. It is important for service providers to ensure that information is simple, illustrative so that users can understand it, easy to understand at different levels/different users.
- Different channels of communication exist. Examples include mobile phones, radios (solar powered), social media, church meetings, village/traditional leaders, music, etc.). It is important to get the content (data) and advisory right; the channels of communication should be selected by the different users/based on their preferences. It is important to manage expectations – improve the way uncertainty is communicated to users - important to be realistic on what can be scientifically provided.
- Climate Service providers should not work in isolation in tailoring, packaging and distributing the information/services – it is important to work together with other partners/stakeholders from different sectors (importance of involving different stakeholders for co-production)

Collaboration: Most countries do not have a national framework that is institutionalized (through well-defined institutional arrangements (MoUs, etc.)).

Effective framework should work as a platform to bring together different sectors, ministries, private sector, research, in order to understand better needs of the users and permit co-product on/tailoring of content for specific users (sectors, different levels etc.). Collaboration also provides space for feedback mechanism to ensure that climate services produced are useful or to inform need for improvement and also to identify best communication channels.

Both, AFS and DRR sector require sustained dialogue between users and met services that will result in multi-sectoral contingency planning.

Action 7: Establish a clear protocol for communication of products while harnessing multiple media of dissemination of information and services especially to remote locations;

Action 8: Develop a country impact database and a risk atlas;

Action 9: Enhance infrastructure (observation network) for better product processing and analysis.

Providers of Climate Services need to have clear institutional arrangements defining responsibilities and also where possible engaging the private sector.

Action 10: Need to engage the Ministries responsible for finance to access funding for DRR activities;

Action 11: Putting weather and climate services investment plans in place so as to access funding opportunities.

2.3 Session 3 - Providers' Perspective: Climate Services for AFS and DRR

Co-Chairs:

Mr Buruhani Nyenzi, Climate Consult Ltd

Mr Amos Makarau, MSD

Rapporteur:

Mr Dieudonne Nsadisa Faka, SADC-CSC

2.3.1 Session Objective

This session should offer an opportunity for the participating countries to share good practices and avoid bad ones thereby exploring possibilities to enhance the availability and quality of climate services. It provided an insight into existing climate services in the southern Africa. A communication strategy for climate services would complement these efforts by improving availability of the different products being disseminated to users and intermediaries in different sectors. Presentations were from SADC countries that have good practices that could showcase the type of climate services they provide routinely to especially the priority areas namely 'Agriculture and food security' and 'Disaster risk reduction' sectors.

Together with the Communication strategy for climate services from CSC, Gaborone, the session had presentations from Botswana, Madagascar, Malawi, Tanzania and Zimbabwe.

2.3.2 Summary of Presentations

2.3.2.1 Communication Strategy for Climate Services

Ms Bolele from SADC CSC presented the recently developed communication strategy which deals with identified gaps, which cover the aspects of timeliness, relevance and appropriate dissemination channels. This will result in effective communication. The strategy has a strong focus on monitoring and evaluation (M&E) component that would provide feedback to improve services. It also has emphasis on media that they have to be part of the planning process to avoid distortion. The development of a communication strategy was necessary in order to change mind sets, improve policy makers understanding of the issues so that they could assist by advocating for funding to drive the climate agenda. It also introduces edutainment as a new communication channel– communication through acting for the users who may not use the other available communication channels. It also calls for involvement of the private sector and CBO and FBO. Countries requested for assistance from SADC CSC – for them to share case studies of best practices / experiences to the other member countries.

Points worth noting

- With the involvement of member states, SADC CSC to implement the Communication Strategy as a matter of urgency so as to improve communication of vital climate data and information in the region;
- SADC CSC should assist member states with communication training for the media, climate experts and meteorologists;

- SADC CSC should help identify climate ambassadors such as retired Head of States etc. to advocate for and mobilise funding for climate issues in the region.

