THE FIRST CONFERENCE
OF MINISTERS RESPONSIBLE
FOR METEOROLOGY
IN AFRICA

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REPORT OF THE FIRST CONFERENCE OF MINISTERS RESPONSIBLE FOR METEOROLOGY IN AFRICA NAIROBI, 12-16 APRIL 2010

INTRODUCTION

The First Conference of Ministers Responsible for Meteorology in Africa convened on 12-16 April 2010, under the theme "Investing in Weather and Climate Services for Development." The Conference, organized by the World Meteorological Organization (WMO) in partnership with the African Union (AU), was attended by 48 African countries with more than 30 ministers. In total, there were more than 300 participants, including technical experts and specialists from the weather and climate communities as well as several leading users of climate information in Africa and beyond, development institutions, universities and financial organizations. The conference was held in tandem with the ISDR Ministerial Conference on Disaster Risk Reduction in Africa (15-16 April 2010), thus providing a unique opportunity for interaction between Ministers and experts.

The conference, started with the Expert segment held from 12-14 April 2010 that was followed by the ministerial conference held on 15-16 April 2010.

The Expert Segment, discussed the challenges and opportunities of National Meteorological and Hydrological Services (NMHSs) in contributing to the African development agenda including but not limited to the United Nations Millennium Development Goals (MDGs), the Strategic Plan of the African Union Commission (AUC), the objectives of the New Partnership for Africa's Development (NEPAD), the WMO Regional Association 1 (Africa) strategic plan and implementing national and regional sustainable development plans. The expert segment was divided into eight sessions, namely: meeting development needs; the benefits of national meteorological, hydrological and climate services, disaster risk reduction, filling information gaps, capacity building; user perspectives; and enhancing partnerships. A number of side events relevant to building the role of meteorological services in Africa were held.

The Ministerial Segment which met from 15-16 April 2010 endorsed the Conference Statement from the Expert Segment and adopted the Nairobi Ministerial Declaration on Meteorology in Africa.

The Conference Statement is given in **Annex 1**.

The Ministerial Declaration is given in **Annex 2**.

The summary of various side events organized on specific topics during the conference is given in **Annex 3**.

The list of participants is given in **Annex 4**.

The Programme of the Conference is given in **Annex 5**.

REPORT OF THE EXPERT SEGMENT, 12-14 APRIL 2010

1.0 OPENING

1.1 Dr. Joseph R. MUKABANA, the Director of Kenya Meteorological Department and Permanent Representative of Kenya with WMO welcomed delegates to the expert meeting. In citing the 4th Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), he highlighted the important role of National Meteorological and Hydrological Services (NMHSs) in contributing to efforts to combat climate variability and change. Dr Mukabana said that the conference was a unique opportunity to craft lasting solutions and the outcomes should give reason for the ministers to reconvene in future. He urged governments and decision-makers at all levels to include meteorological and weather services when setting planning agendas especially for national development. He requested the Conference to observe a minute of silence in honour of the Polish President killed in a plane crash, since a Polish delegation was attending the Conference.

1.2 Mr. Jeremiah LENGOASA, the Deputy Secretary-General of the World Meteorological Organization (WMO), expressed his appreciation to the Government of Kenya for hosting this historic Conference in Nairobi and extended to the African Union Commission his gratitude for agreeing early on to hold this meeting in partnership with WMO. The purpose of the Conference was to bring to the attention of Africa's policy makers present and potential contribution of NMHSs to socio economic development to enable them to map out action-oriented strategies to support further development and strengthening of meteorology for integration in national development programmes in Africa. Mr Lengoasa stated that Climate change and variability, which is resulting in an increase in the number and intensity of extreme meteorological phenomena and in a higher risk of natural disasters, is having an impact on the ecosystems and fragile infrastructure of the African continent and affects all sectors of activity, including agriculture and food security, public health, transport, and water resources management. He stressed that most of the world's Least Developed Countries (LDCs) are in Africa and are the most susceptible to threats posed by meteorological and hydrological disasters, such as drought, floods, cyclones, dust storms, and other extreme weather events. Therefore, the NMHSs of African countries should be viewed as major players in development efforts and the Conference should help consolidate their 'value-add' and assist Ministers better appreciate the importance of these services in their portfolio. He further expressed his expectation that this Experts meeting will enlighten the ministers' conference on possible solutions that have lasting impact on the increasing role of NMHSs in the national socio-economic development and give the Ministers responsible for Meteorology in Africa a reason to reconvene again to assess progress achieved after this critically important first conference.

1.3 Ms Olushola Olayide SODEKO, of the African Union Commission (AUC), who spoke on behalf of the African Union Commissioner for Rural Development and Agriculture, Mrs. Peace Rhoda TUMUSIIME, said that climate and climate change issues are on the high priority list of the African Union agenda. Participants were encouraged to consider a common Africa position for the coming UNFCCC Conference of the Parties (COP16) meeting in Mexico. They were asked to show the same solidarity exhibited at the COP15 in Copenhagen.

1.4 Mr. Ramadhan Seif KAJEMBE, Deputy Minister, Ministry of Environment and Mineral Resources, Kenya, officially opened the conference and noted that the ministry has begun implementing a national climate strategy, which will form the basis for the development of a national climate change program. He highlighted tree-planting initiatives to replenish forest cover and improve resilience to climate change; he said that if each Kenyan planted 10 trees each year there would be a dramatic change in five years.

2.0 SESSION ONE: INTRODUCTION AND OBJECTIVES OF THE CONFERENCE

2.1 ELECTION OF CHAIR AND RAPPORTEURS

2.1.1 Under the chairmanship of Kenya as Host Country, nominations were made for the Chair and Rapporteurs of the Expert Segment of the Conference.

2.1.2 Dr Mamadou Lamine BAH, Director of Meteorology, Republic of Guinea, who is also the President of WMO Regional Association for Africa (RA1), was elected as Chair of the Expert Segment of the conference.

2.1.3 Mr. M.A. ABDELGADIR, Director of Sudan Meteorological Services and Mr. **Abdalah MOKSSIT, Director** of Morocco Meteorological Services were elected the two rapporteurs.

2.2 ADOPTION OF THE AGENDA

Zimbabwe, supported by Namibia, suggested that more time should be allocated on the agenda to discuss the ministerial statements. Chairman Bah proposed that the Secretariat should consider the proposal. Thereafter the agenda was unanimously adopted with no amendment.

2.3 PRESENTATION OF CONFERENCE OBJECTIVES

2.3.1 Ms Olushola Olayide SODEKO, of the African Union, repeated the commitment of the African Union to combating climate change in Africa. She explained that the officials elected will play a crucial role helping the positive outcomes of the coming ministerial conference. She said the objective of the conference should be adhered to which is to prepare the meteorological services perform to international standards as the continent is most vulnerable to climate change.

2.3.2 Dr. Mamadou Lamine BAH, in his capacity as the President of the WMO Regional Association for Africa (RA1) recognized the role of meteorological information and data in combating challenges of climate change as well as enabling social and economic development. Dr Bah told participants to note the objectives of the conference' He commended meteorological services in Africa for their good performance despite poor working conditions. WMO support of regional initiatives such as the involvement in the Fourteenth session of WMO Regional Association for Africa held in Ouagadougou, Burkina Faso, in February 2007, was highly appreciated.

2.3.2 Mr. Alioune NDIAYE, Director, WMO Regional Office for Africa, said that a stable and favourable political atmosphere was critical in combating the socio-economic

pressures and challenges brought about by climate change. He reiterated the role of meteorological and hydrological services in helping to combat climate change. Participants were asked to work together as Africans in putting together suggestions and recommendations to the ministerial meeting to guide them come out with a beneficial ministerial declaration.

3.0 SESSION TWO: MEETING DEVELOPMENT NEEDS

3.1 INTRODUCTION

This session gave an overview of what has been accomplished so far in the provision of weather, water and climate services in Africa to meet development needs and support countries to achieve the Millennium Development Goals (MDGs) in a sustainable manner. The presenters shared experiences of working with meteorological and hydrological data, products and services as well as expressing future needs and strategies.

3.2 PRESENTATIONS

3.2.1 Mr. Adama Alhassane DIALLO, Director General of The African Centre of Meteorological Applications for Development (ACMAD) discussed the importance of weather and climate services in the African Context. He considered the status and condition of National Meteorological and Hydrological Services (NMHSs) in Africa especially in relation to their potential contribution to the sustainable development of various economic sectors in their countries, in particular agriculture and food security, water resources, energy, health, transport (aviation and marine) and tourism. Increasingly, the role of NMHS in disaster risk management and reduction and the contribution that they can make in climate change mitigation and adaptation strategies of their countries also needs to be significantly improved. Climate prediction in the short to medium to long term and at scale relevant to national, local plans and policy making will be a key factor in ensuring climate robust economic development. Improved dissemination of climate information at all levels will be required to underpin this. While some NMHS in Africa are reasonably well structured and resourced to provide the required products and services, many, especially in the developing and Least Developed Countries (LDCs) are severely challenged. It is imperative to focus on strengthening these services. In this process, the regional institutions and mechanisms in place have a major role to play and should be supported to do this. Improved cooperation between pan African and regional institutions is essential. In this context, both South-South and North-South cooperation have a role to play and Exchange of expertise and knowledge should be improved.

3.2.2 Dr. Anthony Okon NYONG, Head of Unit, Gender, Climate Change and Sustainable Development at the African Development Bank discussed the importance of Climate Information for Sustainable Development in Africa. He noted that Africa's Development Challenges are multi-faceted: They can be classified into Environmental (Aridity, Extreme Events, Coastal erosion), Economic (many LDCs, widespread famine & hunger, epidemics) and Social (weak institutions, governance). He explained that the Climate Change issue could seriously exacerbate these development challenges. It is essential therefore, to build resilience into Africa's Development by mainstreaming climate change into development policies and regulatory frameworks as well as

increasing the use of climate information for decision -making processes and development planning. In addition, improving climate related information gathering and management is important. It is also critical to develop a Low Carbon Economy for Africa. Climate proofing development is also essential to know what effects Climate Change has on visibility, viability and long-term sustainability of policies, plans and projects. Will climate change alter development outcomes of projects? The African Development Bank's Response lies in the areas of Policies and strategies, improving the information base such as ClimDev-Africa as well as supporting projects at national and regional levels and leveraging Finances (GEF, CIF and Copenhagen Adaptation Fund). Clearly more resources are required and the African Development Bank is suitably positioned to manage Africa's climate change finances.

3.2.3 Mr. John JONES, Consultant to the World Bank presented a Case Study on the Capacity of National Meteorological and Hydrological Services in Africa. He briefed the meeting on a World Bank review currently underway with a purpose to developing a "Pan-African Strategy and Plan of Action for Investment in Strengthening Climate and Weather Services for All". The study Global Facility for Disaster Risk Reduction of the World Bank focuses on Eastern, Southern, and Western Africa. The Final Report is due by the end of April 2010 and a website has been established for the team to share information. All previous reports and reviews will be taken into account from the many organizations inside Africa (African Union, African Development Bank, NEPAD, ACMAD, ICPAC) and from international organizations (WMO, World Bank, UNISDR, IRI,). This meeting will provide an opportunity to discuss this with each PR and bring this to attention of Ministers. The review will cover all aspects including observations, human resources, legal instruments and financing.

3.2.4 Mr. Petteri TAALAS, Director General, Finnish Meteorological Institute discussed the potential of donor countries and WMO in supporting Africa and the NMHS in meeting the development needs in the region. He gave as an example the range of services currently provided by the Finnish Meteorological Institute to a wide range of economic sectors, Ministries, local governments and members of the community. One of the strongest arguments for increasing political support for NMHS and thereby increasing base funding from national budget is to demonstrate the cost-benefit to government of investing in NMHS modernization programmes. He encouraged the region to embark on this approach. He pointed out that there are also external funds available through various development assistance mechanisms which can be accessed (bi-lateral aid, development banks, climate change adaptation funds and European Commission to name but a few). Often the regional rather than national approach is more successful in this regard. He noted that WMO can assist in developing regional programmes to be put forward for funding.

3.3 DISCUSSIONS AND CONCLUSIONS

- National Hydrological and Meteorological Services delivery is hampered by inadequate infrastructure such as insufficient station networks, poorly trained personnel and communication equipment. In some countries, meteorological services require to be supported more than others.
- Many NMHS in Africa are unable to deliver the full potential range of services and products to their governments and communities as they are finance and human capacity constrained.

- NMHS can make a significant contribution to sustainable development by providing information and services across a range of economic sectors.
- NMHS need to play a much stronger role in climate change mitigation and adaptation by providing the information based upon which sound development decisions can be made.
- The existing institutions (Pan African and Regional) can play a major role in supporting NMHS and in integrating programmes and information products and models at regional and Pan African levels.
- Both South-South and North-South cooperation have a role to play. Exchange of expertise and knowledge should be improved.
- There needs to be a significant increase in efforts and financing for modernization of NMHS in Africa to deliver a full range of weather and information products essential for sustainable and climate change proof development in the regions.
- Increased support of, and increased cooperation between existing African Institutions and mechanisms is required to move forward and meet these challenges.

3.4 RECOMMENDATIONS

The National Meteorological and Hydrological Services in Africa are providing critical support to sustainable development in various sectors. They however have a growing potential contribution to the sustainable development of various economic sectors in particular agriculture and food security, water resources, energy, health, transport (aviation and marine) and tourism.

- Increasingly, the role of NMS in disaster risk management and reduction, and the contribution that they can make in climate variability and climate change mitigation and adaptation strategies of their countries also need to be improved significantly.
- Because of the critical need for Africa to achieve set development goals including the Millennium Development Goals (MDGs), there is an urgent requirement for modernization of National Meteorological and Hydrological Services through increased financing for better weather and climate information, services and products.
- Financing meteorological services improvement can be achieved through government, private sector financing and finance institutions such as the Africa Development Bank and the World Bank. As Africa seeks increased North to South Cooperation, avenues to enhance South to South cooperation need to be explored.

4.0 SESSION THREE: BENEFITS OF METEOROLOGICAL, HYDROLOGICAL AND CLIMATE SERVICES

4.1 INTRODUCTION

The session was designed to allow experts from various sectors present case studies to illustrate the importance and benefits of meteorological, hydrological and climate

services for different socioeconomic sectors including health, tourism, agriculture, water, transport and energy. Gaps and needs were identified, and proposed solutions were recommended. Recommendations from the session are to be forwarded to the Ministers meeting for consideration.

4.2 PRESENTATIONS

4.2.1 Mr. Issa DJIRÉ, Director General of Office de la Haute Vallée du Niger, Mali, presented a case study from Mali titled: "Farmer Oriented Meteorological and Climatological information to reduce vulnerability of agricultural systems facing climate variability and change in Mali". People living in rural area represent 80% of the population and Agriculture that is mainly rain fed agriculture represents 40% of Mali's GDP. The economy and society have been directly affected by the recurrent drought situation in the region. In order to address this critical issue, the NMS has developed and gradually implemented a farmer-oriented agro-meteorological service delivery project, in partnership with Extension Services, Farmers Associations and other relevant stakeholders. Based on farmers needs assessment and training, relevant weather and agro-meteorological information and services are produced by a Multidisciplinary Team and disseminated through various media, particularly rural radio, and effectively used by farmers in their plots. This mechanism has demonstrated the applicability weather and climate information and services by farmers at grassroots' level and the corresponding benefits, including 20% of yield increase, 35% savings from replanting operations, contribution to environment protection, poverty reduction and climate change adaptation. This experience is being applied in many other African countries.

4.2.2 Mr. Abere MIHRETIE, Anti Malaria Association and Climate & Health Working Group, presented a case study from Ethiopia titled (Weather and climate information to monitor illness outbreaks- application to meningitis and malaria in Ethiopia). He stressed the lack of appropriate and reliable systematic climate-related information hinders efforts aimed at addressing the challenges of climate change in Africa. Realizing this fact, the Ethiopian government supported the National Meteorological Agency activities related to malaria early warning. Mr. Mihretie presented the procedures followed in establishing the Climate and Health Working Group and its achievement. The successful results are encouraging other countries to establish similar Climate and Health Working Groups.

4.2.3 Mr. Livingstone NGANGA, Manager, Flight Operations Engineering, Kenya Airways**,** Kenya made a presentation on Benefits of Accurate Metrological data to An Airline, Case Study: Kenya Airways. The presentation briefly outlines the key Aviation Meteorology critical to airline operations. These include the significant weather elements defined by the World Meteorological Organization and the International Civil Aviation Organization (ICAO). Provision of weather data service to airlines requires an extensive monitoring and notification process. The Aviation Meteorology data is used by Airlines for Pre-flight (Flight Planning & Crew Briefing), In-Flight (Flight Following) and Landing. Modern Technology has enabled Airlines to integrate their systems for real time tracking. There is need for Collaborative Decision Making (CDM) between airlines, national meteorology departments and WMO to improve aviation meteorology. Infrastructure Upgrading of Africa's National Telecommunication Networks (NTN) will improve Meteorology data flow to Weather Data Service Providers and consequently to airlines.

He said as the 'Pride of Africa', the presentation briefly outlines Kenya Airways initiatives to support CDM and thus improve Aviation Meteorology in Africa.

4.2.4 Mrs. Aida Diongue NIANG, Agence Nationale de la Météorologie du Sénégal, and Coordinator THORPEX Africa, Senegal, made a presentation titled, 'Towards the development of services contributing to the effectiveness and safety of maritime activities in Africa'. West Africa coastal regions are among the areas with highest population density and industries in Africa. Furthermore, for much of these countries marine activities including fisheries, oil drilling, tourism, and harbor activities constitute major contributions to national Gross Domestic Product (GDP). The growing industrialization and settlements in coastal areas have made these areas highly vulnerable to weather impacts. Then high swell (particularly in Northern Western Africa), storm surge (particularly countries in the Gulf of Guinea) usually cause temporal inundation which in turn has an effect on coastal erosion causing damage to coastal infrastructure. Despite the importance of marine activities in socio-economic development, marine services are not getting the necessary attention in the region. Senegal is a good example of marine services which provide regular bulletins to various users and is working to better fit requirements from traditional fisheries groupings to find better ways to produce and disseminate the marine information. Mrs. Niang recommended to work towards a regional organization (ECOWAS coastal countries + Mauritania and Cape Verde) based on the Severe Weather Demonstration Project run in Southern Africa. There are some existing initiatives (WMO programme funded by Spain, and a United States funded initiative) but further engagement and funding are needed to fulfil regional and national requirements, such as observations, modelling and training, to provide accurate forecasts and warnings to user communities for sea safety and disaster risk reduction.

4.2.5 Mr. Hassen Lofti FRIGUI, Ministry of Agriculture, Water Resources and Fishery, Tunisia, presented a paper: 'The needs for meteorological and climatological information in water resources management–case from Tunisia'. He highlighted the importance of hydro-meteorological data for water resources management. Due to the geographic location of Tunis, the country is under the influence of two climate zones, in the North a Mediterranean climate and in the South a Saharan climate. This setting has been reflected in the hydro-meteorological extreme events such as floods and droughts. These conditions make the resource scarce and unevenly distributed in time and space with risks or excess or scarcity, calling for management intra- and inter-annual in order to allow storage of surplus water during surplus years and use during drought years. The hydro-meteorological observations started more than one century ago in Tunis and there are many traditional methods for water resources management to cope with these extreme events. This information constitutes the basis of the major studies related to water sector and primarily to the management of water resources (budgets, water development plans, mobilization, transfer, recharge, conservation,). To cope with future situations, the country must consolidate its policy particularly in terms of observation and monitoring, water resources conservation and preservation in both quantity and quality, in order to cope with new challenges and to delay as long as possible the need to tap on unconventional resources.

