

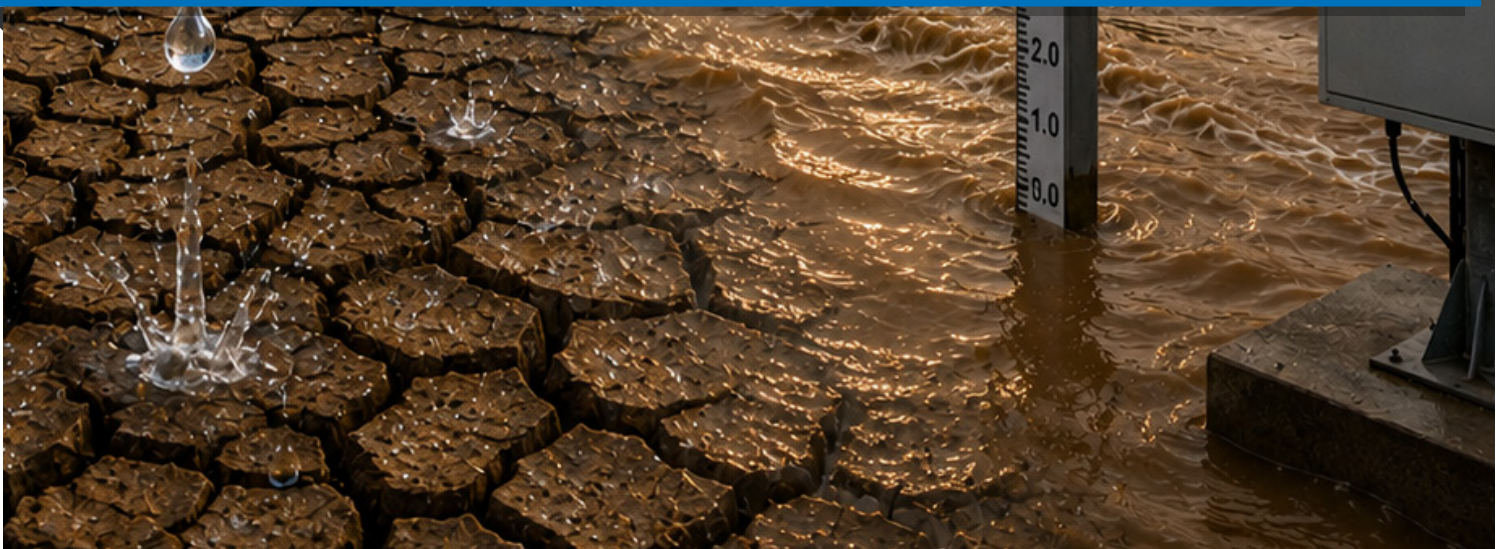


**NILE BASIN INITIATIVE**  
INITIATIVE DU BASSIN DU NIL



# **NILE BASIN SEASONAL HYDROLOGICAL OUTLOOK AND ADVISORY**

## **JUNE-SEPTEMBER 2026 SEASON**





## Dear Partners and Stakeholders,

It is with deep institutional commitment and a profound sense of shared responsibility that I present this Nile Basin Seasonal Hydrological Outlook and Advisory for the June–July–August–September (JJAS) 2026 season. This report represents the collective expertise of our ten Nile Basin riparian Member States and stands as a testament to the enduring power of regional cooperation, scientific excellence, and transboundary solidarity in the face of mounting climate challenges and competing water demands and interest in the basin.

The JJAS season is the most hydrologically consequential period of the year for the Nile Basin — it is the period during which the Ethiopian Highlands receive the vast majority of their annual rainfall, driving the river flows that ultimately sustain the lives and livelihoods of more than 300 million people from the equatorial lakes of Central Africa to the Nile Delta in Egypt. This year, however, the season arrives under the shadow of a markedly below-normal rainfall signal — conditions experts indicates that is analogous to the El Niño events of 1997 and 2023 — with a high probability of suppressed rainfall across core contributing catchments, compounded by basin-wide above-normal temperatures that will significantly amplify evaporative losses and hydrological stress with significant impacts on basin economies which are very sensitive to such climate shocks with limited capacity adapt.

The implications of the anticipated JJAS 2026 hydrological conditions are far-reaching and cross-sectoral. Below-normal river flows are projected across the Blue Nile, Atbara, Sobat, White Nile, and Kagera systems. Lake levels in Victoria, Albert, and Kyoga are expected to decline through the season. Reservoir filling at the major basin storage facilities will be constrained. Hydropower generation capacity across multiple Member States — including Burundi, Rwanda, Uganda, Tanzania, Sudan, and Egypt — faces increased risk. Irrigated agriculture and urban water supply systems will experience heightened stress. The food security of millions of pastoralists and smallholder farmers hangs in the balance.

And yet, I wish to emphasize: this report is not a counsel of despair. It is, rather, a call to timely and coordinated action. The

early warning information contained herein, the sector-specific advisories, and the country-level recommendations have been crafted to enable governments, water resource managers, humanitarian agencies, and development partners to act ahead of the curve — to conserve water, optimize reservoir operations, protect vulnerable communities, and mobilize drought contingency plans before conditions deteriorate.

I wish to express profound gratitude to the German Federal Ministry for Economic Cooperation and Development (BMZ) through GIZ, whose generous support under the project ‘Support to Transboundary Cooperation in the Nile Basin’ has made this work possible. I also extend deep appreciation to IGAD Climate Prediction and Applications Centre (ICPAC), the Lake Victoria Basin Commission (LVBC), and the World Meteorological Organization (WMO) for their steadfast scientific and institutional partnership.

To the Heads of National Hydrological Services, the technical experts from all ten Member States, and the entire REWG team — your dedication, professionalism, and cooperative spirit are the bedrock upon which transboundary water security in the Nile Basin is built.

I urge all stakeholders — national, regional, and international — to study these findings carefully, to act decisively on the advisories herein, and to maintain open channels of information sharing across borders. The Nile is our shared heritage. Its sustainable management is our shared responsibility.