2.3.2.2 Climate Services – Department of Botswana Meteorological Services

Ms Ntshwarisang from BMS outlined that Botswana has yet to develop its National Framework for Climate Services (NFCS). However, they are already providing tailor made products for the different sectors. They have developed a Common Alerting Protocol (CAP) that is used for warnings particularly on risks – example is on heat waves where a Tanzanian consultant assisted in setting it up. They collaborate closely with other ministerial stakeholders like in the declaration of droughts but have not started implementing GFCS.

2.3.2.3 Promoting Climate Services in Madagascar: Challenges and Opportunities

Mr Rabefitia from DGM presented Madagascar’s NFCS, launched in November 2014. 3 meetings took place since then. Madagascar was a pioneer in GFCS having implemented it since 2014. Implementation of the NFCS benefitted from a financial support from Korea and the World Bank resulting in the improvement of station network to 50. Due to tropical cyclones landfalls, there was need for improvement of the construction of houses which are cyclone proof. Climate services provided for the construction of cyclone-proof houses are co-generated through partnership with the construction industry after the DGM had done hazard risk mapping. The Department also provides tailor-made products to suit the users (use of graphs in explaining the terms below normal, above normal etc.) For the Health Sector, the Department provides heat index for tourist resorts.

2.3.2.4 Climate Services provided by the TMA

Similar to Madagascar, the Tanzania Meteorological Agency is providing climate services such that it has sector and user specific localized products and in the final stages of developing its National Framework for Climate Services (NFCS). Ms Merchandes from TMA presented the highlights of the implementation of NFCS:

- TMA provides Agromet bulletins both in local language and English. The content is adjusted to cater for the different users;
- DRR – flooding forecasts given mainly for infrastructure sector. Updates are regularly given as follow-up;
- Severe weather warnings cover the area affected and the expected rainfall. There are plans to improve products by factoring in the impact. Training of the relevant authorities to be done in the next project cycle;
- TMA has conducted several capacity building events of training of trainers on volunteers including school students;
- Involvement of stakeholders from Agriculture and Livestock and President’s Office in the development of NFCS;
- In remote areas, there is partnership with WFP to improve access through the radio;
- Increasing sharing of the weather information using traditional leaders (Masai);
- TMA receives feedback from social platforms and occasionally physical visits. There is now need for documentation of the feedback in this sector as is done in the aviation sector.

Challenges included the mainstreaming of the climate information into planning, the need for high resolution products to support downscaling of forecasts, and issues on the sustainability of the services beyond the programme life.

2.3.2.5 Strengthening Dissemination and Uptake of Weather and Climate Information in Zimbabwe

MSD is yet to develop its NFCS. However, Ms Manzou from MSD presented that some work was already in progress and they had a meeting prior to the workshop with some of the users and stakeholders. The Department has benefited from the experiences shared by the TMA and MeteoSwiss.

The presentation highlighted that there was strong collaboration between MSD and its partners. The decentralisation of the Department to Provincial level assists in carrying out its activities. There was also some work being done on documenting IKS. So far, preliminary findings indicated the variation across wards providing some scientific explanation for some of the IKS. A participatory method has been effective in the dissemination of the seasonal forecasts.

2.3.2.6 Hydromet Program for Africa

Mr Suwa from World Bank presented the Africa Hydromet Programm. In most countries, there is a general decline in observation stations network. World Bank has been assisting in investing in the hydromet sector for 30 - 40 years and this has proved to be a high value investment. The impact of the investing in the sector has immediate benefits such as in Japan. The modernization programme is based on three pillars and through collaboration with partners. Objectives of the program include strengthening the institutions and services by incorporating GFCS. It will obtain funding from different funding options like Green Climate Fund, Least Development Fund etc.

Private Sector may work on the dissemination channels but there may be issues if they move into observations. In the discussions that followed it was realised that there are loans and grants available and these vary across countries. Access to grants or loans depends on the priority being given by the Ministry of Finance of the respective country. UNECA organizes Ministerial meetings and if issues of climate services or change are not raised in these meetings it becomes difficult to access such funding. There is need for advocacy. It was also highlighted that funding is usually done through a bilateral arrangement.

2.3.3 Session Conclusions and Recommendations

Need for capacity building on lobbying and project formulation emphasizing prioritization of climate issues in their countries.