4.2.6 Mr. Guido van LANGENHOVE, of the Ministry of Agriculture, Water and Rural Development in Namibia made a presentation on 'Flood forecasting: improving the products quality through enhanced integration of hydrological and meteorological

information'. The general introduction dealt with characteristics of floods, their magnitude and frequency that are of a technical nature but also impact the affected people in the flood-risk areas. The most common floods are those generated by high rainfall which cannot be absorbed by the catchments and the river channels resulting in overflows. The aim of operational flood forecasting is for improved management and mitigation of such disaster occurrences. The practical example of the floods in the Zambezi River was chosen to illustrate the benefits of meteorological information for improved flood forecasting. Both in February and in April 2010, the Zambian and Angolan Meteorological Services respectively issued early warnings for heavy rains in the catchments. These were confirmed by direct satellite monitoring of convective thunderstorms with the MetetoSat system and the magnitude of the rains was confirmed using the NASA Servir remote sensing TRRM estimates. From this information, the monitoring of floods arriving at the upstream river-flow stations could be estimated and adequate early forecasting of timing and magnitude of floods to arrive in Namibia could be given more than two weeks ahead of time. He concluded by emphasizing the need for ground monitoring that seemed to be neglected while remote sensing systems were improving. He asked for more involvement of hydrological agencies in meteorological activities and that for instance more information should be made available on the actual success rate of predictions of heavy rainfall occurrences, in comparison with the relation between heavy rainfall warnings and heavy rainfall events with respect to temporal and aerial correctness.

4.2.7 Mr. Mnikeli NDABAMBI, South African Weather Service (SAWS) Republic of South Africa, made a presentation on the Southern African Severe Weather Forecasting Demonstration Project. He gave a background that Numerical Weather Prediction systems (NWP) have become increasingly relevant and indeed essential to the severe weather forecasting process, with a growing number and variety of sophisticated outputs, currently available from NWP producing centres, which could be beneficial to severe weather forecasting to many National Meteorological and Hydrological Services (NMHS). The SWFDP explored and tested the usefulness of the products currently available from NWP centres, or products that could be readily made available from current NWP systems, with the goal to improving severe weather forecasting services in countries where sophisticated model outputs are not currently used. The principal focus of the project is on the phenomena of severe weather events where regional guidance products are developed. The presentation demonstrated the successful implementation of a severe weather forecasting demonstration project and its contribution on decision-making including socio-economic benefits. A call for funding support is made to ensure that this low-cost, high impact project becomes a sustainable operational severe weather guidance system beyond 2011. The project is currently funded by the World Meteorological Organization. He concluded by recommending to the Ministers that funding has to be mobilized in order to sustain the Severe Weather Forecasting Demonstration Project beyond its project phase and become an operational regional Severe Weather Forecasting Guidance system beyond 2011 when the project phase ends. The funding support will assist in establishing or enhancing the necessary observational structure, further capacity building and to improve the communications challenges that have been identified.

4.2.8 Mr. Jean-Luc REDELSPERGER of France made a presentation on a case study "Societal benefits of meteorological and climatological applications: Results of the international programme: African Monsoon Multidisciplinary Analysis - AMMA". He recalled the dramatic change from wet conditions to much drier conditions in the 70s

over the West African region represents one of the strongest inter-decadal signals on the planet in the 20th century. Superimposed on this, marked inter-annual variations in recent decades have resulted in extremely dry years with devastating environmental and socio-economic impacts, causing a dramatic decrease of agricultural and pastoral resources from which 70% of Sahelian population depends. In this regard, societal issues are necessary to detect and anticipate the crisis due to weather and climate variability to reduce their impacts. To answer these issues, an international programme African Monsoon Multidisciplinary Analysis - AMMA, has been launched. The programme was designed to improve knowledge and understanding of the West African monsoon and its variability and its societal impacts, mainly for food security, water resources and health. It also ensures the multidisciplinary research carried out in AMMA is effectively integrated with prediction and decision making activities. AMMA mobilizes, reinforces and coordinates on these issues in Africa and international community. It has created a community of excellence endorsed by the international research programmes.

4.2.9 Mr. Benjamin LAMPTEY, Regional Maritime University, Accra Ghana presented a case study on "An international consortium for Reducing risk from sand and dust storms in Northern Africa". In his presentation, Dr. Lamptey gave an overview of the impact of the dust and sand storms on the human health and highlighted the importance of observing and monitoring this phenomenon. He briefly presented the WMO Sand and Dust Storm Warning Advisory and Assessment System (SDS-WAS) which is a Global Consortium Helping Society Reduce Risk through Research, Assessments and Forecasts. SDS-WAS is designed to enhance the ability of countries to deliver timely and quality forecasts of sand and dust storms, observations of aerosols: sand and dust and provide information and knowledge to users. The system is implemented through an international partnership of research and operational experts and users.

4.3 DISCUSSIONS AND CONCLUSIONS

The participants expressed interest in the topics presented as reflected in their interventions and valuable comments. The participants input can be summarized by the following points:

- The Science of Meteorology is well known, but there is a need to promote and make the value of its application visible.
- The application of Agro-meteorology is very important and there is a need to exchange experience on its application.
- Exchange of information among riparian countries is important and needs to be strengthened.
- The impact of Climate on health is well recognized and there is a need to exchange experience with countries which successfully addressed this issue.
- The role of Meteorological Service as service provider is very important and it needs to be promoted through highlighting collaboration and cooperation with users including civil aviation, health and tourism and demonstrated successful stories to decision makers.
- Numerical weather prediction is very important to have forecast for winds, sandstorm, dust storm, lightning, clouds, etc. by having real time forecast for severe weather to be broadcast through the media.

- It is necessary to consolidate the coordination of AMMA in Africa to strengthen collaboration between research & application communities. It is also necessary to maintain and improve observation network to forecast and monitor weather and climate variability and its impacts.
- The NMHSs structure needs to be reviewed within the government structure to ensure adequate financial resources to support their activities.

4.4 RECOMMENDATIONS

The Outcome / Recommendations for the session to be forwarded to the African Ministers responsible for Meteorology are as follows:

- Mobilize the necessary financial resources to ensure successful operation of the NMHSs to deliver quality products to support various socio-economic sectors.
- Encourage and support cooperation and collaboration between NMHSs as information providers and user sectors.
- Support, promote and repeat successful experience in addressing climate impacts in various socio economic sectors.
- Encourage and support development of Climate and Health Working Groups to establish regional and international network.
- Promote regional cooperation especially among riparian countries to facilitate data exchange and ensure issuing of effective warnings.
- Encourage use of indigenous and traditional methods on adaptation to climate change and strengthen adaptation capacity.

5.0 SESSION 4: DISASTERS AND RISK REDUCTION

Based on concrete case studies in Africa and others regions of the world, this session demonstrated the importance of the utilization of meteorological, hydrological and climatological information and forecasting, in particular in areas of evaluation and reduction of risk including finance transfer risk.

5.1 SESSION INTRODUCTORY REMARKS

5.1.1Ms Helena Molin VADES of UNISDR, made an introductory presentation on the relationship between risk reduction and climate variability and change. She also raised the recent development in the area of risk reduction in Africa highlighting the main challenges.

5.1.2 Ms Olushola OLAYIDE of the African Union Commission presented the action plan for the implementation of the regional strategy for disaster and risk reduction in Africa.

5.2 SESSION PRESENTATIONS

5.2.1 Ms Dulce CHILUNDO, Disaster management Institute Mozambique, made a presentation on 'Disaster Management in Mozambique'. She highlighted the main threats in Mozambique as floods, tropical cyclones, droughts, tsunami waves,

earthquake, epidemics, windstorms and sea level rise. She stressed that there is a continuation of regular simulation exercises to further improve communication system flow of information for disaster management. She added that a permanent training of the Local Committees for Disaster Risk Management (LCDRM) is in place and there is an active involvement of community leaders, district governments as well as women in disaster risk reduction activities. Chilundo also stressed the importance of incorporating disaster risk management in school curriculum. As an example of disaster risk reduction there are plans underway of furnishing a new resettlement village with all infrastructures to prevent the communities for going back to risk areas.

5.2.2 Mr. Abbas GULLET Secretary General, Kenya Red Cross Society made a presentation on 'Moving Towards Preparedness and Response'. The Red Cross / Red Crescent Climate Centre can be considered as a bridge between climate change and disaster risk reduction. The centre supports efforts to understand and address humanitarian consequences of climate change and extreme weather events. This is achieved through raising public awareness, advocating for climate adaptation and disaster risk reduction (within and outside the Red Cross and Red Crescent) and analyzing relevant forecast information on all timescales and integrate knowledge of climate risks into Red Cross Red Crescent strategies, plans and activities. In West Africa Gullet said the Red Cross work on climate risk assessment aims to assess priorities, raise awareness, and establish and enhance partnerships. They will also highlight climate related vulnerability, document and share experience and information and have an advocacy campaign to shape the global response to climate change. In Kenya, Malawi and Senegal the Red Cross has been working with Meteorological services to anticipate potential crises, and mobilize staff and volunteers to action, collaborate on climate change programme to enable smallholder farmers learn about adaptation and held a workshop for Red Cross workers, community representatives and forecasting experts – linking science and humanitarian work. The challenges that require to be addressed include many people cannot understand or at times do not trust forecasts and even then cannot access forecast. There is necessity to make people understand meteorological forecasts and have the capacity to make good use of them.

5.2.3 Mr. Gift LIVATA, of Opportunity International Bank, Malawi made a presentation on Financial Risk Transfers Mechanisms. In his talk, he highlighted that in the area of Immediate and Widespread Direct Impacts of Shocks Losses from adverse weather and price fluctuations are experienced at different economic levels. At the micro-level, individual households are affected while at the meso-level, Market Intermediaries, and Local and Regional Governments are affected. However, at the macro-level, it is the National Governments and International Organizations that are most affected. Livata illustrated how the weather shocks send the poor people deeper into poverty while the better off are able to recover from the weather peril thrust. He gave an example of the weather index for maize as a tool for determining the agricultural value chain for sector wide insurance cover.

5.2.4 Mr. Adama Alhassane DIALLO of the African Centre for Meteorological Applications for Development (ACMAD), a discussant of the earlier presentations stressed that the socioeconomic activities in Africa are influenced by climatic conditions. He also stated that for every one dollar invested in building capacity of NMHS through observation networks, data processing, forecast models, dissemination and communication to end users and training can return benefits of up to ten dollars.

Unfortunately, many NMHS in Africa are still facing weak capacity in communication with decision maker and end users, lack of sensitization of users, and lack of communication between NMHS and the academia. He said NMHS have the exceptional capacity to access to Global centres products and benefit from international cooperation in now casting and warnings that save lives and goods. The continuous research science effort to improve the models skills was a step in the right direction. He raised challenges to bettering of services as finance constraints, lack of political support at national level, lack in human resources and the migration of skilled workforce.

5.2.5 Professor Laban OGALLO, Director of the IGAD Climate Prediction and Application Centre (ICPAC) in response to: 'How to reduce vulnerability and enhance capacity of vulnerable countries' – The role of meteorological communities, he said that this vulnerability can be reduced through improving the knowledge base sharing in Africa, including research on climate extremes and data for hazards. He added that strategies and policies, including partnerships with various institutions and countries have a role to play in reducing this vulnerability. These included WMO, Global Climate Centres, Regional and continental climate centres, NMHSs, Sectors and communities, Ogallo concluded. He added that climate change and disaster risk reduction have a cardinal role in the climate community and needed efforts to prepare realistic scenarios. He said that good practices such as regional climate forums should be emulated but there was need to downscale to community level. Cross-cutting issues in the areas of data, observation, capacity building-training, funding, awareness education, cost benefit, assessment also needed to be addressed.

5.2.6 Dr. Simon MASON from IRI in his talk listed many success stories from various sectors in the applications of meteorological and climatological information. He also said that there was a need from decision makers in term of range of forecasts as they tend to be more interested in short term forecasting. He added that the improvement of the skill to forecast during El Nino episodes was important given its persistence.

5.3 Discussions and Conclusions

The participants expressed interest in the topic presented as reflected in their interventions and valuable comments. The participants input can be summarized by the following points:

- The expected outcome from the conference is to convince ministers to give political and financial support to NMHSs in a sustainable manner. There is necessity to demonstrate the strength of NMHSs in saving lives and provision of other services.
- Morocco was a good example of how investments in meteorological services can be beneficial.

5.4 RECOMMENDATIONS

The outcome/recommendations for the session to be forwarded to the African Ministers responsible for Meteorology are as follows:

- Meteorological, climatological and hydrological observations are national investments and need to be guarded and supported politically and financially

from governments. Government should inform stakeholders that 75% of all natural disasters are linked to weather, climate and water.

- Recognition that NMSs are strategic in nature (food, water and energy security, health, transport, etc) and full participation of NMSs in MDG work at national level is essential.
- Climate and weather information has saved lives and fostered development. Enhanced government investment in meteorological infrastructure is needed – (i.e., Observational Networks, Human Capacity, Communications)
- Rapid gains are made from training and access to data: Expanded Access of African Centres to International Forecasts and Cooperation within Africa to Share Forecast Guidance
- Research to improve forecasts: Support for International Research Projects within Africa and Support for Research Capacity of Africa.
- A cost effective, user-friendly, one-stop shop and standardized global data communications network is essential for operation of NMHSs, particularly in Africa; A potential exists to draw more users of meteorological information and for partnership building with users. There is an urgent need for investment in infrastructure (increased bandwidth of internet) and human resources (upgraded ICT skills and motivated personnel).
- Improving and enhancing the future collaboration of Africa countries with other WMO Regions and Members, international organizations, etc, on meteorological data and products to Support the meteorological Activities and Information Services in Africa. For example, it is recommended to encourage African countries to allocate the necessary additional resources to fully benefit for the assets provided by EUMETSAT.
- To nurture and enhance the development of NMHSs and their function as climate information services. To encourage WMO Members in RA I to reach the consensus on the design and establishment of RCC or RCC network in Africa.

6.0 SESSION FIVE: FILLING INFORMATION GAPS

6.1 INTRODUCTION:

This session discusses enhancing data availability and delivery of weather, water and climate products and the many challenges as well as opportunities that are involved. These include filling gaps in observations, improving quality of forecasts and predictions and promoting interaction between users and providers of weather and water services.

6.2 PRESENTATIONS

6.2.1 Mr. Amos MAKARAU from Zimbabwe Department of Meteorological Services made a presentation on the 'Status and Future Plans for Weather, Water and Climate Observing Systems in Africa'. He said 34 of the 56 countries in Africa fall among the Least Developed Countries (LDCs) and yet the continent is host to many natural hazards such as droughts, floods, tropical cyclones, pests, desertification, dust storms and water-borne diseases. The poorly developed NMHSs with poor network of observing stations, inadequate skilled manpower, poorly developed and obsolete infrastructure, including telecommunications, were a cause for poor delivery of services. This often leads to

inability to provide timely early warning services for impending disasters. For beneficial utilization of forecasts, it is necessary to avail them in simple languages understood by the majority.

6.2.2 Mr. Zilore MUMBA, from ACMAD made a presentation on 'Improving Prediction and Assessment in Africa'. Africa is a region where numerical prediction models have relatively big margins of error. To reverse the trend more observation stations are needed as well as research to improve Seasonal prediction systems, such as WMO Climate Information and Prediction Services (CLIPS) and the African Monsoon Multidisciplinary Analysis - AMMA. The THORPEX program across Africa would improve forecasts to serve vulnerable communities

6.2.3 Ms Linda MAKULENI from South Africa Weather Services made a presentation on : Finding, Accessing, and Sharing Information and Services for Weather, Water and Climate. She highlighted that developing countries, particularly in Africa generally lack infrastructure and knowledge to benefit from this global telecommunications network (GTS) for weather related data and climate prediction information. Investment in infrastructure (increased bandwidth) and human resources by upgrading ICT skills and motivating personnel as well as engagement of users is crucial for developing applications for key socio-economic sectors.

6.2.4 Mr. Yadowsun BOODHOO from Mauritius (Meteorological Services) made a presentation on Providing Weather and Climate Services to Improve Societal Benefits. Drought-affected areas will likely expand but heavy precipitation events; will be more frequent with increase in flood risk. By 2050, annual average river runoff and water availability are projected to decrease by 10-30% over some dry regions at mid-latitudes and in the dry tropics. Water supplies stored in glaciers and snow cover is projected to decline. He stressed without meteorological observations, no data is generated making it impossible to predict the climate and leading to no response measures.

6.2.5 Ms Aida Diongue NIANG from Agence Nationale de la Meteorologie du Senegal made the presentation on Filling Information gaps and dwelt on the development of services for safe maritime activities in West Africa. She noted that weather extremes were significant in limiting development of coastal regions and highlighted constraints such as sea-level rise, coastal erosion and maritime accidents. She further discussed Senegal's use of atmospheric models, wave models and data from other sources such as Meteo-France to provide bulletins of maritime forecasts for pre-defined zones of the sea. These bulletins were disseminated to commercial and artisanal vessels, port authorities, fisheries' landing sites, emergency services and relevant government authorities.

6.2.6 Mr. Hiroshi KOIDE from the Japanese Meteorological Agency made presentation on learning from Asia. He showcased the role of RCC in regions mainly due to the fact that Climate Information is often perceived as expensive, i.e., huge resources are necessary to provide climate information and there is often not enough capacity in each NMHSs and duplicating functions in a Region may not be cost beneficial. He further showed the Tokyo Climate Centre (TCC) produces tercile probabilistic three-month forecasts of such temperature and precipitation for each 5˚ x 5˚ grid box over the globe. All grid point value of seasonal prediction are supplied with their verification. He highlighted the importance of future collaboration of Japan with Africa countries on

climate data and products to Support the Activities of Climate Information Services in Africa; Advanced Analysis Tools easily used via Network; Technical Advices for RCC Capacity Building under the consensus of the RA-I Members.

6.2.7 Mr. Mikael RATTENBORG from EUMETSAT made a presentation on 'Delivering Satellite Information in Support to Weather, Water and Climate Services'. He highlighted that for the last 20 years EUMETSAT has been providing key satellite data for users in Africa for meteorological and climate services. He stressed the capabilities for the exploitation of the data. It is recommended to encourage African countries to allocate the necessary additional resources to fully benefit from the assets provided by EUMETSAT.

6.3 DISCUSSIONS AND CONCLUSION

The participants expressed interest in the topic presented as reflected in their interventions and valuable comments. The participants summarized their contributions in form of recommendations for consideration by the ministers.

6.4 RECOMMENDATIONS

- EUMETSAT provides more and more data and products to Africa in real-time through the EUMETCast system as it has become an important communication channel for meteorology and non-meteorological applications in Africa.
- Risks for malaria epidemics can be extracted from El Niño forecasts with several months lead time giving health officials opportunity to prepare for epidemics. Malaria early warning systems should be developed in several African countries.
- African meteorological services through RA1 develop regional resource mobilization strategy for infrastructure development and capacity building. Member countries should provide necessary financial resources to ensure long-term sustainability of NMHS.

7.0 SESSION SIX: CAPACITY BUILDING

7.1 INTRODUCTION:

The session focused on capacity building, within the framework of meteorology in Africa. The essence of the session revolves around the various issues that should be taken into consideration while examining how to enhance capacity in the continent as far as meteorology is concerned. The session dealt extensively on training, infrastructure and related policy consideration especially on climate change.

7.2 PRESENTATIONS:

7.2.1 Mr Ifeanyi NNODU, of the Nigerian Meteorological Agency, Abuja Nigeria made a presentation on Human and Institutional Resource Development. He observed that there was inadequate equipment and manpower which was made worse with lack of planning. The use of outdated work formats and materials as well as inappropriate telecommunications systems increased the gap in capacity to provide efficient services. Other shortfalls included inability to keep pace with rapidly changing technology and low

value appreciation of meteorology information for socio economic development by governments and the private sector as well as low budgetary allocation.

7.2.2 Mr. Barnabas CHIPINDU of the University of Zimbabwe made a presentation on Meteorology, Climatology, Hydrology and Associated Fields at Academic Institutions in Africa. He observed that meteorology is a closed field which requires specialised education and training but there are very few academic institutions in Africa offering meteorology courses in curricula. Related training in climatology, hydrology, applied Meteorology such as Agricultural Meteorology, Aeronautical Meteorology and Marine Meteorology is covered at a few specialised training centres and universities. He further argued that educated and trained personnel ensure that the National Meteorological and Hydrological Services (NMHSs) provide high quality meteorological and hydrological services and enable provision of accurate weather and climate information that will assist communities in reducing the negative impacts of weather related disasters.

