



EAST AFRICAN COMMUNITY SECRETARIAT

**MEETING OF HEADS OF METEOROLOGICAL SERVICES AND
JOINT EAC/WCRP/WWRP WORKSHOP FOR THE PROPOSED
LAKE VICTORIA FIELD PROGRAM AND NOWCASTING PROJECT**

ARUSHA, TANZANIA

5th - 7th May, 2014

REF: EAC/SR/ /2014

**EAC SECRETARIAT
May 2014**

REPORT OF THE MEETING OF HEADS OF METEOROLOGICAL SERVICES AND JOINT EAC/WCRP/WWRP WORKSHOP FOR THE PROPOSED LAKE VICTORIA AND ITS BASIN FIELD PROGRAM AND NOWCASTING PROJECT, 5th - 7th May, 2014, ARUSHA, TANZANIA

1.0 ORGANIZATION OF THE MEETING

1.1 Constitution of the Bureau

The meeting was chaired by Mr. James Kongoti, Acting Director, Kenya Meteorological Services (KMS) while Dr. Hamza Kabelwa, Director of Forecasting Services, Tanzania Meteorological Agency (TMA) was the rapporteur.

1.2 Adoption of the Agenda

The Agenda for the meeting was adopted as proposed and is attached hereto as **Annex I**.

1.3 Hours of Business

The Meeting agreed on the working hours of the Session to be 09:00 am to 05:00 pm with 30-minutes Health Breaks from 10:00 to 10:30, 16:30 to 17:00 and lunch break from 13:00 to 14:00.

1.4 Participants

The list of participants is appended to this report as **Annex II**

1.5 Remarks by the Heads of delegations

1.5.1 Burundi

The Head of the Burundi Delegation, Mr. Nshimirimana Godefroid thanked the EAC for inviting Burundi to the Meeting. He mentioned that since last Heads of Meteorological Services Meeting lot positive changes in Burundi Meteorological Service had been realized. He informed the meeting that the department had constructed a Media Studio for broadcasting Weather Forecasts on National Television and a new website is under construction. He thanked Kenya Meteorological Service (KMS) and Tanzania Meteorological Agency (TMA) for their technical assistance in Severe Weather and in Numerical Weather Prediction. He informed the meeting that Burundi joined the daily video conference, and plan to set up the NWP unit with support from TMA.

He wished that the meeting deliberate and develop recommendations which would be beneficial for all EAC partner States.

Finally he wished the Meeting successful deliberations.

1.5.2 Kenya

The head of the Kenya delegation, Mr. James G. Kongoti, Acting Director of the Kenya Meteorological Service and Permanent Representative of Kenya with WMO started by thanking the EAC for organizing the meeting and the Government of the United Republic of Tanzania for hosting and the warm welcome accorded to the Kenya delegation to the meeting in the beautiful city of Arusha.

He informed the meeting that the projects being initiated over the Lake Victoria basin were of importance to the social economic benefits of the community within the basin. He noted that currently the Lake Victoria is a key resource for the approximately 30 million people living along its shores and enhancing the safety of the livelihoods and property of the people was of great importance.

On the issue of lightning strikes over the lake region, he informed the meeting that Kenya had also suffered loss of lives due to lightning. He therefore welcomed the project on total lightning detection in the lake region.

The Director noted that implementation of QMS for aeronautical meteorological service was a requirement by ICAO and WMO. He informed the meeting that Kenya had now completed its first year as ISO certified in QMS and recently finished the process of recertification which was successful. The meeting was further informed that the competency assessment has been successfully implemented. He also informed the meeting that Kenya had identified a budget for maintenance of QMS in Aeronautical Meteorological Services.

The meeting was informed that Kenya had started discussions with the Kenya Airport Authority concerning the cost recovery for its services and there was a legislation which was to be presented for consideration by the parliament.

Mr. Kongoti informed the meeting that KMS had not yet transformed into a semi-Autonomous status. He said that the immediate former Director of KMS, Dr. Joseph R. Mukabana, had by the end of the year 2013, made sure that all the documents related to the transformation of KMS were forwarded to the Attorney General chambers for a legal review before they are presented to the cabinet for consideration.

Concerning the current March-April-May seasonal rains, the Director informed the meeting that they had not performed well, especially in the month of April and this was due to the various tropical cyclones which formed over the western parts of the Indian Ocean in the months of March and April.

Finally the Director invited the Partners States to take advantage of the meeting which was mainly to discuss Lake Victoria Projects by making recommendations that would enhance the early warning systems for severe weather and exploitation of natural resources in the Lake Victoria basin.

1.5.3 Rwanda

The Director of Rwanda Meteorological Service, Mr. John Ntaganda Semafara appreciated the hospitality that had been extended to him by the United Republic of Tanzania since his arrival. He also thanked the EAC Secretariat for inviting Rwanda to participate in the meeting.