Discussions revealed the difficulties faced by most NMHSs in accessing the various funding options available for Developing, LDCs and Small Island Developing States.

Action 7: Need for targeted training of NHMSs in project formulation.

2.4 Session 4 - Sector-specific User-Provider Dialogue

Co-Chairs:

Ms Mable Bolele, SADC-CSC

Mr Leonard Unganai, OXFAM

Rapporteur DRR group:

Ms Marystella Mtaló, Ministry of Agriculture Livestock and Fisheries, Tanzania

Rapporteur AFS group:

Ms Katuscia Fara, WFP

2.4.1 Session Objective

This was a feedback opportunity for improvement of climate services through constructive dialogue between the providers and users of climate services, an opportunity to find ways to provide specialized customised climate services to users in need. It was intended to lead to improved user relations and the end result would be a closer working relationship between the service providers, the intermediaries and the end-users. It was an opportunity to take stock of how much weather and climate products are being utilised by other sectors in the region. The discussions would reveal which more services are needed or not needed, where is lack of details or accuracy, lead time etc. and which services are available and needed but not well communicated?

Breakout groups were between providers of climate services and users from the agriculture and food security; and another group of providers with users from DRR. Representatives from other sectors complemented these groups. The providers were expected to explain how they would address/meet some of the needs/challenges identified by users. Priority area specific recommendations were formulated in each breakout group.

2.4.2 Session Recommendations and Conclusions

Discussions on both groups were very lively and emphasized the need for collaboration and coordination at all levels from observation, analysis and production of services for the providers of data and services. It showed there was improvement in the usage of climate services when there is co-production of advisories to sectors.

The following issues were seen as very important to the two sectors:

- i) Interaction
 - Sustain dialogue between user and climate services providers;
 - Engage users in multi-sectoral contingency planning;
 - Need for clear institutional arrangements and responsibilities;
 - Engage private sector in the dialogues;

- ii) Product Generation
 - Establish impact database;
 - Human capacity development;
 - Increase observation network in the country;
 - Enhance infrastructure for product processing and analysis (communications);

- Develop risk atlas for the country;
- Invest in Research & Development to become more relevant.

iii) Dissemination

- Clear protocol for communication of products by involving users;
- Simplifying information/products including translations;
- Harness multiple media for dissemination (engage intermediaries);
- Find innovative ways to reach out to remote locations.

iv) Monitoring & Evaluation and Knowledge management

- Integrate indigenous science in product generation;
- Put in place an M&E system for adaptive feedback;
- Have in place a knowledge management system that takes care of the users and provider's needs.

There were also issues particular to the AFS sector:

- It is important to manage expectations, NMHSs and climate service providers have to improve the way uncertainty is communicated to users; It is - important to be realistic on what can be provided;
- New products: use of different indexes instead of raw data to communicate information to decision makers, national level i.e. Heat – there are a couple of indexes linked to communicate specific products linked to Heat, or look at the fire index, vegetation index, SPI index (used for precipitation);
- Farmers, pastoralists, local communities need information and advisories. Increased variability (year to year planning) – has made historical data no longer always a guide for the present. There is now need for changing planting season, uncertainty of when the rain comes, not able to rely any longer on messages from extension services that are based on 'old' cropping calendars. They especially need to know the start and end of cropping season.

2.5 Final Session and Workshop Recommendations

Co-chairs:

Mr Filipe Lúcio, GFCS Office, WMO

Mr Rajan Mungra, MMS

Rapporteur:

Mr Scylla Sillayo, WMO Consultant

2.5.1 Session Objective

The closing session aimed at looking at funding options/mechanisms and opportunities for partnerships. It also explored the benefits of regional cooperation in the SADC region on the GFCS priority areas. The sectoral issues and recommendations coming out of the breakout groups would be dealt with the aim of supporting further development of customized climate services and the improvement of user-customer relations. The final session offered an opportunity to discuss the sector specific issues with all participants. A final list of conclusions and recommendations was formulated on how to build upon the good progress made in recent years, in order to exploit the full potential of climate information for the envisaged sectors. Finally the list of conclusions and recommendations evolving from this workshop was adopted by all participants.