7.2.3 Mr. Malamine SONKO, Chief of Meteorological Operations of the Agency for Aerial Navigation Safety in Africa and Madagascar (ASECNA), Dakar Senegal, made a presentation on Development and Maintenance of Meteorological and Hydrological infrastructure. He stressed the advantages of weather, hydrological and climatological information saying that this was undeniable fact. He said because of absence of financing infrastructural development there was insufficient availability of data leading to poor quality service delivery. He argued for coverage of all infrastructures including civil engineering, equipment (observations, telecommunication and archiving) and updating of technological systems and software.

7.2.4 Mr. Bubu JALLOW, Senior Programme Officer, United Nations Environment Programme (UNEP) Regional Office for Africa, made a presentation on Capacity Building on Climate Change issues. He said that through the special Climate Change Fund and Adaptation Fund as well as multilateral sources, funding is available for adaptation activities in water resources management, land management, agriculture, health, infrastructure development, fragile ecosystems and integrated coastal zone management. Other identified activities include improving the monitoring of diseases and vectors affected by climate change and related forecasting and early-warning systems and supporting capacity building for preventive measures, planning, preparedness and management of disasters relating to climate change, in particular, for droughts and floods. It also included strengthening existing and/or establishing national and regional centres and information networks for rapid response to extreme weather events, utilizing information technology as much as possible. He cited examples of capacity building activities being carried out by the CC DARE project in collaboration with Meteorological services in Tanzania, Uganda, Ghana the Gambia and Seychelles with participation of private sector players

7.2.5 Dr. Todd NGARA, Senior Researcher, of Risoe Centre Denmark made a presentation on Constraints to Climate Change Capacity Building in Africa with a focus on the Clean Development Mechanism – CDM. One of the major criticisms of CDM process is that Africa has hardly benefited with only 3% of the registered CDM projects originate in Africa. In order to attract more CDM projects it is necessary to accelerate transfer of climate-friendly technologies and spread awareness of the climate change implications of investment decisions. This will enable acquiring experience and build capacity in implementing climate-friendly projects which can be a significant source of

revenues for developing countries. He further identified challenges to CDM implementation as complex modalities and procedures such as validation, registration, verification and monitoring among others. It also has heavy institutional requirements and can be resource intensive.

7.3 DISCUSSIONS AND CONCLUSIONS

The participants expressed interest in the topic presented as reflected in their interventions and valuable contributions. The participants' inputs can be summarized by the following points.

- Lack of human and material resources
- Geopolitics and lack of adequate financial resources constraint climate change capacity building.
- Poor institutional and human capacity create key gaps leading to poor service delivery

7.4 RECOMMENDATIONS:

The Outcomes/Recommendations for the session to be forwarded to the African Ministers responsible for Meteorology are as follows:

- Need for the improvements of observing systems, at national and international level and developing NMHS infrastructure.
- Meteorological services need to understand the socio-economic agenda of the political class in their countries, to attract support for their institutional development and provide services. In addition, activities of the meteorological services should be relevant and visible to end-users for commendation.
- There is the need for continuous collaboration between Universities and the national Meteorological Services in the development of human capacity. There is need for a comprehensive study on the institutions offering training in meteorology and associated fields in Africa to enhance collaboration and harmonize curriculum.
- A Climate Change Unit with dedicated staff be set up in Meteorological Services to follow up on and mobilize funds for implementation of climate change activities.

8.0 SESSION SEVEN: USER PERSPECTIVES OF WEATHER AND CLIMATE SERVICES

8.1 INTRODUCTION:

The session was a panel discussion with representatives of communities, non governmental organizations, the media and other partners centred on user perspectives of weather and climate services. The panellists and discussants in their submissions proposed linkages and interaction with service providers.

8.1.1 Mr. Guido van LANGENHOVE from the water sector noted that there was a marked improvement in meteorological services over the past few decades, saying that the information generated currently is more reliable and more relevant. He lamented,

however, a growing neglect in the importance of grassroots basic information, which renders information from remote sensing abstract and unreliable to use.

8.1.2 Mr. Stephen NJOIKA, of Kenya Agricultural Research Institute (KARI), explained improved agricultural practices enable communities to become more resilient to climate change. He further elaborated that Meteorological services alone cannot provide all the meteorological service required and recommended decentralization through training of staff from other agencies to assist in the dissemination of meteorological information.

8.1.3 Mr. Benson WAFULA, also from the Kenya Agricultural Research Institute said that there should be links between NMHSs and agricultural research institutions, including universities. Wafula added that building the ability of various consumer groups and users of the products would help greatly in the application of meteorological information for sustainable development in the region.

8.1.4 Ms Yolande RAOELINA, of the Climate and Health Working Group, Madagascar, identified seven new types of diseases have emerged in the past decade alone with the potential to develop to epidemic levels. She observed that erratic rainfall patterns coupled with climate change can combine to have negative effects on human health. There is therefore a need for the health sector to work more closely with meteorologists, hydrologists and climatologists.

8.1.5 Mr. Patrick LUGANDA, of the Network of Climate Journalists of the Greater Horn of Africa (NECJOGHA) noted the importance of communicating climate change information for mitigation of losses that lead to reversals in national developments. He noted that ignorance on climate change matters was due to an inability to understand the relevance of the information relayed, blame games, and politicization and trivialization of the issues. Luganda stressed collaboration between media and the WMO, NMHSs, ICPAC, and other institutions. He said that the media had participated in developing seasonal climate forecasts in the Climate Outlook Forums in the Greater Horn of Africa with considerable success. He called for this relationship to be replicated elsewhere in Africa and beyond.

8.1.6 Ms Judith AKOLO, from Kenya Broadcasting Corporation, shared her experiences working with the Kenya Meteorological Department and other scientists in the sector. She said that it was beneficial for scientists to share as much information as possible with journalists, who act as messengers to the wider public. Without the media, information from meteorologists, and other scientists would not reach the public.

8.2 DISCUSSIONS AND CONCLUSIONS

In the ensuing discussion, panellists tackled issues surrounding feedback on communication from the public and other sectors, especially regarding early warning messages, as well as translating climate information into action at the community level. Delegates also discussed the use of new technologies to disseminate climate information. In conclusion, delegates noted:

- Climate information needs to be packaged correctly so that it is: understandable and relevant, trusted, accessible and user friendly, and

- The importance of mobile (cell) phone technology in communicating information to the public and the need for NMHSs to use this medium for the transmission of information, forecasts and, most importantly, warnings;
- The need to guard against inaccurate information being disseminated by mobile (cell) phone; and
- The need for every NMHS to develop a communications strategy that focuses, at least in part, in properly managing relations with the media

8.3 RECOMMENDATIONS

- The capacity of users of the information provided by NMHSs be strengthened so as to ensure that they are able to make the best decisions based upon the climate and weather information provided;
- That mobile (cell) phone technologies will play a major role in information communication in the future and that NMHSs should be actively exploring this technology now;
- Forecasters and climate scientists need to spend more time developing an effective partnership with the media if they hope for the widest possible usage of the information they provide; and,
- User-provider feedback systems are vital, and every NMHS should be carrying out user surveys to determine how best to improve their services.

9.0 SESSION EIGHT: ENHANCING PARTNERSHIPS

9.1 INTRODUCTION

This session and subsequent discussions focused on partnership enhancement in application and use of weather, water and climate services for the development of Africa from a long term and sustainable perspective.

9.2 PRESENTATIONS:

9.2.1 Mr. Mohammed KADI made a presentation on current ACMAD programs. Mr. Kadi said the vision of ACMAD was making weather, climate and environment resources available for sustainable development. He added that centre's main objective was to enhance African countries' and NMHS capability to understand, anticipate and manage the impacts of weather and climate fluctuations to support the achievement of sustainable development and poverty reduction. For two decades, ACMAD has developed partnerships towards tailored weather and climate services with the United Nations Economic Commission for Africa, WMO, AU and international institutions and NGOs.

International Scientific centres and African sub-regional economic grouping such as SADC, ECOWAS, IGAD, CEMAC, IOC, UMA, ASECNA, CENSAD were just a few of the examples that need more support funding and solidarity.

9.2.2 Mr. Vladimir TSIRKUNOV World Bank made a presentation on creating Regional partnership for modernization of Hydro-meteorological services in support of national

and regional development. The importance of weather, climate and hydrological information is growing due to the need to serve more elaborate societal needs, minimize growing economic losses and help in adaptation to climate change. However, NMHSs capacity in many countries in Africa and Central Asia (ECA) is inadequate and degraded considerably during the last 20 years. Lack of adequate weather, hydrological and climate information is one of development obstacles. The World Bank is committed to attract attention to this public sector and help client countries improve these services by helping NMHSs raise their profile within the governments. This can be achieved by using results of economic assessment, analytical work and successful experience in modernization of NMHSs. This can also be possible by integrating support to NMHSs into broader development agenda and sector support programs, developing NMHSs modernization programs and implementing them jointly with the governments, UN agencies, development banks and donors.

9.2.3 Ms Karin SVINGBY from Ericsson made a presentation on making the most of communication technology uptake in Africa for delivery of weather information services via mobile phone. The opportunity that exists is individualized weather and climate services are within reach in Africa. The existing mobile network is cost-efficient, made for large scale data handling and micro payment flows. The possibilities for information collection and dissemination to support societal development are endless through this technology. There is sizeable market potential for micro weather in multimedia services such as broadcasting, mobile content and graphics. It also has great potential in aviation, marine, energy, weather dependent industries, urban authorities and transportation. All these services require weather related information including vital government services to combat climate induced natural hazards for emergency response. The others include health services and for defence and military purposes in supporting operations and training. Insurance companies also benefit from the better distribution of timely weather products.

9.2.4 Mr. Brahima KONE Centre for Training, Research and Applications of Agro-meteorology and Operational Hydrology (AGRHYMET), made a presentation highlighting the work of his organization in the Sahel. He stressed that numerous challenges exist making it difficult to implement programmes. These include unreliable funding, obsolete infrastructure and lack of expansion capacity. He said partnerships with the Economic Community for West African States (ECOWAS) and working with the World Meteorological Organization and others is an example of beneficial partnerships. The African Monitoring of the Environment for Sustainable Development (AMESD) programme, he informed the conference would improve environmental monitoring for better use of natural resources in the Sahel region and other regions in Africa. Mr Koné appreciated the support of EUMETSAT which enabled various meteorological products to stakeholders and users in Africa. He also recognized other partner organizations working with AMESD and called for a continuation of support to the programme.

9.2.5 Mr. Luis Fernando Lopez COTIN, of the Spanish Meteorological Agency (AEMET), made a presentation on the Bilateral and Regional Partnerships for Modernization of Hydro-meteorological Services in Support of Regional and National Development. He said the Spanish Cooperation program for National Meteorological and Hydrological Services (NMHSs) in West Africa enable funding for meteorological services, and sharing experiences with Latin America. He elaborated that the purpose of collaborating with West African countries was to provide tools for sustainable

development for marine safety, health, agriculture and fisheries, and emerging from natural disasters and conflict covered under the MARIMET, METAGRI, HEALTHMET and EMERMET projects ongoing in the region.

9.2.6 Mr. Byung-Seong CHUN, of the Korea Meteorological Administration (KMA), presented about Enhancing partnerships between KMA and East Africa. He enumerated the history of Korea, noting its success in transforming from a developing country status to a developed country. Chun stressed Korea's commitment to partnering with Africa to improve meteorological and hydrological services. He said Korea's efforts to achieve this objective included discussions at the Korea-Africa Forum in 2009, as well as a Korea International Cooperation Agency and WMO memorandum of understanding on African Aid Cooperation. On cooperation with East Africa, he emphasized that Korea would focus on supporting the IGAD Climate Prediction and Applications Centre (ICPAC) and a memorandum of understanding (MOU) was due to be signed in the course of the day to enable a collaboration towards capacity building in the field of meteorology, and supporting the provision of information and communication services.

9.3 DISCUSSIONS AND CONCLUSIONS

In the discussion, contributors dealt with issues concerning: the regional repatriation of funding for ClimDev Africa; the associated costs and capability of mobile-phone service providers to develop "tailored" meteorological services; and the opportunities to uplift NMHSs in war-torn nations such as Liberia through the AEMET and other partnerships. Participants recognized that user point of view could be viewed from various perspectives. Nevertheless, it was considered necessary to focus on the following areas, namely; human and institutional resources development, education and infrastructure. At a wider societal level, note was made of the realities of poor institutional and human capacity that create key gaps in the understanding of, and ability to, predict high impact weather and climate events. It is necessary to seek and enhance awareness and support activities of governments and the public to the benefit of meteorological and environmental education. The development and maintenance of meteorological and hydrological communication by NMHSs in good interaction with the media could therefore be tackled at four levels: funding, training, maintenance strategies and internal organization. The involvement of gender should be considered and highlighted. The technologies in communication should be available for all the partners (NMHSs, Civil protection authorities, Media,) and communication should be approached as a professional activity.

9.4 RECOMMENDATIONS

- There is need for the improvements of communication systems including high technologies in telecommunications (mobile phone, tele and video conference).
- Meteorological services have to understand the socio-economic agenda of the political class in their countries. In addition, activities of the meteorological services should be relevant and visible to end-users for commendation.
- Need for collaboration between the media, civic protection authorities and the national Meteorological Services in development of human capacity.
- There is a need for better interpretation and information on climate change,

- Women, especially in developing countries are on the front lines of weather related natural disasters and therefore should become key partners and problem solvers.

10.0 DISCUSSION OF THE DRAFT EXPERT STATEMENT

After the end of the Expert Segment of the conference, the Chair introduced the draft Conference statement for discussion. Several proposals from delegates were made and further changes incorporated into the revised draft. The conference statement was finally accepted and passed by the meeting for presentation to the ministers' segment for their consideration. (**Annex 1**)

11.0 DRAFTING OF THE MINISTERIAL DECLARATION

A small drafting group composed of Zimbabwe (Chair), Central African Republic, Ghana, Mauritius, Morocco and Tunisia was established earlier to consider and review a draft Ministerial Declaration. The resulting text was then presented to the delegates. After discussions by the meeting, it was agreed that the draft declaration was a true reflection of the aspirations of the experts and was congruent to the conference statement and it would sufficiently guide the ministers' discussions. It was therefore accepted to be forwarded as a draft Nairobi Declaration to the ministerial segment.

REPORT OF THE HIGH LEVEL SEGMENT OF THE MINISTERIAL CONFERENCE, 15-16 APRIL 2010

1.0 OPENING CEREMONY

1.1 Dr. Joseph Mukabana, Permanent Representative of Kenya to WMO and Director of Kenya Meteorological Department, welcomed delegates to the High Level Segment of the Conference and said that the roles and functions of meteorological and hydrological services were clearly laid out by the World Meteorological Organization. He elaborated that the importance of these services was providing early warning of likely extreme weather events to the public. He explained that recently, global attention is focused on the work of meteorologists as well as hydrologists to give accurate and timely climate information. Policy makers in Africa were advised to allocate more funds in their budgets to National Meteorological and Hydrological Services (NMHS) to provide better climate information. He then invited the Officials to make opening remarks.

1.2. Ms Margareta WAHLSTRÖM, UN Under-Secretary-General and Assistant Secretary-General for Humanitarian Affairs, UNISDR, said that Africa was developing a strategic plan led by the African Union to tackle the impacts of disasters in Africa. She acknowledged the contribution of the World Meteorological Organization in setting up the UNISDR. She added that the theme of the Hyogo Framework of Action plan 2005-2015: 'Building Resilience in Nations and Communities to Disaster,' was aimed at reducing disaster impacts worldwide. She called for coordination of efforts in implementing policies for sustainable development.

1.3 Mrs. Peace Rhoda TUMUSIIME, African Union Commissioner for Rural Economy and Agriculture, praised the delegates for making meteorological and hydrological services a priority in their development agendas. Climate change, she stressed, paints a gloomy picture for Africa and is a setback for development. She added that it was a hindrance to attaining the set Millennium Development Goals (MDGs). Commissioner Tumusiime added that a free flow of weather and climate information was necessary to achieve development targets. She said this would only be possible with giving due attention to the NMHSs. She further explained the work that the AU was doing regarding climate change adaptation and mitigation strategies which was primarily aimed at support to vulnerable communities, in rural areas.

1.4 Mr. Michel JARRAUD, Secretary-General of the World Meteorological Organization (WMO) recognized and applauded the partnership between the African Union and WMO in organizing the conference. Kenya was also praised for its participation in WMO activities, especially in regard to regional facilities such as the WMO Specialized Meteorological centre, the WMO Regional Telecommunications Hub, the IGAD Climate Prediction and Applications Centre (ICPAC), the Mount Kenya Global Atmosphere Watch Station and the regional Meteorology training centre. He highlighted President Mwai Kibaki's statement during the African Parliamentarians Summit on Climate Change in Nairobi where he called for strengthening of the capacity of National Meteorological and Hydrological Services to be able to develop ways of addressing climate change impacts. The Secretary General also mentioned the establishment of the Global Framework for Climate Services (GFCS) at the WCC-3 to promote the development of decision-supportive tools and capacity in climate-related risk management. He said

NMHSs are critical in attaining the MDGs because the natural and climate-related disasters hampered national development.

1.5 Hon. Noah WEKESA, Minister of Forestry and Wildlife, Kenya, in his address urged the international community to take collective responsibility for climate change. He requested them to use the available resources to curb climate-related disasters through support to NMHSs who are the custodians of predictions, weather forecasts and advisories to end users. He underlined the relevance of NMHSs in meeting the MDGs through the utilization of information provided for early warning systems and disaster risk analysis. He further said the support to NMHSs should include new technology, interconnectivity through internet and other communication capacities to bring services to the end-users. He said that there is synergy between the WWC-3 and the objectives of the conference as it was putting into practice the decisions made and adopted at the 3rd World Climate Conference.

2.0 ELECTION OF THE BUREAU

After the opening remarks **Ms Olushola Olayide SODEKO,** of the African Union requested the delegates to elect a Bureau to run the conference. Delegates elected Minister Ramadhan Seif Kajembe of Kenya, as Chairman of the Conference, Minister Hamed Semega from Mali was elected first Vice-Chairman, Minister Patson Mbiriri, of Zimbabwe second Vice-Chairman, Minister Oumaro Mefiro of Cameroon third Vice-Chairman and Minister Mohammed Zahoud of Morocco was elected the Rapporteur.

3.0 ADOPTION OF THE AGENDA

The Chair of the Conference **Hon. Ramadthan Seif Kajembe** after assuming the chairmanship, on behalf of the other bureau members thanked the delegations for the trust put in him and promised to ably steer the conference. He asked delegates to consider adoption of the agenda before them. Senegal proposal that the agenda should include an item for ministers to make their statements before adoption of the Ministerial Declaration was considered. The delegates adopted the agenda, with the proposed amendment

4.0 PRESENTATION OF THE DRAFT CONFERENCE STATEMENT

The Conference statement was presented to the Ministers by **Dr Amos Makarau** (Vice President of WMO Regional Association for Africa) on behalf of Chairman of the Expert segment Dr. Mamadou Lamine Bah (President of WMO Regional Association for Africa). He said the experts emphasize that the role of climate services is becoming increasingly important for development in Africa, especially in these times of increasing climate variability and climate change. He added that the experts recalled the deliberations of the World Climate Conference-WCC3 - held in Geneva last year and proposed a framework to develop meteorological services in Africa. He concluded by noting the level of understanding of meteorological issues by the ministers. He then proceeded to read the Conference Statement to the ministers.

The ministerial meeting took note of the Conference Statement (**Annex 1**). This was followed by keynote presentations on opportunities for Africa to develop the meteorological services.

5.0 KEY NOTE PRESENTATIONS

Keynote presentations on opportunities for Africa to develop the meteorological services were made.

