Head Office
Plot 21/28,
Port Bell Road - Luzira
Email: info@unma.go.ug
Email: exdir@unma.go.ug

Tel: +256 414 251 798
Fax: +256 414 251 797
P.O. Box 7025,
Kampala - Uganda.
Website: www.unma.go.ug

UGANDA NATIONAL METEOROLOGICAL AUTHORITY

Ref: SCF/MAM/2022 21st February, 2022

MARCH TO MAY 2022 SEASONAL RAINFALL OUTLOOK OVER UGANDA

1.0 GENERAL FORECAST

March-April-May (MAM) constitutes the first major rainfall season over Uganda.

Overall, **near normal (near average) to above normal (enhanced)** rainfall is predicted over most parts of the country with a high probability of occurrence over some parts of North Eastern Uganda (Fig.1).

The onset of seasonal rains is expected around late February to early March in several parts of the southern sector that include the southwestern, western and Lake Victoria basin. The onset is expected to progressively extend to northern parts of the country around mid-March to early April.

There is an increased likelihood that the onset of seasonal rains would be characterized by severe isolated thunderstorms associated with lightning and hailstorms over several parts of the country.

The spatial distribution of the expected seasonal rainfall with the corresponding probability of occurrence is indicated in figure 1.

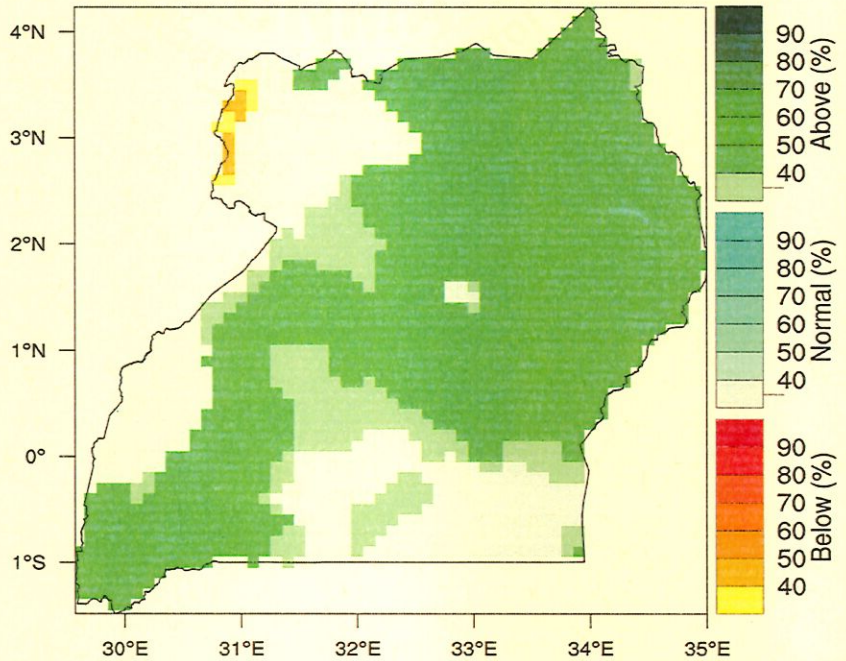

Figure 1: Seasonal climate outlook for March to May (MAM), 2022

2.0 DETAILED FORECAST

The major physical conditions that are likely to influence the rainfall outlook for MAM 2022 over Uganda include: -

i. The negative phase of Sea Surface Temperatures (SSTs) over the equatorial central Pacific Ocean is likely to return to the neutral situation over the coming months;

ii. The Indian Ocean Dipole (IOD) is expected to remain neutral;

iii. The intra-seasonal variation of Madden Julian Oscillations (MJO) is likely to affect the spatial distribution of rainfall at different time scales of the season over most parts of the country;

iv. The influence of regional circulation patterns, topographical features and large inland water bodies;

Based on the above considerations as well as details of the climatology of Uganda and scientific tools for climate analysis and prediction, the Uganda National Meteorological Authority (UNMA) has come up with the detailed seasonal rainfall outlook as given below: -

2.1 WESTERN UGANDA

2.1.1 South Western: *(Kisoro, Kabale, Rubanda, Rukiga, Rwampara, Kazo, Rukungiri, Kanungu, Ntungamo, Mbarara, Kiruhura, Isingiro, Ibanda, Kitagwenda, Bushenyi, Buhweju, Mitooma, Sheema, Rubirizi and Kasese) districts.*

This region has been predominately characterized by isolated showers since early February 2022 which is expected to continue up to around Late February to Early March when the seasonal rains are expected to get established. The peak of rains is expected around mid-April to early May and cessation around late May to early June. Overall, the region is expected to receive **near normal** (closer to average rainfall) with a **high tendency to above normal** (enhanced rainfall).

2.1.2 Central Western: *(Bundibugyo, Ntoroko, Kabarole, Kyenjojo, Kyegegwa, Kamwenge, Kibaale, Kikuube, Bunyangabu, Kakumiro, Kagadi, Hoima, Buliisa, Masindi) districts*

This region has been characterized by dry conditions punctuated with isolated showers since January 2022. The onset of seasonal rains over this region is expected around early to mid-March with the peak period expected to occur around late April to early May. Cessation of seasonal rains is expected around late May to early June. Overall, there is a high chance for the region to experience **near normal** with a **high tendency to above-normal** (enhanced) rainfall.

2.2 CENTRAL REGION, LAKE VICTORIA REGION AND EASTERN UGANDA

2.2.1 Western areas of Central region: *(Nakasongola, Luwero, Kyankwanzi, Kakumiro, Kasanda, Nakaseke, Kiboga, Mubende, Sembabule, Lyantonde, Kyotera and Rakai) districts.*

Several parts of this region have been experiencing dry conditions since the start of year 2022. The onset of seasonal rainfall characterized by occasional outbreaks of thunderstorms is expected around late February to early March. The peak rains are expected around mid to late April with cessation around early June. Overall, there is a high chance of **near normal** (closer to average) rainfall with **a slight tendency to above normal (**enhanced) rainfall over this region.