2.5.2 Summary of Presentations

2.5.2.1 Weather and Climate Information Services for Africa (WISER)

Mr Intsiful from UNECA gave a presentation dealing with weather and climate information for Africa and cited the WISER Project which provides support for improved generation and use of climate services. Its main focus is to build collaboration between global, regional and national Met Service providers. It also aims to modernise National Met Services and strengthen its service delivery. Meanwhile it has already 3 strengthened or initiated climate forums. It has also supported 8 agreements between global and regional centres and between regional and national centres. Equally important it has facilitated at least 6 Regional Climate Centres (RCCs) to use data from Global Centres to generate better climate services.

There is also ClimDev-Africa program jointly implemented by the African Union Commission (AUC), the African Development Bank (AfDB) and the UN Economic Commission for Africa (UNECA). Operational since 2014 as a multi-donor trust fund established to support member states and RECs with 3 main areas of focus:

- Generation, wide dissemination and use of reliable and high quality climate information for development in Africa;
- Capacity enhancement of policy and policy support institutions through the generation of quality analysis and evidence on climate change for use in development planning and actions and;
- Implementation of pilot adaptation practices that demonstrate the value of mainstreaming climate information in development planning and practices.

There are several projects at appraisal stage taking advantage of faster project approval process.

2.5.2.2 The Green Climate Fund - WMO's Accreditation and the Process for Submitting Projects

Mr Lúcio informed about the possibilities within the framework of the Green Climate Fund (GCF), which was established as an entity of the UNFCCC's financial mechanism. It aims to mobilise funding to invest in low emission and climate resilient projects and programmes in developing countries.

To access these funds, a country has to develop an approved project and submit the request to an accredited entity, normally in the Ministry of Finance. As of then, November 2016, the GFC had raised in excess of USD 10 billion ready for use. The GFC pays particular attention to needs of the most vulnerable to effects of climate change, in particular to Least Developing Countries (LDCs) and Small Island Developing States (SIDS). Its Secretariat is based in the Republic of Korea. To access this funding, applicant institutions go through a 3 stage process of accreditation meant to assess their ability to manage the GCF resources and project in line with the Fund's fiduciary standards. WMO is accredited to implement projects of up to 50 million USD. Countries can work with the WMO provided they get a non-objection letter from the national designated authority.

2.5.3 Recommendations and Conclusions

For NMHSs to be able to access funding in Green Climate Fund or WISER etc. they have to come up with a well written project. Most NMHSs do not have trained personnel to do this.

Action 13: Need for capacity development in GCF project formulation for NMHS.

Action 14: Need for case studies and lessons learnt from the pilot projects on GFCS in Malawi, Tanzania and Madagascar.

Uptake of climate services: Examination of weather/climate products that smallholder farmers want: To a large extent it was agreed that the needs are predictable and already known to the providers. However, there is not enough trust in climate services offered.

Action 15: NHMSs need to invest more in improving their products and involve users in their production so as to build trust in their usage.

Communication and Dissemination: Capacity development for officers interacting with end users: This includes simplicity in the packaging of messages or information to end users 'Keep It Short and Simple' (KISS) principle

Action 16: All information provided has to be targeted to local needs to improve its uptake, relevance and application. In some cases translating messages to local languages while adding some indigenous knowledge adds more value.

Strong feedback mechanisms can help in collection of important information from the ground and monitoring the perception of climate services and other advisories provided.

Action 17: Strong feedback should be part of M&E of each service provision.

Participatory planning is key to success. We get more value in our programming by getting closer to the end users. Climate services have to be integrated into sectoral planning to be more effective.

Action 18: Regular consultative meetings with intermediaries and end users needed.

Climate services are crucial to resilience building approaches. They can be used to formulate advisories around livelihood diversification and climate smart agriculture.

Action 19: Seek opportunity to include resilience building in the planning phases with users and intermediaries.

It is important to focus attention of how agricultural practices influence the climate and equally important to link initiatives with agricultural development programme, not as standalone programmes; there is need to involve private sector players to increase impact of provider initiatives.