51 Hon. Eugene Koffi ADOBOLI, former Prime Minister of Togo in his address to the meeting called on the delegates to deliberate wisely to pull the continent out of the threatening situation posed by climate change. He stressed that opportunities exist to make this happen and that it was important for the countries in Africa to come together under the African Union and the World Meteorological Organization to address the pressing challenges faced by all the countries of Africa. He said disaster refugees rampant on the continent should be helped and given hope. He explained that natural disasters and those catalyzed by humankind will continue and required improved climate information and climate services to the end users, including government and the public, to reduce the scale and intensity of the disaster impacts.

5.2 Mr. Jan EGELAND, Co-Chair, High-Level Taskforce on the Global Framework for Climate Services (GFCS) emphasized the necessity to appreciate the historical performance of the climate to enable predicting the extreme weather and climate events of the future. Egeland said meteorologists should make their products available to the economic planners for food security, water and energy management and infrastructure development. He explained that Global Framework for Climate Services (GFCS) included the participation of various experts from all over the world. He added that governments should be in the lead to support and guide the GFCS initiative.

5.3 Mr. Vahid ALAVIAN, from the World Bank Africa, said the conference should support the setting up a mechanism to reduce the escalating climate related disasters facing the continent. He said that the holding of the conference has revealed that the countries are willing to exchange knowledge that would enable solving the problems through political dialogue and technical cooperation. Mr. Alavian said funding partnerships in the disaster risk management and recovery and hydrology projects, hazard management included, support for South-South collaborations in information sharing among NMHSs. He noted that World Bank funding will continue to be allocated at the country level but also at the regional level where appropriate.

5.4 Dr. Anthony NYONG, of the Africa Development Bank (AfDB), said that the bank was pleased with the level of commitment shown by the various stakeholders to strengthen NMHSs. He told delegates that the information provided by meteorological services is central to development. To address Africa's climate change challenges, it was imperative to have accurate weather and climate information. With this information, Nyong said that it would be able to manage water and agricultural sector climate related risks. He singled out the support the bank is giving to ClimDev Africa, for generation and dissemination of information to end users. He concluded that AfDB has invested US$30Million in projects carried out by its regional partners concerned with meteorology and said the bank was willing to continue with the funding. He said that in case the bank was requested, it was willing to commit itself to host an Africa Meteorological facility, similar to the African Water Facility.

5.5 Mr. Michel JARRAUD, Secretary General of the WMO, reminded Ministers of the April 2002 New Partnerships for Africa's Development (NEPAD) conference where the

African Minster's Council on Water (AMCOW) was established. He urged ministers to take advantage of the opportunity of this conference to develop a similar structure that would enable them speak with a united voice at the sixteenth UNFCCC Conference of the Parties(COP16) to be held in Mexico later in the year. He also explained that the unity of Africa would enable them to be united at other forums such as the World Meteorological Congress and others. He noted that some of the most pressing challenges facing Africa are reflected in the MDGs and these include poverty alleviation, food security and sustainable management of agriculture, water and natural resources which are further aggravated by natural disasters and climate variability and change. The considerations and discussions during the conference, Mr Jarraud said, would also provide outstanding input and strategic guidance to the 15th Session of the WMO Regional Association for Africa.

6.0 PRESENTATION OF THE DRAFT CONFERENCE DECLARATION

6.1 After hearing the keynote presentations on the opportunities for Africa, the chairman called on delegates to discuss and debate the draft Ministerial Declaration.

6.2 A proposal to amend the draft declaration was presented by **Hon. Mustapha GEANAH**, the General Secretary of Minister of Water and Environment of Morocco on behalf of Moroccan delegation, to expand the membership of the Task Force to ten people with all the five members of the Bureau and five elected from the Africa sub regions. The proposed amendment was seconded and agreed to be part of the Ministerial Declaration.

7.0 INTERVENTIONS BY MINISTERS RESPONSIBLE FOR METEOROLOGY

BENIN

Mr Cyriaque Atti MAMA, Directeur de Cabinet, Ministry of Transport said that the national meteorological services in Benin provides vital data and information to government and non-governmental organizations to enable farmers and those working in the agricultural sector to better plan their activities. However, a lot needs to be done to increase the synoptic stations and the observation network in general. Equipment for the observation stations and training of staff was essential. He added that it was necessary to set up an early warning system to alert the public on climate and weather risks.

COMOROS

Hon. Mikidar HOUMADI, Minister for Transport in his speech said that meteorological services were one of the priority sectors identified by the Comoros government. He said the government was concerned about the information needs for the end users to add value to their development activities.

NIGER

Mr Abdoulaye IDA, Secrétaire Général, Ministry of Transport, Tourism and Industry said that the number of high level delegates at the conference raises no doubt that the quality of the outcome of the meeting would be beneficial to Africa. The fragile

economies of most developing counties like Niger necessitated working together. The creation of an African regional body for meteorological services was in line with the 14th Session of the Africa Regional Association meeting of WMO held in 2007 in Ouagadougou, Burkina Faso.

CAMEROON

Hon. Dr. Oumarou MEFIRO, Deputy Minister of Transport in his contribution, said that the current climate and weather conditions all over the world were affecting all development programmes. He said that planning of all activities must factor climate variability and change in the planning process, inclusion of this information in the activities would enable realistic mitigation and adaptation strategies.

BURUNDI

Hon. Deogratius NDUWIMANA, Minister of Water, Environment, Land Plan and Urbanism said over 90 % of the population in Burundi depend on agriculture and so they are very dependent on the weather and climate and are affected by frequency of prolonged droughts. The extreme climate and weather conditions have a marked constraint on agricultural production and consequently development. Burundi has found it important to keep up to date its contributions to WMO up to 2011. He urged all governments to honour their contributions for the smooth operation of the world body. Governments should make allocation of finances to the sector a priority.

REPUBLIC OF CONGO

Hon. Isidore MVOUBA, Minister of State Ministry of Transport and Civil Aviation, in his contribution he said the weather services continue to be marginalized in Africa because they are not well equipped and insufficient training is given to personnel. However the rest of the world has moved ahead to install sophisticated forecasting tools such as fixed buoys, automatic stations, radar and satellites. In Africa, it is common for people in the rural areas to survey the sky each morning to predict the weather. This drama should be stopped. He quoted President Denis Sassou Nguesso who said global warming would force people to migrate to the more affluent nations because of the increased flooding and severe droughts, which were leading to massive erosion and turning the continent into desert. These climate refugees will continue to seek asylum in the countries which are responsible for their misfortune. Even tough enforcement laws will not control the massive numbers migrating.

TANZANIA

Hon. Hezekiah CHIBULUNJE, Deputy Minister, Ministry of Infrastructure Development said Tanzania is one of the least developed countries and is vulnerable to severe weather and extreme climate events. The Tanzania Meteorological Agency (TMA) tries its level best to inform about the looming dangers but the capacity of TMA needs to be enhanced in human resources and infrastructure. I take opportunity to commend the experts for coming with a statement as it has summarized the contribution of the meteorological services on the continent and at the same time indicated the challenges faced by these meteorological services. We ministers responsible for meteorology need

to find ways of supporting the experts. This timely declaration comes at a time when the effects of global climate change are already being felt in Africa.

RWANDA

Hon. Vincent KAREGA, Minister of Infrastructure, Responsible for Meteorology. Rwanda joins the rest of Africa in the new resolve to undertake seriously the process of building resilience against the effects of climate variability and change. It is time Africa thought about preparedness and specifically to reshape its meteorological services capacity to provide accurate information to enhance the formulation of evidence based policies and programmes. Individual countries cannot do much in addressing the effects caused by weather and climate change. We need to work together to achieve critical goals. We continue to pledge commitment to play our role in building the met services at home and on the continent.

UGANDA

Hon. Jessica ERIYO, Minister of State for Environment, in her address said climate change and variability are today's most important challenges to human progress and survival. She called for deliberate factoring of weather and climate information in the development process, as they are national and global assets for the common good, regardless of political or social orientation. She proposed communities be sensitized about weather and climate issues for development. Encourage governments to apportion a significant percentage of their budget to mitigation and adaptation to climate change including the strengthening of national meteorological services as a priority and support the implementation of the Global Framework for Climate Services (GFCS). She proposed the setting up of a forum of ministers responsible for meteorological services to regularly come together to review progress.

ZAMBIA

Hon. Prof. Geoffrey LUNGWANGWA, Minister of Communications and Transport said Zambia attaches great importance to this conference as timely and highly relevant. The country has experienced extreme weather conditions with floods and droughts attributed to climate change. He added the importance of weather and climate information to various socio economic sectors cannot be over emphasized. However, he stressed that weather and climate information can only be useful to socio economic development when well processed, packaged and disseminated. He urged national meteorological services to address the issue of user friendly weather and climate information that can be understood by the general public and decision makers. This he said this will assist in integration in national development planning and daily planning activities.

GHANA

Prof Edwin Akonno GYASI, Chairman of the Meteorological Board, representing Hon. Haruna IDDRISSU Minister of Communications, said that Ghana created the Meteorological Autonomous Agency in 2004. He appealed to donors and the international community to support enhancement of the meteorological services delivery capacity towards poverty reduction and sustainable development in Africa. Ghana, he added, strongly supported the ministers to arrive at a positive declaration.

SUDAN

H.E. Mr Majok GUANDONG, Ambassador of Sudan, representing Hon. Dr. Eisa Bushra Mohammed HAMID, Minister for Science and Technology, said Sudan has been involved in meteorological research and studies for several years. He said his delegation proposed that a program is set up for rehabilitation, modernization and development of meteorological services in Africa. Such a program would provide the meteorological institutions with modern technologies and efficient telecommunications equipment that help in exchange of information and technologies. He concluded this would lead help in the attainment of food security, combat climate change and achievement of general security on the continent.

NAMIBIA

Hon. Chief Samuel ANKAMA, Deputy Minister of Works and Transport said the Nairobi conference is a strong and positive beginning for Africa and the world at large in recognizing the urgency of improving meteorological services globally, continentally and nationally to reduce the impacts of the now recurrent natural disasters. He said it will provide a legal mechanism for the sharing of successful case studies and best practices in the provision of meteorological services that is geared at saving life, foretelling agricultural production, protection of the environment and marine life, reducing poverty and human suffering.

ALGERIA

Hon. Amar TOU, Minister of Transport said the new Global Framework for Climate Services must enable convergence of the WMO objectives as well as regional centre and national meteorological services together with the issues of national development and regional integration. He said the framework must establish a synergy with national, regional and sub regional programs. He emphasized that the development of our countries is within the context of the African union.

THE GAMBIA

Hon. Lamin Kaba BAJO, Minister of Fisheries Water Resources and National Assembly Matters observed that the meteorological profession has championed the cause for international cooperation and collaboration even during challenging times. He said the conference was in line with the quest for sustainable development for our communities. He was encouraged by the well crafted ministerial declaration presented and wished to assure the conference of the support of the Gambia and commitment for the establishment of the African Ministerial Conference on Meteorology (AMCOMET) and wished to see its immediate and effective operation. He added that when established AMCOMET should ensure all countries have access to timely, accurate and useable climate information products and services geared towards strengthening life saving, livelihood enhancement and climate proofed development.

BURKINA FASO

Hon. Gilbert Noel OUEDRAOGO, Minister of Transport Burkina Faso said that because of the increasing vulnerability of their populations to climate, African authorities have to

give major priority to weather information, its analysis and its dissemination for effective decisions and adaptation. He was happy with the theme of the conference which was relevant to the development of the continent.

MALAWI

Hon. Ephrahim Mganda CHIUME, Deputy Minister of Natural Resources, Energy and Environment said that in Malawi meteorology was seen as a lifeline to development, survival and poverty reduction. This, he said, was because natural disasters are weather and climate related. He added that they have high expectations from the outcome of the meeting especially the conference resolutions in the form of a ministerial declaration.

ZIMBABWE

Hon. Patson MBIRIRI, Secretary (Minister) of Transport, Communications and Infrastructural Development, said that his country welcomed the formation of AMCOMET. He added that in light of the devastating impacts of climate change which does not respect political boundaries, it is imperative that all countries work together and engage development partners as one. This will ensure that we develop together. He said Africa should commit itself to strengthening the meteorological services. He expressed appreciation to the African Development bank for financially contributing and showing commitment to the development of meteorology in Africa

ANGOLA

Hon. Prof. Pedro TETA, Vice Minister of Telecommunications and IT said that it is well-known that most African countries depend on agriculture and they are highly vulnerable in the rain season. Many of the countries present, he stressed are victims of natural disasters and the impact can be dramatic especially in the socio economic development. He further explained that as the continent embarks on a modernization program of the meteorological services through installation of automatic stations and other equipment it is important to also set up regional training centres to empower the human resources to match the modern technology.

DJIBOUTI

Hon. Ali Hassan BAHDON, Minister for Transport and Infrastructure in Charge of Meteorology commended the WMO for bringing politicians together under one roof to discuss strategies and policies relating to climate and weather services on the continent. He said that in the past Djibouti concentrated only on aeronautical meteorology but the government was presently widening to services to cater for the demands of the population in general.

CAPE VERDE

Mr. Carlos Alberto Souse MONTEIRA, Adviser to the Minister for Environment, Rural Development and Marine Resources said Cape Verde was very supportive of the conference as it is in line with decisions of the African Union and recommendation of the Third World Climate Conference held in Geneva last year. He said his country is very

vulnerable to climate changes as it was highly dependent on tourism activities as well as fishing. The agriculture in the country was also very sensitive to climate information for important decision making. He concluded by saying that the outcome of the conference would promote policies and measures to decrease the causes and risks of disasters for improving living conditions for humankind.

8.0 ADOPTION OF THE MINISTERIAL DECLARATION

After exhaustive contributions and discussions by ministers on the floor, the Nairobi Ministerial Declaration bringing into existence the African Ministerial Conference on Meteorology (AMCOMET) was adopted and passed with some amendments **(Annex 2)**

9.0 CLOSING

After the adoption of the Nairobi Declaration, the Honourable Ramathan Kajembe Chairman of the session called on Michel Jarraud, the Secretary General of WMO, to make a few remarks and subsequently closed the conference.

Annex 1: THE CONFERENCE STATEMENT OF THE EXPERT SEGMENT

Preamble

1. The participants (which included Permanent Representatives of countries with the World Meteorological Organization (WMO), Development Agencies, UN and International Agencies, African regional and sub regional institutions and Development Banks), International Organizations and Institutions) in the Expert Segment of the First Conference of Ministers Responsible for Meteorology in Africa held in Nairobi, Kenya on 12 to 14 April 2010 preceding the Ministerial Segment of 15 and 16 April, 2010, having discussed in the following Themes:

1. Meeting Development Needs;
2. Benefits of meteorological, hydrological and climate services;
3. Disaster Risk Reduction;
4. Filling Information Gaps;
5. Capacity Building;
6. User Perspectives; and
7. Enhancing Partnerships.

Reiterated:

2. That increasing risks and threats to sustainable development associated with disasters are predominantly due to, or are aggravated by meteorological or hydrological extreme events. The impact of these extreme events increases with increasing population, particularly in coastal zones and is most pronounced in the Least Developed Countries. This situation presents African countries with an array of challenges arising form climate variability and exacerbated by climate change.

3. The ability of African countries to monitor and predict these events is severely constrained by the gaps in operational observation networks, data communication and limitations in human capacity, poor model performance and financial constraints in many parts of the continent.

4. NMHS in the African Region have different legal status i.e. units in institutions, departments, agencies. The absence of a quasi uniform status constitutes a major impediment for the visibility and consequent provision of resources to NMHS.

5. Furthermore, the experts highlighted that weather and climate services are of key importance for supporting weather and climate sensitive social and economic development sectors, including disaster risk reduction: health; water resource management: agriculture and food security; transport and infrastructure: natural resource management and environmental protection; and development; energy generation and distribution and so encouraged the strengthening of meteorological and hydrological services.

6. That as weather and climate patterns transcend geographical boundaries there is a clear and urgent need to work jointly to contribute effectively and efficiently to the

development of all African countries, by exploiting the full potential of meteorology (climatology), hydrology and related sciences. In this regard, the support provided to National Meteorological and Hydrological Services by the sub-regional, regional and international institutions is a critical pillar.

7. Many positive initiatives aimed at advancing the NMHS have been implemented or are ongoing in the region. As a result of improved meteorological services concrete results have been achieved in several socio-economic sectors such as improved food security through improved agricultural yields, predicting locale and timing of malaria outbreaks, safe and economical airline operations and improved preparedness for disasters.

Concluded:

8. NMHS can significantly contribute to sustainable development by providing information services across a range of economic sectors but are not achieving their full potential at the current time due to several challenges as outlined above.

9. The National Meteorological Services are the sole official voice in issuing weather warnings for public safety and should be properly resourced to provide this vital public good.

10. NMHSs have a much stronger role as a contribution to climate change mitigation and adaptation and particularly in Early Warning and production of future climate scenarios, providing information to a broad range of decision makers across the community so that sound development decisions can be made.

11. The existing Pan African and Regional institutions play a role in supporting NMHS and also in integrating programmes and information products and models at regional and Pan African levels. These institutions should benefit from strengthened high level support to achieve their mandate.

12. Aeronautical meteorological services are a critical activity for many NMSs in Africa and that these NMSs face a substantial challenge in implementing Quality Management System (QMS) that are ISO 9000 compliant in time to meet the ICAO November 2012 deadline. Furthermore, without a compliant QMS in place aeronautical meteorological services face failure of ICAO safety oversight audits.

13. Both South-South and North-South cooperation have a major role to play in supporting improvement of weather water and climate services in Africa.

Recommended:

14. Observation (upper air, surface, continental and marine) and communication networks in Africa to be strengthened to meet user needs and to be sustainable in the long term.

15. All NMSs that provide aeronautical meteorological services should, as a matter of urgency, implement a QMS and recover from the aeronautical industry the costs associated with aeronautical meteorological services.

16. Encouragement for the development and establishment of a series of Climate Working Group to address the range of climate sensitive economic sectors such as Climate and Health, Climate and Energy, Climate and Transport etc to engage with key stakeholders.

17. Long term commitment to, and strategically planned investment in, human capacity development in the weather, climate and hydrological service provider community.

18. Encourage the establishment within each NMHS of a National Committee for climate related matters, in synergy with the National Committee on Climate Change.

19. NMHS in the African Region adopt the status of Agency where required.

20. NMHS should proactively seek partnerships with National Disaster Management Agencies and Development Sectors e.g. agriculture and health as these will increase their relevance and potential for allocation of resources.

21. Cooperation between NMHS and Universities needs to be strengthened to improve focus and scope of meteorological and climatological research and improved infrastructure to support research activities in NMHS.

22. Build the user community understanding of, and capacity to use and benefit from the full range of actual and potential weather and climate information products and services.

23. Encourage the use of indigenous and traditional knowledge and methods for adaptation to climate variability and climate change.

24. Strengthen the existing operational framework for enhancing cooperation between African countries and strengthen the capabilities of their National Meteorological Services and existing Regional and Sub-regional Climate Canters in Africa so as to effectively meet government and societal needs and requirements for weather and climate information and services.

25. Modern telecommunication technologies have significant potential for the dissemination of weather and climate information and warnings to the heart of local communities and should make every effort to take advantage of the rapid uptake of mobile phone technology across the African continent to expand their reach into local communities.

