



Woman carrying water for her crops in Niger, by Sean Sheridan, Mercy Corps

SPOTLIGHT SERIES: LEARNING AGENDA ON CLIMATE SERVICES in Sub-Saharan Africa

STRENGTHENING GOVERNMENT AGENCIES TO ENHANCE CLIMATE SERVICES

Africa covers a fifth of the world's total land area with a population of over one billion people, but has the least developed weather and climate observation network of all populated continents. New investments and approaches are needed to generate and deliver effective climate services (CS).

CONTEXT

Africa has the least developed weather and climate observation network and it is deteriorating. National meteorological and hydrological services (NMHS) work in this difficult environment as an important component in the larger CS system. They have a mandate to serve national needs to observe, forecast, and issue warnings for pending weather, climate, and water threats. Most African NMHSs face challenges associated with limited human capital and financial resources that constrain their ability to provide even basic services. Additional investment is needed to ensure climate services are effective, but given resource constraints, these investments need to target priority gaps. Investments also need to consider ongoing limitations, such as operation and maintenance costs, the roles of multiple actors within the climate and weather enterprise, and the long-term objectives of NMHSs.

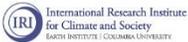
FOCUSING ON THE PUBLIC SECTOR

THIS BRIEF HIGHLIGHTS LEARNINGS, RECOMMENDATIONS, AND TOOLS FOCUSED ON INVESTING IN THE PUBLIC COMPONENTS OF THE CS SYSTEM THAT COLLECT DATA AND GENERATE INFORMATION.

Visit the **Learning Agenda on Climate Services in Sub-Saharan Africa** website www.climatelinks.org/projects/learningagendaonclimateservices for more information on:

- ❖ **USER NEEDS:** how the information produced is designed and communicated to meet user needs
- ❖ **PRIVATE SECTOR:** how the private sector can collaborate with the public sector to enhance climate services.

DISCLAIMER: This report is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents of this report are the sole responsibility of its authors and do not necessarily reflect the views of USAID or the United States government.



The World Meteorological Organization (WMO) and the Global Framework for Climate Services (GFCS) use classification schemes to look at different aspects of CS:

- WMO classifies NMHSs into FOUR CATEGORIES according to the LEVEL OF SERVICES
- GFCS defines FIVE PILLARS for EFFECTIVE DELIVERY OF SERVICES.

These classifications rely on self-assessment, are not integrated, and do not objectively quantify NMHSs' capacities or investment needs to improve services.

WMO	GFCS
CATEGORY 1: BASIC	1) OBSERVATION & MONITORING
CATEGORY 2: ESSENTIAL	2) RESEARCH AND PREDICTIONS
CATEGORY 3: FULL	3) CLIMATE INFORMATION SYSTEMS
CATEGORY 4: ADVANCED	4) USER INTERFACE PLATFORM
	5) CAPACITY DEVELOPMENT

LEARNING HIGHLIGHTS

The [National Meteorological Service Assessment Tool](#) combines these schemes to allow users to objectively evaluate the capacity of NMHSs to provide effective climate services. The tool comprises:

- ❖ A framework to understand capacity;
- ❖ A set of metrics that measure capacity;
- ❖ A survey to collect data to assess the NMHS against the metrics; and
- ❖ A data collection and analysis protocol.

Applying the tool allows users to identify specific NMHS investment and capacity needs. It can also be used to assess the impact of investments over time. When the tool is used with multiple NMHSs it can help highlight common challenges and provide an objective comparison between them. In comparing the capacities of seven NMHS (see Box 1), common capacity development priorities identified in Box 1 are:

- ❖ Expanded observation station networks and training staff in data quality control.
- ❖ Quantitative medium range forecasts (3-10 days).
- ❖ Developing staff capacities for research and development of user-orientated products and communications.
- ❖ Investment in high speed internet.
- ❖ Stabilized and expanding sources of funding.

GFCS Pillar	NMHS Category	Senegal	Cote d'Ivoire	Niger	Mali	Rwanda	Ethiopia	Malawi
1 O&M	1							
	2							
	3							
2 R&P	1							
	2							
	3							
3 CIS	1							
	2							
	3							
4 UIP	1							
	2							
	3							
5 CDV	1							
	2							
	3							

Image 1. Scores for seven NMHSs for three WMO Categories under each the of five GFCS pillars.