2.2.2 Central and Western Lake Victoria region: *(Kalangala, Kampala, Wakiso, Masaka, Lwengo, Mpigi, Butambala, Kalungu, Bukomansimbi, Gomba, and Mityana) districts*

The region has been receiving isolated showers and thunderstorms since early February. The onset of steady rains is expected around late February to early March. The peak rains are expected to occur around mid-April to late April with cessation around late May to mid-June. Overall, there is a high chance for this region to receive **near normal** (closer to average) rainfall with **a slight tendency to above normal** (enhanced) rainfall during this season.

2.2.3 Eastern areas of Central region: (Mukono, Buikwe, Kayunga, Buvuma) districts

This region has been receiving on and off showers since January 2022 and is expected to continue up to early to mid-March when steady rains are likely to get established. Thereafter, the peak of the seasonal rains is likely to occur around mid to late April with the cessation expected around late May to mid-June. Overall, this region is expected to receive **near normal (**closer to average) rainfall with **a high tendency to above normal** (enhanced) rainfall.

2.2.4 Eastern Lake Victoria and South Eastern: *(Jinja, Mayuge, Kamuli, Iganga, Bugiri, Namayingo, Luuka, Namutumba, Buyende, Kaliro, Busia and Tororo) districts.*

Some parts of this region have been experiencing intermitted rains punctuated with dry spells since January 2022, which are expected to continue up early to mid-March when steady rains are expected to get established. The peak is likely to occur around mid-April to early May. The cessation is expected to occur around late May to mid-June. Overall, this region has a high chance of receiving **near normal** (closer to average) to **above normal (**enhanced) **rainfall**.

2.2.5 Central Eastern: *(Pallisa, Budaka, Kibuku, Butebo, Mbale, Sironko, Manafwa, Namisindwa, Bududa, Kapchorwa, Kumi, Kalaki, Kaberamaido, Soroti, Serere, Butaleja, Bulambuli, Kween, Bukwo, Bukedea and Ngora) districts.*

Dry conditions punctuated by occasional rains have been experienced in several parts of this region since January 2022. The onset of the steady rains is expected around early to mid-March. The peak rains are expected to occur around late April to Early-May with cessation expected around late May to early June. Overall, there is a high chance for this region to receive **near normal (**closer to average**)** to **above normal** (enhanced) rainfall.

2.2.6 North Eastern Region: *(Katakwi, Amuria, Moroto, Kotido, Nakapiripirit, Abim, Napak, Kapelebyong, Nabilatuk, Karenga, Amudat and Kaabong) districts*

This region has been experiencing dry conditions since January 2022. The onset of seasonal rains is expected around late March to early April which are expected to give way to steady rains reaching the peak levels around early to mid-May. Thereafter, a moderate relaxation is expected around early to mid-June. Overall, there is a high chance for this region to receive **near normal (**closer to average**)** with a **high tendency to above-normal** (enhanced) rainfall during the forecast period.

2.3 NORTHERN REGION

2.3.1 North Western: *(Arua, Maracha, Koboko, Terego, Yumbe, Obongi, Moyo, Adjumani, Madi Okollo, Zombo, Nebbi and Pakwach,) districts.*

Most parts of this region have been experiencing dry conditions with occasional light rains since January 2022. The onset of the seasonal rains is expected around mid to late March. The peak of the seasonal rain is expected to occur around late April to early May, thereafter a moderate relaxation of rains is expected around mid-June. Overall, this region is likely to receive **near normal** (closer to average) rainfall.

2.3.2 Central Northern Parts: *(Gulu, Omoro, Lamwo, Nwoya, Amuru, Oyam and Kiryandongo) districts*

The region has been experiencing dry conditions with isolated light rains since January 2022. The onset of the seasonal rains is likely to get established by around late March to early April with the peak of the rains expected around early to mid-May. Thereafter, moderate relaxation of the rains is likely to occur around mid-June. Overall, this region is expected to receive **near normal (**closer to average**)** with a **slight tendency to above normal** (enhanced) rainfall during the forecast period.

2.3.3 South-eastern areas of Northern region: *(Dokolo, Amolatar, Alebtong, Lira, Kole, Otuke, Pader, Kitgum, and Agago) districts*

This region has been experiencing dry conditions since January 2022. The onset of the seasonal rains is expected around late March to early April with the peak to occur around early to mid-May. Thereafter, moderate relaxation of rains is expected around mid-June. Overall, **near normal** (closer to average**)** rainfall is expected over this region.

3.0 THE IMPLICATIONS OF THE CURRENT FORECAST

Although there are high chances that the rainfall performance over several places in the country is expected to be near normal (closer to average) with early-onset and cessation over several places;

It should be noted that areas expected to receive near normal rainfall does not mean that they will receive little rainfall. The implication of this is that these areas will receive rainfall within the average range of their long term mean and rainfall is expected to adequately support the normal socio-economic activities;

It is also worth noting that localized episodic flash flood events may occur in areas that are expected to receive near normal rainfall as a result of isolated heavy downpours. Similarly, in localized areas expected to receive above-normal rainfall, poor rainfall distribution may as well occur.