Action 20: Inclusion of research and development (R&D) in NHMSs activities. Increase dialogue with end users and ensure sustainability of provider initiatives by existing institution.

Climate Services National Action Plan is key to any worthwhile climate service in a country.

Action 21: Develop National Action Plans to serve as the basis for coordinating investments and clear identification of priority needs and intervention being made by various actors.

Action 22: Establish frameworks for climate services at country level to serve as coordination mechanisms. It should engage all key stakeholders involved the value chain for the production and application of climate services.

There is an urgent need for integration of various initiatives by various actors which in most cases are isolated and do not complement existing activities, e.g., observing stations already installed whose data is however, not available in the national database.

Action 23: Implement the WMO WIGOS programme at country level to improve the quality of data and products and at the same time improve the observing networks.

There are several options to obtain funding for improvement of climate services in the South African region.

Action 24: Need to capacitate NMHSs to tap into funding opportunities to address current financial limitations.

Need for sharing of best practices with neighbouring countries and twinning in implementation.

Action 25: NMHs need to share information about implementation of GFCS activities in countries where activities are taking place and development of case studies and lessons learnt for sharing with other countries.

Action 26: NMHs need to perform risk and vulnerability analysis and produce appropriate maps (risk atlas).

Action 27: NMHs need to develop decision support tools (impact database) and multi-sectoral contingency plans.

2.5.4 Wrap up and Closure

The workshop was closed by short closing remarks from Mr Filipe Lúcio of WMO, Dr Amos Makarau of MSD, Zimbabwe and Mr Alex Rubli of MeteoSwiss all calling for collaboration in developing National Frameworks for Climate Services in the SADC region.

2.6 Field Visit to the ACHM

The workshop was rounded-off by an excursion to the Africa Centre for Holistic Management (ACHM) on the following day after the official closing. The workshop participants interacted with a few neighbouring local farmers who shared their experiences on how they were trained and involved in rotational farming practices, as well as how they were introduced to more drought resistant seeds for varying rainfall patterns. The theme of the tour was to see 'How to fight desertification and reverse climate change' as demonstrated by ACHM. The Centre is addressing climate change through holistic management. It provides innovative training and outreach programs based at a practical learning site that provides evidence of land, water and wildlife restoration using livestock. The centre has a big farm in its natural state and a number of different animals grazing in confined areas. By using rotational farming methods the soil is naturally fertilized with manure. There are herds of cattle, pigs, chicken and wild animals living symbiotically. By so doing, natural vegetation flourishes and there is enough grass for the animals. The Centre is assisting the neighbouring villages by supporting them with better farm management tools including animal husbandry knowledge. Farmers are shown how to corral community livestock on successive portions of harvested crop fields at night for about 7 days to break up the soil with their hooves and deposit dung and urine. This treatment has more than doubled (five times in some cases) maize yield compared to community control fields. By using essential climates services routinely provided, droughts are anticipated and successfully planned for by the farmers.

ANNEX A List of Actions

Action 1: Countries should develop NFCS immediately. GFCS can support countries as done in South Africa and Madagascar;

Action 2: NHMSs should create awareness on the use of climate information;

Action 3: In order to receive political support, NMHSs need to inform their policy-makers;

Action 4: Close coordination and collaboration of initiatives at national and regional level needed; NMHS have to take a lead in coordinating all efforts in their country;

Action 5: Implementation of the Global Climate Observing Systems in countries so that data from all sources becomes available for improved forecasting systems;

Action 6: Updating the curricula for SADC universities to include courses on meteorology for DRR;

Action 7: Establish a clear protocol for communication of products while harnessing multiple media of dissemination of information and services especially to remote locations;

Action 8: Develop a country impact database and a risk atlas;

Action 9: Enhance infrastructure (observation network) for better product processing and analysis.

Action 10: Need to engage the Ministries responsible for finance to access funding for DRR activities;

Action 11: Putting weather and climate services investment plans in place so as to access funding opportunities.