Sincerely,

---

**Dr. Eng. Nestor Niyonzima**

**Executive Director**

**Nile Basin Initiative**

# TABLE OF CONTENT

<b>FORWARD</b>	<b>I</b>
<b>TABLE OF CONTENT</b>	<b>II</b>
<b>1. INTRODUCTION</b>	<b>1</b>
<b>2. TOOLS AND SYSTEM</b>	<b>2</b>
2.1. Nile Basin Regional Hydrological Monitoring System	2
2.2. Nile Basin River Flow Forecasting System (NB-RFFS)	2
2.5. Nile Basin Drought Early Warning System	2
2.6. East Africa Hazards Watch	2
2.7. WMO Global Hydrological Status and Outlook System (HydroSOS)	2
<b>3. PERFORMANCE OF MARCH - MAY 2026</b>	<b>3</b>
3.1 Climate	3
3.2 Hydrology	4
3.2.1 Observed Flood Occurrence MAM 2026	6
<b>4. JUNE-SEPTEMBER (JJAS) 2026 OUTLOOK</b>	<b>8</b>
4.1 Climate Outlook	8
4.2 Hydrological Implications	9
4.2.1 Impacts on river levels and flows	9
4.2.2 Impacts on the Lakes Levels and Reservoirs	10
<b>5. COUNTRY OUTLOOK AND IMPLICATIONS</b>	<b>12</b>
5.1 Burundi	12
5.1.2 Climate and Hydrological Outlook for JJAS 2026 and Implications	14
5.1.3 Recommendations and Advisories	15
5.2 Democratic Republic of Congo	15
5.2.1 Performance of the MAM 2026 Seasonal and Impacts	15
5.2.2 Climate and Hydrological Outlook for JJAS 2026 and Implications	17
5.3 Ethiopia	18
5.3.1 Performance of the MAM 2026 Seasonal Impact	19
5.3.2 Climate and Hydrological Outlook for JJAS 2026 Season and Implications	21
5.3.3 Recommendations and Advisories for Stakeholders in Ethiopia	22
5.4 Kenya	22
5.4.1 Performance of the MAM 2026 Season and Impacts	22
5.4.2 Climate and Hydrological Outlook for JJAS 2026	24
5.4.3 Implications of JJA 2026 Seasonal Outlook	25
5.4.4 Recommendations and Advisories for Stakeholders in Kenya	25
5.5 Rwanda	26
5.5.1 Performance of the MAM 2026 Season and Impacts	26
5.5.2 Climate and Hydrological Outlook for JJAS 2026 and Implications	27
5.5.3 Recommendations and Advisories	28

5.6 South Sudan . . . . .	28
5.6.1 Performance of the MAM 2026 Season and Impacts . . . . .	29
5.6.2 Climate and Hydrological Outlook for JJAS 2026 and Implications. . . . .	31
5.6.3 Recommendations for Stakeholders in South Sudan . . . . .	32
5.7 Sudan . . . . .	33
5.7.1 Performance of MAM 2026 Season and Impacts . . . . .	33
5.7.2 Climate and Hydrological Outlook for JJA 2026 and Implications . . . . .	34
5.7.3 Recommendations and Advisories. . . . .	35
5.8 Tanzania . . . . .	36
5.8.1 Performance of MAM 2026 Season . . . . .	36
5.8.2 Climate and Hydrological Outlook for MAM 2026 and Implications . . . . .	37
5.8.3 Recommendations and advisory. . . . .	38
5.9 Uganda . . . . .	39
5.9.1 Performance of MAM 2026 Season and Impacts. . . . .	39
5.9.2 Climate and Hydrological Outlook for JJAS 2026 and Implications . . . . .	40
5.9.3 Recommendation and Advisory . . . . .	40
<b>6. BASIN WIDE IMPLICATION AND ADVISORY . . . . .</b>	<b>41</b>
6.1 Increased likelihood of below normal rainfall. . . . .	41
6.1.1 Key Recommendations and Advisories. . . . .	41
6.2.1 Key Recommendations and Advisories . . . . .	42
<b>7. ACKNOWLEDGMENT . . . . .</b>	<b>43</b>
7.1 REGIONAL EXPERT WORKING GROUP-HYDROLOGICAL OUTLOOK JJAS 2026. . . . .	43

# 1. INTRODUCTION

The Nile Basin, spanning eleven riparian countries across northeastern and equatorial Africa, sustains the livelihoods of over 300 million people through its vast network of rivers, lakes, and wetlands. The basin's hydrological dynamics are profoundly shaped by seasonal climate variability. Particularly the interplay of the East African Rains in March-April-May and October-November-December and the Ethiopian summer monsoon, and the equatorial lake region circulation systems in the period of June–July–August–September (JJAS) season as the most hydrologically significant period of the year within the basin. The JJAS season typically accounts for the majority of annual runoff generated across the Ethiopian Highlands. The highlands are the primary source of floodwaters that propagate downstream through Sudan and Egypt.

The Outlook and Flood Advisory for the JJAS 2026 season has been prepared to provide timely, evidence-based climatic and hydrological intelligence to national meteorological and hydrological services, water resources managers, disaster risk reduction authorities, and humanitarian agencies across the basin. The outlook is underpinned by two authoritative scientific processes. First, the seasonal climate analysis and probabilistic forecasts issued by the IGAD Climate Prediction and Applications Centre (ICPAC) at the 73rd Greater Horn of Africa Climate Outlook Forum (GHACOF 73) on the 19th May 2026 in Addis Ababa Ethiopia. Second, the technical analysis of the implications of the climate outlook on the Nile Basin's hydrology by the Nile Basin Regional Expert Working Group (REWG) on Hydrology at its 8th Technical Session held on the 20th – 21st May 2026 in Addis Ababa, Ethiopia. Together, these processes provide the scientific foundation upon which the hydrological projections and advisories presented in this report are based.

Experts indicated that based on current sea surface temperature anomalies, atmospheric circulation patterns, and ensemble model outputs, a below-normal seasonal rainfall signal has been identified across the core Ethiopian Highlands and parts of equatorial East Africa feeding the White Nile. This indicates depressed rainfall and reduced river flows, consequently leading to diminished inflows to the lake across most parts of the basin, including the Eastern Nile and Ethiopian Highlands. Furthermore, climate models project climatic conditions analogous to the El Niño years of 1997 and 2023.

Therefore, the outlook synthesizes these inputs to assess anticipated streamflow regimes, lake levels, reservoir and dams' storages and risks and flood hazard across key sub-basins. These include the Upper Nile, Blue Nile/Abbay, Atbara, White Nile, and the Equatorial Lakes region including Lake Victoria and Albert Nile.

The advisory aims to support proactive early warning, contingency planning, and coordinated trans-boundary water management decisions under the below normal and above normal climatic and hydrological conditions and scenarios. It is co-created in accordance with the NBI's mandate to promote the equitable, sustainable, and integrated management of the shared Nile water resources for the benefit of all riparian states. It therefore presents targeted intervention strategies and sector-specific guidance to national governments, basin authorities, humanitarian agencies, and the private sector within the 11 Nile Basin countries.