He indicated that the issues in the agenda were very pertinent to the development of meteorology in the region. He indicated the willingness of Rwanda to participate in the Lake Victoria Meteorology Projects noting that Rwanda was indeed in the Lake Victoria Basin. He commended AMCOMET Secretariat for the work it is doing to strengthen meteorology at continental level and urged the Secretariat to continuously sensitize Partner States on its programmes.

Mr. Semafara informed the meeting that the Rwanda Meteorological Service was facing challenges especially in the area of formulation and development of projects and programmes and asked the Partners to assist RMS in this area. He noted that although Rwanda Meteorological Service and Rwanda Civil Aviation Authority worked well together, there was, nonetheless need to develop an apportionment formula to share the ANS charges collected by the Civil Aviation Authority. He concluded his remarks by welcoming of the lightning project initiative, noting that Rwanda also faced serious lightning strikes especially because it borders Congo which has very active convective systems.

1.5.4 Tanzania

Dr. Hamza Kabelwa, on behalf of the Director General of Tanzania Meteorological Agency (TMA) welcomed the delegations to Tanzania, particularly those who were visiting Arusha City for the first time. He also thanked East African Community (EAC) for organizing the meeting. Furthermore, appreciated the efforts made by WMO in collaboration with NMHSs in the region to make sure that the recommendations by WMO's executive Council are implemented.

He stressed the importance of the agenda in relation to enhancing the safety over Lake Victoria Basin noting that meteorological infrastructure, data processing and communication with the users of meteorological information was crucial.

He further informed the participants that Tanzania is in the final stage of RADAR installation in Mwanza to cover Lake Victoria and part of its Basin. The RADAR is expected to operate early July 2014 and this will improve the Regional Observing System in Tanzania.

He informed the meeting that performance of March – May 2014 seasonal rainfall outlook was good so far with enhanced rains over entire coast of Tanzania due to occurrence of tropical cyclone and easterly waves due to the warming of sea surface temperature over south-western Indian Ocean. However, he informed the meeting that the enhanced rainfall during the season had caused loss life and properties in some parts of country including Dar es Salaam. He said most of the stations located in the coastal areas of the Tanzania at the moment reported above normal rainfall.

In conclusion, he congratulated Mr James Kongoti for his appointment as Acting Director of Kenya Meteorological Services and Permanent Representative of Kenya with World meteorological Organization.

He finally wished all delegates very fruitful deliberations.

1.5.5 Uganda

The Head of the Uganda Delegation, Mr. Michael S Z Nkalubo first of all thanked the EAC through the representative of the Secretary General for convening and inviting him to the meeting. In the same breath he thanked the United Republic of Tanzania through its PR with WMO for hosting the meeting in this beautiful city of Arusha.

Mr. Nkalubo informed the meeting that Uganda strongly embraces the proposed Lake Victoria Field Program and Nowcasting Project. Uganda had witnessed many weather related calamities including floods, droughts, landslides, lightning episodes and accidents on lakes involving boats capsizing. He noted that the Agenda of the meeting was very relevant to the Ugandan situation and informed the meeting that Uganda takes issues of weather, climate and climate change very seriously. He informed the meeting that a Climate Change Policy and the Uganda National Meteorological Authority Act, 2012 had been put in place. The Uganda National Meteorological Authority came into being as a result of the recommendation of the EAC council of ministers to have Meteorological Services in the region semi-autonomous in order to deliver the services in a businesslike manner.

He informed the meeting that Uganda is already implementing Quality Management System (QMS) for Aeronautical Meteorological Services and is waiting for t ISO 9001 certification.

Regarding the Numerical Weather Prediction (NWP), he thanked EAC for the support it has extended to Uganda in this area in the form of modeling equipment that had already arrived in the country.

On cost recovery for meteorological services provided to Civil Aviation Authority, UNMA is seeking fresh negotiations with the organization with WMO and ICAO as arbitrators. With a law establishing UNMA now in place, negotiations were likely to be more straightforward than before.

Finally, he once again thanked EAC for convening the meeting and wished every participant good deliberations and successful conclusions.

1.5.6 WMO

On behalf of the Secretary-General of the WMO, Michel Jarraud, Dr. Joseph R. Mukabana thanked the EAC Secretariat for the invitation and the organization of the workshop and the Government of the United Republic of Tanzania for their warm welcome to the WMO delegation in the scenic and serene city of Arusha, which is normally referred to as the Geneva of Africa. He also appreciated the presence of the Heads of the NMHSs who are here present and invited experts and delegates who have travelled to attend and participate in this workshop.