4.0 ADVISORIES TO DIFFERENT SECTORS

The following are potential advisories developed for action for each sector: -

4.1 Agriculture and Food Security Sector

Generally, the March to May (MAM 2022) forecast presents good prospects for improved agricultural production across the country. Farmers and other agricultural practitioners are highly encouraged to take advantage of the expected good rains to optimise food and crop production. The general advisories include: -

- Farmers are advised to finalise land preparation and planting early in order to optimize all the available water;
- Use of appropriate soil management practices and technology to control soil erosion and nutrient loss;
- Proper seed and crop selection based on seasonal characteristics with the aid of the agricultural extension staff at various levels is encouraged;
- Farmers are encouraged to practice water harvesting for micro-irrigation (where necessary), especially during dry spells;
- Stocking of livestock veterinary drugs against waterborne diseases such as worms across all pastoral communities and smallholder farmer level;
- Restocking livestock farms, fish ponds and apiaries is encouraged;
- Plantation of trees is highly encouraged through agroforestry wherever possible;
- Harvesting and storage of animal feeds are encouraged.

4.2 Disaster Management Sector

The near normal to above-average rainfall forecast for the March to May 2022 season will have various effects on the Disaster Management Sector. These include floods, waterlogging, water level rise and landslides among the anticipated impacts.

Floods are expected to occur in low lying areas and flash floods in urban areas like Kampala. Landslides are expected in highland areas of Rwenzori, Kigezi and Elgon.

The general public is advised to do the following: -

a) Desilt drainage systems especially in urban areas
b) Dig / Open drainage channels around households and gardens
c) Avoid crossing flooded road sections
d) Install and construct water harvesting facilities
e) Review disaster contingency plans
f) Community awareness campaigns should be encouraged
g) Adopt a multi-agency and multi-hazard approach for effective disaster risk reduction;

- Communities in high-risk areas need to be informed in good time including preparations for any planned relocations through authorised institutions.
- Decision-makers should be informed early enough to be able to allocate resources and provide prompt support;
- There is a need for effective multi-sectoral coordination at the national level by the DRM institutions and timely activation of task forces.

4.3 Water, Energy and Hydro-Power generation

- Water harvesting is encouraged to offset dry spells shocks that might occur in the coming season
- Plans for optimization of power generation and distribution should be enhanced due to the expected increased discharge of seasonal rainwater into the water bodies;
- Areas expected to receive average to above-average rainfall should undertake integrated flood management, flood preparedness and mitigation strategies in flood-prone areas.
- Setting up and protection of vegetated/forested buffer zones around water sources to guard against water pollution should be encouraged;
- Communities should avoid consumption of contaminated water and rehabilitation of drainage facilities should be undertaken to avoid flooding in urban centres.

4.4. Infrastructure, Works and Transport Sector

- The anticipated near normal to above normal rainfall patterns are likely to be accompanied by intense rainfall events that may lead to flash floods in some localized places, especially urban areas. The following measures should be taken: -

- Urban authorities need to clear and reduce blockages of the drainage systems to avoid waterlogging on streets;
- Strong/violent winds may be experienced that can cause structural damages to buildings (blow off rooftops and collapse of poorly constructed buildings);
- De-silting drainages and other water channels to curtail flooding is encouraged.

4.5. Health

The Impacts expected during MAM 2022 seasonal climate forecast include: -

- Increased cases of malaria are expected in most parts of the country;
- Diarrheal diseases (cholera, dysentery);
- Waterborne diseases such as bilharzia;
- Weather associated diseases such as asthmatic cases, rift valley fever in the cattle corridor;

The general public is therefore advised to do the following: -

- Monitor and reposition stocks of drugs;
- Enhance disease surveillance in flood-prone areas for prevention and treatment;
- Integrate health hygiene to communities;
- Routine distribution of long-lasting insecticide mosquito nets;
- Encourage routine water treatment at all levels;
- Enhance good sanitation and health practices.

4. CONCLUSION

The predicted rains require action in sufficient time and in an appropriate manner so as to take advantage of the information. This forecast should be used for planning in all rain-fed economic activities so as to improve economic welfare and livelihoods for all our communities in their localities.

Uganda National Meteorological Authority will continue to monitor the evolution of relevant weather systems particularly the state of the Seas Surface Temperature (SSTs) and Indian Ocean Dipole, and issue appropriate rainfall alerts, updates and advisories to the users regularly. This seasonal forecast should be used together with other forecasts such as daily, decadal, and monthly updates.

David W. Elweru
AG. EXECUTIVE DIRECTOR

ANNEX 1

PERFORMANCE OF RAINFALL FOR SEPTEMBER 2021 – TO – DECEMBER 2021

The September, October, November and December (SOND) season is usually referred to as the second major rainfall season over Uganda. The rainfall that is experienced over most parts of the country during this period is characterized by both temporal and spatial variations.

During SOND 2021 season, most parts of the country experienced Near Normal (**Average**) rainfall conditions apart from areas of Karamoja sub-region, western shores of L. Victoria and Mt. Elgon where Above Normal (**Enhanced**) conditions were experienced. However, there were pockets of Below Normal (**Suppressed**) conditions that were observed around areas bordering L. Kyoga. This analysis was computed with respect to the climatological base period of 1981-2010.

In terms of monthly rainfall distribution, the month of September was the wettest with the majority of the country observing Near Normal conditions as the Northern and Eastern regions experienced Above Normal rainfall. These conditions during September favoured the seasonal onset cropping activities like early planting of seasonal crops.

The month of October portrayed most parts of the country to have experienced Near Normal conditions while the sequent months of November and December indicated a reduction in the rainfall. In the later months, Below Normal conditions dominated the Eastern region of the country while the rest experienced Near Normal Conditions.