## 2. TOOLS AND SYSTEM

### 2.1. Nile Basin Regional Hydrological Monitoring System

The Nile Basin Regional Hydrological Monitoring System is a collaborative hydrological monitoring system consisting of stations and a data management system. It was established to enhance trans-boundary cooperation among Member States. It provides real-time hydrological data and information on river, lake, rainfall, and water quality variables telemetrically transmitted to national and regional data centres across the basin (<https://nile-basin.org/hydromet/about>).

### 2.2. Nile Basin River Flow Forecasting System (NB-RFFS)

The NB-RFFS provides river flow forecast information at selected locations in the river network for the short-term and at a seasonal time scale. The forecast supports operational decision-making. The system uses the observed river and lakes levels from the Nile Basin Monitoring network as a reference for its forecasts.

### 2.3. Eastern Nile Flood Forecasting and Early Warning System

The Eastern Nile Flood Forecast and Early Warning System (EN-FFEWS) is an integrated real-time system that provides 10-day forecasting for rainfall at 77 catchments and discharge and water level at 44 gauging locations. It delivers early warnings for riverine floods to over 2.2 million people in key flood-prone areas in the Eastern Nile sub-basins during the main flood season (July to August). The sub-basins include Lake Tana, Baro-Akobo-Sobat, Blue Nile, and Tekeze-Setit-Atbara. The system uses the Weather Research and Forecasting (WRF) and Global Forecast System (GFS) to generate the forecast information ([enffews.nilebasin.org](http://enffews.nilebasin.org)).

### 2.4. Nile Basin Flash Flood Early Warning System

The Nile Basin Flash Flood Early Warning System (NB-FFEWS) is a web-based system that provides near real time and forecast information on the occurrence of flash flood to enhance preparedness and resilience of communities within the Nile basin. Early warning information supports Member States for effective flash flood early warnings in flash flood-prone areas with a 48-hour lead time through the existing national dissemination channels (<https://flashfloodalert.nilebasin.org/>).

### 2.5. Nile Basin Drought Early Warning System

The Nile Basin Drought Early Warning System (Nile DEWS) is an integrated platform developed leveraging open access tools to monitor and forecast drought in the entire Nile basin. It generates drought information based on 8 indices covering meteorological, hydrological, agricultural and composite drought conditions (<https://dews.nilebasin.org>).

### 2.6. East Africa Hazards Watch

The ICPAC Water Forecast Portal is a hydrological forecasting system that delivers key hydrological variables at locations of interest. The portal was developed by the ICPAC to enhance water resources management and disaster resilience in East Africa (<https://eahazardswatch.icpac.net/mapviewer>).

### 2.7. WMO Global Hydrological Status and Outlook System (HydroSOS)

The HydroSOS initiative aims to strengthen country capacity across the hydrological value chain, produce standardized information on the current state of the water resources and provide outlooks at the sub-seasonal to seasonal scale.

# 3. PERFORMANCE OF MARCH - MAY 2026

## 3.1 Climate

The evaluation of the MAM 2026 seasonal climate outlook was carried out through a comparative analysis of regional ground-based observations and satellite-derived rainfall estimates. The latter serves as a critical complement to sparse and unevenly distributed station networks across the basin. Overall, the rainfall across the Nile Basin during the MAM 2026 season was predominantly above normal, with positive rainfall anomalies recorded across much of the Equatorial Lake's region, the Upper Nile, and parts of the Ethiopian Highlands. This is broadly consistent with the probabilistic forecast issued in February 2026. These wetter-than-average conditions affirm the directional skill of the seasonal climate outlook. In addition, it confirms that the February 2026 advisory appropriately captured the dominant rainfall signal across the basin for the season.

Above normal conditions were projected over most parts of South Sudan, Uganda, Rwanda, Burundi,

Tanzania and central to western Kenya. Other locations with above-normal rainfall recorded include parts of western Uganda, central and western Kenya, Rwanda, and northwestern Tanzania. Several of these locations experienced cumulative seasonal totals exceeding the long-term mean by 20–30%. Equally some parts also recorded near to below normal rainfall, such as western and eastern South Sudan, north-eastern and south-western Kenya and isolated areas within Uganda Tanzania and Ethiopia, Sudan. Ground observations and satellite derived data confirmed most of the predictions in several areas with spatial and temporal variations. The spatial deviations of ground observations and satellite derived indicated increased anomaly in March especially in Nile Equatorial Lakes regions especially in western Kenya, eastern South Sudan and Uganda (Figure 1).

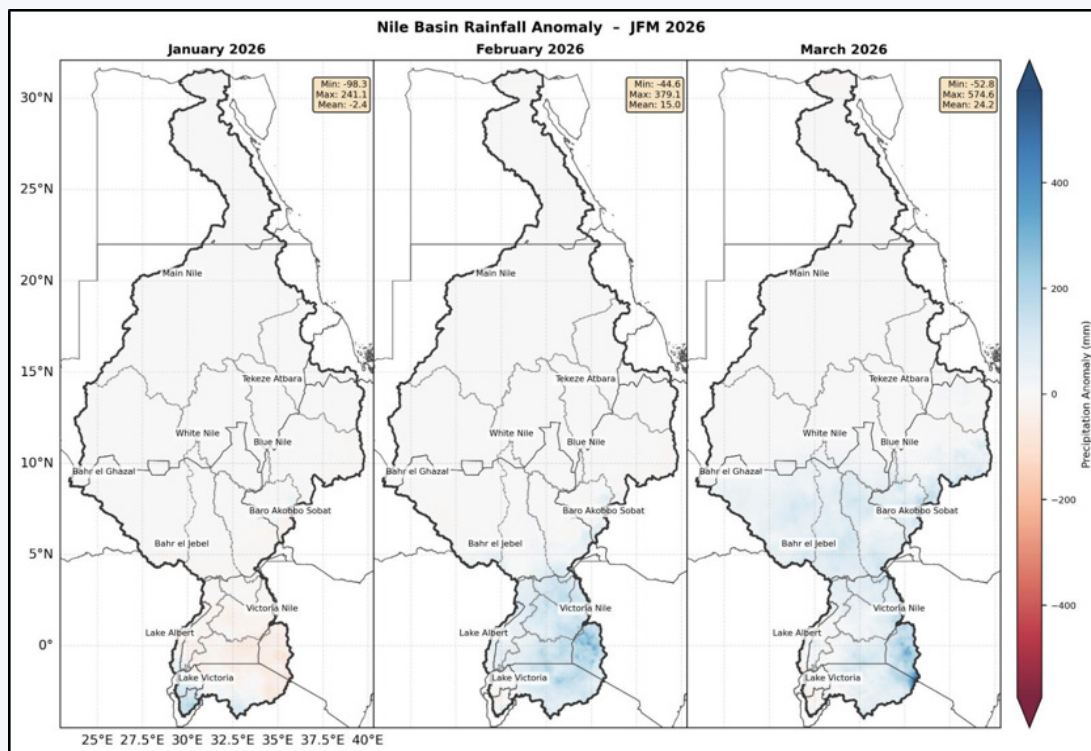


Figure 1: January–March 2026 rainfall anomaly

## 3.2 Hydrology

The predominantly above-normal rainfall recorded across the Nile Basin during the MAM 2026 season translated into notable hydrological responses across key sub-basins. The responses were broadly consistent with the projected implications in the February 2026. Enhanced precipitation over the Equatorial Lakes region contributed to rising lake levels and increased tributary inflows. High antecedent soil moisture conditions resulting from the sustained above-normal rainfall further amplified surface runoff responses, increasing flood susceptibility in low-lying and flood-prone areas along the Nile corridor. These observed hydrological conditions underscore the strong coupling between seasonal climate performance and basin-wide water resources variability. Consequently, it establishes an important baseline of elevated moisture and streamflow from which the JJAS 2026 season was expected to evolve.