He said that as participants are aware, the WMO is the specialized agency of the United Nations dealing with weather, climate, and water and their interaction with the earth- ocean- and atmosphere-system. Moreover, he said participants are also aware that the purpose and mission of a National Meteorological and Hydrological Service (NMHS), in accordance to the WMO Convention (1947, revised in Nov of 2007), is the provision of early warning information and services for the safety of life, protection of property, and conservation of the natural environment as a contribution to the sustainable development of a country.

Dr Mukabana noted that Lake Victoria is a large water mass which lies in a depression, in the middle of Africa, surrounded to the East by the Kenyan and Ethiopian Islands, to the west by the Rwenzori Mountains and Mount Elgon to the north. Its circulation system is governed by the prevailing synoptic scale easterly winds, the strong diurnal lake-land breeze circulation and the orographic wind system, including massive evaporation from the lake itself. The Lake Basin supports close to 40 Million people who are dependent for their survival on exploiting the lake's natural resources and eco-system (fauna and flora). This population is increasing rapidly affecting the settlement and therefore the need to consider sustainable use of these resources. Moreover, the Lake's weather pattern has an impact on the safety of navigation to both fishermen and maritime transport across the lake; from Mwanza to Bukoba, Kisumu to Entebbe. Furthermore, the severe weather and extreme climate episodes like lightning, gusty winds, water spouts and flash floods cause loss of lives and destruction of property and infrastructure within the lake basin. The hazards caused by these events adversely impact the social lives and economies of those living in the lake basin.

It is therefore considered that an extended experiment undertaken over the whole Lake Basin, including scientists from institutions and organizations that deal with weather and climate systems, would help establish and understand the patterns of weather and climate system over Lake Victoria and its basin's environment. The resulting improvement in the accuracy of weather and climate patterns over the lake will improve services for agricultural production and food security, to help eradicate poverty, to also improve public health through mapping of malaria which is endemic in the basin, improve water availability for drinking and sanitation, and provide early warnings for disaster risk reduction, including building resilience of communities in the region to cope with the adverse impacts of the changing climate.

Dr. Mukabana informed the meeting that WMO supports the partnership and cooperation of the various parties represented at the meeting with the aim of designing a meteorological programme whose outputs will form a framework for understanding the weather patterns and climate systems over the lake and how the populations can use the information for sustainable livelihoods in the region.

Finally he wished the participants a fruitful meeting.

1.5.7 East African Community (EAC) Secretariat

Mr. John Mungai welcomed the delegates to the meeting on behalf of the Secretary General of the East African Community. He thanked the Delegates

for attending the meeting which is aimed at enhancing cooperation between EAC and the international community in the field of meteorology.

He informed the meeting that the vision of the East African Community is to have a prosperous, competitive, secure and politically united East Africa.

Mr. Mungai noted that Meteorological Services play a very strategic role in the social and economic development of the region. Provision of accurate and timely Weather and climate information and products provide useful inputs into sectors such as agriculture; livestock development and food security; road, air and maritime transport; health and public safety; building and construction industry; disaster management and water resources management.

He informed the meeting that although there had been progress in the provision of weather and climate services the region, several challenges still persist and some of these include:

- Sparse observational station network;
- inadequate data processing and forecasting systems;
- inadequate information dissemination facilities;
- Keeping pace with the rapidly changing technology with limited resources;
- Monitoring, detection and prediction of climate change; and
- Limited government financial budgetary support;

He informed the meeting that the Treaty for establishment of the Community has made provisions to enhance regional cooperation in meteorological issues through Article 100 of the Treaty. The Community also recognized and the efforts of the Committee of Heads of Meteorological Services in spearheading development of the Meteorological Sector at EAC.

Through the leadership of this committee, several strategic documents to guide the sector have been developed. Some of these strategic documents include:

- 1) The Five Year Meteorological Development Plan and Investment Strategy 2013 – 2018);
- 2) The Protocol on Cooperation of Meteorological Services;
- 3) The EAC Meteorological Data Policy;
- 4) The EAC Climate Change Master Plan; and
- 5) The Strategic framework for development of Numerical Weather Prediction in the EAC

Mr. Mungai informed the meeting that the meeting was convened to discuss the progress of implementation of EAC meteorological projects and Programmes paying particular attention to one of the priority projects identified in the Five Year Meteorological Development Plan and Investment

Strategy, namely: “Enhancing Safety of Navigation and Exploitation of Natural Resources in Lake Victoria and its Basin by strengthening Meteorological Services over the lake”. The World Weather Research Programme as well as the World Climate Research Programme, working under the auspices of the World Meteorological Organization had also designed weather and climate project interventions targeting Lake Victoria. It was imperative, therefore, that the various parties work together in order to harness synergies and avoid duplication of efforts.