NMHS Category:

- 1 = Basic Climate Services
- 2 = Essential Climate Services
- 3 = Full Climate Services

GFCS pillars:

- O&M = Observations and Monitoring
- R&P = Research, Modelling, and Prediction
- CIS = Climate Information System
- UIP = User Interface Platform
- CDV = Capacity Development

Colors:

- Green = criteria have been met
- Yellow = criteria have been partially met
- Red = criteria have not been met

Separate analysis finds that combining weather and climate observation data from different instruments and institutions as well as integrating different datasets at global, regional, and national levels will also help to overcome some data challenges. There are also opportunities for NMHSs and the private sector to collaborate to improve climate services, reduce costs and generate revenue (see Box 2 and Brief #4 Engaging the Private Sector – *coming soon*). Developing strategic plans for NMHSs that include diversifying and expanding NMHSs' financial planning approaches can help focus NMHSs to address gaps. The [NMHS Financial Planning Tool and User Manual](#) can help develop these plans.

PUBLIC PRIVATE PARTNERSHIPS (PPP) CAN INCREASE SERVICES

IN GUINEA, EARTH NETWORKS IS USING A PPP WITH THE NHMS AND CELLCOM GUINEA TO IMPROVE MONITORING, PREDICTION, AND SEVERE-WEATHER WARNINGS. THE PPP HAS INSTALLED LIGHTNING SENSORS AND WEATHER STATIONS ON CELL-PHONE TOWERS THAT TRANSMIT DATA TO EARTH NETWORKS' DATA CENTERS FOR PROCESSING AND ANALYSIS. EARTH NETWORKS USES ITS OWN TECHNOLOGIES AND INFORMATION PROVIDED BY THE NMHS TO TAILOR PRODUCTS AND SERVICES FOR SPECIFIC END USERS. SEE BRIEF #4 ENGAGING THE PRIVATE SECTOR FOR MORE ON THIS TOPIC (*COMING SOON*).

RECOMMENDATIONS: POLICY AND PROGRAM

Governments should be encouraged to provide increased and stable budgets to NMHSs in Africa. This will help with staff recruitment and retention along with the costs of operating and maintaining equipment and forecasting systems. Demonstrating the value of climate services to governments in the context of disasters, and providing useful information to sectors like agriculture and aviation, should help efforts to secure government funding. Political economic analyses can help identify entry points for conversations with government actors.

Donors who fund NMHSs should be cognizant of the challenges of short-term project-based funding. The capacity of NMHSs to satisfy project requirements can be stretched when several projects are ongoing. It can also result in uncoordinated development of technical and human capacities, which dissipate when project funding ends. Formally convening a strategic oversight group within NMHSs to coordinate donor funding, based on a strategic plan for the development of the NMHS can help to avoid these issues.

Institutional mandates to increase flexibility on cooperation and data sharing should be revisited to help improve NMHSs' collaboration with other government departments, civil society and the private sector. This will require investment to revise policy, shift attitudes, and build staff capacity to negotiate memoranda of understanding. A thorough understanding of NMHSs' capacity strengths and gaps will help NMHS strategically influence and improve public private collaboration.

NMHSs should consider combining observations from different sources and evaluate the scope for public-private collaboration before making capital investments to meet data needs or provide services. For instance, combining station rainfall measurements with satellite rainfall estimates can reduce the number of rain gauges needed. Satellite data may also be useful where there are gaps in historical data.

Finally, NMHSs can use the [National Meteorological Service Assessment Tool](#), [NMHS Financial Planning Tool and User Manual](#) to help with many of these recommendations. These tools can help NMHS plan for investments and develop a funding strategy, and donors can consider using these tools as they make program investments.

NEXT STEPS

The WMO added review of the National Meteorological Service Baseline Assessment Tool to the work plan of the WMO Commission on Climatology. The WMO is also working to integrate the tool into existing mechanisms such as the WMO Strategic Planning Handbook and national frameworks. These efforts should be supported even as further research may be needed to refine and validate the metrics in the National Meteorological Service Assessment Tool and expand the tool's scope to include regional entities and other actors within climate services systems. At the same time care should be taken to ensure the tool does not become overly complex or difficult to use.

The Learning Agenda on Climate Services in sub-Saharan Africa generates new information, evidence, and learning on the effective and sustainable production, delivery, and use of climate information to improve rural agricultural livelihood decision-making and outcomes. The program began in October 2016 and runs through December 2018. More information can be found at: climatelinks.org/projects/learningagendaonclimateservices.

SUGGESTED READING FROM THE LEARNING AGENDA ON CLIMATE SERVICES IN SUB-SAHARAN AFRICA

- [NMHS CAPACITY ASSESSMENT TOOLS AND FINDINGS](#), FEBRUARY 2019.
- [NMHS FINANCIAL PLANNING TOOLS](#), FEBRUARY 2019.
- [APPROACHES TO COLLECT, EXCHANGE, AND INTEGRATE NATIONAL AND GLOBAL DATASETS](#), SEPTEMBER 2018.
- [APPROACHES TO COMBINE TECHNOLOGIES FOR WEATHER OBSERVATION, STORAGE AND ANALYSIS](#), SEPTEMBER 2018.