

Investing in weather and climate services for development

SUPPORTING THE AFRICAN MINISTERIAL CONFERENCE ON METEOROLOGY (AMCOMET)



AMCOMET

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WHAT IS AMCOMET?

The **African Ministerial Conference on Meteorology (AMCOMET)** was established in April 2010 when African ministers in charge of meteorology met in Kenya and adopted the Nairobi Ministerial Declaration for African cooperation.

The **vision** of AMCOMET is to have a framework for cooperation to support security, socio-economic development and poverty eradication on a pan-African level through sound governance of the science of meteorology and its related applications.

The **mission** of AMCOMET is to provide political leadership and guidance, policy direction and advocacy in the provision weather and climate services that meet societal needs.

In response to major challenges related to the delivery of weather and climate services in Africa, AMCOMET was initiated as a permanent forum where African ministers convene every two years to discuss matters related to weather and climate and how it can contribute to the socio-economic development in Africa. The World Meteorological Organization (WMO), in collaboration with the African Union Commission, serves as its Secretariat.



WHY AMCOMET?

As the ministerial body in Africa responsible for all matters related to meteorology and its applications, AMCOMET is the authority that fosters the political will to strengthen National Meteorological and Hydrological Services to enable them to fully perform their roles as a fundamental component of the national development infrastructure and a major contributor to economic and social development.

AMCOMET's key **objectives** are to promote political cooperation and streamline policies among Member states, and advocate for sound decision-making based on robust science. It further aims to promote the development and dissemination of weather and climate information to improve disaster risk management, minimise the negative impacts of extreme weather events and climate change on society, and meet developmental needs to achieve the Sustainable Development Goals.

AMCOMET serves as the platform through which sustainable development programmes specific to weather and climate services are harmonised and coordinated in collaboration with the African Union, the Regional Economic Communities, governments, non-governmental and civil society organisations and the private sector.

AMCOMET FOR DEVELOPMENT IN AFRICA

Industrialization, population growth and increased demand for food and energy are straining our planet's limited natural resources. Climate change and environmental degradation are likely to induce further pressure on our ecosystems as the resulting weather, climate and water affect all areas of human activity, particularly in Africa.

The delivery of tailor-made weather, climate and water services is increasingly needed to ensure food security, improved water resource management, disaster risk reduction and better health. In some African countries, climate-sensitive socio-economic sectors, such as energy, transport, tourism and urban planning, already benefit from such services however; further enhancements need to be put in place through the AMCOMET process.

Accurate and timely weather and climate analyses and predictions will further improve human safety, prosperity and livelihood and preserve precious natural resources to the benefit of communities, especially the most vulnerable. This is the rationale behind the Global Framework for Climate Services (GFCS), being developed by the WMO in conjunction with the broader United Nations system as well as other partners.

It is also the rationale for the creation of African Ministerial Conference on Meteorology, which will ensure the structured implementation of the Global Framework for Climate Services and will facilitate the coherent development and provision of climate services in Africa, including the GFCS priority areas, namely, agriculture and food security, health, water resources and disaster risk reduction.

THE CHALLENGE

At global level, 90 per cent of disasters are caused by weather-, climate- and water-related hazards such as cyclones, storm surges, extreme temperatures, landslides, floods, drought and wildfires. Each year, weather and climate related disasters cause significant loss of life and impede economic and social development by years if not decades. In the future, extreme weather and climate events are expected to become more frequent and more severe due to climate change.

Poverty exacerbates the human, economic and social impact of such disasters. On average, about 50 times more people die in countries with low levels of development than in highly developed countries. Between 1980 and 2010, some **9 600 disasters** took the lives of over **2.5 million people** and produced economic losses of **US\$1.3 trillion**¹. The financial cost of disasters caused by natural hazards, when calculated as a percentage of GDP, is 20 per cent higher in poorer than in richer countries². The lack of insurance in most African countries amplifies this problem – those countries must dig deep into their own scarce resources, or rely on international aid, to pay³.

Such losses could be considerably reduced if populations had access to reliable and relevant weather and climate information in a timely manner. Many essential economic activities could also be better planned, and food security improved, if people were well informed of seasonal climate predictions and could take appropriate actions. Agriculture, for example, would vastly benefit if farmers had seasonal information on rainfall and temperatures to help them decide which seeds to plant and where – yields would improve and, with it, the livelihood of the entire community.