He said that the meeting is therefore important as it would enable identification of roles and responsibilities among the various parties, develop scope of the projects, find synergies and formulate Funding Approaches required in order to successfully implement the projects. As the projects which are proposed by the various parties (I.E. EAC/WWRP/WCRP) are very similar, the meeting would enable technical interactions and productive dialogue geared towards the implementation stage of the projects.

Mr. Mungai ended his remarks by wishing the participants a fruitful meeting.

1.5.8 ICPAC

Mr. Mohammed welcomed the delegates to the meeting on behalf of the Director of ICPAC. He thanked East African Community Secretariat for inviting ICPAC to the meeting.

He informed the meeting that ICPAC as a Regional Centre for the Greater Horn of Africa would play its role in implementing issues which would be recommended by the meeting.

He recognized the need for implementation of the proposed projects for Lake Victoria Basin and urged all the partners to assist the region achieve this goal.

He informed the meeting of the role of ICPAC to provide timely climate early warning information and supporting specific sector applications to enable the region cope with various risks associated with extreme climate variability and change for poverty alleviation, environment management and sustainable development of the member.

In conclusion he wished the meeting successful deliberations.

2.0 CONSIDERATION OF THE PROPOSED EAC LAKE VICTORIA BASIN METEOROLOGICAL PROJECT

The EAC Secretariat presented to the meeting the proposal “Enhancing Safety of Navigation and Efficient Exploitation of Natural Resources over Lake Victoria and its Basin by Strengthening Meteorological Services on the Lake’ (NEWs) which had been identified as a priority project in EAC Programming. The project aims at enhancing safety of navigation and efficient exploitation of natural resources over Lake Victoria and its basin by strengthening meteorological services over the lake basin. The project has four components as follows:

- i) upgrading the Marine and meteorological Observational Network over Lake Victoria;
- ii) Establishment of Navigation Early Warning System (NEWS) for Lake Victoria.
- iii) Development and implementation of an interactive Weather and Climate Information Atlas for Lake Victoria Basin and
- iv) Establishment of a Centre for Meteorological Services (CMS) for the Lake Victoria Basin.

A summary of the proposal is attached to this report as **Annex III.**

Observations:

The meeting noted the importance of enhancing Safety of Navigation and Efficient Exploitation of Natural Resources over Lake Victoria and its Basin by Strengthening Meteorological Services on the Lake. Furthermore, the meeting noted the necessity of establishing a Centre for Meteorological Service over the Lake Victoria. However, the meeting was concerned about the proposed centre and wanted clarification on whether it would infringe on the mandate of NMHSs. However it was clarified that the proposed centre would only complement efforts of Partner States in the provision of Meteorological Services and would work with NMHSs to enhance meteorological capacities. The meeting was also informed that a legal framework exists for establishment of such a Centre. In this regard the meeting advised that the available WMO Regional Forecast Supporting Centre Dar es Salaam for Lake Victoria be strengthened for this purpose. The meeting was also informed about other ongoing projects in Lake Victoria relevant to the meteorological Sector e.g. LVEMP II. The meeting noted the need to involve NMHSs in all these initiatives.

Recommendations

The meeting recommended that:

- i) The project on Enhancing Safety of Navigation and Efficient Exploitation of Natural Resources over Lake Victoria and its Basin by Strengthening Meteorological Services on the Lake be linked with the HyVIC and the nowcasting project by WWRP;**
- ii) EAC, LVBC and Partner States strengthen the already existing WMO Regional Forecast Supporting Centre Dar es Salaam to be the Centre for provision of Meteorological Services for Lake Victoria Basin;**
- iii) That the above centre shifts its operations from Dar es Salaam and operate from Mwanza;**
- iv) That EAC explores modalities of linking the Centre For Meteorological Services with the already established EAC Marine Rescue Coordination Centre in Mwanza;**

- v) LVBC, EAC and Partner States embark on a Hydrographic and bathymetry survey in order to generate data to support modeling for the lake;
- vi) LVBC invites NMHSs to their Sectoral meetings with Agendas relevant to Meteorology;

2.2 Hydroclimate Project for Lake Victoria (HyVic)

The above project proposal was presented to the meeting by Professor Semazzi. He enumerated the objectives and the expected outcomes of the project. He informed the meeting on HyVic Goals and Planning. The meeting was informed that the Hydroclimate project for Lake Victoria (HYVIC) was being formed under the auspices of the World Climate Research Program (WCRP). An international planning committee was already in place. The meeting was informed that the project had several components including an Observational Campaign and research. Details on the project can be found in **Annex IV**.