Action 12: Need for targeted training of NHMSs in project formulation;

Action 13: Need for capacity development in GCF project formulation for NMHS;

Action 14: Need for case studies and lessons learnt from the pilot projects on GFCS in Malawi, Tanzania and Madagascar;

Action 15: NHMSs need to invest more in improving their products and involve users in their production so as to build trust in their usage;

Action 16: All information provided has to be targeted to local needs to improve its uptake, relevance and application. In some cases translating messages to local languages while adding some indigenous knowledge adds more value;

Action 17: Strong feedback should be part of M&E of each service provision;

Action 18: Regular consultative meetings with intermediaries and end users needed;

Action 19: Seek opportunity to include resilience building in the planning phases with users and intermediaries;

Action 20: Inclusion of research and development (R&D) in NHMSs activities. Increase dialogue with end users and ensure sustainability of provider initiatives by existing institution;

Action 21: Develop National Action Plans to serve as the basis for coordinating investments and clear identification of priority needs and intervention being made by various actors;

Action 22: Establish frameworks for climate services at country level to serve as coordination mechanisms. It should engage all key stakeholders involved the value chain for the production and application of climate services;

Action 23: Implement the WMO WIGOS programme at country level to improve the quality of data and products and at the same time improve the observing networks;

Action 24: Need to capacitate NMHSs to tap into funding opportunities to address current financial limitations;

Action 25: NMHs need to share information about implementation of GFCS activities in countries where activities are taking place and development of case studies and lessons learnt for sharing with other countries;

Action 26: NMHs need to perform risk and vulnerability analysis and produce appropriate maps (risk atlas);

Action 27: NMHs need to develop decision support tools (impact database) and multi-sectoral contingency plans.

ANNEX B Workshop Programme

Tuesday, 29 November 2016

Opening

Amos Makarau, *Director MSD & President RA I, WMO*
Elliot Bungare, *International Relations Officer, MSD*
Rapporteur: Scylla Sillayo, *Consultant*

High-Level Opening

Opening Remarks, Dr Filipe Lúcio, *Director GFCS Office at WMO*
Opening Remarks, H.E Ruth Huber, *Swiss Ambassador to Zimbabwe and Malawi*
Opening Remarks, Dr Amos Makarau, *Director MSD Zimbabwe*

Setting the Scene: Climate Science and its Regional Impact

Global Framework for Climate Services (GFCS): Status of Implementation
Filipe Lúcio, *Director GFCS Office, WMO*

The impacts of 2015/16 El Niño in the SADC region
Vhusomuzi Sithole, *GIS/Data Analyst, UNDP Zimbabwe*

Climate Services for Managing Climate Variability and Change: the Swiss Approach
Alex Rubli, *Head of International Affairs Division, MeteoSwiss*

Discussion

Lunch

Session 1 - Observation Data Capacities for Climate Services

Filipe Lúcio, *Director GFCS Office, WMO*
Joerg Helmschrot, *Director of Science, Technology and Capacity Development, SASSCAL Regional Secretariat Namibia*
Rapporteur: Dieudonne Nsadisa Faka, *Climate Expert, SADC-CSC*

SASSCAL WeatherNet and Regional Relevance

Joerg Helmschrot, *Director of Science, Technology and Capacity Development, SASSCAL Regional Secretariat Namibia*

Indigenous Knowledge Systems, Community Based Observation Practices and Synergies with Climate Services and Adaption
Joseph Matowanyika, *Director of the Institute of Lifelong Learning and Development Studies, CUT*

Overview of the Implementation of Global Framework for Climate Services in SADC region
Dieudonne Nsadisa Faka, *Climate Expert, SADC-CSC*

Southern African Climate Services Projects

Joseph D. Intsiful, *Senior Climate Science, African Climate Policy Centre, UNECA*

Climate Services Adaptation Programme in Malawi and Tanzania

Mecklina Merchandes, *GFCS Desk Officer, TMA*

The Link between WIGOS and GFCS in RA I

Amos Makarau, *Director MSD & President RA I, WMO*

Discussion

Filipe Lúcio, *Director GFCS Office, WMO*
Joerg Helmschrot, *Director of Science, Technology and Capacity Development, SASSCAL Regional Secretariat Namibia*