Annex 2: NAIROBI MINISTERIAL DECLARATION

CONFERENCE OF MINISTERS RESPONSIBLE FOR METEOROLOGY IN AFRICA

1. We, the Ministers and Heads of Delegation participating in the Ministerial Segment of the First Conference of Ministers Responsible for Meteorology in Africa held in Nairobi, Kenya on 15 and16 April 2010;

2. Noting the increasing risks and threats to sustainable development associated with disasters of which 90% are due to or aggravated by meteorological or hydrological extreme events and that African countries are facing multi-faceted challenges of climate variability and change that require, among others, decision-making based on scientifically sound data and information by governments and communities in order to develop adaptation strategies and action plans as part of the ongoing development processes and policies at national, sub-regional and continental level;

3. Recognizing that weather and climate information, services and products are of key importance for supporting climate–sensitive social and economic development sectors, including in particular health; agriculture and food security; transport; disaster risk reduction; natural resource management and environmental protection; water resource management and development; energy generation and distribution; and tourism;

4. Noting the gaps in operational observation and telecommunication networks, including maritime networks and their negative impact on the reliability of weather and climate information and services, and in view of the need to collectively address this situation to enable the National Meteorological Services in Africa to fulfil their national, regional and international mandates:

5. Considering that weather and climate patterns recognize no boundaries and that no one nation can be entirely self-sufficient in the production of all its meteorological and climate services and the urgent need to work jointly and in synergy to contribute effectively and efficiently to the development of our countries, by exploiting the full potential of meteorology and related sciences;

6. Taking into account the African Union Summit Decision on climate change and development, adopted by the 8th General Assembly in 2007 whereupon the Assembly expressed strong concerns about the vulnerability of Africa's socio-economic sectors and productive systems to climate variability and change and further noting that African countries demonstrably require additional resources for adaptation towards meeting the Millennium Development Goals;

7. Referring to Resolution 26 of World Meteorological Organization (WMO) Congress XIII in 1999 on the Role and Operation of Meteorological Services which urges WMO Members to mandate the National Meteorological Services as the official voice in issuing weather warnings for public safety to help minimize risks to the health and safety of citizens as well as the primary

national authority and official source of information and policy advice on the present and future state of the atmosphere and other aspects of national weather and climate, in support of policy development and the need to meet national, regional and international responsibilities in the effective implementation of the WMO programmes;

8. Recognizing the support provided to National Meteorological and Hydrological Services by the sub-regional and regional institutions, including the African Centre for Meteorological Applications for Development (ACMAD), the Centre for Training, Research and Applications of Agrometeorology and Operational Hydrology (AGRHYMET) the specialized institution of CILSS, the Intergovernmental Authority on Development (IGAD) Climate Prediction and Applications Centre (ICPAC), the Southern African Development Community (SADC) Drought Monitoring Centre (DMC) and the WMO Regional Training Centres in Africa.

9. Recognizing the need to ensure that all sub regions are adequately served by their subregional institutions on meteorology and climate services:

10. Recognizing the importance of programmes in Africa such as ClimDev Africa which is focused on climate observations, the African Monitoring of the Environment for Sustainable Development (AMESD) based on satellite observations and the African Early Warning and Climate Services (AEWACS); and particularly the support of the African Development Bank, UN Economic Commission for Africa, and the African Union;

11. Recognizing the socioeconomic benefits achieved in the use of meteorological information in various sectors in Africa such as transport, agriculture, health and water resources:

12. Noting with appreciation that the World Meteorological Organization (WMO), in collaboration with other UN System organizations, regional and subregional institutions and development partners, is assisting African countries to benefit from the scientific and technological progress made over the recent years, including access to satellite meteorological information to develop meteorological and climate products and services to support national and regional development planning, policy and programmes;

13. Considering the stringent and urgent requirements of the aviation sector for recommended and standard practices and the availability and provision of quality information to ensure safety of international air navigation;

14. Recalling the decision to establish a Global Framework for Climate Services (GFCS) made by the Heads of State and Government, Ministers and Heads of Delegation at the High-level segment of the World Climate Conference-3 held in Geneva, Switzerland, from 31 August to 4 September 2009, and;

15. Having considered the conclusions of the Expert Segment of the Ministerial Conference held in Nairobi from 12 to 14 April 2010, in particular its analysis of successful applications of weather, water and climate information, products and

services to various sectors of social and economic development including for Disaster Risk Reduction and the recommendations on current and future programmes, projects and activities;

Commit ourselves to:

a) Strengthen and sustain National Meteorological Services by providing them with all necessary resources and adequate institutional frameworks to enable them to fully perform their roles as a fundamental component of the national development infrastructure of our countries and of the continent and a contributor to security and sustainable development, particularly poverty reduction efforts, climate change adaptation and disaster risk reduction;

b) Take all necessary steps to ensure that African National Meteorological Services meet the ICAO requirements regarding Quality Management Systems (QMS) by November 2012.

Agree to:

a) Establish the African Ministerial Conference on Meteorology (AMCOMET) as a high-level mechanism for the development of meteorology and its applications in Africa with a Bureau composed of Kenya (Chair), Mali (First Vice-Chair), Zimbabwe (Second Vice-Chair), Congo (Third Vice-Chair) and Morocco (Rapporteur) representing the five African sub-regions. This Bureau will represent AMCOMET during the intersessional period;

b) Designate during this Conference a Task Force of ten (10) members comprising the five Bureau members and Algeria (North Africa), Cameroon (Central Africa), Ghana (West Africa), Uganda (East Africa), and a representative of Southern Africa (to be designated)[1]. The Task Force, to be chaired by the AMCOMET chairperson, will define the institutional framework and internal arrangements of AMCOMET with WMO as the Secretariat with the support of AU. The Task Force should submit a proposal to the first session of AMCOMET which should meet regularly and at least every two years ;

c) Take the necessary measures, within two years, to develop an African Strategy on Meteorology for enhancing cooperation between African countries to strengthen the capabilities of their National Meteorological Services and existing Regional and Sub-regional climate centres in Africa. so as to effectively meet government and societal needs and requirements for weather and climate information and services, taking into account the statement of the expert segment of this Ministerial Conference and the planning for the Global Framework for Climate Services (GFCS);

d) Establish, with the support of WMO and partners, a sub-regional structure for climate monitoring and adaptation to climate change for sustainable development in Central Africa;

[1] Southern African Ministers have assigned Zambia as a representative of southern Africa for the Task Force during the Meeting of the Committee of Ministers Responsible for Transport and Meteorology on the 28th of May 2010

e) Involve the technical and financial partners, the international community and the United Nations system and its agencies to support AMCOMET and the preparation and the implementation of the African Strategy on Meteorology;

f) Ensure that African National Meteorological Services and Regional and sub-regional centres have access to the Copenhagen Green Fund for Climate Change through the African Development Bank and other mechanisms;

g) Ensure that NMS benefit from cost recovery with respect to aeronautical and maritime meteorological services and other mechanisms;

h) Invite WMO to take note of this Declaration and bring it to the attention of the sixty second session of the Executive Council, fifteenth session of the WMO Regional Association for Africa and the Sixteenth WMO Congress and to take appropriate measures;

i) Invite the African Union Commission to take note of this Declaration, to bring it to the attention of the next African Union Summit and take appropriate measures.

Annex 3: SIDE EVENTS

A. THORPEX AFRICA AND THE AFRICA HIGH IMPACT WEATHER INFORMATION SYSTEM

The session presentations were made by Dr. Aida Diongue Niang, Co Chair of the THORPEX – Africa and head of the Senegal Meteorological Agency, who explained that THORPEX was a programme of the World Weather Research Programme (WWRP) under the World Meteorological Organization (WMO) Commission of Atmospheric Sciences. She said it is designed to accelerate improvements in the accuracy of 1-to-14 day high impact weather forecasts for the benefit of the society, the economy and the environment.

THORPEX, she explained will provide research to reduce adverse effects of meteorological and climate related natural disasters, through promoting multidisciplinary collaboration between research, operations and user communities. High impact phenomena of interest include:

- Dry spells as well as late onset and early end of the rainy season
- Flooding/flash floods and associated landslides
- Tropical cyclones landfall in Southern and Eastern Africa
- Tropical depressions/tropical cyclones genesis in North-western Africa
- Dust events
- Marine hazards

These activities she explained will deliver the benefits of earth observations, advanced communications and improved forecast systems to Africa. Priority application sectors include disaster and water management, agriculture, livestock, and food security, energy, health (e.g. meningitis) and transportation (e.g. aviation). The THORPEX African Regional Committee has produced Science and Implementation Plans for THORPEX Africa. Over thirty-five African nations have provided focal points and agreed to cooperate in developing and implementing THORPEX in Africa.

The High Impact Weather (HIW) Predictability and Information System is one of the first projects of THORPEX Africa and will include a catalog of African high impact weather events and their related human toll, damage and other socioeconomic or environmental impact data. The ultimate aim of the HIW Predictability and Information System is to compile HIW events in the past two decades and on going HIW events with a user friendly interface to facilitate integrated and multidisciplinary studies in order to promote methods and tools to mitigate detrimental effects of HIW by implementing early warning systems in collaboration of all stakeholders (government authorities, disasters management services, local communities). The first step is to work on a subset of these events as a 3-year demonstration project with an interim prototype database. This interim database is compiling hydro-meteorological and impact data but information will also be provided on how much lead time could be provided for these events by state-of-the-art predictive models and the impact of the event on societies, economy and environment. The full system will be implemented in the second phase which requires funding.

Apart from National Hydro-meteorological services which are implementing the high-impact information and predictability system, collaborators with THORPEX in these efforts include Munich Re, which will provide impact data that can be combined with national estimates, ICTP (Abdus Salam International Centre for Theoretical Physics sponsored by the Italian Government, UNESCO and IAEA), which will assist in developing the data portal and major forecasting centres and some universities/research institutes which will be involved in building conceptual models of the high-impact weather events model skill evaluation .

The deliverables for this project include a quantitative understanding of how Africa is impacted by weather and climate events, It will also enable sufficient lead time that can be expected in warning the public of these events and allowing efforts to provide better tools for decision and policy making. This will create better early warnings including estimates of expected impacts, advisories for food security, agriculture, energy production, water resource and disaster management. This work is expected to help reduce injuries and fatalities, infrastructure and property damage, tackle poverty as well as environmental degradation.

RECOMMENDATIONS

- Support from heads of national meteorological services to enable compilation of data for the High Impact Weather (HIW) events and further involvement of national representatives.
- Support from research institutes for more engagement of the African Academic community in HIW predictability studies.
- Funding for training and regular meeting to discuss results and share experience
- For the full implementation of the HIW information system, support is needed from governments to help seeking for funding.
- General support of research infrastructure required for NHMS to undertake research studies with academic institutes.

B. OVERVIEW OF THE APPLIED ACTIVITIES BY THE MARINE METEOROLOGICAL AND OCEANOGRAPHY PROGRAM (MMOP),

The presentation at the side event of the Marine Meteorological and Oceanography Program (MMOP) outlined the mission of the program as the regulation, coordination and facilitation of sustained provision of global and regional coverage of observational data and products and services to address the continual and expanding requirements of the marine user community. The meteorological and oceanographic information was primarily focused to safety of life and property at sea and the integrated coastal areas. Partnership with countries in Africa would enable ocean information required by end users to be used for disaster mitigation, sea travel safety, marine and off shore activities as well as sustainable development of the marine activities and environment.

C. CLIMATE OFFER OF THE UN FOOD AND AGRICULTURE ORGANIZATION (FAO)

Mr. Peter Holmgren, Director of the climate, Energy and Tenure Division at FAO, chaired the side event on data and methods for climate impact assessment on agriculture and planning of climate change adaptation practices.

He gave highlights of collaboration between FAO and National Meteorological Services (Malawi, Ethiopia, Sudan, Morocco, Turkey, Afghanistan, Germany, Italy and EU), crop forecasting using and medium-term early warning systems.

Other presentations were made by Mr. Michele Bernardi and Mr. Stefano Alessandrini, from the FAO Climate Impact Team, who explained the rain fall estimate methodology and application. Mr. Adams Chavula of the Department of Climate Change and Meteorological services gave a talk on weather based indices for crop insurance in Malawi.

Mr. Selvaraju Wamasamy from the FAO Climate Impact team explained the climate impact assessment methodology toolkit developed under European Union/FAO programme on Food Security. He also gave an overview of a study on extreme climate event in Morocco under the World Bank/FAO CC study. Mr. Gadain explained the work the meteorological department was doing under the Somali Weather and Land Information Management Project in collaboration with FAO.

Discussion and Conclusions centred on increasing collaboration between FAO and National Meteorological Services. Collaboration with Malawi Department of Climate Change and Meteorological Services was singled out for the weather based Maize yield index for crop insurance. Collaboration with Morocco National Meteorological Services on Climate Change Impact Assessment on Agriculture and building Sudan Institutional Capacity Programme for Food Security Information for Action (SIFSIA) were identified as needing support. The CLIMAFRICA program to enable climate change predictions in Sub-Saharan Africa for impacts and adaptations was also identified as a critical input in the programs.

D. EUMETSAT

Mr. Vincent Gabaglio, the International Relations Officer, gave the long term strategy approved by the European Organization for the Exploration of Meteorological Satellites (EUMETSAT), Member States. He said EUMETSAT will continue to implement its strategy of support in developing countries within the Meteosat zone of coverage, particularly within Africa. He added that the objective is to help the user communities make optimal use of available and planned satellite services, data and products in order to help individual countries and regions meet their national needs to the benefit of the African citizens.

The EUMETSAT long term strategy in Africa can be traced to training activities with support beginning in 1994. The first courses started in 1995. Subsequent courses by the EUMETSAT training programme were updated to comply with the WMO publication 258 – “Guidelines for the education and training of personnel in meteorology and operational hydrology”.

The key elements of the programmes include supporting developing countries, training of trainers and building on existing infrastructure. Activities implemented together with the European Commission, African, Caribbean and Pacific (ACP) Secretariat and the Regional Economic Commissions (RECS) include a 10 years long cooperation with concrete results, PUMA programme: implementation in 2002-2006 and the AMESD programme: implementation in 2007-2011.

The programme has in addition provided 53 African countries and 5 Regional Centres to receive in real-time EUMETSAT data through the PUMA receiving stations. In addition, 350 technicians in various countries in Africa have been trained on the use and maintenance of PUMA receiving stations. Others include six pilot projects that have been prepared to continue with the African Monitoring of the Environment for Sustainable Development-AMSED.

E. SPECIAL SESSION ON AVIATION

The special session on aviation was chaired by Abdalah Mokssit of Morocco and convened on Wednesday morning. Mr. Simeon Zoumara of the, ASECNA (Agence pour la Securite de la Navigation Aerienne en Afrique et à Madagascar) made a brief presentation on his organization's work and its relationship with NMHSs. He informed delegates that ASECNA works with seven meteorological centres, nine sub-centres and 30 surface meteorological centres, and liaises with NMHSs in all its member countries as well as WMO and other partner organizations. He noted the benefits of meteorology to aviation in Africa, but listed ASECNA's challenges as, insufficient funding, inability to maintain all its centres, and under-staffing in its most active centres. He called on member nations to assist ASECNA in improving its service provision.

Mr. Olli Marius Turpeinen of the International Civil Aviation Organization (ICAO), discussed the implementation of Quality Management Systems (QMS) by Aeronautical Meteorological service providers. He revealed that all ICAO member signatories must have ISO 9000 Certification of the QMS by 2012. He outlined that QMS requirements provided in ICAO and WMO regulatory documents, emphasize the importance of accuracy in forecast, adherence to Operational Aeronautical Meteorological data exchange requirements and quantification of meteorological personnel. He discussed the Safety Management Systems (requiring safety related services in international aviation adding that quality management was a prerequisite to Safety Management System compliance. He further reported that in spite of the high initial cost of QMS implementation, states are eligible for cost recovery through air navigation charges and they, in the long-term, make significant savings due to efficient services.

In the discussion that followed, delegates raised the urgency required in making all the meteorological services in Africa compliant with the necessary standard certification. Participants noted that the matter was of a priority nature and needed immediate attention by the high level segment of ministers responsible to meteorology for consideration.

F. MOU BETWEEN ICPAC AND KOREA METEOROLOGICAL ADMINISTRATION (KMA)

A Memorandum of Understanding (MOU) was signed between the IGAD Climate Prediction and Applications Centre (ICPAC) represented by the Director Professor Laban Ogallo and the Korea Meteorological Administration (KMA) represented by Mr. CHUN Byung-Seong, the Administrator KMA. He said that Korea was happy to enhance partnerships between the Korea Meteorological Administration (KMA) and East Africa. He explained that Korea had transformed from a donor recipient country in the 1970s to a donor country since the 1990s. He said they were eager to share Korea's progress with Africa for it to develop. He added that the African Assistance plan earmarked $108 million in 2008 but this would be doubled to $216 million in 2012. He said that 5,000 trainees will be hosted by Korea in 2012 and over 1000 assistance workers will be sent to Africa in 2012.

He added that Korea will support cooperative efforts and KMA proposes partnerships with its African counterparts to build the capacity of weather services in the region. In realizing our partnership with Africa, Chun explained, KMA will be relying on cooperation with WMO. He said that although initially the partnership arrangement will be limited to sub-regions of Africa, it will extend the cooperation with the entire continent in the long run. As part of these joint cooperative activities, KOICA and the WMO signed a memorandum of understanding (MoU) in June 2009 on African aid cooperation.

Under this MoU, KOICA is to provide 400 thousand dollars to support climate change adaptability in East Africa and 200 thousand dollars to fund the modelling of weather and climate impact on community health and public health services to prevent epidemics such as malaria. These undertakings are expected to help East Africa improve its climate prediction capability and to facilitate the management of health information systems. In addition, KMA hosted a 2-week program last year for African countries on the improvement of meteorological disaster responsiveness, which enhanced the effectiveness of its cooperation with Africa. KMA will continue its active engagement in such cooperation and relevant activities.

Chung said the signing of the MoU on meteorological cooperation with the Intergovernmental Authority on Development (IGAD) was a first step in direct cooperation with African countries. KMA will cooperate and support through its joint endeavours with its partner, IGAD Climate Prediction and Applications Centre (ICPAC), support for the ICPAC and the weather services of its Members and capacity building through education and staff training. It will also support Information and Communications Technology (ICT). He said that this is a foundation for a more extensive and developed relationship by sharing our experiences and working hand in hand. Professor Ogallo reiterated that the MoU was timely for ICPAC and the IGAD member countries and it will use the support to enhance the capability of meteorological services to deliver quality products for the welfare of the people in the Greater Horn of Africa.

G. TAKING ADVANTAGE OF INNOVATION IN COMMUNICATIONS TECHNOLOGY

The side event was hosted by Ericsson, a telecommunications company with a presentation by Ms Karin Svingby who said that the mobile telephone network had great potential to serve the needs of the weather and climate information services; she said the existing mobile network is cost-efficient, made for large scale data handling and micro payment flows. The possibilities for information collection and dissemination to support societal development are endless, she explained.

There is a range of multimedia services that can be enabled including broadcasting, mobile content, graphics, aviation and airports as well as marine services. Others include harbors and ship safety and rescue and salvation services. Still , others were traffic planning, mining engineering and construction, water reservoirs, energy, wind and solar plants, transportation and several weather dependent industries and activities.

The mobile phone usage was rapidly growing in Africa with almost half a million handsets in circulation representing 43% coverage. Provision of essential services such as meteorology could take advantage of this positive situation and Ericsson was working towards achieving the goal.

H. SPECIAL SESSION ON THE GLOBAL FRAMEWORK FOR CLIMATE SERVICES

The special session on the Global Framework for Climate Services (GFCS) was moderated by Mr. Jerry Lengoasa, Under Secretary General of WMO, who introduced the speakers and noted the importance of the subject matter.

Mr. Jan Egeland, Co-Chair, High-Level Taskforce for the GFCS, introduced the Framework, stressing its potential to influence sustainable global change. He said that the provision and dissemination of climate information is integral to the development agenda, further noting that without this information, there would be “constant poverty.” He defined climate services, and emphasized their importance in the prediction of extremes in the near- and medium-term future. The mandate of the GFCS is to, inter alia, consult with stakeholders, prepare a report to review the current state of affairs and assess the gaps, and recommend options to address the gaps and solicit investment for its activities.

Mr. Filipe Lúcio, of WMO, made a presentation detailing the events leading up to the third World Climate Conference (WCC-3), held in Geneva, Switzerland in 2009. He briefed participants about the WCC-1 in 1979, which established the IPCC as well as the World Climate Programme. He highlighted the establishment of Global Climate Observation System at WCC-2 in 1990. He then described the events at the WCC-3, noting one of its important outputs as the establishment of the GFCS.