Refer to the spatial and temporal analysis of the SOND and monthly analyses below.

a) RAINFALL ANALYSIS FOR SEPTEMBER 2021

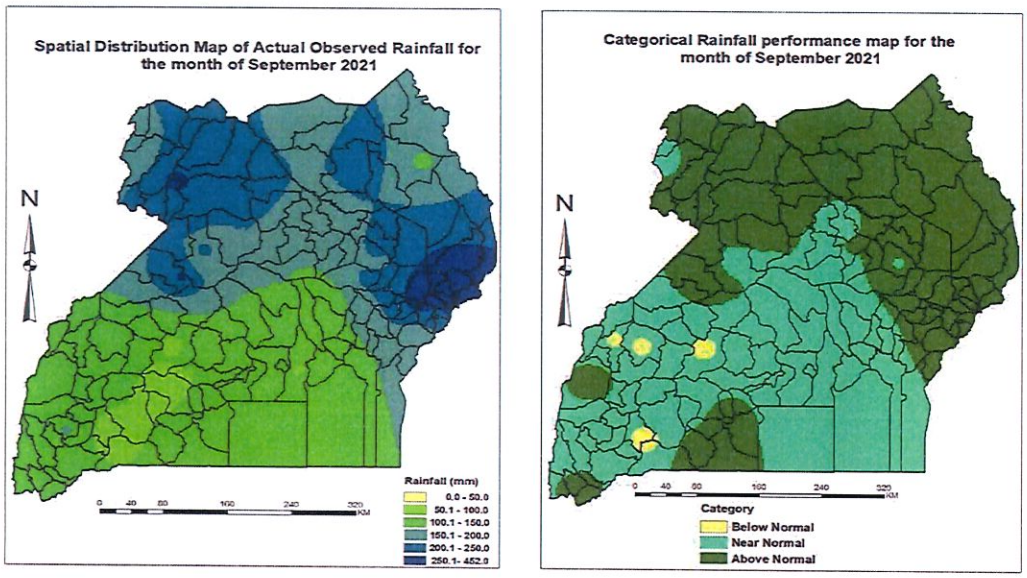

Figure 2: Maps showing Actual Observed and Categorical Rainfall performance for the month of September 2021.

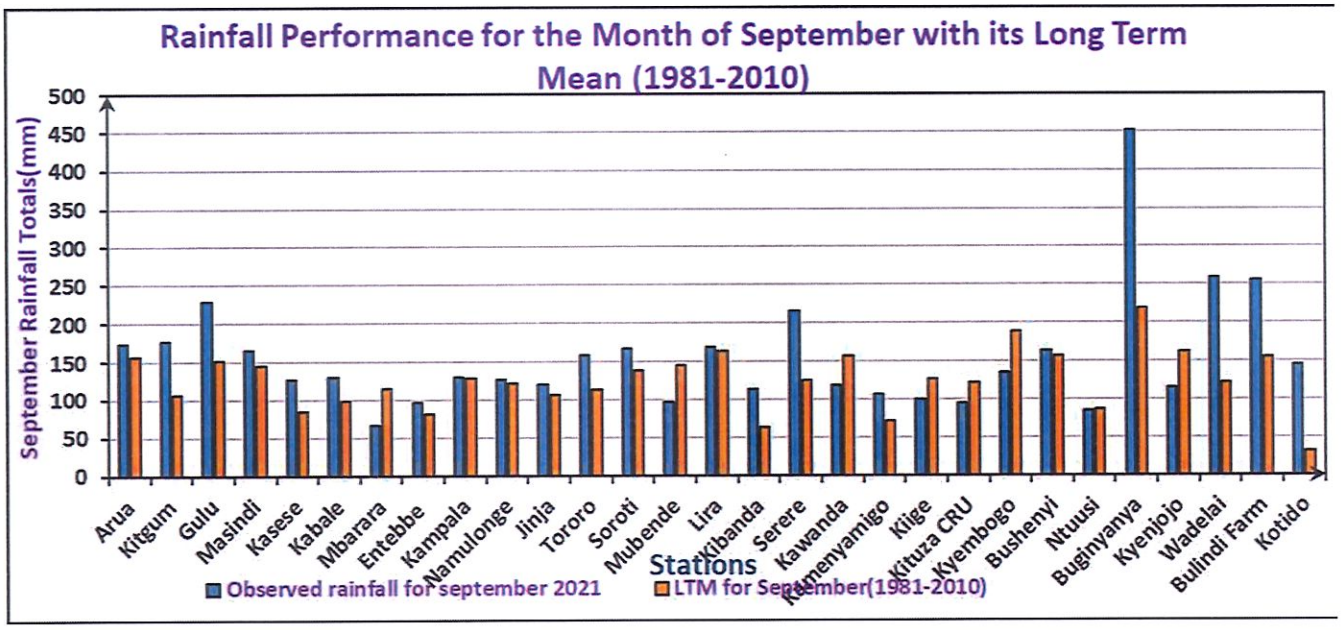

Figure 3: Shows a graph of Actual Observed Rainfall performance against the long Term Mean (1981-2010) for the month of September 2021

