

STRENGTHENING RESILIENCE IN SUB-SAHARAN AFRICA WITH TRANSFORMED HYDROMET SERVICES

A regional program to build early warning and hydromet capacity and knowledge across 15 African countries

AT A GLANCE

Region Africa

Risks Floods, droughts, landslides, cyclones, water scarcity, extreme heat

Area of Engagement Deepening engagements in resilience to climate change, Strengthening hydromet services and early warning systems, Building resilience at the community level

In order to improve risk management through better disaster preparedness in the Africa region, 15 African countries joined a regional program to strengthen their technical capacity in hydromet services.

LACKING EFFECTIVE HYDROMET SERVICES ACROSS AFRICA

Over 1,000 disasters have stricken Sub-Saharan Africa since 1970—300 just in the last five years. In Central Africa, approximately 70 percent of the population are exposed to floods, droughts, and other disasters that affect their daily lives and livelihoods. A recent study states that, by 2030, 118 million people in Africa will be exposed to droughts, floods, and extreme heat. Out of the 11 countries in the world that are most at risk from disaster-induced poverty, eight are in Africa. Furthermore, 33 of the world's 46 least developed countries are also located in Africa. The disasters in the region have had devastating financial and human impacts: for example, in Kenya, the cost of the 2008–11 drought has been estimated at US\$12.1 billion; and in Ethiopia, climate change-induced droughts routinely affect millions, driving hundreds of millions of dollars into emergency response. Africa's climate and development agendas are inextricably linked—a combination of population growth, rapid urbanization, and climate change is at the heart of the intensifying risk and vulnerability in Africa.

Effective and reliable hydromet services help ensure that people can safely evacuate before a disaster hits, that farmers can better plan on agriculture and food production, and that businesses can access timely, accurate data in their decision-making. In addition, forecasting and early warnings through hydromet stations ultimately help save lives, assets, and property; protect resources and the environment, including agriculture services; and support socioeconomic growth. There is a



Meteorological service agents play a critical role in serving communities via hydromet and early warning service delivery. The lack of adequate and modernized equipment hinders the work of meteorologists in Sub-Saharan Africa. Photo: World Bank

dire need for a holistic program that transforms the observation infrastructure and service delivery at the national, subregional, and regional levels.

TECHNICAL ASSISTANCE & NEW KNOWLEDGE TO IMPROVE FORECASTING & EARLY WARNING

For regions, countries, and communities to build climate and disaster resilience, investing in people and local economies to modernize weather, water, and climate services is critical. National hydromet services need adequate technical capability, infrastructure, and financial resources. However, most National Meteorological and Hydrological Services (NMHSs) in Africa are unable to meet their citizens' needs: as of December 2020, fewer than 20 percent of Sub-Saharan countries currently have reliable hydromet services. Improving NMHSs improves not only a country's technical capacity and knowledge base, but also that of the entire subregion and region by sharing open data, forecasts, and warnings across all countries—an effort that is integral to strengthening resilience and development. As African countries aim to modernize their hydromet services and support each other with capacity, infrastructure, and knowledge sharing in the framework of South–South cooperation, disaster and

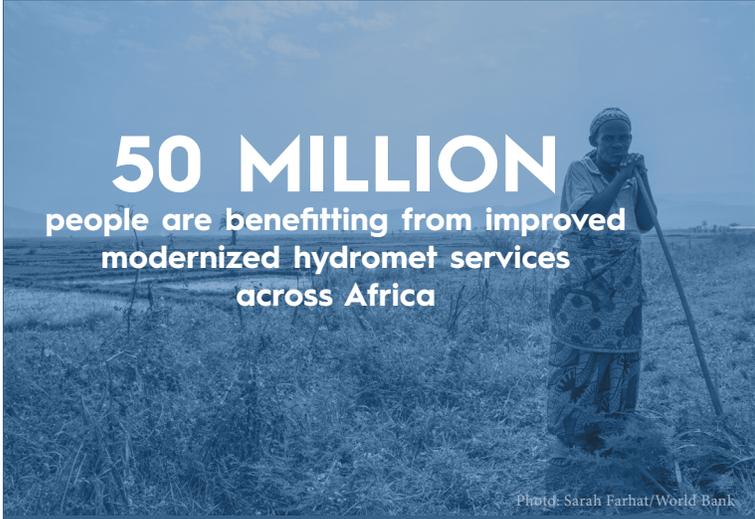
climate risks can also be reduced as nowcasting, forecasting, and early warning improve to enhance preparedness and resilience. Moreover, in the hydromet sector, new partnerships for sustainable business models and new dynamics between public, private, and academic actors have proven that investing in innovative solutions deliver more reliable forecasting services. Collaboration is key to fostering good practices and innovations on flood forecasting, which is why building strong partnerships and empowering communities is at the center of efficient early warning systems.