Observed Kagera River compared to the forecasted range issued ahead of the season, show flows tracking at or above the forecast, with observed

discharge consistently at or exceeding 200 cms (Figure 2 and Figure 3). The forecast tercile ranges appear to have been met or surpassed by observed flows, confirming that the February 2026 advisory correctly anticipated above normal flow conditions on the Kagera River for this period. The sustained and rising discharge on the Kagera River reflected the broader above-normal rainfall signal across the Equatorial Lakes region with direct implications for inflows into Lake Victoria. Elevated flows from Kagera, Mara, Nzoia, Nyando, Yala, Gucha-Migori and others coupled with direct rainfall over the lake contributed to the rising lake levels. The increased downstream outflows through the Victoria Nile, and heightened flood risk for riparian communities along the Kagera floodplain in Tanzania, Uganda, and Rwanda.

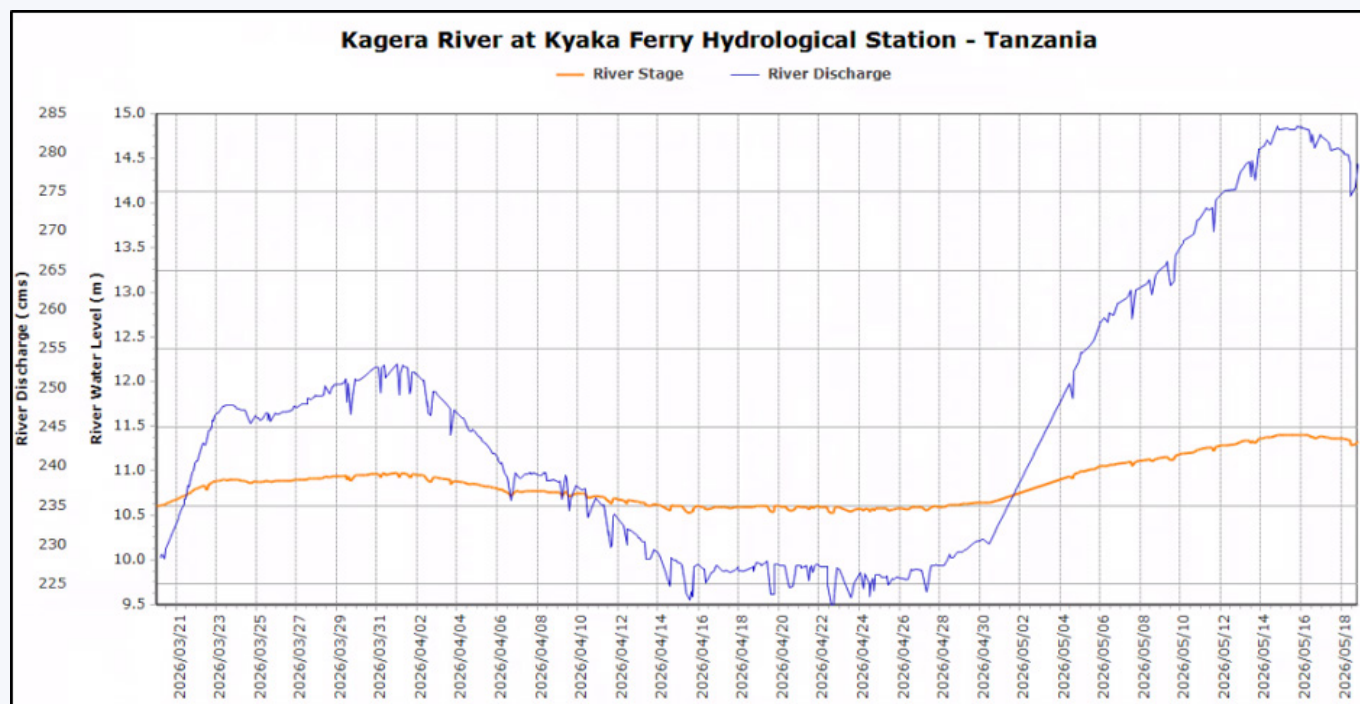


Figure 2: Kagera River observed water levels and flow at Kyaka Ferry station for the March-April-May 2026 Season.