b) RAINFALL ANALYSIS FOR OCTOBER 2021

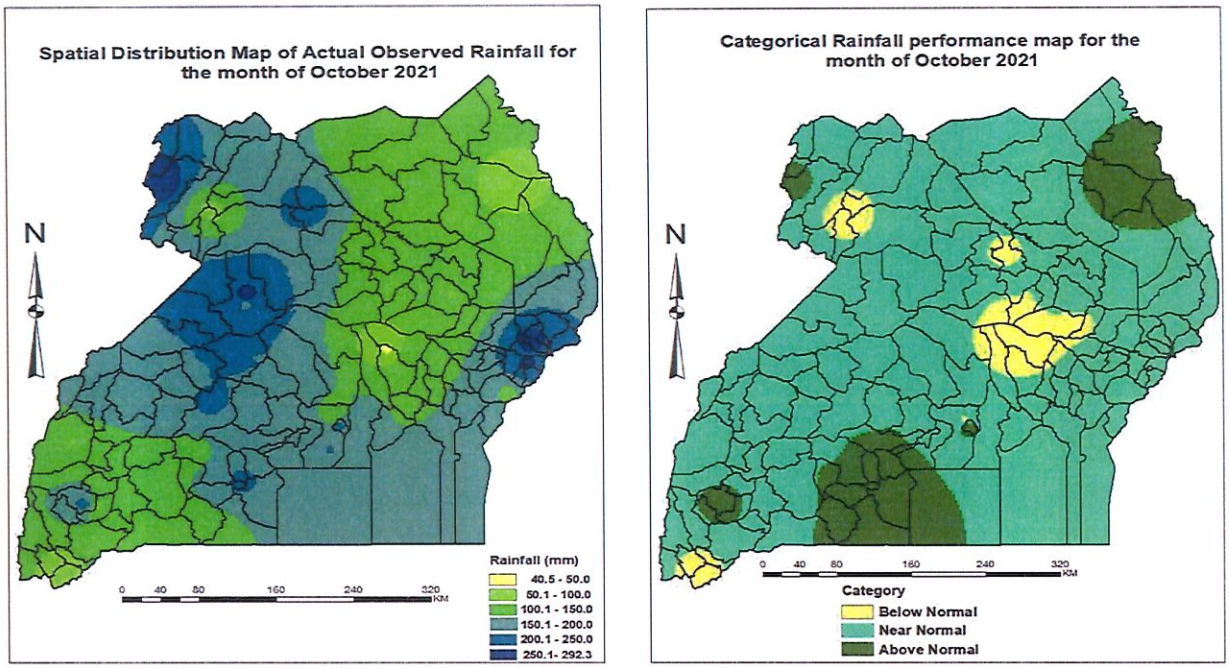

Figure 4: Maps showing Actual Observed and Categorical Rainfall performance for the month of October 2021

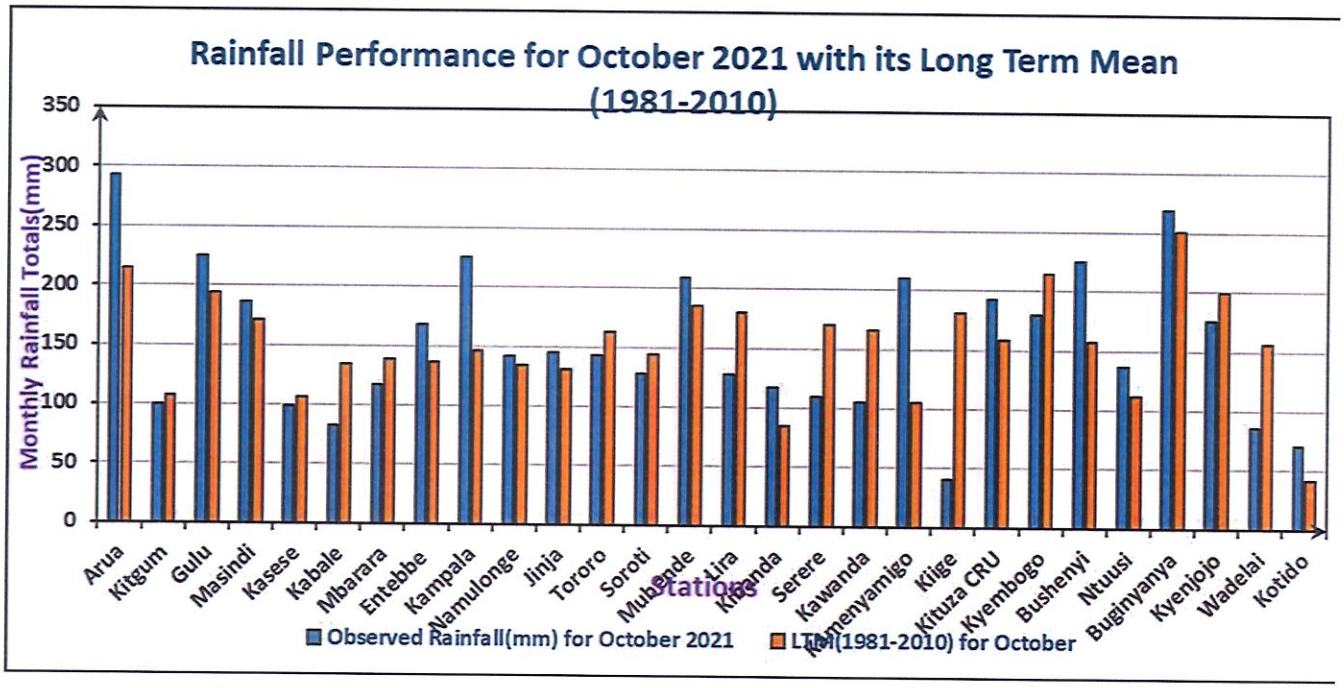

Figure 5: Shows a graph of Actual Observed Rainfall performance against the long Term Mean (1981-2010) for the month of October 2021