Observations:

The meeting noted the synergies between the HyVic project and the EAC project. The meeting noted that the project would help to fill in the gaps noted in the global projections on climate in the region. The meeting also noted that capacity building and technology transfer were key components of the project. The meeting noted the high population growth around the lake and the rapid urbanization would change the land use. It was also noted that global models do not capture the role of shifts in circulation and water patterns over Lake Victoria. Impacts of ground water hydrology had also not been fully captured by global models. The meeting therefore noted that implementation of HyVic would assist the partner states to develop well informed climate adaptation Strategies.

Recommendation:

The meeting:

Strongly recommend that the HyVic project to improve the science and predictions of climate and projections of climate change in the East African region for the development of resilient Ecosystems and Communities around the Lake Victoria Basin be undertaken.

2.3 The Proposed Lake Victoria Field Program and Nowcasting Project

Mr. Paul Joe presented the above project to the meeting. He informed the meeting that the goals of the project are to: i) Understand the weather and hydro-climatology causing transportation hazards on Lake Victoria; ii) Collect a data set to validate the science and severe weather forecast systems; iii) Develop operational nowcasting tools and technology transfer to Regional Centres within the framework of the Severe Weather Forecast Demonstration Project; and iv) Improve the resilience of the Lake Victoria Basin Hydro Electric Power (energy) & Fisheries-dependent Livelihoods in the wake of adverse impacts of Climate

Extremes and to Climate Change; and v) Capacity Building – technical, meteorological and research. Details of the project are in Annex V attached to this report.

Observations:

The meeting welcomed the initiative of the WMO to start a project on nowcasting for Lake Victoria. It noted the need to expand the domain of the project to cover the entire Lake Victoria Basin. NMHSs were urged to take advantage of the project in order to enhance their nowcasting capabilities. Further discussions resulted in the following outline regarding the project.

a) Goals

- i) Develop a Severe Weather Nowcasting Demonstration Project (SWNDP) using global and regional data for all of LVB and multi-purposes (severe weather, aviation, marine navigation, agriculture, public health, disaster risk reduction)
- ii) Conduct a Field Project for Understanding and Verification and Validation of the SWNDP, HyVic and Thorpex HIW
- iii) Coordinate with HyVic to conduct a field program to support underpinning science to understand climate variability and change, improve accuracy of climate predictability and climate change projections to support decision making
- iv) Enhance the monitoring network for climate, weather and nowcaster including over the lake and its sustainability

b) Envisioned Nowcasting Service

The envisioned SWNDP would include the following:

- i) Demonstration
- ii) Lake Victoria Basin
- iii) Technology Transfer
- iv) Sustainability
- v) Application areas would include severe weather, aviation, marine navigation, agriculture, public health, disaster risk reduction

c) Governance and Roles

The combined project will be governed through:

- i) LVB-HyNEWS Executive Council; and
- ii) LVB-HyNEWS Task Force

Recommendations

The meeting of Heads of Meteorological Services:

- i) **Strongly recommend the establishment of a Severe Weather Nowcasting Development and Demonstration project for the entire Lake Victoria Basin area that would also include marine, aviation and Agriculture applications as it produces "call to action " warnings to save lives, protect property to support sustainable development of the region;**

- ii) **Recommend that the SWNDP, HyVic and NEWS should be governed under a consortium of projects called LVB-HyNEWS Consortium (Lake Victoria Basin - HydroClimate to Nowcasting for Early Warning Systems) in order to enhance the coordination, visibility and sustainability of the projects;**
- iii) **Recommend that the LVB-HyNEWS consortium be governed by an Executive Council consisting of the EAC/LVBC, Heads of NMHS (AMCOMET Secretariat invited as an observer). The following are the terms of reference for the LVB-HyNEWS Executive Council**
 - a) **Review status and progress of the consortium project**
 - b) **Ensure coordination with other projects and alignment with NHMS and AMCOMET goals**
 - c) **Ensure the goal of sustainability**
 - d) **Ensure the priority of the project**
 - e) **Advise and guide the project**
 - f) **To advocate for funds for the project**
 - g) **To approve the Implementation Plan of the LVB-HyNews project**
- iv) **Strongly recommend a Field Component of the LVB-HyNEWS for understanding the dynamics of the weather and marine systems in the lake and its surrounding including hazardous weather;**
- v) **Recommend scientific verification and validation of the outputs of the nowcasting system, and the weather and climate prediction models;**
- vi) **Recommend that the provision of weather and climate services that include technical capacity development be considered as a core goal of the consortium projects to ensure sustainability;**
- vii) **Recommend data sharing by the project in line with resolution 40 of WMO (Cg -12) on meteorological data and products and resolution 25 (Cg- 13) on hydrological data and its products;**
- viii) **Recommended that a LVB-HyNEWS Task Force be established under the LVB -HyNEWS. This Task Force will consist of the EAC, LVBC, LVFO and NMHSs Focal Points, sub-project Principal Investigators. The following are the terms of Reference for the Task Force:**
 - a) **conduct the work of the initiation phase of the project**
 - b) **support PI's in project proposals**
 - c) **create the project and implementation plans**
 - d) **link and promote the project to the NHMSs**
 - e) **seek funding opportunities**
 - f) **report to the LVB -HyNEWS Executive Council**
 - g) **seek other projects that would contribute to the LVB -HyNEWS**
- ix) **Recommend that EAC in collaboration with Partner States and the LVB-HyNEWS consortium convene the following meetings:**
 - a) **Stakeholder / expert Team meeting to begin the development of the SW Nowcasting Demonstration Project, to design its products and its transition and sustainability to strengthen the NHMSs;**
 - b) **that a Nowcasting and HyVIC Science training workshop be conducted for capacity development and establish links with the East African researchers and forecasters;**