1 http://www.wmo.int/pages/publications/showcase/documents/1080_en.pdf

2 http://www.wmo.int/pages/publications/showcase/documents/1080_en.pdf

3 IPCC, 2007





Significant technological advances and analytical breakthroughs in the prediction of global climate and severe weather have led to the development of reliable weather and climate information products and services. But in many countries in Africa, political decision-makers do not have access to high-quality weather and climate services. Being unaware of how these services contribute to development, National Meteorological and Hydrological Services (NMHSs) do not receive the necessary political and financial support needed to fulfil their mandates. Challenges include, but are not limited to:

- Inadequate observation network;
- Obsolete computer and telecommunication tools;
- Lack of human resources; and
- Lack of funding from the government.

Under the leadership and support of AMCOMET, National Meteorological and Hydrological Services and relevant stakeholders from various disciplines work together to develop science-based weather and

climate information tailored to end-users' needs for the purpose of:

- Increasing agricultural productivity to improve food security and reduce hunger;
- Improving and optimizing management of water resources to provide sustainable access to freshwater for drinking, irrigation and household use;
- Reducing the risk of disasters related to climate hazards, the cost of which often burdens developing and least developed nations for years, aggravating extreme poverty;
- Improving health, especially for women and children, by stemming the spread of disease vectors;
- Contributing to renewable energy research and strengthening the scientific basis of the green economy.

The following best practices demonstrate what can be achieved through the support of AMCOMET.

BEST PRACTICES: CLIMATE KNOWLEDGE FOR ACTION

CONTRIBUTING TO THE ERADICATION OF EXTREME POVERTY AND HUNGER

➤ With support from the Norwegian Government and the World Bank, the WMO **Mobile Weather Alert Project** pilots the dissemination of weather and climate information directly to end-users in Uganda through mobile phones. It has two components, one targeting farmers, the other fishermen on Lake Victoria. In the first, meteorologists from the Uganda Department of Meteorology deliver weather and climate information and agricultural advice to farmers through mobile phones provided to community focal points. Farmers use such information as a basis for decisions on, for example, when and which seeds to sow or when to harvest their crop. Tailored local weather forecasts are sent to registered fishermen every day by SMS (short messaging service). Fishermen highly value the accurate and specific information delivered to their mobile phones. The service is provided in the local language, Luganda, and messages are easy to understand.

A fisherman from Bubeke Island commented, *“The Mobile Weather Alert has enhanced our lives in many different ways. It has helped by informing us of the weather conditions on the lake and has reduced accidents.”*

➤ In Mali, in collaboration with development partners, WMO has assisted the National Meteorological Service in implementing an **agro-meteorological project** for the delivery of weather and climate information to rural communities. The effective use of these services has reduced the re-sowing rate by 35 per cent and **increased crop yields by 20 to 25 per cent**, thereby boosting farmers’ incomes. As a result, farmers are now prepared to invest in new technologies that can further raise yields and reduce poverty. This initiative, which is also a climate change adaptation mechanism, is being replicated in other West African countries.

SUPPORTING DISASTER RISK REDUCTION

➤ In Mozambique, severe floods in 2000 killed 700 people and affected more than 2 million. The *Instituto Nacional de Meteorologia* now plays a critical role in monitoring tropical cyclones, collecting rainfall and river flow data, and issuing appropriate warnings that are easily understood by local people. This **early warning service** has reduced the adverse impact of subsequent storms.

➤ Now established in Southern Africa and under implementation in Eastern Africa, the WMO **Severe Weather Forecasting Demonstration Project** is improving forecasting and warning capabilities in developing and least developed countries. The project provides training to staff in National Meteorological and Hydrological Services, Civil Protection Authorities and the media. Furthermore, its Radio and Internet (RANET) module has developed communication systems to inform rural and other isolated communities on weather and other environmental issues. Throughout Southern Africa, alerts and warnings can be effectively communicated to rural populations in languages and formats they readily understand.



Mobile Weather Alert for fishers and farmers



CONTRIBUTING TO IMPROVED HEALTH

➤ The World Health Organization's Global Malaria Programme in the Southern African countries of Angola, Botswana, Namibia, Madagascar, Mozambique, South Africa, Swaziland, Zambia and Zimbabwe offers a good example of the practical use of weather and climate information in combating disease. The programme uses the seasonal climate forecasts issued by the Southern African Regional Climate Outlook Forum to predict malaria epidemics several months ahead of time, allowing effective control, and other preventive measures, to be put in place. The climate forecasts have been central to the development of the **Malaria Early Warning System**.