c) RAINFALL ANALYSIS FOR NOVEMBER 2021

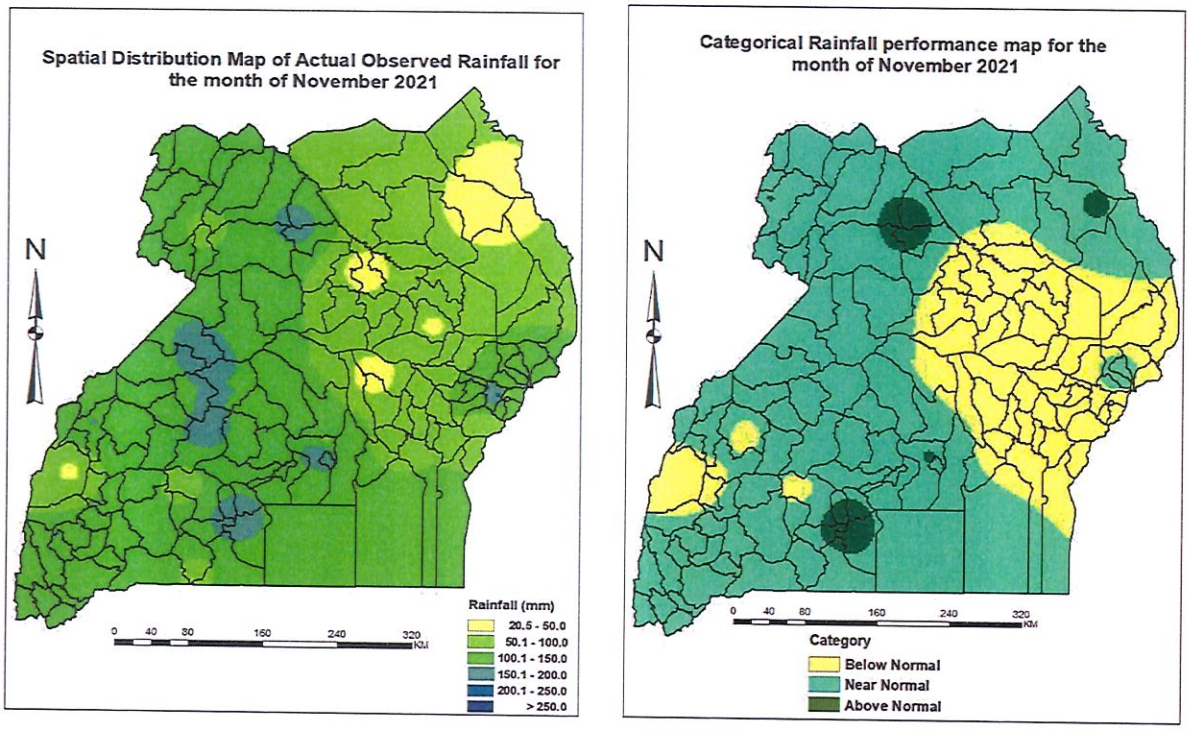

Figure 6: Maps showing Actual Observed and Categorical Rainfall performance for the month of November 2021

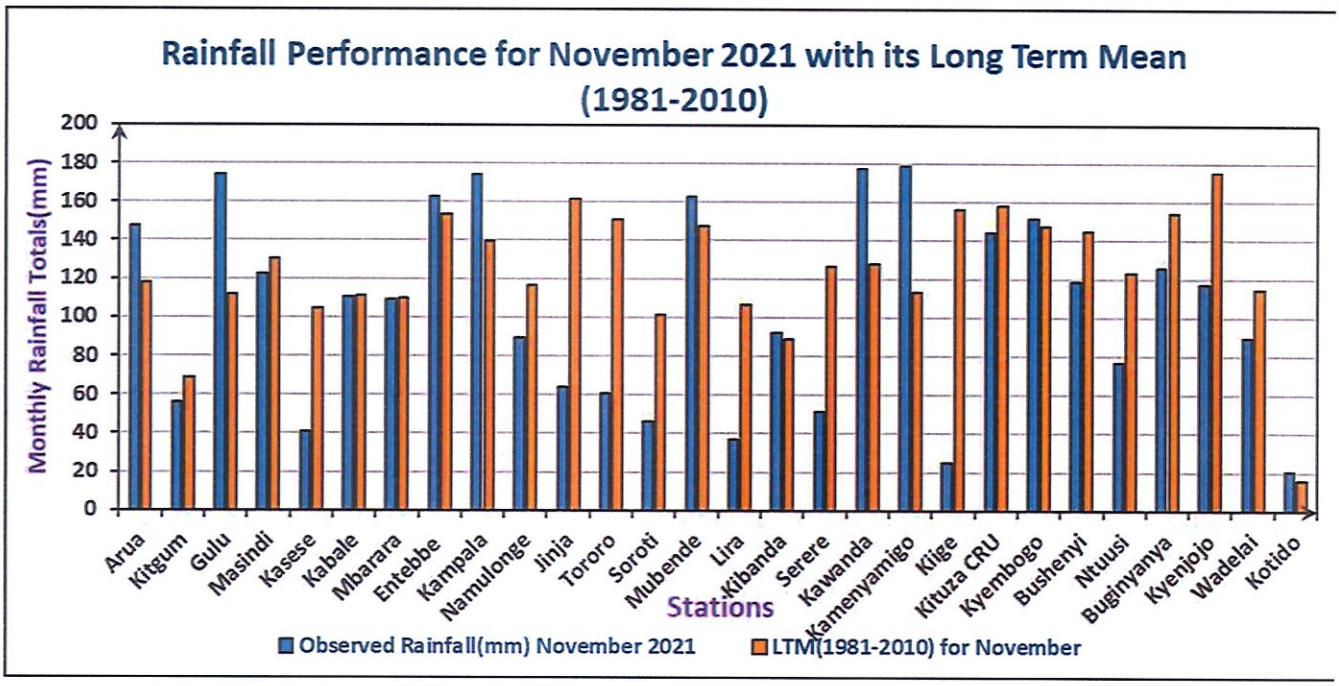

Figure 7: Shows a graph of Actual Observed Rainfall performance against the long Term Mean (1981-2010) for the month of November 2021