Meetings (a) and (b) be held back to back to minimize costs and be conducted by October 2014.

c) Donor meeting by December 2014;

3.0 AMCOMET and the Integrated African Strategy on Meteorology

The presentation on the above Strategy was given by Ms. Jay Wilson of AMCOMET Secretariat. She informed the meeting that the overall purpose of the strategy is to correctly position weather and climate services as an essential component in national and regional development framework and sustainable development in Africa, particularly in poverty reduction efforts, climate change. The Strategy further aims to serve as a framework for integrated and coordinated mechanisms, which provides strategic direction to Member States and other stakeholders in streamlining policies that address challenges and opportunities associated with the development of adequate weather and climate services at the national and regional levels, in particular the implementation of GFCS in Africa.

The Strategy focuses on five (5) interrelated strategic pillars:

- i) SP1: Increase Political Support and Recognition of NMHSs and related WMO Regional Climate Centres
- ii) SP2: Enhance the Production and Delivery of Weather and Climate Services for Sustainable Development
- iii) SP3: Improve Access to Meteorological Services in particular for the Marine and Aviation Sectors
- iv) SP4: Support the Provision of Weather and Climate Services for Climate Change Adaptation and Mitigation
- v) SP5: Strengthen Partnerships with Relevant Institutions and Funding Mechanisms

The meeting was Informed that a complementary Implementation and Resource Mobilization Plan for the Strategy is currently being developed. The initial draft is in the process of being validated by African Member States. Its consideration and approval is expected during the Third Session of AMCOMET.

Observations:

The meeting noted the need for NMHSs to identify needs (observations; telecommunications; data processing analysis and forecasting; information and product dissemination; climate data base management system; and Human resource) at country level. It was also noted that the Strategic Pillars can also be linked with the LVB -HyNEWS and that the Project can be a flagship project under AMCOMET. AMCOMET Secretariat was urged to sensitize decision makers regarding LVB -HyNEWS .

Recommendation

The meeting noted the Implementation Plan (IP) as presented by AMCOMET Secretariat and recommended that:

- i) EAC and Partner States to provide comments on the IP submitted by 30th May 2014 to enable the secretariat adequate time to incorporate feedback from the EAC Partner States;**
- ii) that the LVB-HyNEWS be considered as a demonstration project under AMCOMET and GFCS framework considering the potential and synergies and mutual goals and strategies for the efficient transfer of results and their impacts to Africa;**
- iii) That the stakeholders of the LVB-HyNews Project coordinate with the AMCOMET Secretariat to ensure linkages between the goals of the IP and those of the Project's and to streamline communication and messaging, in particular for the benefit of policy makers, potential donors and development partners.**

4.0 Proposal to Undertake a Pilot Project on Severe Weather Nowcasting Based on Total Lightning Detection in Lake Victoria Region

Two presentations were made by representatives of African Centres for Lightning and Electromagnetics (ACLE) and Earth Networks - USA.

The meeting was informed that Earth Networks in partnership with ACLE based at Makerere University Business School-Uganda have engaged in a research proposal for an Early Warning System project based on Total Lightning Detection over the Lake Victoria Basin. This entails a prospective regional coordination effort between the NMHS of Uganda, Kenya, and Tanzania, as well as the responsible parties at the EAC, WMO, and other international institutions. The multi-country pilot project promises to rapidly deliver some of the latest severe weather hazard monitoring and prediction infrastructure based on a network of cost-effective, real-time automatic weather stations equipped with innovative total lightning sensors.

Envisaged benefits to be derived from the research findings of such an integrated Early Warning System to the countries, their respective vulnerable groups, and their supporting international partners are:

- (i) technology and knowledge transfer;
- (ii) a detailed understanding of severe weather dynamics of Lake Victoria region with lightning data available for research;
- (iii) analytical information integration from lightning detection with other related data from global and national networks; and
- (iv) on spot proofing all disseminated data from the networks and verified by end users (eyewitness accounts) via mobile applications and web portals.