➤ In order to tackle seasonal outbreaks of bacterial meningitis in Africa's meningitis belt, WMO is collaborating with the World Health Organization, the International Research Institute for Climate and Society and other leaders within the environmental and public health communities to develop an early warning system for the epidemic. By working in collaboration with the Health and Climate Partnership for Africa, the early warning system will enable efficient use of resources and add value to weather forecasts from a health-service user perspective. The main objective of the programme, which also operates in Asia, Europe and North America, is to reduce and mitigate the consequences of disasters caused by natural hazards and reap the societal and economic benefits of improved high-impact weather forecasts.



Malaria Early Warning System



CONTRIBUTING TO ENHANCE TOURISM

➤ WMO works closely with the United Nations World Tourism Organization to enhance national and regional collaboration, particularly in strengthening the links between national tourism administrations and National Meteorological and Hydrological Services. The WMO and the United Nations World Tourism Organization convened the **First International Conference on Climate Change and Tourism**. The declaration from this conference provides a basic reference and framework for further action by stakeholders, including WMO and the United Nations Environment Programme's jointly published *Climate Change and Tourism: Responding to Global Challenges*.

POLITICAL COMMITMENT

The above examples demonstrate how information about weather, climate and water can be used in every aspect of socio-economic activity. Such information is increasingly crucial as a greater number of severe disasters strike, destroying lives and livelihoods and setting back the economies of the most vulnerable countries. The provision of this information requires high-level commitment among nations and support to international cooperation.

In meteorology and climatology, like in many other sciences, the sharing of knowledge and data improves the quality and availability of data and the resulting forecasts worldwide. Unified standards and the assurance of data quality enable National Meteorological and Hydrological Services in Africa to make better weather and climate predictions. This improves disaster preparedness, health conditions and agricultural yields, which contribute to food security improving people's lives. Early warnings and risk reduction of weather- and climate-related natural hazards and disease outbreaks are prominent examples of what can be achieved with **strong political leadership**, policy direction and advocacy.



HOW LEVERAGING POLITICAL SUPPORT CAN YIELD TO STRONGER NATIONAL METEOROLOGICAL AND HYDROLOGICAL SERVICES: THE KENYA EXAMPLE

In a recent interview Dr. Joseph R. Mukabana, MBS, Director of Kenya Meteorological Department and Permanent Representative of Kenya to WMO, discussed the lack of visibility of the National Meteorological and Hydrological Services in Africa where some 34 Least Developed Countries out of the 49 worldwide are found. He noted that underfunding was the main problem and highlighted that in Kenya AMCOMET had served as a catalyst, stimulating further funding allocation to the National Meteorological Services. AMCOMET also put meteorology on the agenda of heads of states and governments in Africa for the first time. He further noted that the National Meteorological and Hydrological Services in countries like Djibouti, Uganda and Rwanda had an immediate boost in political recognition and support after the first AMCOMET meeting.

Dr. Mukabana advised National Meteorological and Hydrological Services to develop strategic plans and service charters aligned to their governments' development agenda and priorities in order to become more relevant and gain greater political support. He noted that it was crucial that they engage with stakeholders, assess their needs and respond in a manner they could understand. Dr. Mukabana presented a specific example:

“Instead of saying you need 30 Automatic Weather Stations to improve your observation network, you can say that you are aware weather and climate impacts on key sectors of the economy like agriculture and food security; water resources management and development; health and public safety, tourism, aviation and marine transport; disaster risk reduction; climate change monitoring/detection and attribution; among others. You then state that given sufficient resources, the department can provide services that would improve the above key sectors of the economy by, for instance, improving production in agriculture to boost the economy, fight hunger and poverty.”