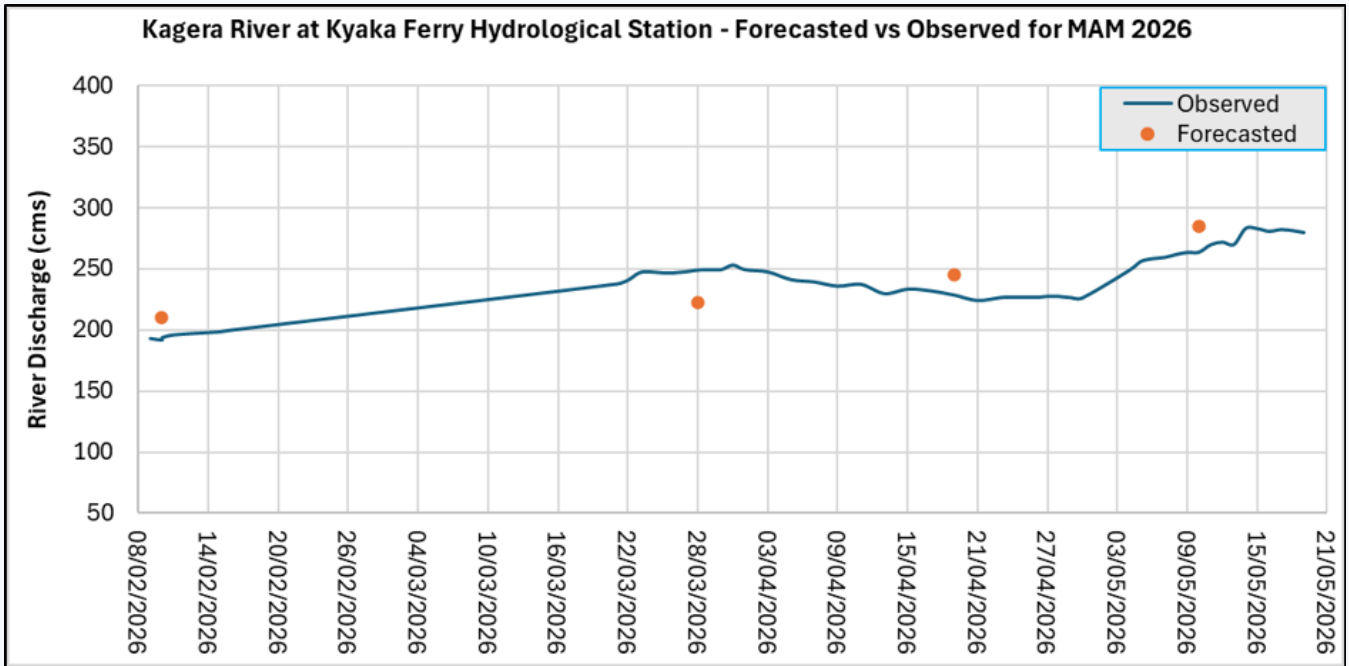


Figure 3: Comparing the forecasted and observed river flow for Kagera River at Kyaka Ferry Regional Hydrological Station.

The graph illustrates the observed daily water levels for Lake Victoria and Lake Kyoga between late February and late May 2026 (Figure 4). Lake Victoria began the period at approximately 1135.77 m amsl in late February and exhibited a steady rising trend throughout the season, reaching a peak of around 1136.15 m amsl in early May before slightly declining and stabilizing near 1136.10 m amsl by mid-May – representing an overall net rise of approximately 0.35 m over the period. Lake Kyoga similarly displayed a general upward trend, starting at around 1035.04 m amsl in late February and climbing to a peak of approximately 1035.09 m amsl by mid-May, though its trajectory was notably more vari-

able, characterized by frequent short-term fluctuations throughout March and April. A particularly sharp and anomalous dip was recorded for Lake Kyoga around 28 April 2026, where levels briefly dropped to nearly 1034.99 m amsl before rapidly recovering, suggesting a possible data anomaly or a short-lived localized hydrological event. Overall, both lakes responded positively to the March–May 2026 long rains season, with rising water levels consistent with increased catchment runoff and direct precipitation typical of this period across the Lake Victoria Basin.

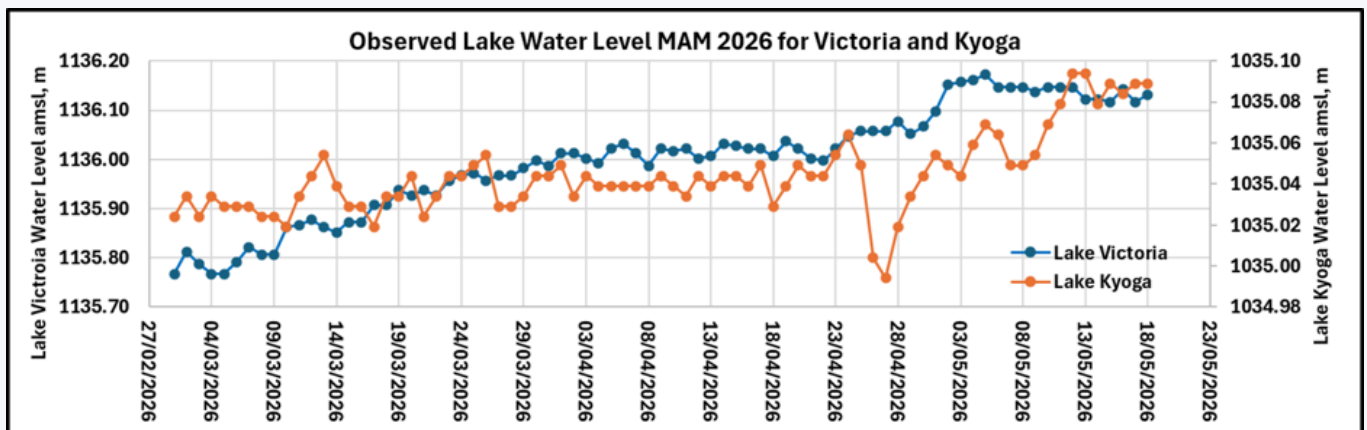


Figure 4: Observation of Lake Victoria and Lake Kyoga Water Levels during the MAM 2026 Season.

Lake Albert's water levels during the MAM 2026 displayed a distinct two-phase pattern (Figure 5). The lake opened the period at approximately 624.19 m amsl in late February and underwent a gradual but consistent decline through March and into late April, reaching a seasonal low of around 624.07 m amsl by early May – a net drop of roughly 0.12 m – reflecting a lag in response to catchment inflows and possible elevated outflows during this phase. However, from early May onward, the lake experienced a sharp and sustained recovery,

rising steeply to approximately 624.22 m amsl by 18 May 2026, which represents the highest level recorded during the entire period. This late-season reversal is consistent with the delayed hydrological response typical of Lake Albert, which receives inflows from the Albertine Rift catchments and the Semliki River, and suggests that the MAM 2026 rainfall eventually translated into significant runoff contributions that drove the rapid rise observed in the second half of May.