Recommendations:

The meeting:

- i) Recommended implementation of the ACLE/EN Pilot for Lake Victoria Severe Weather Nowcasting based on Lightning detection and that the project goes ahead on research mode;**

- ii) **Established a technical Task Force Comprising of Samuel Mwangi (Kenya), John Eza (Uganda), Hamza Kabelwa (Tanzania), Nshimirimana Godefroid (Burundi) and Mathieu Mbatu Mugunga (Rwanda) to work with Earth networks and ACLE to implement the proposed project;**
- iii) **The ACLE Pilot on severe weather nowcasting based on total lightning detection connects and interfaces with LVB-HyNEWS Consortium.**

5.0 Consideration of progress of implementation of EAC meteorological programmes.

5.1 Burundi

5.1.1 Cost Recovery of Aeronautical Meteorological Services

Cost recovery Mechanisms are in place but need to be reviewed because there was no clear, harmonized apportionment formula that was being used as guided by the recommended practices in ANNEX 3 of ICAO.

5.1.2 Quality Assurance for Aeronautical Meteorological Services

Concerning QMS, 2 members of staff got an ICAO training of trainers and training was extended to remaining personnel. Currently, QMS Implementation is ongoing. Regarding training, 8 meteorological Technicians (Observers) completed a 3-month specialization course on Aeronautical Meteorology at IMTR-Nairobi in order to comply with ICAO requirement. Burundi preparing makes file a difference with ICAO and expedite implementation of QMS to meet ICAO's requirement to improve service delivery in the aviation industry.

Numerical Weather Prediction

Burundi NMHS carries out Analysis and Interpretation of NWP products downloaded from websites of the Global Centres such as ECMWF, NOAA, UK MetOffice and the regional Centres such as the RSMC-Nairobi, RFSC Dar-es-Salam. Data and products are also received from the National observational network and AMESD PUMA project. EAC Secretariat donated equipment for NWP modeling comprising 1 server and 2 computer stations in December 2012. However, there are still limited skills in forecasters to run NWP modeling for operational activities but there is plan to get expertise from TMA to set up the NWP Unit.

5.2 Kenya

5.2.1 Cost Recovery of Aeronautical Meteorological Services

The meeting was informed that Kenya had started discussions with the Kenya Airport Authority concerning the cost recovery for its services and there was a legislation which was to be presented for consideration by the parliament.

5.2.2 Quality Assurance for Aeronautical Meteorological Services

Kenya had now completed its first year as ISO certified in QMS and recently finished the process of recertification which was successful. The meeting was further informed that the competency assessment of aeronautical meteorological personnel was successfully implemented. Concerning the maintenance of the QMS Kenya had included the funds in its budget. Concerning the purchase of the wind tunnel, the meeting was informed that it was in the process of being purchased.

Transformation to a SAGA

The meeting was informed that Kenya Meteorological Service had not yet transformed into a semi-Autonomous status. All the documents relating to the transformation of KMS were forwarded to the Attorney General Chambers for a legal opinion before they are presented to the cabinet for consideration.

5.3 Rwanda

5.3.1 Cost Recovery of Aeronautical Meteorological Services

Rwanda Meteorological Agency is not currently recovering costs related to provision of aeronautical meteorological services. However Meteorwanda was working closely with Rwanda Civil Aviation Authority. The Act governing the cost recovery will be developed once the Agency is fully operationalised.

5.3.2 Quality Assurance for Aeronautical Meteorological Services

The meeting was informed that the previous QMS Manager had quit and a new one had been appointed. The new manager has undergone training in the UK and trained as Lead Internal Auditor. A New QMS Team has also been appointed and tasked to update implementation plan, Documentation for most forecast products exists and being reviewed.

Documentation for instruments and maintenance is being written, Rwanda Civil Aviation Authority (RCCA) is implementing existing procedures, and Rwanda is in contact with TMA to start competency assessment of Aviation Met Personnel.

5.3.3 Numerical Weather Prediction

A Cluster computer system was installed but needs expertise to operationalize it. Rwanda Meteorology Agency is working with Rwanda Environment Management Authority (REMA) to bring an expert in NWP. Training in the use of COSMO Model was done in Germany by one officer, the WRF and COSMO models were installed on cluster and waiting for expert to help them. In addition, EAC provided Meteo Rwanda with computer hardware and software to assist establish an NWP unit.

5.4 Tanzania

5.4.1 Cost Recovery of Aeronautical Meteorological Services

TMA has continued to use Interim arrangements agreed upon by the three Agencies (Tanzania Meteorological Agency, Tanzania Civil Aviation Authority and Tanzania Airports Authority) on the sharing of revenue accrued from Air Navigation Services and Landing fees. Tanzania Meteorological Agency and Tanzania Civil Aviation Authority has established co-ordination committee which will be looking matters of common interest. At one time we had a committee comprising the three Agencies sorely discussing those matters.