Mr. Geoff Love, of WMO, discussed the next steps of the GFCS. He outlined a plan of implementation and added that there would be proposals on the next steps relating to the role of the UN system and other stakeholders, approaches to global data policy, improving systematic in situ observations and monitoring of climate particularly in data-sparse areas. He noted that the strategy for this involves face-to-face meetings in the

six regions of WMO. He added that an internet-based questionnaire that is also accessible via internet-enabled mobile phones was in circulation to stakeholders and would be used for outreach to the operational climate community experts and government review.

The highlights of the ensuing discussions by delegates included:

- Connecting several parallel initiatives working in isolation
- Finding practical mechanisms for stakeholders to ensure climate forecasts benefit the continent;
- Communicating both short- and long-term data-series climate information to a wide range of users; delivery mechanisms of climate change communication;
- And incorporation of indigenous knowledge systems and approaches

I. MEDIA 21 REPORT

CLIMATE and FOOD SECURITY: How will Africa Feed her Children?

CONCEPT AND HIGHLIGHTS

Media21 organized its 25th journalist workshop on global issues (and its 5th on Climate) during the 1st Conference of ministers responsible for meteorology in Africa, Nairobi, 12-16 April, 2010 convened by WMO and the African Union. This was a framework to report on the impact of climate change in Africa, and the answers for a sustainable agriculture that were exposed during field visits in the Lake Victoria region.

Both workshop and fieldtrip highlighted enormous amount of expertise and experience that Kenya and other African countries have to offer. Regional scientific institutions, such as the African Insect Science for Food and Health Institute (icipe, Nairobi) and Aga Khan University, are all contributing to innovative solutions, such as the fast growing organic farming, biogas, and the protection of forests through alternative income (i.e. medicinal plants).

The striking reality is that most of the 35 participating African journalists, including Kenyans, had little or no knowledge about such grassroot initiatives for the promotion of local resources to feed Africa. They knew even less why such effective sustainable practices have yet to be taken seriously both by governments and many international agencies, such as the World Health Organization or Food and Agricultural Organization. This is precisely the point of Media21, notably to connect journalists with diverse actors, including new and hidden ones. Many journalists were also able to question scientists and delegates from their own countries attending the ministerial conference.

Of course, considerable space was allotted to established organizations and experts, as well as the private sector. This enabled more candid discussion with sometimes contradictory viewpoints as to which “Green Revolution” is needed in Africa: small and/or large scale farming, ecological and/or sophisticated technologies, new national policies and/or massive foreign investment. The issue of “land grabbing” (acquisition of large-scale African lands by Asian countries for their own food supplies) was also scrutinized, particularly with regard to what – and whether - this gives back to Africa and its people.

Some panels also referred to the sharp conclusions of IAASTD (International Assessment of Agricultural Knowledge, Science and Technology for Development: www.agassessment.org), a global 2000 pages report prepared by 400 experts that can be compared to the IPCC report on Climate change, without having got so far the same media coverage. It appears as a road map towards sustainable food production in order to cope with population growth, climate change and soil degradation, with new knowledge to fight poverty, hunger, diseases, etc.

The other focal point was the role of media for communicating scientific assessments to small farmers, rural population and decision makers. The last day was dedicated to discussing the necessary language and story-mapping in order to reach out to both indigenous and international communities. Local and regional journalist organizations collaborated with Media21 on this. Some 35 African participants have decided to form a follow-up network, whether joining existing networks (such as Climate Journalists of the Greater Horn of Africa, Kenya Environment and Science Journalists Association, The Organic Farmer, etc) or creating a group of contact with climate experts in West Africa. These outcomes will be communicated soon.

PARTICIPANTS

- 40 journalists (18 print, 4 agencies, 4 radio, 3 TV, 10 web, 1 photo) from Africa (34 incl. 21 Kenyan), Europe (4), India (1) and USA (1).
- 23 journalists participated to the Victoria Lake field trip
- The workshop was also attended by representatives of WMO, SDC, Antenna Technologies, Biovision, Nestle
- Professional experience: middle and high level
- Selection on the basis of articles sent beforehand, motivation, geographical & gender balance.

PANELISTS, VISITS AND SESSIONS

Apart from the ministerial conference participants, which they could meet on their own initiative, the journalists had specially-tailored presentations by 35 experts and representatives from UN, NGOs, enterprises, universities and media.

During free time allotted for individual reporting, a lot of interaction occurred with WMO (including top officials Michel Jarraud and Jeremiah Lengoasa), and specialists attending the conference. Many African journalists met the ministers and delegates of their own countries.

The workshop included representatives of the private sector, such as Ericsson (on getting the climate info out) and Nestle (on tomorrow's food in Africa and their dairy food programme in Kenya), but also successful local entrepreneurs such as Su Kahumbu, who is making of Green Business a reality in Africa. Monsanto, however, in spite of having promised to send a representative, left an empty chair.

Media21 created a blog to host instant production of participants, panellist inputs and other relevant information: http://climate21.wordpress.com.

FIELD TRIP IN THE VICTORIA LAKE REGION

The week before the Conference was dedicated to the in-depth visit of sustainable agricultural activities in Western Kenya (Lake Victoria region), with the support of icipe, Biovision, The Organic Farmer and KEEP:

- Icipe Centre of Mbita: push-pull technology (pest and weed organic control of maize fields), with Prof Z.R. Khan, creator of the method. Malaria and tse-tse programmes
- Training and self-help of farmers on organic farming near Kisumu
- Meeting with fishermen near Kisumu – Overview on the Lake Victoria ecosystem
- Biogas device, Care for Earth, Kenyan Training Centre led by Cassim Bilali
- Kakamega Rain Forest protection by neighbouring villages: Kakamega Environmental Education Program (KEEP) with new income generation projects (medicinal plants, butterfly breeding, snake park, eco-lodge, community library) as an alternative to logging and charcoal production.
- During the workshop, some journalists went also to Kibera (slum area of Nairobi) where youngsters had converted a garbage field to an organic vegetable garden

This very interesting field trip helped form a strong interaction within the group of journalists. It showed an encouraging trend toward sustainable food production in Africa as an answer to climate change and soil degradation. Moreover, this evolution is now widely taken up by African scientific institutions, NGOs and farmers associations.

RESULTS

- Training and awareness raising of 40 journalists mostly from all of Africa on the challenges of climate information, sustainable agriculture and nutrition
- Meetings, interviews and interaction with diverse actors: experts, international organisations, governmental officials, NGOs, private sector, local farmers
- Improved knowledge of international efforts on this issue, link between global and local
- Understanding the interdisciplinary links with other major challenges: sustainable development, energy, migration, conflicts, governance, trade, health
- Acquisition of a contact list of experts and key players
- Intense experience sharing between journalists from diverse regions and backgrounds on professional good practices
- A “skills sharpening” session was held for some journalists with the collaboration of University of Miami’s School of Communication
- The Organic Farmer Radio, Nairobi, has recorded all sessions, as well as interviews of panelists and field visits
- Production of articles or broadcasts published in participants' local media and in the partner organizations websites (60 pieces already published at the end of May 2010)

- Online edition of articles/broadcasts during and after the workshop, also compiled in On Assignment magazine, which will be sent to all Media21 partners, network members and mailing list (3000 recipients)

LOOKING AT THE GOOD, DEALING WITH THE BAD

- As detailed in the journalist survey, participants appreciated the workshop with an overall satisfaction of over 80% and even 90% for the field trip, particularly regarding the contents and the sources of information. The least valued (62%) were technical aspects such as computer, internet and fax facilities.
- Most of the participants – particularly the 23 participants to the field trip – were highly motivated and active, and generated a friendly atmosphere. A few participants to the workshop, however, came to receive their per diem but were hardly present during the rest of the week.
- Even though the journalists had to prove a relatively high level of experience and professional integration in order to be selected, the complexity of the subject requires more structured coaching in the preparation, the questions to the panelists and the story mapping. Some skilled journalists, however, acted as mentors.
- Several panelists followed the whole or many workshop sessions. This allowed a very interesting interaction with the journalists. Some institutions represented even decided to work together in the field after having been in touch through Media21.
- Lack of controversy in a few themes – i.e organic farming, GMO technology, land grabbing, corruption. Those sometimes put in the hot seat did not wish to be in the discussion. Nestle, who responded positively to our invitation, did not wish to broach touchy issues, concentrating on milk production. However, most of the journalists were attracted by Nestle's presentation on dairy food investments in East Africa.

FOLLOW UP

- Building of capacity among African journalist organization to encourage the coverage of these issues, and take up the task of spreading the Media21 methodology of interaction between media and all players.
- A Face-Book page named "Media21- Africa" has been created after a decision of the participants.
- The East African journalists consider joining also the Network of Climate Journalists of the Greater Horn of Africa led by Patrick Luganda.
- Abdou Gningue, a Senegalese participant will form a West African resource network between journalists and climate experts.

Workshop collaborators

Daniel Wermus, journalist, Media21

Edward Girardet, journalist, Media21

Flavio Lucchesi, coordinator

Marie Heuzé, special advisor, WMO, Geneva

Hans Rudolf Herren, co-chair, IAASTD; president, Millennium Institute, Washington

Alexandra Pellanda, Biovision, Zurich

John Cheburet, The Organic Farming Radio, Nairobi

Ernest Waititu, chief Editor, Afrikanews; Pulitzer Centre on Crisis Reporting, Nairobi

Ochieng Ogodo, President, Kenya Environment and Science Journalists Association, Nairobi

Joseph Treaster, Professor, University of Miami's School of Communication

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Media21 is a worldwide Geneva-based and non-profit journalist network. Since December 2006, 26 workshops (human rights, climate change, peace, health, aid efficiency, food, water) and 13 field reportings have brought together 425 journalists from 102 countries with 530 international actors representing UN, NGOs, business and universities. Outcome: more than 600 articles and broadcasts published worldwide.

ANNEX 4: List of Participants

DELEGATIONS OF AFRICAN COUNTRIES

Algeria	Hon. Mr Amar TOU, Minister of Transport
	Mr Mourad AMOKRANE, First Secretary, Algerian Embassy in Nairobi
Algeria	Mr Badaoui ZEDDIGHA, Permanent Representative with WMO
Algeria	H.E. Mr Ali BENZERGA, Permanent Representative to UNEP and UN-Habitat
Algeria	Ms Lamia CHAAF, Diplomatic Attaché, Algerian Embassy in Nairobi
Algeria	Mr Bachir HAMADACHE, Rapporteur of RA I for GDPFS Aspects
Angola	H.E. Prof. Pedro Sabastiao TETA, Vice Minister of Telecommunications and Information Technology
	Mr Luis Domingos CONSTANTINO, Permanent Representative of Angola with WMO
Angola	Eng. António BASTOS JOSÉ DIAS, National Director of Information Technology and Meteorology
Angola	Mr Joaquim PEDRO, Angola
Benin	Mr Cyriaque ATTI-MAMA, Directeur de cabinet, Ministère des Transports
Benin	Mr Francis DIDE, Permanent Representative of Benin with WMO
Benin	Mr Todjinou Eliezer KOUMAGNON, Representative with ASECNA, Benin
Benin	Mr Steve FACIA, Director General of Media Productions
Botswana	Ms Gasewasepe Konopo NTHOBATSANG, Principal Meteorologist, Botswana
Botswana	Mr Galebonwe RAMAPHANE, Department of Meteorological Services, Botswana
Burkina Faso	Hon. Mr Gilbert Noël OUEDRAOGO, Minister of Transport
	Mr Jacques Ali GARANE, Permanent Representative of Burkina Faso with WMO
Burkina Faso	Mr Bapobe Jean-Pierre MIHIN, Hydrological Advisor
Burundi	Hon. Mr Déogratias NDUWIMANA, Minister of Water, Environment, Land Plan and Urbanism
	Mr Renilde NDAYISHIMIYE, Director General of IGEBU
Burundi	Mr Maurice SHIRAMANGA, Advisor to the Director General of IGEBU
Burundi	Mr Sylvestre MARORA, First Counsellor, Embassy of Burundi
Burundi	Mr Louis CIZA, Deputy Representative, Embassy of Burundi
Burundi	Mr Ruben BARAKIZA, Head of Forecast Meteorological Services
Cameroon	Hon. Dr Oumarou MEFIRO, Deputy Minister of Transport
	Mr Michel Legrand SAAH, Permanent Representative of Cameroon with WMO
Cape Verde	Mr Carlos Alberto Sousa MONTEIRO, Adviser to the Minister for Environment, Rural Development and Marine Resources
	Ms Ester ARAÚJO DE BRITO, Permanent Representative of Cape Verde with WMO
Central African	Hon. Mr Parfait-Anicet MBAY, Minister of Transports and Civil

Republic	Aviation
	Mr Joël-Urbain TETEYA, Permanent Representative of Central African Republic with WMO
Central African Republic	Mr Philémon Hubert NGAISSIOT, Head of Forest Service
Comoros	Hon. Mr Mikidar HOUMADI, Ministre des Transports, du Tourisme et des Investissements
	Mr Mohamoud Ali Bay POUNDDJA, Permanent Representative of Comoros with WMO
Comoros	Mr Abderemane HACHIME, Technician, Ministry of Environment
Congo, Republic of	H.E. Mr Isidore MVOUBA, Minister of State, Ministry of Transport and Civil Aviation
	Mr Mathias TCHIMBIDIMA, Counsellor, Ministry for Transport and Civil Aviation
Congo, Republic of	Mr Camille LOUMOUAMOU, Permanent Representative of Congo with WMO
Congo, Republic of	Mr Alphonse KANGA, Chief of Service
Congo, Republic of	Mr Martin MASSOUKINA KOUNTIMA, Chief of Division
Congo, Republic of	Mr Franck MBEMBA, Protocol Officer
Congo, Republic of	Mr Emmanuel NGAKOSSO, Protocol Officer
Congo, Republic of	Ms Sylviana Emeline OKOUA-OBNDZO, Protocol Officer to the Minister
Congo, Republic of	Mr Costodes Joachim TATY, Protocol Officer to the Minister
Congo, Republic of	Mr Clobite BOUKA BIONA, NO REGISTRATION FORM
Cote d'Ivoire	Mr Yao KOUADIO, Représentant du Ministre, Cote d'Ivoire
	Mr Goroza GUEHI, Permanent Representative of Cote d'Ivoire with WMO
Cote d'Ivoire	Mr Botty Maxime GOGONE-BI, Director, Administrative
Cote d'Ivoire	Mrs Affoué Sophie KOUADIO, Chief of Communications (ANADER)
Cote d'Ivoire	Mr Kanhio Jean-Marie WAHO, Chargé d-Etudes, Ministry of Economic Infrastructure
Democratic Republic of the Congo	Mr Albert OYASASA OKAKO, Permanent Representative of Democratic Republic of the Congo with WMO
	Mr Didier MAYENGE NUMBI, Ministry of Foreign Affairs, Democratic Republic of the Congo
	Mr Adolphe NKONGOSOLI-SADIKI, Ministry of Foreign Affairs, Democratic Republic of the Congo
	Mr Mungulu Kandod B. NGAKI, Democratic Republic of the Congo
Djibouti	Hon. Mr Ali Hassan BAHDON, Minister for Transport and Infrastructure in Charge of Meteorology
	Mr Osman SAAD SAID, Permanent Representative of Djibouti with WMO
Djibouti	Mr Halkano HALKANO M. KABELO, Djibouti
Djibouti	Mr Ibrahim Abdillahi KAWRAH, Technical Adviser
Djibouti	Mr Ismail Nour MOHAMED, Ingénieur, Service de la météorologique de l'aeroport
Djibouti	Ms Amina Omar OSMAN, Resources Mobilization Coordinator
Djibouti	Mr Hassan-Omar RAYALEH, Expert National, Université de Djibouti

Djibouti	Mr Ismail ABDILLAHI IDAN, Djibouti Meteorological Service
Ethiopia	Mr WANDWOSSEN TEKLU, Meteorological Department, Ethiopia
Ethiopia	Mr Abere MIHRETIE, Anti Malaria Association and Climate and Health Working Group, Ethiopia
Gabon	Mr Martin ONDO ELLA, Permanent Representative of Gabon with WMO
Gambia	Hon. Mr Lamin Kaba BAJO, Minister of Fisheries, Water Resources and National Assembly
	Mr Amadou SAINE, Acting Permanent Secretary, Ministry of Fisheries, Water Resources & National Assembly
Gambia	Mr Bernard Edward GOMEZ, Permanent Representative of Gambia with WMO
Gambia	Mrs Isatou GAYE, International and Public Relations Officer
Ghana	Prof Edwin Akonno GYASI, Chairman of the Meteorological Board
	Mr Zinedeme MINIA, Ghana Meteorological Agency
Ghana	Mr Gatisko J. NEWTON, Director, Ministry of Communications
Guinea	Mr Oulaba Kabassan KEITA, Chef de Cabinet
	Mr Mamadou Lamine BAH, Permanent Representative of Guinea with WMO
Guinea	Mr Souleymane Y. CAMARA, Assistant Minister
Guinea	Mr Aly KOUYATE, Direction Nationale Agriculture
Guinea-Bissau	Mr João Lona TCHEDNA, Permanent Representative of Guinea-Bissau with WMO
Kenya	Hon. Mr Ramadhan Seif KAJEMBE, Deputy Minister for Environment and Mineral Resources
	Hon. Dr Paul N. OTUOMA, Minister of Fisheries Development
	Hon. Mr Noah WEKESA, Minister of Forestry and Wildlife, Kenya
	Mr Lawrence LENAYAPA, Permanent Secretary, Ministry of Environment and Natural Resources
	Mr Kenneth LUSAKA, Permanent Secretary, Ministry of Livestock Development
Kenya	Mr Joseph R. MUKABANA, Permanent Representative of Kenya with WMO
Kenya	Mr Alexander ALUSA, Office of the Prime Minister
Kenya	Mr Patrick CHABEDA, Assistant Coordinator, Office of the Prime Minister
Kenya	Ms Joyce ISIAHO, Ministry of Environment and Mineral Resources
Kenya	Mr Patrick I. KINYA, Ministry of Environment and Mineral Resources
Kenya	Hon. Mr Jackson KIPTANUI, Assistant Minister for Environment and Mineral Resources
Kenya	Mr James KONGOTI, Kenya Meteorological Department
Kenya	Mr Jaspat AGATSIVA, Director, Nairobi
Kenya	Mr David LOOREMETA, Ministry of Environment and Mineral Resources
Kenya	Mr Samuel G. MAINGI, MOPH & S
Kenya	Mr Samuel MARIGI, Kenya Meteorological Department
Kenya	Mr David MBURU, Kenya Meteorological Department
Kenya	Mr Mulei MUIA, Ministry of Environment and Mineral Resources