MOBILISING POLITICAL SUPPORT THROUGH INCREASED AWARENESS OF NMHS VALUE ADDED: THE SOUTH AFRICAN CASE

In a similar interview on the success story of the South African Weather Service (SAWS), its Chief Executive Officer, Dr Linda Makuleni, Permanent Representative of South Africa to WMO, emphasized that it was because the South African government recognized the important role that weather and climate play in several socio-economic activities that SAWS had been classified as an essential service. She continued, “The advent of climate change with its attendant frequent severe weather events and increasing magnitude has raised the profile of meteorology and we are called upon to account, explain and educate the public. This is why media reports on SAWS are increasing. We are expected to be working closely with not only our Ministry, but also other affected national and provincial departments such as Transport, Agriculture, Water Affairs, Local Government etc.” Dr. Makuleni advised meteorological services to mobilize political support by:

- Remaining accountable through regular reporting and annual reports;
- Actively participating in all related weather and climate events;
- Actively engaging stakeholders at local, provincial and national levels;
- Developing and implementing a Stakeholder Relations Management strategy;
- Involving ministries in meteorological services events;
- Actively engaging with the country's Permanent Mission in Geneva and/or International Relations/ Foreign Affairs office; and
- Regularly meetings with ministers to elucidate activities and plans and demonstrate their relevance to socio-economic development.

Drs Mukabana and Makuleni offer sound advice on how to achieve the necessary support from governments. Dr. Mukabana specifically highlighted how AMCOMET has already helped and will continue to help in the future.

INTEGRATED AFRICAN STRATEGY ON METEOROLOGY (WEATHER AND CLIMATE SERVICES)

Despite covering a fifth of the world's total land area, Africa has the least developed weather and climate land-based observation network of all continents, and one that is in a deteriorating state, amounting to only 1/8 of the minimum density required by the World Meteorological Organization. Most services have limited human and financial resources, and obsolete technologies limiting their capabilities to produce the best services needed by policy makers and other decision-makers.

During the Second Session of AMCOMET, held in Victoria Falls, Zimbabwe, the 15 – 19 October 2012, Ministers approved the Integrated African Strategy on Meteorology (Weather and Climate Services) enhancing cooperation between African countries to effectively meet government and societal needs and requirements for weather and climate information and services. Furthermore, the 20th Ordinary Session of the African Union Summit of Heads of State, which took place in January 2013, in Addis Ababa, Ethiopia, also endorsed the Integrated African Strategy on Meteorology (Weather and Climate Services).

The purpose of the strategy is to correctly position weather and climate services as an essential component in national and regional development frameworks and sustainable development in Africa, particularly in poverty reduction efforts, climate change adaptation and disaster risk reduction.

Its objective is to enhance cooperation between African countries and to strengthen the capabilities of their National Meteorological and Hydrological Services.

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

- Increase political support and recognition of the critical role of National Meteorological and Hydrological Services;
- Enhance weather and climate service delivery for sustainable development;
- Improve access to meteorological services for the marine and aviation sectors;
- Support the provision of weather and climate services for climate change adaptation and mitigation;
- Strengthen partnerships with relevant institutions and funding mechanisms.

The next step is to approve the Implementation Plan for the Integrated African Strategy on Meteorology (Weather and Climate Services), which will be presented during the Third Session of AMCOMET in Benin in 2014.



Fishermen on Lake Victoria: upwards of 5000 people die every year due to weather-related events

SUPPORT FOR THE AMCOMET PROCESS

The Republic of Kenya, the Republic of Zimbabwe, the African Union Commission, the Norwegian Ministry of Foreign Affairs, as well as the World Meteorological Organization have been instrumental in supporting the AMCOMET process as well as the development of the Integrated African Strategy for Meteorology (Weather and Climate Services) and related implementing activities.

The State Agency for Meteorology in Spain (AEMET) supported a programme to improve access to weather and climate services in the agriculture sector in fourteen Western and Central African countries resulting in increased yield for subsistence farmers.