TMA contributes into ensuring safety of air operations in Tanzania. The QMS implemented ensures quality of weather data needed for flight operations by requiring calibration of weather measuring instruments. TMA provides meteorological information as stipulated in ICAO Annex 3.

5.4.2 Quality Assurance for Aeronautical Meteorological Services

TMA has continued to improve its Quality Management System (QMS). According to the results from the last QMS External Audit which was conducted in November, 2013, the certificate was retained for the next three years. TMA has started to collect data for TAFs verification at Julius Nyerere International Airport. TAF verification package that has been shared from Honkong is in the process of final installation.

5.4.3 Numerical Weather Prediction

TMA already has Cluster Computer of 16 compute nodes where three models (WRF, COSMO and WAVEWATCH3) have been installed for LVB domain at a resolution of 4km. TMA continued to assist some EAC members in installation and training of NWP models.

5.5 Uganda

5.5.1 Cost Recovery of Aeronautical Meteorological Services

The Uganda National Meteorological Authority (UNMA) had earlier reached an agreement with CAA for monthly payment of UGX 48m as cost recovery for Aeronautical Meteorological Services. However the CAA was only paying UGX 22m, but to the Treasury. Now that there is a law in place that established the new body of UNMA, fresh negotiations with CAA are being sought with the help of WMO and ICAO as arbitrators.

5.5.2 Quality Assurance for Aeronautical Meteorological Services

The meeting was informed that QMS was being implemented. So far two internal and two external audits have been carried out that identified a number of non-conformities many of which have since been worked on. The process of inviting the external Auditors again for the final ISO 9001 Certification is on. The meeting was informed that UNMA requires assistance from EAC Partner States and WMO to enhance competencies of aeronautical meteorological personnel.

5.5.3 Numerical Weather Prediction

UNMA has already received equipment for Numerical Prediction Modeling Laboratory from the EAC. However the equipment is awaiting installation. Capacity building is also yet to be carried out for the personnel that will man this laboratory.

5.6 WMO

A presentation on cost recovery of aeronautical meteorological services was given by Mr. Scylla Sillayo of WMO. He summarized the requirements for cost recovery as captured in WMO Doc 904. The meeting agreed that the initial steps of establishing cost recovery could start immediately by the respective administration forming costing teams that would work with stakeholders to establish core costs for facilities and services dedicated to provision internationally agreed services as per ICAO Annex 3. It was noted that this would considerably speed up the process.

WMO further stressed that the decision to recover costs from users of Aeronautical met services is a State sovereign decision. This implied that the strategy to be developed would be for each State and recovery could only be possible per country considering that currently each country is managing its own airspace.

So as to attract donor funding, the EAC could come up with a Project for the Region that would include compliance to ICAO requirements to enhance safety, regularity and efficiency of international air Navigation and development of a Strategy for cost recovery for those that have not yet implemented it.

Recommendations:

The meeting recommended that:

- i. Partner States expedite implementation of QMS in order to be in line with ICAO and WMO regulations;**
- ii. NMHSs embark on developing the Strategy on cost recovery by establishing a team to work on costing of aeronautical meteorological services and products in line with relevant WMO and ICAO documents on cost recovery ;**
- iii. EAC engage a consultant to assist Partner States finalize the development of their Strategies;**
- iv. EAC and NMHSs continue to implement the Strategic Framework on NWP;**
- v. EAC and NMHSs organize annual workshops to enhance capacities of NWP.**

6 ANY OTHER BUSINESS

The meeting was informed that the AMCOMET Bureau had convened a meeting in Harare on 26th – 30th May 2014. The meeting will involve ministers responsible for

Meteorological Services. The AMCOMET Bureau meeting would be crucial as it would be discussing the initiation of the African Space programme and adopting the Implementation and Resource mobilization Plan for the Integrated African Strategy on Meteorology and the Constitution and Rules of Procedure. EAC had been invited as a REC, Uganda is the Rapporteur of the Bureau while Kenya and Tanzania are members of the Task Team on the African Space Programme. The meeting was also informed that the EAC Secretariat had convened the 11th meeting of the Sectoral Council on TCM to be held on 26th – 30th May 2014.

2 CLOSURE OF MEETING

The Chairman thanked all the delegates for their active participation in the deliberations. The meeting was closed on Wednesday 7th May 2014 at 5.30pm.

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Nshimirimana	James Kongoti	John Ntaganda	Hamza Kabelwa	Michael
Godefroid				S.Z.
				Nkalubo
Head of Delegation	Head of Delegation	Head of Delegation	Head of Delegation	Head of
BURUNDI	KENYA	RWANDA	TANZANIA	Delegation
				UGANDA