Cocktail Reception

Wednesday, 30 November 2016

Session 2 - User's Perspective: Climate Services for AFS and DRR

Katiuscia Fara, *Climate Services Advisor, WFP*

Blessing Siwela, *Information Management Officer, SADC Secretariat*

Rapporteur: Mecklina Merchandes, *GFCS Desk Officer, TMA*

GFCS Adaption Programme for Africa and R4 - Experience from Malawi

Daniel Longhurst, *Resilience Coordinator, WFP Malawi*

Agricultural Innovation Support Project (AISP) and Drought Mitigation Operation (DMO)

Elke Stumpf, *Head of Programme Agriculture and Food Security, GIZ Zimbabwe*

Tailored Climate Services for Smallholder Farmers in Semi-Arid Regions of Zimbabwe

Leonard Unganai, *Project Manager Scaling up Climate Change Adaptation, OXFAM Zimbabwe*

Experiences from the Mainstreaming Climate Change Adaptation in Zimbabwe's Agricultural Extension System Project

Henry Muchedzi, *Programme Coordinator, Practical Action*

FoodSECuRe pilot in Zimbabwe to Strengthen Resilience to El Niño and Future Needs for Climate Services

Joao Manja, *Head of Vulnerability Analysis, WFP Zimbabwe*

Discussion

Katiuscia Fara, *Climate Services Advisor, WFP*

Recommendations and Conclusions

Blessing Siwela, *Information Management Officer, SADC*

Lunch

Session 3 - Provider's Perspective: Climate Services for AFS and DRR

Amos Makarau, *Director, MSD & President RA I, WMO*

Buruhani Nyenzi, *Consultant, SADC-CSC*

Rapporteur: Tecla Pasipangodya, *Agrometeorologist, MSD*

Communication Strategy for Climate Services

Mable Bolele, *Communications Expert, SADC-CSC*

Climate Services-Department of Botswana Meteorological Services

Lilian Ntshwarisang, *Meteorologist, BMS*

Promoting Climate Services in Madagascar: Challenges and Opportunities

Zoahrimalala Rabefitia, *Director of Applied Meteorology, Agrometeorology, Climate Change, DGM*

Climate Services provided by TMA

Mecklina Merchandes, *GFCS Desk Officer, TMA*

Strengthening Dissemination and Uptake of Weather and Climate Information in Zimbabwe

Rebecca Manzou, *Deputy Director, MSD*

Africa Hydromet Program development objectives, expected outcomes and partnership

Makoto Suwa, *Senior Disaster Risk Management Specialist, The World Bank*

Discussion

Amos Makarau, *Director, MSD & President RA I, WMO*

Buruhani Nyenzi, *Consultant, SADC-CSC*

Conference Dinner

Thursday, 1 December 2016

Session 4 - Sector-specific User-Provider Dialogue

Mable Bolele, *Communications Expert, SADC-CSC*

Leonard Unganai, *Project Manager Scaling up Climate Change Adaptation, OXFAM Zimbabwe*

Rapporteurs: Marystella Mtalo, *Crop Monitoring and Early Warning Supervisor, Ministry of Agriculture Livestock and Fisheries, Tanzania*

Katiuscia Fara, *Climate Services Advisor, WFP*

Discussions in two Breakout groups:

Agriculture and Food Security AFS: User-Provider Dialogue

Led by one of the co-chairs

Disaster Risk Reduction DRR: User-Provider Dialogue

Led by one of the co-chairs

Recommendations and Conclusions

Marystella Mtalo, *Crop Monitoring and Early Warning Supervisor, Ministry of Agriculture Livestock and Fisheries, Tanzania*

Katiuscia Fara, *Climate Services Advisor, WFP*

Lunch

Final Session

Filipe Lúcio, *Director GFCS Office, WMO*

Rajan Mungra, *Director, MMS*

Rapporteur: Scylla Sillayo, *Consultant*

Weather and climate Information SERVICES for Africa (WISER)

Joseph D. Intsiful, *Senior Climate Science, African Climate Policy Centre, UNECA*

