



## The Uganda National Meteorological Authority: What has constrained its performance in the first half of the third National Development Plan?

### Overview

The Global Framework for Climate Services (GFCS) aims at enabling society to better manage the risks and opportunities arising from climate variability and change. The consideration for the most vulnerable to risks is made by developing and incorporating science-based climate information and prediction into planning, policy and practice. The five priority areas include: water, health, agriculture and food security, disaster risk reduction (DRR) and energy. The Uganda National Meteorological Authority (UNMA) is mandated by the Government of Uganda (GoU) to provide weather and climate services (UNMA Act, 2012).

The Authority contributes to the NDIII objective to “*reduce human and economic loss from natural hazards and disasters*”. This policy brief analyses the performance of UNMA during the NDP III period and identifies key constraints and proposes policy recommendations.

### Key Issues

1. There was timely dissemination of climate and weather information.
2. There was a 70% percentage change in the accuracy of meteorological information.
3. Dissemination of weather forecast is limited to three languages out of the over 35 in Uganda.
4. Climatic seasonal forecasts not easily interpreted by all users.

### UNMA’s key strategic objectives:

1. To improve the quantity and quality of meteorological services for all stakeholders.
2. To promote greater awareness of the benefits of using meteorological services, information and products.
3. To build a skilled and motivated workforce through good human resource practices.
4. To improve the accuracy and reliability of forecasts and advisory services through the development of climate prediction and short-term weather forecasting capability.

### Introduction

To fulfil its obligation, the UNMA produces various products under its 24-hour operations which include: monitoring and prediction of weather and climate, and dissemination of forecasts and advisories to all stakeholders. These contribute to the four phases of early warning systems: prevention, preparedness, response and recovery.

### Major services and products provided by UNMA

1. **Meteorology, data and climate services:**  
Seasonal climate outlooks, monthly climate

updates, 10 days’ forecasts (Dekadal agromet bulletins), historical climate data (1896-todate), crop phenological observations, climatological maps, climate information on El Nino and Southern



Oscillation (ENSO), climate change, trends and projections. The accuracy rate is 70%.

2. **Public weather service:** Six (6) hourly forecasts, daily forecast (24 hours), five days' city forecast (10 cities), marine forecast and real-time weather data.
3. **Forecast services:** Information on the aviation industry which is classified as Terminal Aerodrome Forecasts (TAFs), flight folders, trend forecasts, 30-minute weather data, SIGMET and volcanic ash advisories. However, the volcanic ash advisories are not provided due to lack of equipment to provide the necessary information.

**UNMA's Performance for the Financial Years (FYs) 2020/21-2021/22**

The financial performance of UNMA has been fair in terms of releases, but good in terms of expenditures, as outlined in Table 1.

**Table 1: Financial Performance for the FY2020/21-2021/22**

FY	Approved Budget (Ug shs, bn)	% Budget Released	% Releases Spent
2020/21	26.164	70.9	95.4
2021/22	25.755	73.5	103.6
<b>Totals</b>	<b>51.919</b>	<b>72.2</b>	<b>99.5</b>

*Source: UNMA Q4 Reports FY 2020/21-2021/22*

**Physical Performance**

Over the NDP III period, the UNMA has made steps to achieve its objectives and the output implementation status is reflected in table 2.

**Table 2: Implementation status of key NDPIII outputs by 30<sup>th</sup> June 2022**

Planned Outputs	Status of Implementation
Procure equipment to improve the accuracy of meteorological and disaster risk information	Three radars, 81 Automatic Weather Stations and 1 Upper Air Station procured
Establish a search and	No equipment to measure

Planned Outputs	Status of Implementation
rescue, volcanic ash advisory network	this.
Install and maintain the Automatic Message Switching System (AMSS)	An AMSS was installed but is non-functional.
Climate risk assessments to collect data about the impacts of climate extremes in various strategic sectors	Done with the Office of the Prime Minister (OPM) but lacks collaboration with other stakeholders in agriculture, energy, health, aviation and marine, to share information.
Capacity building in data extraction, processing, and analysis from satellite data	There is still a gap in data interpretation and coping with changing technologies.
Develop dekadal and monthly climate bulletins	Bulletins are regularly produced and disseminated.
Undertake climate trends responsive research studies	Produces annual state of climate report that include climate change trends, variabilities and impacts.
Develop program-specific seasonal climate advisories	Area and sector-specific advisories are developed.
Disseminate the climate information and knowledge products to state and non-state actors	Climate information is disseminated to state and non-state actors using various established government structures, socio-media platforms; seasonal forecasts at radio stations.
Establish a digital library and science laboratory for practical learning at National Meteorological Training School	Not yet done.
routine maintenance of weather stations across the country	This is regularly done.