d) RAINFALL ANALYSIS FOR DECEMBER 2021

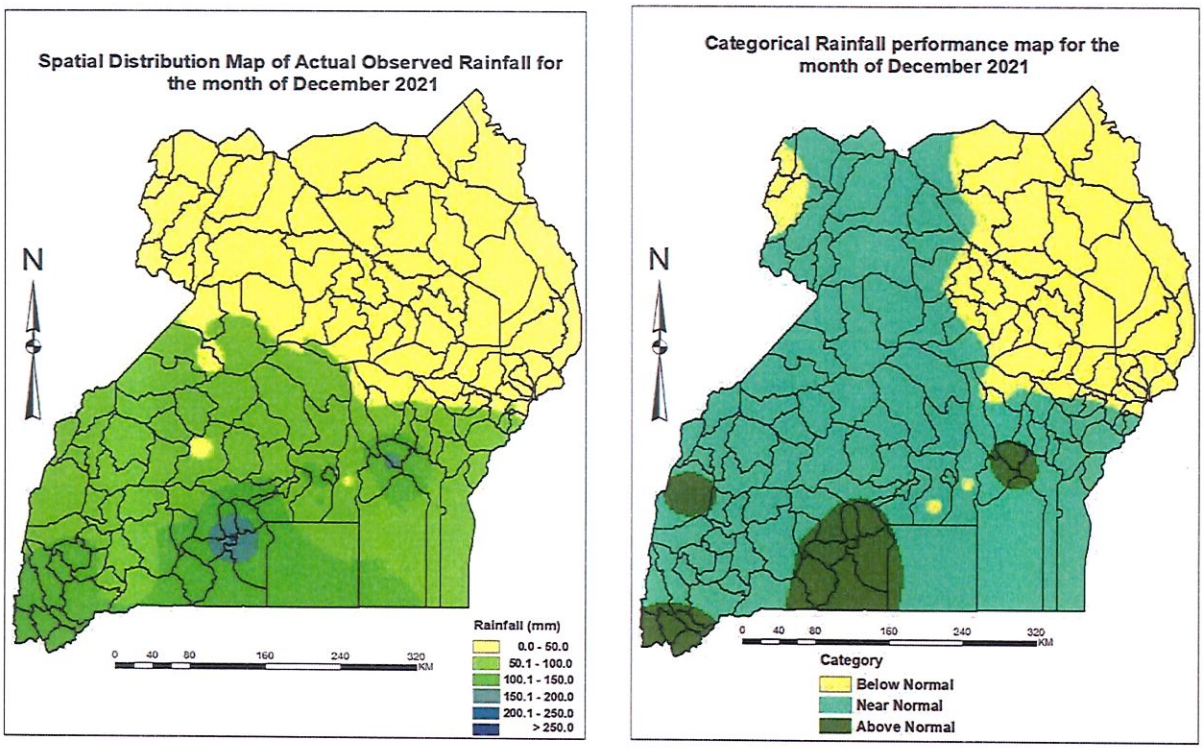

Figure 8: Maps showing Actual Observed and Categorical Rainfall performance for the month of December 2021

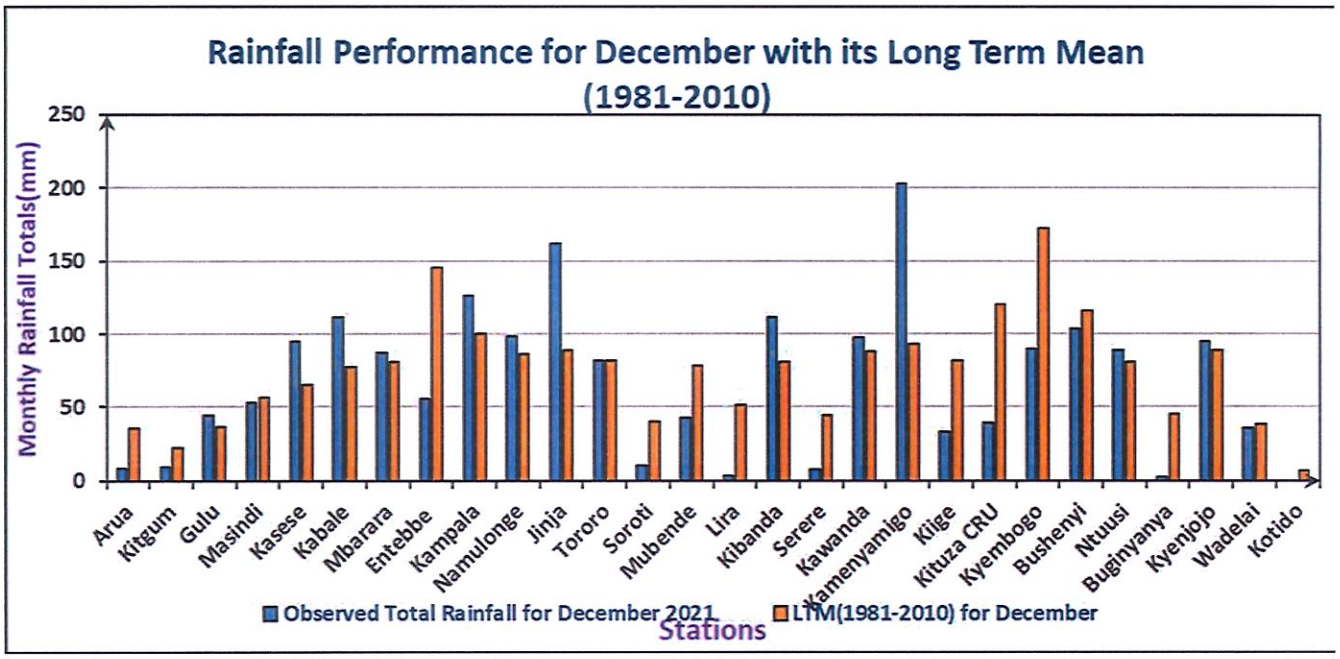

Figure 9: Shows a graph of Actual Observed Rainfall performance against the long-Term Mean (1981-2010) for the month of December 2021