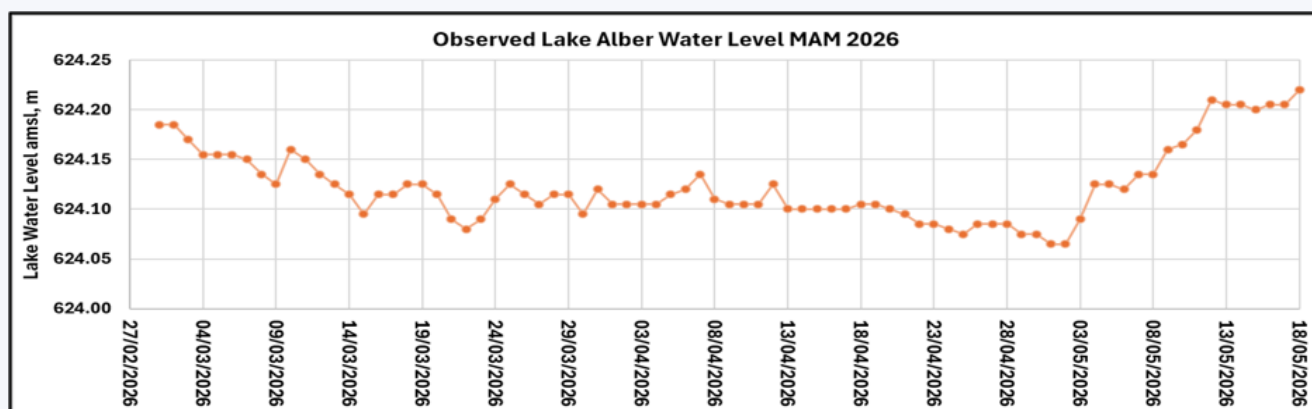


Figure 5: Observation of Lake Albert Water Levels during the MAM 2026 Season

### 3.2.1 Observed Flood Occurrence MAM 2026

#### a) Flash Flood Occurrence

The Nile Basin Flash Flood Early Warning System (NB-FFEWS) generates 48-hour flash flood forecasts on a daily basis whenever flood-triggering events are anticipated across the Nile Basin. These forecasts are disseminated directly to national authorities in each country for immediate preparedness and early action. Given the volume of daily forecast outputs produced throughout the MAM 2026 wet season, it is not possible to include all of them in this report. The forecast for 20–22 March 2026 has been selected as a representative sample to illustrate the type of information the system produces and its operational capability. This example covered eight Nile Basin countries and projected widespread, multi-country flash flood risk at medium, high, and very high severity levels. All figures presented below represent forecasted conditions

and estimated populations potentially at risk, not confirmed flood events (Figure 6).

Kenya was forecasted to face the highest risk, with 202 locations flagged across medium (81), high (69), and very high (52) severity levels. An estimated 4.9 million people were potentially exposed at medium risk, 3.9 million at high risk, and 2.4 million at very high risk. Priority areas included Nyanza (Kisii, Kisumu, Nyamira) and Rift Valley (Kericho, Nakuru, Narok, Bomet). Tanzania had 162 locations flagged (110 medium, 39 high, 13 very high), with an estimated 1.7 million potentially exposed at medium, 671,000 at high, and 231,000 at very high risk, particularly in Shinyanga, Arusha, and Mwanza regions.

In Rwanda, 27 locations were flagged (16 medium, 9 high, 2 very high), with an estimated 1.6 million potentially exposed at medium and 864,000 at high risk, concentrated in Musanze, Burera, Nyabihu, and Ngororero.

In Uganda had 40 locations flagged (28 medium, 11 high, 1 very high), with an estimated 1.4 million potentially exposed at medium, 550,000 at high, and 275,000 at very high risk; Kisoro was identified as the very high priority area.

In Ethiopia, 17 locations were flagged (11 medium, 2 high, 4 very high), with an estimated 539,000 potentially exposed at medium and 262,000 at very high risk, concentrated in the Oromia–Arsi zone.

The Democratic Republic of the Congo had 24 locations flagged (17 medium, 6 high, 1 very high), with an estimated 875,000 potentially exposed at medium risk, concentrated in Nord-Kivu (Rutshuru, Goma, Masisi).

Burundi had 7 locations flagged (2 medium, 4 high, 1 very high), with Ruyigi Province (Gisuru) flagged at very high severity and an estimated 197,000 po-

tentially exposed at high risk.

South Sudan had the lowest forecasted risk, with only one location flagged at medium severity in Central Equatoria (Juba).

The forecast signals the need for coordinated cross-border preparedness and early action across the Nile Basin. Millions of people are estimated to reside in projected flood-risk zones, warranting pre-positioned relief, evacuation readiness, and contingency activation in high-density areas. Kenya, Tanzania, Uganda, Rwanda, Ethiopia, and the DRC are the forecasted priority hotspots where government and humanitarian resources should be directed. Countries are encouraged to integrate NB-FFEWS forecasts into national disaster frameworks and to strengthen dissemination of timely, actionable warnings to local communities.

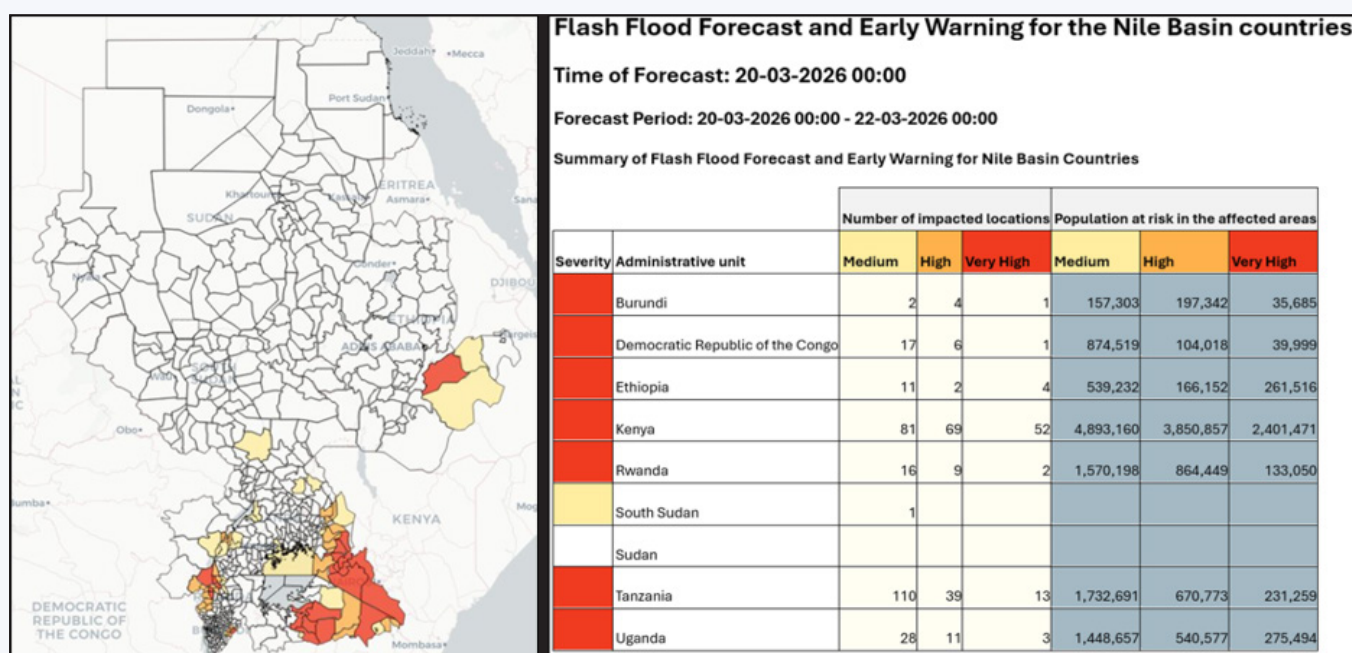


Figure 6: Location and severity of forecasted Flash Floods in the Nile Basin.