Kenya	Mr Sospeter MUIRURI, Kenya Meteorological Department
Kenya	Ms Anne K. KEAH, Kenya Mission, Geneva
Kenya	Mr Muia MULEI, Kenya
Kenya	Ms Bahati MUSILU, Kenya
Kenya	Mr John MUTHAMA, Chairman, KMS
Kenya	Ms Margaret MWIRIGI, MOFA
Kenya	Prof Micheni NTIBA, Professor, Ministry of Fisheries Development
Kenya	Ms Margaret NYANDON'G, Senior Deputy Secretary, Ministry of Livestock Development
Kenya	Mr Paul OBUNDE, MONK
Kenya	Mr Peter ODHENGO, OPM
Kenya	Ms Roselyn OJALA, Kenya Meteorological Department
Kenya	Mr Paul OLANDO, Ministry of Environment and Mineral Resources
Kenya	Mr Bernard ROP, Commissioner of Mines
Kenya	Mr Ayub SHAKA, Kenya Meteorological Department
Kenya	Ms Margaret WAWERU, DRSRS
Lesotho	Mr Bruno T. SEKOLI, Permanent Representative of Lesotho with WMO
Lesotho	Ms Joalane MARUNYE, Lesotho
Liberia	Mr Arthur GAR-GLAHN, Permanent Representative of Liberia with WMO
Liberia	Mr Peter KAMET, Ministry of Internal Affairs, Liberia
Liberia	Mr Akoi VANYANBAH, Manager, Meteorological Services Department, Roberts International Airport
Libya Arab Jamahiriya	Hon. Dr Mohamed A. ZYDAN, Secretary, General People's Committee for Communications and Transport
	Mr Badreddin M. GILOSHI, Director, Office of the Secretary, General People's Committee for Communications and Transport
Libya Arab Jamahiriya	Mr Ahmed WLAD ELHAJ, Permanent Representative of Libya with WMO
Libya Arab Jamahiriya	Mr Abdouraow M.F.L. BELAAZI, Director, Technical Cooperation and Training Office
Libya Arab Jamahiriya	Mr Almabruk SALEH, Ministry of Foreign Affairs
Libya Arab Jamahiriya	Mr Abdul Hakim ABDUL HAKIM J.A. SAID, Libyan Embassy, Nairobi
Madagascar	Mr Nimbol RAELINERA, Permanent Representative of Madagascar with WMO
Madagascar	Mrs Yolande Nirina RAOELINA, Director, Emergency and Response for Epidemics and Neglected Diseases
Malawi	Hon. Mr Ephraim Mganda CHIUME, Deputy Minister of Natural Resources, Energy and Environment
	Mr Donald Reuben KAMDONYO, Permanent Representative of Malawi with WMO
Malawi	Mr Bestone CHISAMILE, Director, Malawi
Malawi	Mr Adams CHAVULA, Senior Meteorologist, Malawi
Mali	Hon. Mr Hamed Diané SEMEGA, Minister of Equipment and

	Transport
	Mr Mama KONATÉ, Permanent Representative of Mali with WMO
Mali	Mr Issa DJIRÉ, Director-General, Office de la Haute Vallée du Niger (OHVN)
Mauritania	Mr Mohamed Bechir OULD MOHAMED LAGHDAF, Permanent Representative of Mauritania with WMO
Mauritius	Mr Yadowsun BOODHOO, Permanent Representative of Mauritius with WMO
Morocco	Hon. Mr Mohamed ZAHOUD, Secrétaire d'Etat Chargé de l'Eau et de l'Environnement
	H.E. Mr Abdeliah BENRYANE, Ambassadeur de Sa Majesté le Roi, Nairobi
Morocco	Mr Mustapha EL BOUZZAOUI, Conseiller des Affaires Etrangères,
Morocco	Mr Abdallah MOKSSIT, Permanent Representative of Morocco with WMO
Morocco	Mr Abdallah NASSIF, Chef de la Division des Affaires Administratives
Morocco	Mr Abdesslam ROCHDI, Mission of Morocco, UNEP, UN-HABITAT
Morocco	Mr Abdellatif TABET, Conseiller, Ambassade de Maroc, Nairobi
Mozambique	Mr Moisés BENESSENE, Permanent Representative of Mozambique with WMO
Mozambique	Mrs Dulce Fernanda CHILUNDO, Director, National Institute for Disaster Management (INGC), Mozambique
Namibia	Hon. Mr Chief Samuel ANKKAMA, Deputy Minister of Works and Transport
	Mr Franz UIRAB, Permanent Representative of Namibia with WMO
Namibia	Mr Japhet IITENGE, Office of the Prime Minister, Namibia
Namibia	Mr Emmanuel N.Z. KAMBUEZA, Ministry of Works and Transport
Namibia	Mr Odillo KGOBETSI, Namibia Meteorological Service
Namibia	Ms Liina IMALWA, Private Secretary, Namibia
Niger	Hon. Mr Abdoulaye IDA, Secrétaire général, Ministère Transport, Tourisme et Artisanat
	Mr Moussa LABO, Permanent Representative of Niger with WMO
Nigeria	Mr Ifeanyi NNODU, Nigerian Meteorological Agency
Nigeria	Mr Michael OKWUDILI, Embassy of Nigeria, Addis Ababa
Rwanda	Hon. Mr Vincent KAREGA, Minister of Infrastructure Responsible for Meteorology
	Mr John Ntaganda SEMAFARA, Permanent Representative of Rwanda with WMO
Sao Tomé et Príncipe	Mr João Vincente DOMINGOS VAZ LIMA, Permanent Representative of Sao Tomé and Príncipe with WMO
Senegal	Mr Stephan S. SAMBOU, Counsellor, Permanent Mission to the African Union Commission
Senegal	Mr Abdou SANÉ, Parliamentarian
Senegal	Mr Sory DIALLO, National Meteorological Agency, Senegal
	Ms Aida Diongue NIANG, National Meteorological Agency, Senegal
Seychelles	Mr Vincent AMELIE, Principal Meteorological Officer
Somalia	Hon. Mr Buri HAMZA, Minister of Environment

	Mr Aves SCEK, Senior Economic Advisor, Ministry of Environment
South Africa	Ms Linda MAKULENI, Permanent Representative of South Africa with WMO
	Mr Karel DE WAAL, South Africa
South Africa	Mr Nishendra DEVANUNTHAN, South Africa Weather Services
South Africa	Mr Linda MAGI, South Africa Weather Services
South Africa	Mr Mark MAJODINA, South Africa Weather Services
South Africa	Ms Modjadji MAKOELA, South Africa Weather Services
South Africa	Mr Mnikeli NDABAMBI, South Africa Weather Services
South Africa	Ms Munyadziwa RABAMBI, South Africa Weather Services
Sudan	H.E. Mr Majok GUANDONG, Ambassador of Sudan, Kenya
	Mr Muzamil A. ABDELGADIR, Permanent Representative of Sudan with WMO
Sudan	Mr Magdi MOFADAL, First Secretary, Sudan Embassy in Nairobi
Swaziland	Hon. Mr Macford Welcome NSIBANDZE, Minister of Tourism and Environmental Affairs
	Mr Emmanuel Dumisani DLAMINI, Permanent Representative of Swaziland with WMO
Swaziland	Mr Muzi MLOTSA, Private Secretary, Swaziland
Togo	Mr Awadi Abi EGBARE, Permanent Representative of Togo with WMO
Togo	Mr Kodzo Wolanyo AMAWUDA, Chief of Division
Tunisia	Mr Moncef RAJHI, Permanent Representative of Tunisia with WMO
Tunisia	Mr Hassan Lotfi FRIGUI, Director General, Ministry of Agriculture, Water Resources and Fishery
Uganda	Hon. Ms Jessica ERIYO, Minister of State for Environment
	Mr Stephen A.K. MAGEZI, Permanent Representative of Uganda with WMO
Uganda	Ms Margaret Nankya SERWANJA, Advisor to the Permanent Representative of Uganda with WMO
United Republic of Tanzania	Hon. Mr Hezekiah CHIBULUNJE, Deputy Minister of Infrastructure Development
	Ms Agnes Lawrence KIJAZI, Permanent Representative of Tanzania with WMO
	Eng. Samson BABALA, Assistant Director, Ministry of Livestock Development and Fisheries
	Mr Augustine Daniel KANEMBA, Climate Scientist, Regional and International, Tanzania Meteorological Agency
	Mr Ladislaus CHANG'A, Head Research, Tanzania Meteorological Agency
	Ms Diana KIMBUTE, Hydrologist, Ministry of Water and Irrigation
	Mr Emmanuel Jonathan MPETA, Director, Research and Application, Tanzania Meteorological Agency
	Ms Nyancheghe A.K. NANAI, Prime Ministers Office
	Mr Charles NG'ATIGWA, Ministry of Natural Resources and Tourism
	Ms Sarah OSIMA, Head Environment, Tanzania Meteorological Agency
Zambia	H.E. Ms Christina Msadabwe LAMBART, High Commissioner of

	Zambia
	Mr Jacob NKOMOKI, Permanent Representative of Zambia with WMO
Zambia	Mr Majaliwa MUWAYA, Second Secretary, Zambian High Commission, Nairobi
Zambia	Mr Joseph KANYANGA, Chief Meteorologist, Zambia Meteorological Department
Zimbabwe	Hon. Mr Patson MBIRIRI, Secretary (Minister) of Transport, Communications and Infrastructural Development
	H.E. Mr Kelebert NKOMANI, Ambassador of Zimbabwe, Nairobi
Zimbabwe	Mr Amos MAKARAU, Permanent Representative of Zimbabwe with WMO
Zimbabwe	Mr Ezra Canaan MAZAMBARA, Director Air Navigation Services, Zimbabwe
Zimbabwe	Mr Elliot BUNGARE, Advisor and International Relations Officer
Zimbabwe	Mr Kennedy SAMANEKA, Counsellor, Embassy of Zimbabwe, Nairobi

DELEGATIONS OF OTHER COUNTRIES

Finland	Mr Ari VENALAINEN, SADC - Meteorological Project Manager, Finland
France	Ms Emilie FERRERIRA, French Embassy, Nairobi
France	Ms Juliana KISIMBI, Commercial Attachée, French Embassy, Nairobi
Japan	Mr Hiroshi KOIDE, Deputy Head, Japan Meteorological Agency
Poland	Mrs Wanda KEDZIORA, Assistant to the Deputy Director, Communication, Marketing and International Relations
Poland	Mrs Edyta WOZNIAK-DUDZINSKA, Manager, International Relations Office, Institute of Meteorology and Water Management
Portugal	Mr Joao QUEIROS, Embassy of Portugal, Nairobi
Portugal	Mr Carlos TAVARES, Institute of Meteorology, Portugal
Republic of Korea	Mr Chee Young CHOI, Korea Meteorological Administration
Republic of Korea	Mr Byung-Seong CHUN , Korea Meteorological Administration
Republic of Korea	Mr Jun-Seok CHUNG, Korea Meteorological Administration
Republic of Korea	Mr Jeong-Seong LEE, Korea Meteorological Administration
Republic of Korea	Mr Won-Tae YUN, Permanent Representative of Korea with WMO
Spain	Mr Luis Fernando Lopez COTIN, Spanish Meteorological Agency (AEMET), Spain
United Kingdom	Mr Jon GEDDES, British High Commission, Nairobi
	HE. Ms Louise DE SOUSA, Deputy High Commissioner, British High Commission, Nairobi
United States	Ms Renee LEDUC CLARKE, Policy Advisor, NOAA, USA

INTERNATIONAL AND OTHER ORGANIZATIONS

ASECNA	Mr Youssouf MAHAMAT, Director-General, ASECNA
	Mr Siméon ZOUMARA, Chief, Meteorological Department, ASECNA, Senegal

African Development Bank	Mr Anthony Okon NYONG, Head of Unit, Gender, Climate Change and Sustainable Development, African Development Bank
AGRHYMET	Mr Mohamed Yahya OULD MOHAMED MAHMOUD, General Director, AGRHYMET, Niger
AGRHYMET	Mr Koné BRAHIMA, Head of Technical Department, AGRHYMET, Niger
East African Community	Mr John Gitutu MUNGAI, East African Community (EAC)
	Mr Philip Wanjohi WAMBUGU, Director, East African Community (EAC)
ECCAS	Mr Pascal MOUSSAVOU MBINA, ECCAS
ECOWAS	Mr Leko MOUSSA, ECOWAS
EUMETSAT	Mr Mikael RATTENBORG, Director of Operations, EUMETSAT, Germany
EUMETSAT	Mr Vincent GABAGILO, International Relations Officer, EUMETSAT, Germany
EUMETSAT	Mr Emilio BARISANO, Consultant, EUMETSAT
EUMETSAT	Ms Sally WANNOP, EUMETSAT, Germany
European Union	Ms Francoise VILLETTE, EU Counsellor, European Union, Addis Ababa
FAO	Mr Selvaraju RAMASAMY, FAO
FAO	Mr Adams CHAVULA, Department of Climate Change and Meteorological Services, FAO
Global Framework for Climate Services (GFCS)	Mr Jan EGELAND, Co-Chair, High-level Taskforce, Global Framework for Climate Services (GFCS)
Global Humanitarian Forum	Mr Moyenda CHAPONDA, Global Humanitarian Forum
	Ms Emina SKROEDER, Global Humanitarian Forum
	Ms Josephine WILSON, Global Humanitarian Forum
Health and Climate Foundation	Mr David ROGERS, Health and Climate Foundation
ICAO	Mr Boitshoko SEKWATI, Deputy Regional Director, ICAO, Nairobi
ICAO	Mr Olli Marius TURPEINEN, ICAO, Canada
ICPAC	Mr Laban OGALLO, Director of IGAD Climate Prediction and Application Centre (ICPAC)

ICPAC	Mr Richard OUZA, ICPAC, Nairobi
IFRC	Mr Farid ABOULKADIR, Disaster Management Coordinator, IFRC, Southern Africa
IFRC	Mr Youcef AITCHELLOUCHE, Disaster Management Coordinator, IFRC, West Africa
IFRC	Mr Abbas GULLET, Secretary-General, Kenya Red Cross Society
IGAD	Mr Apuuli BWANGO, IGAD
IOC of UNESCO	Mr Stefano MAZZALI, IOC of UNESCO
IRI	Mr Simon MASON, IRI
UN	Ms Salla HIMBERG, United Nations
UN Habitat	Mr Elkin VELASQUEZ, UN Habitat
UN OCHA	Mr Vincent LELEI, UN OCHA, Ethiopia
UNDP	Mr Moses A. MASSAH, Programme Manager, UNDP, Liberia
UNDP/BCPR	Mr Carlos VILLACIS, UNDP/BCPR, Geneva
UNEP (RISOE)	Mr Todd NGARA, UNEP RISOE
UNISDR	Ms Margareta WAHLSTRÖM, UN Under-Secretary-General andAssistant Secretary General for Humanitarian Affairs, UNISDR Ms Helena Molin VALDES, UNISDR, Geneva
World Bank	Ms Sofia BETTENCOURT, Lead Operations Officer, World Bank
World Bank	Mr Paolo CAPUTO, Disaster Risk Management Specialist, World Bank
World Bank	Ms Manuela CHIAPPARINO, Focal Point for Europe, GFDRR, World Bank
World Bank	Mr Carl DINGEL, Natural Resources Management Specialist, World Bank
World Bank	Mr John JONES, Consultant, World Bank
World Bank	Mr Francis MURAYA, Team Leader, Global and Regional Partnerships for DRR, World Bank
World Bank	Mr Vladimir TSIRKUNOV, Senior Environmental Engineer, World Bank
World Bank	Mr Vahid ALAVIAN, Adviser, World Bank
World Food Programme	Mr Richard CHOULARTON, World Food Programme, Italy

	Mr Menghestab HAILE, World Food Programme, Italy
	Mr Abenezer NGOWI, World Food Programme, Addis Ababa
	Mr Carlo SCARAMELLA, World Food Programme, Italy
	Mr Michele BERNARDI, Climate Impact Team, FAO

INVITED EXPERTS

ACMAD	Mr Adama Alhassane DIALLO, Director-General, ACMAD, Niger
ACMAD	Mr Mohammed KADI, Secretary-General, ACMAD, Niger
ACMAD	Ms Marie-Christine DUFRESENE, Technical Adviser, ACMAD, Niger
ACMAD	Mr Zilore MUMBA, Chief, Research and Prevision, ACMAD, Niger
AMMA	Mr Jean-Luc REDELSPERGER, African Monsoon Multidisciplinary Analysis (AMMA)
AMMA	Ms Aude SONNEVILE, African Monsoon Multidisciplinary Analysis (AMMA)
ASECNA	Mr Malamine SONKO, Chief of Meteorological Operations, ASECNA, Dakar, Senegal
BARSA	Mr Allan Gordon MOORE, Board of Airline Representative of South Africa (BARSA)
Democratic Republic of the Congo	Mr Nestor NIANGA NKUFI, Expert, Meteorological Service of Democratic Republic of the Congo
Ericsson	Ms Biljama KUZMANOVIC, Ericsson, Sweden
Ericsson	Mr Hans NOBELEN, Ericsson, Sweden
Ericsson	Ms Karin SVINGBY, Ericsson, Sweden
FAO	Mr Stefano ALESSANDRINI, Consultant, FAO, Italy
Finland	Mr Petteri TAALAS, Director General, Finnish Meteorological Institute
Kenya	Mr Arthur KITAO, Kenya Civil Aviation Authority
Kenya	Mr Evanson NDERITU, Hydrologist, Kenya
Kenya	Mr Benson WAFULA, Kenya Agricultural Research Institute (KARI)
Kenya	Mr Stephen N. NJOKA, Kenya Agricultural Research Institute (KARI)
Kenya Airways	Mr Livingstone NGANGA, Manager Flight Operations Engineering, Kenya Airways
Kenya Broadcasting Corporation	Ms Judith AKOLO, Kenya Broadcasting Corporation
Malawi	Mr Gift LIVATA, Opportunity International Bank of Malawi

Namibia	Mr Guido van LANGENHOVE, Ministry of Agriculture, Water and Rural Development
Regional Maritime University	Mr Benjamin LAMPTEY, Scientist (Meteorologist and Geoscientist), Regional Maritime University, Accra, Ghana
Switzerland	Mr Jürg ZAUGG, Nestle, Switzerland
UNEP (ROA)	Mr Bubu Pateh JALLOW, Senior Programme Officer, UNEP, Regional Office for Africa
World Food Programme	Mr Peter HOLMGREN, Director of Climate, Energy and Tenure Division, FAO, Rome
Zimbabwe	Mr Barnabas CHIPINDU, University of Zimbabwe

WORLD METEOROLOGICAL ORGANIZATION

Mr Michel JARRAUD, WMO Secretary-General
Mr Jerry LENGOASA, WMO Deputy Secretary-General
Mr Robert MASTERS
Mr Wenjian ZHANG
Mr Geoffrey LOVE
Ms Mary POWER
Mr Kaliba KONARE
Mr Alioune NDIAYE
Mr Francis HAYES
Mr Mohammed TAWFIK
Mr Filipe LUCIO
Mr Yinka ADEBAYO
Mr Christian BLONDIN
Mr Stephen NJOROGE
Mr Mohammed BOULAMA
Mr Felix HOUNTON
Mr Ishiaku MUHAMMED
Ms Georgina KAHAMA
Ms Cynthia CUDJOE
Ms Pamela LUMUMBA
Mr Eugène Koffi ADOBOLI
Ms Marie HEUZE
Mr Patrick LUGANDA
Mr Andreas OBRECHT
Ms Sandra MUTUTI

AFRICAN UNION COMMISSION

H.E Ms Peace Rhoda TUMUSIIME, Commissioner for Rural Economy and Agriculture, African Union Commission

Mr Julius KAGAMBA, Special Assistant to the Commissioner, African Union

Ms Olushola Olayide SODEKO, Secretariat, African Union

Mr Etienne KAISIN, Team Leader, AMESD

Mr Israel ZEROM, African Union Commission

LOCAL ORGANIZING COMMITTEE

Mr Vitalis AHAGO, Kenya Meteorological Department

Mr Geofrey BITTOK, Assistant Director, Ministry of Information and Communications

Mr Elijah BUKACHI, Kenya Meteorological Department

Mr John CHEBOI, MOFA

Mr David GITONGA, Tourism

Mr Barnaba KIPSANG, Immigration

Mr Simintei KOOKE, MOW & I

Mr Philip LANGAT, MOIC

Mr Ali MAFIMBO, Kenya Meteorological Department

Mr Gilbert MAMATI, Ministry of Environment and Mineral Resources

Mr Gordon MUGA, MOSSP

Mr Ben MUGAMBI, Ministry of Environment and Mineral Resources

Mr Charles MUTAI, Kenya Meteorological Department

Mr Charles MUTHINI, PPMC

Mr Dennis MUTORI, MOIND

Mr Samuel MWANGI, Kenya Meteorological Department

Mr Eric L. NAMWALO, Deputy Chief Economist, Ministry of State for PNDV

Mr Michael OBORA, MOA

Ms Esther S. OCHANDA, MLD

Ms Jane W. WAMOKO, Tourism

Mr Esther WANG'OM, Ministry of Energy

EXHIBITORS

ADCON	Mr Bernhard PACHER, ADCON
BARON Services	Mr Dewey BURCHFIELD, BARON Services
BARON Services	Mr Jean-Pierre CHARIÉ, BARON Services
CASELLA, India	Mr Raphael DAS, CASELLA, India
CASELLA, UK	Mr Dennis SHARMAN, CASELLA, UK
CIMEL Company	Mr Alain VORON, CIMEL Company
COROBOR	Mr Alexandre GLUCKMAN, Project Engineer, COROBOR
COROBOR	Mr Stephen MAKWEMBERE, COROBOR
EEC	Mr Christopher GOODE, Enterprise Electronics Corporation
EEC	Mr Jim MENARD, General Manager/Vice President, Enterprise