The Green Climate Fund - WMO's accreditation and the Process for submitting projects

Filipe Lúcio, *Director GFCS Office, WMO*

Discussion and Adoption of Recommendations and Conclusions

Filipe Lúcio, *Director GFCS Office, WMO*

Wrap-up and Closure

Amos Makarau, *Director, MSD & RAI President, WMO*

Alex Rubli, *Head of International Affairs Division, MeteoSwiss*

Filipe Lúcio, *Director GFCS Office, WMO*

ANNEX C Participants List

Surname	First Name	Country	Organisation
Bolele	Mable	Botswana	SADC CSC
Bungare	Elliot	Zimbabwe	MSD
Chirambaguwa	Sanduro	Zimbabwe	MSD
Fara	Katiuscia	International Organisation	WFP
Fernando	Matumona	Angola	Instituto Nacional de Meteorología e Geofísica
Guiamba	Dennis	Mozambique	National Institute of Disaster Management
Guinand	Yves	Switzerland	SDC
Hachileka	Excellent	Ethiopia	UNDP Regional Service Centre for Africa
Helmschrot	Jörg	International Organisation	SASSCAL
Hodera	Ebedia	Zimbabwe	MSD
Huber	Ruth	Switzerland	Embassy of Switzerland
Ineichen	Juliane	Switzerland	SDC
Intsiful	Joseph	Ethiopia	UNECA
John	Amos	Zimbabwe	ZRP
Kandoro	Victor	Zimbabwe	Ministry of Energy and Power Development
Kutadzaushe	Karikoga	Zimbabwe	Zimbabwe Red Cross
Letuma	Mosuo	Lesotho	Lesotho Meteorological Services
Longhurst	Daniel	Malawi	WFP
Lúcio	Filipe	International Organisation	WMO
Makarau	Amos	Zimbabwe	MSD, WMO
Manja	Joao	Zimbabwe	WFP
Manzou	Rebecca	Zimbabwe	MSD
Matanga	Huggins	Zimbabwe	ACHM
Mate	Munalula	Zambia	Zambia Met
Matowanyika	Joseph	Zimbabwe	CUT
Mawere	Gilbert	Zimbabwe	Department of Water Resources, Planning and Management
Merchades	Mecklina	Tanzania	TMA
Moyo	Elisha	Zimbabwe	Climate Change Department
Mpundu Elonga	Jean-Pierre	DRR Congo	Agence nationale de la Météorologie et de Télédétection par satellite
Mtalo	Marystella	Tanzania	Ministry of Agriculture, Livestock and Fisheries, Food Security Department
Muchedzi	Henry	Zimbabwe	Practical Action
Mungra	Rajan	Mauritius	Mauritius Meteorological Service
Mushosho	Jeremiah	Zimbabwe	UNICEF

Nhongonhema	Rutendo	Zimbabwe	Ministry of Agriculture
Nsadisa Faka	Dieudonne	Botswana	SADC CSC
Ntshwarisang	Lillian	Botswana	BMS
Nyenzi	Buruhani	Tanzania	Climate Consult Ltd.
Nzalo	Sifiso	Swaziland	Swaziland Meteorological Service
Pasipangodya	Tamburiro	Zimbabwe	MSD
Rabefitia	Zoaharimalala	Madagascar	DGM
Rubli	Alex	Switzerland	MeteoSwiss
Sibanda	Meliqiniso	Zimbabwe	Department of Civil Protection
Sillayo	Scylla	Tanzania	WMO Consultant
Sithole	Vhusomuzi	Zimbabwe	UNDP Resilient Office
Siwela	Blessing	Botswana	SADC Disaster Risk Reduction Management
Stalder	Michelle	Switzerland	MeteoSwiss
Stumpf	Elke	Germany	GIZ
Sutter	Antonia	Switzerland	SDC
Suwa	Makoto	International Organisation	Worldbank
Unganai	Leonard	Zimbabwe	OXFAM
Witi	Jongikhaya	South Africa	South African Weather Service
Zucule	Jonas	Mozambique	National Institute of Meteorology

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