### b) Riverine Flood Occurrence in the Eastern Nile

As the MAM season is not the main flood season in the Eastern Nile, there were no significant records of riverine flood in the region. Although it doesn't

constitute flooding, there was a noticeable significant increase in river discharges, particularly in the Baro Akobo Sobat (BAS) sub-basin.

## 4. JUNE-SEPTEMBER (JJAS) 2026 OUTLOOK

The JJAS season plays a critical role in both the Nile Equatorial Lakes (NEL) and the Eastern Nile (EN) region with varying hydrological significance. It is the only main rainy season in the Eastern Nile region, particularly the Ethiopian Highlands.

### 4.1 Climate Outlook

The climate outlook for JJAS 2026 at the 73rd Greater Horn of Africa Climate Outlook by ICPAC projected a 40-90% probability of below-normal

rainfall compared to the long-term mean over much of the Greater Horn of Africa, a region that includes large parts of the Nile Basin (Figure 7). Most parts in the region are expected to experience below-average rainfall include central and western Kenya, Uganda, Rwanda, Burundi, highlands of Ethiopia, South Sudan much of which contributes to Nile Basin hydrology through tributaries and equatorial lake catchments. It has been determined that the climatic conditions of 2026 is an El Nino like the 1997 and 2023 observed climate as the two identified analogue years.

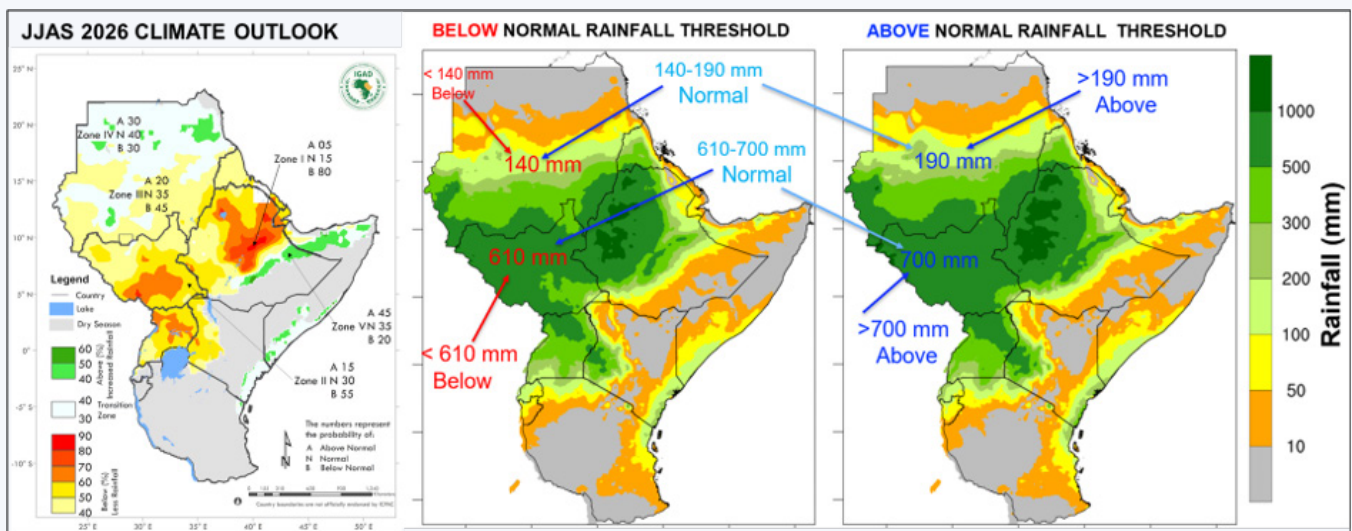


Figure 7: Climate Outlook of JJAS 2026 with long-term rainfall for the Horn of Africa.

The JJAS 2026 seasonal rainfall outlook for the Nile Basin indicates a predominantly below normal to normal rainfall signal across most of the basin, with localized exceptions in the northern headwater zones of northern and southwestern Sudan. A strong below-normal signal dominates, with over 40-80% probability of below-normal rainfall and only 5% probability of above-normal. This represents the most concerning rainfall deficit signal in the basin, with serious implications for stream-flow generation in tributary systems feeding the main Nile. A below-normal tendency prevails (55% probability) is projected in parts of Ethiopia, Kenya, South Sudan, with above-normal at only 15%

and normal at 30% (Figure 8). Reduced rainfall here directly threatens inflows into the upper Blue Nile and Sobat River systems.

South Sudan and DR Congo are expected to be below-normal signal with a dominant probability of 45%, suggesting reduced contributions from western tributaries to the White Nile system. The Ethiopian Highlands and Upper Blue Nile are projected to experience a below to near-normal with probability of range 40-80%. Though the slight lean toward normal conditions means inflows to the Grand Ethiopian Renaissance Dam (GERD) and Lake Tana may remain modest rather than exceptional.