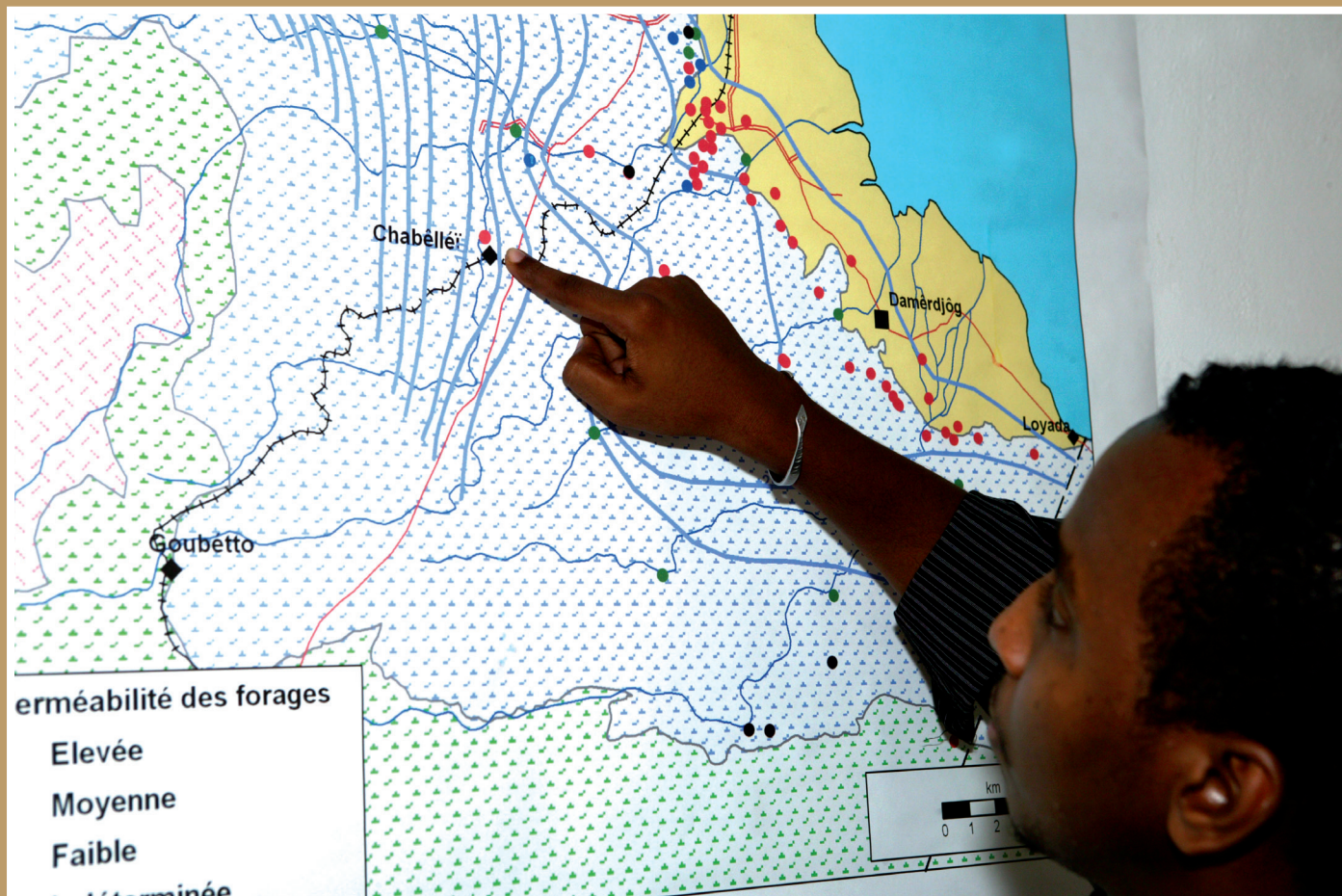
The Korean International Cooperation Agency (KOICA) and the Korea Meteorological Agency supported the enhancement of capabilities at the IGAD Climate Prediction and Application Center (ICPAC) in its designation as a WMO Regional Climate Centre and is now considered a centre of excellence able to generate products and services that support regional and national climate activities, and thereby strengthens the capacity of the region to deliver better climate services to national users.

As part of its bilateral cooperation with Africa; Japan, through the recent 5th Tokyo International Conference on African Development, has committed to support the implementation of the Integrated African Strategy for Meteorology (Weather and Climate Services) as indicated in the Yokohama Action Plan 2013-2017.

Moreover, through the AMCOMET platform, China, through the Africa-China Forum, has also committed an initial funding of 20M USD, to support observation and infrastructure development of meteorological services in Africa.

AMCOMET NEXT STEPS

The AMCOMET Bureau and Secretariat are working towards implementing the decisions taken during the Second Session of AMCOMET. These include the development of the Implementation and Resource Mobilisation Plan for the Integrated African Strategy on Meteorology (Weather and Climate Services), the establishment of a Regional Climate Centre for Central Africa and the feasibility study for an African Regional Space Programme. These will be presented during the Third Session of AMCOMET, in Benin in 2014.



NOTES

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