*Source: UNMA and Field Findings*

**Status of weather radars across the country**

The UNMA procured and installed three weather radars for weather monitoring and provision of real-time data for early warning products. One was installed at Entebbe for the central region; another at Lira for the eastern and northern region; and Rwampara for the western region. The scope of monitoring by the three radars is shown in Figure 1.

**Figure 1: Countrywide coverage of the three radars**

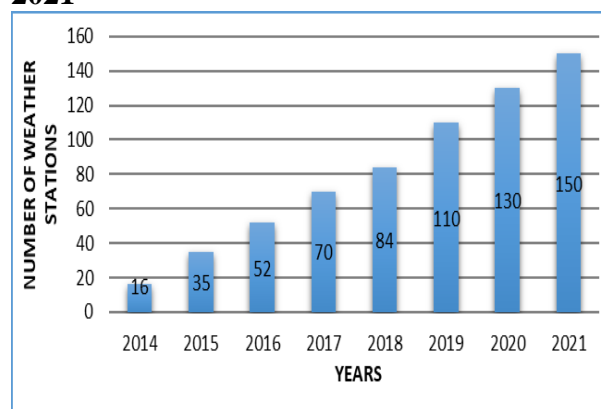


**The radar in Lira District**

The increase in the number of weather stations over time is good as it contributes to better accuracy of meteorological information. By the end of FY 2021/22, the

coverage was at 70% against the targeted 87%. The surface weather observations coverage growth is shown in figure 2.

**Figure 2: Surface Weather Observations Coverage Growth between the years 2014-2021**



*Source: UNMA Reports*

**State of other equipment**

There are 36 active and 15 non-active manual stations, and 78 automated (62% coverage); one of the three (3) upper air stations required to measure atmospheric conditions; one international airfield (Entebbe) out of the six (6) has Automatic Weather Observing Station (AWOS) laboratory, however, there is no spectrometer to analyse the chemical gases in the atmosphere (greenhouse gases) and wind shear which monitors winds when the aircraft is landing or taking off. Some of the surface weather equipment was in a dilapidated state thus requiring replacement.



**L-R: Old Evaporation Pan and a Stevenson Screen at Buku Weather Station in Entebbe**

### Key Constraints

1. Inadequate staffing levels to execute UNMA's mandate. Staffing at the weather stations, the current observers stands at 69 out of the ideal requirement of 132.
2. Inadequate resources to finance the Authority's key outputs like maintenance of existing equipment.
3. Limited dissemination of early warning information to users leading to loss of property and lives.
4. Translation of the forecast is currently in three languages: Runyankole, Rufumbira, and Luganda instead of the over 35 local languages.
5. There are few monitoring (observing) stations (both surface and upper air stations) and other necessary equipment to facilitate smooth operations under UNMA.

### Conclusion

The UNMA will achieve its strategic objectives only if a solution for the current constraints is gotten. There have been increasing cases of loss of life and property in the country due to erratic changes in weather conditions. This creates an urgency to improve

the quantity and quality of meteorological services to cope with climate change. Dissemination of information is still limited and the existing weather station are in dire need of manpower and new equipment.

### Recommendations

1. The UNMA should continue to advocate for anticipatory actions to support food security, and disaster risk management by various stakeholders.
2. The UNMA should partner with local nongovernmental and community-based organizations for information translation and sharing with the beneficiaries, especially farmers.
3. The Natural Resources, Environment, Climate Change, Lands and Water Management (NRECCLWM) Programme Working Group should prioritise budget allocations to the Authority in a bid to cope with unfunded priorities.
4. The ongoing government restructuring exercise should put into consideration the staffing gaps a UNMA.

### References

- BMAU NRECCLWM Annual Monitoring Report FY 2021/22
- MWE Q4 Reports FY 2021/22, UNMA Act, 2012

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