To modernize the hydrological and meteorological systems and services of Sub-Saharan African countries, a US\$3 million grant during 2017–20 supported by the Japan–World Bank Program for Mainstreaming Disaster Risk Management (DRM) in Developing Countries managed by the Global Facility for Disaster Reduction and Recovery (GFDRR) provided technical assistance and capacity building to the World Bank Africa region to modernizing hydrological and meteorological systems and services. The aim of the grant was to strengthen the adaptive capacity and disaster resilience of vulnerable communities and economies in Sub-Saharan Africa through the Africa Hydromet Program. The program worked closely with the NMHSs, civil protection agencies, and food security agencies of Sub-Saharan countries—including Burkina Faso, Chad, Côte d’Ivoire, Democratic Republic of Congo, Djibouti, Ethiopia, Gabon, Mali, Niger, Senegal, Sierra Leone, Somalia, Togo, Zambia, and Zimbabwe—as well as partners with regional and subregional entities, impacting more than 50 million people by modernizing hydromet services and early warning systems across the 15 African countries. GFDRR leveraged the institutional efforts of the World Bank, the World Meteorology Organization, and the African Development Bank to collaborate with the countries, regional organizations, and other partners to boost the capacity of national and subregional hydrometeorological and early warning services so they can provide timely services to public and private sector users to protect and promote economic growth, employment, and poverty reduction.

The program benefitted from expertise from Japanese centers of excellence by adding value to the project on quality infrastructure and international cooperation for disaster and climate resilience—such as the utilization of the Japan Meteorological Agency’s model for organizing public-private engagement in hydromet services. Additionally, Japan’s involvement, with the participation of Ethiopia and Zambia, explored Japan’s hydromet modernization pathways at the Technical Deep Dive on Hydromet Services for Early Warning in Tokyo, hosted by the Tokyo Development Learning Center (TDLC) and Tokyo DRM Hub. These pathways are recognized more and more in Africa, creating space for Japan’s involvement to grow in the future. Newly taught Japanese modernization pathways and services have helped to develop action plans to plan and prepare, and identify priority activities across countries. In addition, the DRM Tokyo Hub supported the project by providing expert services on the legal regulatory framework and by participating in policy-level discussions about hydromet services.

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50 MILLION

people are benefitting from improved
modernized hydromet services
across Africa

Photo: Sarah Farhat/World Bank

TRANSFORMED HYDROMET & EARLY WARNING SERVICES

Hydromet and early warning services have been transformed through modern equipment and supporting African

countries with both new technology and utilization of hydromet stations, by upgrading manual stations with automated tools so that hydromet information and reports can now be sent automatically to headquarters. Additionally, the modernized functionality and operations by the NMHSs has upgraded climate information, early warning, and key hydrological and meteorological data to deliver hydromet services effectively.

LEVERAGED INVESTMENT THROUGH DIAGNOSTICS & INVESTMENT PLANNING

Diagnostics and investment planning developed through technical assistance, capacity building, and knowledge exchange have had a significant impact on investment operations in African countries for hydromet

modernization: total investments in the program have leveraged US\$283 million across five World Bank projects in Africa that provided hydromet and digital advisory services, modernized hydrological and meteorological services and systems, and strengthened their early warning and response systems, together with 15 countries and four regional climate centers.

“The capability to issue early warnings based on accurate forecasts is especially essential to preserve the lives and households of millions of people across Africa.”

— H.E. Josefa Leonel Sacko, African Union Commission (AUC) Commissioner for Rural Economy and Agriculture