e) RAINFALL ANALYSIS FOR SOND SEASON 2021

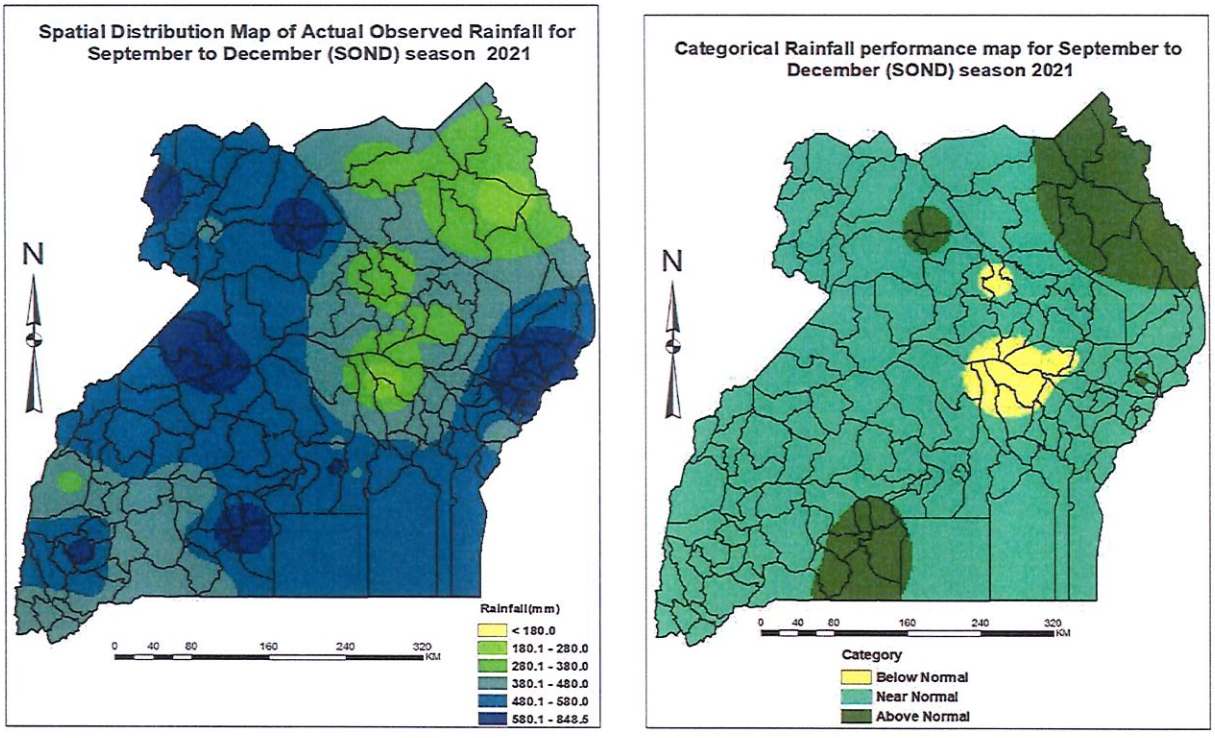

Figure 10: Maps showing Actual Observed and Categorical Rainfall performance for the season of September to December (SOND) 2021

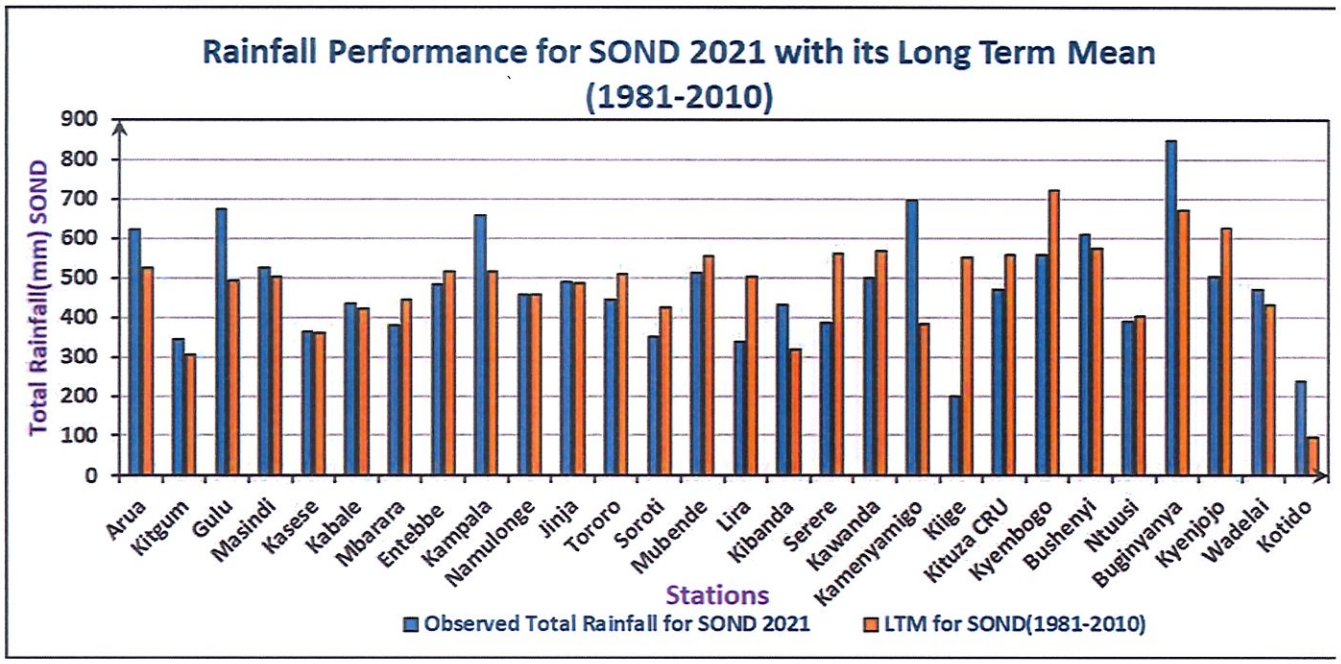

Figure 11: Shows a graph of Actual Observed Rainfall performance against the long-Term Mean (1981-2010) for the season of September to December (SOND) 2021

In conclusion, during the SOND 2021 rainfall season, the performance of rainfall across the country was favourable during the months of September and October while the months of November and December showed a reduction in the rainfall amounts. This had positive impacts on different socio-economic sectors such as agriculture and food security as manifested in increased agricultural production.