	Electronics Corporation
EEC	Mr Michael UELTZEN, Vice-President, Enterprise Electronics Corporation
EQUIPMENT, USA	Mr Edward FIGELMAN, EQUIPMENT, USA
Fairmount Weather Systems	Mr Paul COPPING, Fairmount Weather Systems
	Ms Stellah HELA-COPPING, Fairmount Weather Systems
ICPAC	Mr Owuor HESBORNE OGWAH, ICPAC, Nairobi
ICPAC	Ms Patricia KAMALINGIN C, ICPAC, Nairobi
ICPAC	Mr Philip OMONDI, ICPAC, Nairobi
INTERLINK	Mr Eliud CHEGE GITAU, INTERLINK
INTERLINK	Ms Eunice MUTHONI, INTERLINK
InterMet Africa	Mr Hilton FRANZ, InterMet Africa, South Africa
Kenya	Ms Rose LEKALESOI, KMD, Kenya
Kenya	Ms Margaret MANA, KMD, Kenya
Kenya	Mr Nana Clarice OKETCH, Kenya
KIPP & YONEN B.V.	Mr Charl Johannes Petrus LE ROUX, KIPP & YONEN B.V.
KIPP & YONEN B.V.	Mr Christo Cobus LE ROUX, KIPP & YONEN B.V.
KIPP & YONEN B.V.	Mr Martin VEENSTRA, KIPP & YONEN B.V.
KMD Kenya	Mr Samuel MACHARIA WAWERU, KMD, Kenya
KMD Kenya	Mr Francis NGUATAH, KMD, Kenya
Météo-France	Mr Patrick BENICHOU, Météo-France International
	Mr Jean-Sebastien CASES, Météo-France
Modem France	Mr Remy PEPIN, Modem, France
MWI, Kenya	Mr James KIVUVA, MWI, Kenya
PAWAN EXPORTS	Mr Vaidehi LILLADHAR, PAWAN EXPORTS
PAWAN EXPORTS	Mr Harish THAKKAR, PAWAN EXPORTS
PAWAN EXPORTS	Mr Hemant THAKKAR, PAWAN EXPORTS
PAWAN EXPORTS	Ms Jyotsna THAKKAR, PAWAN EXPORTS
SAGIM SA	Mr Bernard CUTILLAS, Chairman, SAGIM SA (Manufacturing Company), France
SCINTEC	Ms Tina SCHRAUF, SCINTEC, Germany
SEBA Hydrometrie	Mr Kai VOGEL, SEBA Hydrometrie
SELEX	Mr Jens DIDSZUN, Representative of SELEX-Gematronik, Germany
SELEX	Ms Monika PFEIFER, Representative of SELEX-Gematronik, Germany
SELEX	Mr Maik SCHUERMANN, Representative of SELEX-Gematronik, Germany
SIAP + Micros S.r.l.	Mr David VINJAU, Siap + Micros S.r.l.
SUTRON CORPORATION	Mr Faisal AL-MTWALI, Sutron Corporation
	Mr Zacharya MWANGI, Sutron Corporation
	Mr Ashish RAVAL, Vice-President, Sutron Corporation
System Foundation	Mr Fritz BRUGGER, System Foundation, Switzerland
UN-SPIDER,	Mr Joerg SZARZJNSKI, UN-SPIDER, Germany

Germany	
United Kingdom	Mr Jospeh INSTIFUL, Précis Liaison and Training Manager, UK Met Office
United Kingdom	Ms Karen MCCOURT, VCP Project Manager, UK Met Office
United Kingdom	Mr Steve PALMER, Technical Cooperation Programme Manager, UK Met Office
VAISALA	Mr Mikko NIININEN, Vaisala Oyi, Finland
VAISALA	Mr Panu PARTANEN, Vaisala Oyi, Finland
VITROSICET	Mr Olivio DE ANGELIS, VITROSICET
VITROSICET	Ms Winnie Adah OMWAKWE, VITROSICET
VITROSICET	Mr Davide TANGORRA, VITROSICET
VITROSICET	Mr Sergio VALENTE, VITROSICET

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1. Delegations of African countries – 102
2. Delegations of other countries – 17
3. International and other organizations – 52
4. Invited experts – 27
5. WMO – 25
6. African Union Commission – 5
7. Local organizers – 21
8. Exhibitors – 57

ANNEX 5: Conference Program

The First Conference of Ministers Responsible for Meteorology in Africa

Nairobi, Kenyatta International Conference Centre
15 – 16 April 2010
Preparatory Segment, 12 -14 April 2010

Programme

	Preparatory Expert Segment			Ministerial Conference	
Time	**Mon. 12 Apr**	**Tue. 13 Apr**	**Wed. 14 Apr**	**Thu. 15 Apr**	**Fri. 16 Apr**
08:30 - 09:30	Registration				
09:30 - 10:30	**Session 1:** Opening and introduction	**Session 4:** Disaster risk reduction	**Session 8:** Enhancing partnerships	Arrival of Ministers Opening ceremony Conference overview and objectives	Ministerial Statements
11:00 - 12:30	**Session 2:** Meeting development needs	**Session 5:** Closing information gaps	Special Session on Aviation		
12:30 - 14:30	Lunch / Side events	Lunch / Side events	Lunch / Side events	Lunch	Lunch
14:30 - 16:00	**Session 3:** Benefits of meteorological, hydrological and climate services	**Session 6:** Capacity building	Special Session on the Global Framework on Climate Services	Ministerial Statements	Side meetings
16:00 - 17:30		**Session 7:** User perspectives	Adoption of the Conference Statement & Discussion		
17:30 - 18:00	Break	Break	Break		
18:00 - 19:00	Side events	Side events	Side events		

MONDAY

Opening

Session 1: Introduction
12 April 2010, 9.30 – 10:30
Chaired by Lamine Bah, WMO President of the Regional Association for Africa

The preparatory expert segment of the Conference will begin at 9.30 a.m. on 12 April 2010 with a brief opening, followed by an introduction and two keynote speakers who will introduce the objectives of this segment.

Lamine Bah, WMO President of the Regional Association for Africa, Senegal

Alioune Ndiaye, Director, Regional Office for Africa, WMO

Session 2: Meeting development needs
12 April 2010, 10:30 – 12:30
Chaired by Moussa Labo, Direction de la météorologie nationale, Niger

This session aims to give an overview of what has been done so far in terms of the provision of weather, water and climate services in Africa. Representatives of various sectors will share their experiences in working with existing meteorological and hydrological data, products and services and express their future needs. They also will envision strategies for the future.

Adame Alhassane Diallo, African Centre for Meteorological Applications and Development (ACMAD), Niger
Importance of weather and climate services in the African context

Anthony Nyong, African Development Bank, Tunisia
The imperatives of Climate Information for Sustainable Development in Africa

John Jones, Consultant to World Bank
Study on Capacity of African NMHSs

Petteri Taalas, Finnish Meteorological Institute, Finland
The potential of donor countries and WMO in meeting the development needs

Brief break

Statements from Regional Economical Communities

Session 3: Benefits of meteorological, hydrological and climate services
12 April 2010, 12:30 – 16:00
Chaired by Amos Makarau, Department of Meteorological Services, Zimbabwe

Representatives of sectors will present case studies to illustrate the potential benefits of meteorological, hydrological and climate services, in particular to health, tourism, agriculture and energy. Gaps and needs are to be identified and solutions proposed.

Issa Djiré, Office de la haute vallée du Niger, Mali

Farmer oriented meteorological and climatological information to reduce vulnerability of agricultural systems facing climatic variability and change in Mali

Ato Abere Mihretie, Anti Malaria Association and Climate & Health Working Group, Ethiopia
Weather and climate information to monitor illness outbreaks- application to meningitis and malaria in Ethiopia

Livingstone Nganga, Kenya Airways, Kenya (to be confirmed)
*Aviation Meteorology (**provisional title)***

Aida Dioingue Niang, Agence Nationale de la Météorologie du Sénégal, THORPEX Africa, Senegal
Towards the development of services contributing to the effectiveness and safety of maritime activities in Africa

Hassen Lofti Frigui, Ministry of Agriculture, Water Ressources and Fishery, Tunisia
The needs for meteorological and climatological information in water resources management– the case of Tunisia

Guido van Langenhove, Ministry of Agriculture, Water and Rural Development, Namibia
Flood forecasting: improving the products quality through enhanced integration of hydrological and meteorological information

Mnikeli Ndabambi, South African Weather Service, South Africa
The Severe Weather Forecasting Demonstration Project (SWFDP)

Jean-Luc Redelsperger African Monsoon Multidisciplinary Analysis (AMMA), France
Societal benefits of meteorological and climatological applications: Results of the international programme AMMA

Benjamin Lamptey, International Water Management Institute, Ghana
An international consortium for reducing risk from sand and dust storms in Northern Africa

TUESDAY

Session 4: Disaster Risk Reduction

13 April 2010, 09:30 – 11:00

Through concrete cases from Africa and other regions, the session will:
(i) demonstrate the importance of utilizing meteorological, hydrological and climate information and forecasts in areas of disaster risk assessment and risk reduction, including early warning systems and financial risk transfer (weather-indexed and catastrophe insurance); and (ii) identify gaps, needs and challenges in strengthening meteorological, hydrological and climate information to support disaster risk management in Africa.

Chair
Helena Molin-Valdes, Deputy Director UNISDR

Co-Chair
Yadowsun Boodhoo (PR Mauritius)

Key Note Speakers

Rhoda Peace, African Union Commission, Ethiopia
The Programme of Action for the Implementation of the African Regional Strategy

Pedro Basabe, UN/ISDR Africa Programme
Status of disaster risk reduction in Africa: major challenges

Panelists

Dulce Chilundo, Disaster Management Institute, Mozambique
Mozambique's experiences in Disaster Risk Management

Carlos Villacis, Global Risk Identification Programme of the United Nations Development Programme, Switzerland
Risk assessment in Africa

Ash Mohammed, International Federation of the Red Cross, Africa Zone
Moving towards preparedness and response

Gift Livita, Opportunity International Bank, Malawi
Financial risk transfer mechanisms

Discussants

Alhassane Diallo, ACMAD, Niger
Status of operational capabilities of NMHSs in weather forecasting and climate prediction in support of disaster risk management in Africa

Laban Ogallo, ICPAC, Kenya
Status of utilization of climate information in Africa

Simon Mason, Institute for Climate and Society, United States of America
Linking weather and climate information and services with disaster risk reduction

Session 5: Filling information gaps

13 April 2010, 11:00 – 12:30
Co-chaired by: Anthony Nyong, African Development Bank, Tunisia

Enhancing data availability and delivery of weather, water and climate products and services involves many challenges and opportunities that are to be debated in this session, such as filling gaps in observations, improving the quality of forecasts and predictions, and promoting interaction between users and providers of weather and water services.

Amos Makarau, Department of Meteorological Services, Zimbabwe
Status and Future Plans for Weather, Water, and Climate Observing Systems in Africa

Zilore Mumba, ACMAD
Improving Prediction and Assessment in Africa

Linda Makuleni, South African Weather Service, South Africa
Finding, Accessing, and Sharing Information and Services for Weather, Water, and Climate

Yadowsun Boodhoo, Meteorological Services, Mauritius
Providing Weather and Climate Services to Improve Societal Benefits

Jean-Luc Redelsperger, African Monsoon Multidisciplinary Analysis (AMMA), France
AMMA Africa – Filling the gap

Session 6: Capacity building

13 April 2010, 14:30 – 16:00
Chaired by Ato Kidane Asefa, National Meteorological Services Agency, Ethiopia

Building capacity to generate and disseminate knowledge and to address capacity gaps demands collaborative efforts and long-term commitments. In addition to lessons learned, the session will explore potentials in interpreting, providing and using weather and climate information, as well as media, staff development and training.

Anthony Anuforom, Meteorological Service, Nigeria
Institutional and Human resource development

Barnabas Chipindu, University of Zimbabwe, Zimbabwe
Meteorology, Climatology, Hydrology and associated fields at academic institutions

John Njoroge Kimani, National Space Secretariat, Kenya
School and popular education in Meteorology, Hydrology and Related fields

Malamine Sonko, ASECNA, Senegal
Development and maintenance of Meteorological and Hydrological Infrastructures

Bubu Jallow, United Nations Environment Programme, Kenya
Capacity building on climate change issues

Todd Ngara, Risoe Centre Roskilde, Denmark
Capacity building on climate change issues

Session 7: User perspectives

13 April 2010, 16:00 – 17:30
Chaired by Mama Konaté, Direction nationale de la météorologie, Mali

Representatives of communities, non-governmental organizations, media and other partners will elaborate in a panel discussion on their needs and expectations from weather and climate services and will propose how to improve linkages and interaction with the service providers.

Guido van Langenhove, Hydrological Services, Namibia
Water

S. W. Noika, Kenya Agricultural Research Institute, Kenya
Food

Benson Wafula, Kenya Agricultural Research Institute, Kenya
Food

Yolande Raoelina, Climate and Health Working Group, Madagascar
Health

Peter Moncherry, Seychelles Tourism Board, Seychelles
Tourism

Patrick Luganda, Network Climate Journalists in the Greater Horn of Africa, Uganda
Communication

Judith Akolo, Kenya Broadcasting Corporation, Kenya
Media

Munyadziwa Rabambi, EC Advisory Panel on Gender Issues, South Africa
Gender

WEDNESDAY

Session 8: Enhancing partnerships

14 April 2010, 09:30 – 11:00
Chaired by Stephen A.K. Magezi, Department of Meteorology, Uganda

This session will focus on international and regional partnerships in applications and use of weather, water and climate services for development from a long-term and sustainable perspective.

Mohammed Kadi, ACMAD, Niger
Programmes Climate for Development in Africa, Vigirisc and Weather Information For All

Vladimir Tsirkunov, World Bank, United States of America
Creating Regional Partnerships for modernization of Hydromet Services in support of Regional and National Development – lessons learned

Karin Svingby, ERICSSON
Making the most of communications technology uptake in Africa - Delivering weather information services via mobile phone

EU-Aghrymet (tbc)
AMESD

Spain (tbc)
Bi-lateral - Regional Partnerships for modernization of Hydromet Services in support of Regional and National Development

Byung-Seong Chun, Korea Met Administration, Korea
Enhancing Partnership between KMA and East Africa

Special Session on Aviation

14 April 2010, 11:00 – 12:30

Special Session on the Global Framework for Climate Services (GFCS)

14 April 2010, 14:30 – 15:30

Adoption of the Conference Statement & Discussion of the Conference Declaration

14 April 2010, 15:30 – 17:30

SIDE EVENTS

Time	Topic
Monday, 12.4 13:30 – 14:30	THORPEX Africa and the African High Impact Weather Information System. *See text below for more details.*
Monday, 12.4 18:00 – 19:00	EUMETSAT
Tuesday, 13.4 13:30 – 14:30	Overview of the applied activities by Marine Meteorology and Oceanography Programme (MMOP), lessons learnt and opportunities for the future.
Tuesday, 13.4 18:00 – 19:00	FAO climate offer: crop yield forecasting, climate change impact assessments in the agricultural sector, real-time and medium-term (5 to 10 years) warning system and the FAO-RFE rainfall estimation technique
Wednesday, 14.4 11:00 – 12:30	SPECIAL SESSION ON AVIATION
Wednesday, 14.4 (exact time to be confirmed)	Taking Advantage of Innovations in Communications Technology to reach the community. (Ericsson / Orange / Zain) Demonstration of innovative weather applications on cell phone networks.
Wednesday, 14.4 (exact time to be confirmed)	*UK Met Office:* 'Climate Science Research Partnership'. *See text below for more details.*
Wednesday, 14.4 14:30 – 16:00	SPECIAL SESSION ON THE GLOBAL FRAMEWORK FOR CLIMATE SERVICES (GFCS)

THORPEX Africa and the High Impact Weather Predictability and Information System

This side event will focus on the status and future plans of THORPEX Africa and its High Impact Weather Predictability and Information System. Over thirty-five African nations have provided focal points and agreed to cooperate in developing and implementing this multidisciplinary information system that will include assessments of economic, societal and environmental impacts as well as information on the predictive skill of these events.

The High Impact Weather and Predictability Information System is one of the first projects of THORPEX Africa and will include a catalog of African high impact weather events and their related human toll, damage and other socioeconomic or environmental impact data. Beginning with a subset of these events, information will also be provided on how much lead time could be provided for these events by state-of-the-art predictive models. Collaborators with THORPEX in these efforts include GEO, Munich Re, which will provide impact data that can be combined with national estimates, ICTP (Abdus Salam International Centre for Theoretical Physics sponsored by the Italian Government, UNESCO and IAEA), which will assist in developing the data portal and major forecasting centres and some universities/research institutes which will be involved in building conceptual models of the high-impact weather events model skill evaluation. The deliverables for this project include a quantitative understanding of how Africa is impacted by weather and climate events and the lead time that can be expected in warning the public of these events allowing insight into where actions should be directed to provide better tools for decision and policy making such as better early warnings including estimates of expected impacts, advisories for food security, agriculture, energy production, water and disaster management. This work is expected to help reduce injuries and fatalities, infrastructure and property damage, poverty, and environmental degradation.

THORPEX Africa will provide the research to reduce the adverse effects of meteorological and climate related natural disasters in Africa through promoting multidisciplinary collaboration between research, operations and user communities. High impact phenomena of interest include i) dry spells and late onset/early end of the rainy season: ii) flooding/flash floods and associated landslides; iii) tropical cyclones landfall in South-eastern Africa and tropical depressions/tropical cyclones genesis in North-western Africa; iv) dust events; v) marine hazards. These activities will deliver the benefits of earth observations, advanced communications and improved forecast systems to Africa. Priority application sectors include disaster and water management, agriculture, livestock, and food security, energy, health (e.g. meningitis) and transportation (e.g. aviation). The THORPEX African Regional Committee has produced Science and Implementation Plans for THORPEX Africa. One of the first actions is the High Impact Weather Information System. THORPEX is a programme of the World Weather Research Programme (WWRP) under the WMO's Commission of Atmospheric Sciences.

Information on THORPEX can be found at **http://www.wmo.int/wwrp** and **http://www.wmo.int/thorpex**

The DFID-Met Office Hadley Centre Africa Climate Science Research Partnership (CSRP)

DFID's Research and Evidence Division and the UK Met Office Hadley Centre are working together on a £3.2m Africa Climate Science Research Partnership (CSRP) over 3 years. The programme commenced in January 2010.

The key aim of the CSRP is to improve understanding and modelling of the main drivers of African climates and to advance the value of dynamical prediction systems in practical monthly, seasonal and decadal forecasts for the continent. It therefore contributes important scientific support to other key initiatives such as the WMO Global Framework for Climate Services and programmes for institutional strengthening of African climate organisations.

The CSRP begins with a consultation phase with African stakeholders, now underway, to establish the climate variables for which improved prediction is a priority. This will guide research and maximise its usefulness for planning adaptation to climate variability and near-term climate change in Africa. The African science community will be engaged through study fellowships designed to further research aims and enhance professional development.

The purpose of the side meeting is to present the research aims in more detail, provide initial results on the consultation, and to invite feedback and discussion.

EXHIBITION

There will be an exhibition of industry manufacturers held alongside the Conference from 12 to 15 April in the Kenyatta International Conference Centre. This exhibition has been jointly organized by the local Conference organizers and the association of Hydro-Meteorological Equipment Industry (HMEI). The majority of the exhibitors are HMEI members.