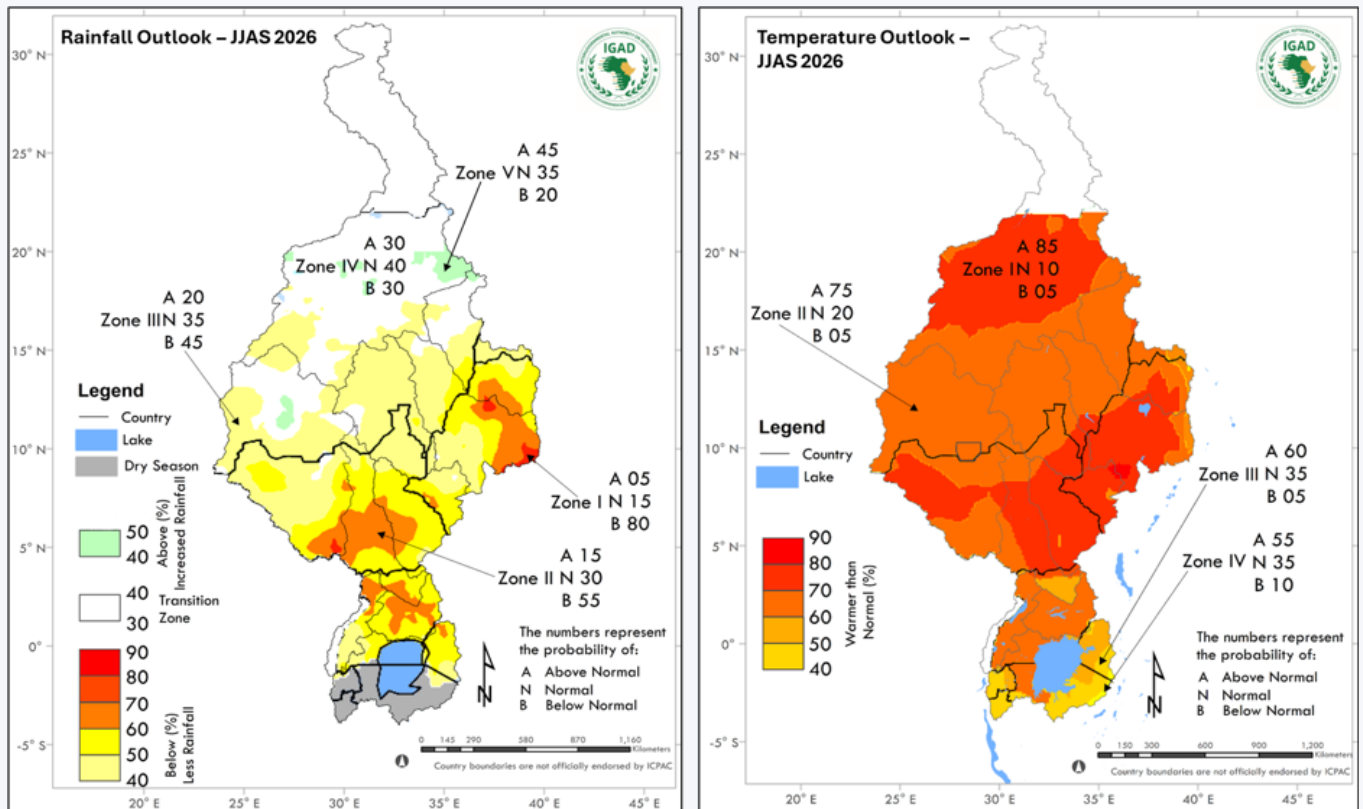


Figure 8: Nile Basin Climate Outlook for JJAS 2026- Rainfall and Temperature.

However, northern and southwestern of Sudan is the most favourable signal in the basin, with a 45% probability of above-normal rainfall and only 20% below-normal, suggesting enhanced local precipitation but limited area extent and minimal contribution to overall basin hydrology.

The temperature outlook is uniformly warmer than normal across the entire Nile Basin, with high confidence indicating increased evaporative demand of the atmosphere. The areas of northern Sudan and Southern Egypt, western Ethiopia and eastern and northwestern South Sudan are expected to experience an 85% probability of above-normal temperatures, with near-zero chance of below-normal (5%) hence the hottest signal in the basin. Probabilities for warmer than average temperatures with 50-60% probability are most enhanced over South Sudan, Sudan, Tanzania and a few places in Ethiopia and Kenya.

## 4.2 Hydrological Implications

The convergence of reduced precipitation and elevated temperatures is expected to suppress surface

runoff generation, diminish tributary inflows into the Blue Nile, White Nile, Atbara, and Sobat river systems. It is expected to accelerate evapotranspiration losses from soils and open water bodies, and constrain the seasonal recharge of major lakes, wetlands, and reservoirs — including the Grand Ethiopian Renaissance Dam (GERD), Lake Tana, Lake Victoria, and the Aswan High Dam. This will impact hydropower generation capacity, irrigated agricultural production, urban water supply security, and aquatic ecosystem integrity across the riparian Member States throughout the core of the 2026 rainfall season hence all the Nile basin countries will be impacted and affected.

### 4.2.1 Impacts on river levels and flows

The dominant below-normal rainfall across the basin is expected to result in reduced surface runoff and streamflow in major Nile tributaries including the Blue Nile, Atbara, Sobat, and Bahr el Ghazal systems. The White Nile contributions from the equatorial lakes region may also be suppressed given the below-normal signals in western and central

catchments. Elevated temperatures will intensify evapotranspiration, further reducing effective rainfall that converts to runoff, amplifying the hydrological deficit beyond what rainfall anomalies alone would suggest.

Kagera River flows indicates that the JJAS 2026

season will be below normal and way below the 1997 and 2023 analogue years (Figure 9). Also, similar trend of declining river flow conditions is forecasted for the White Nile, Baro Akobo Sobat, Lake Victoria and Victoria Nile rivers Blue Nile and Main Nile (Figure 10).

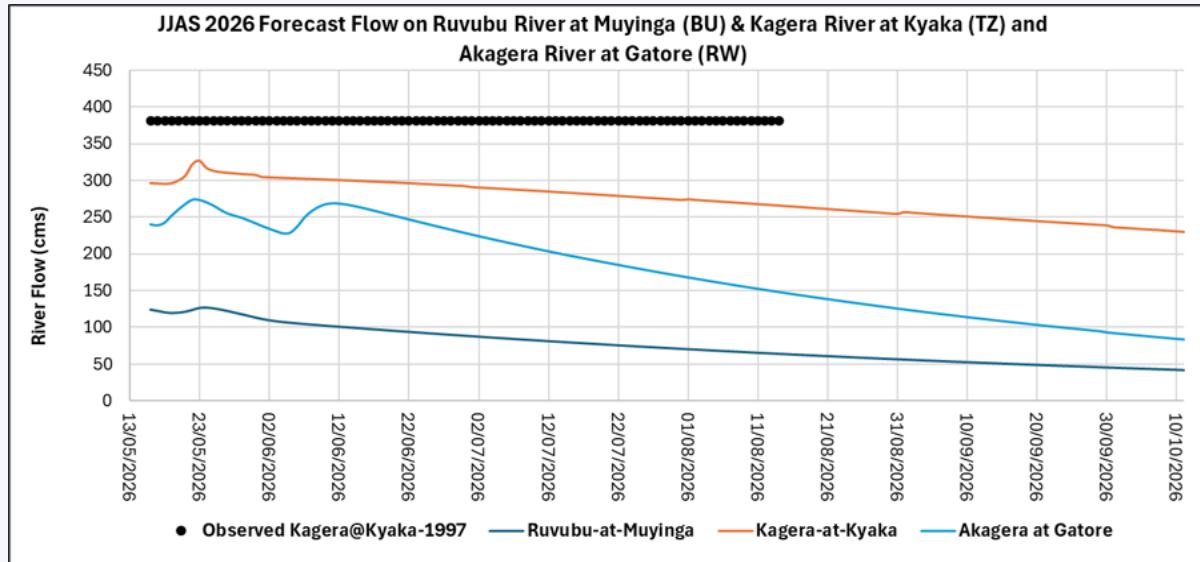


Figure 9: Forecast River flow condition on Ruvubu River at Muyinga (Burundi), Akagera at Gatore (Rwanda), Kagera River at Kyaka (Tanzania).

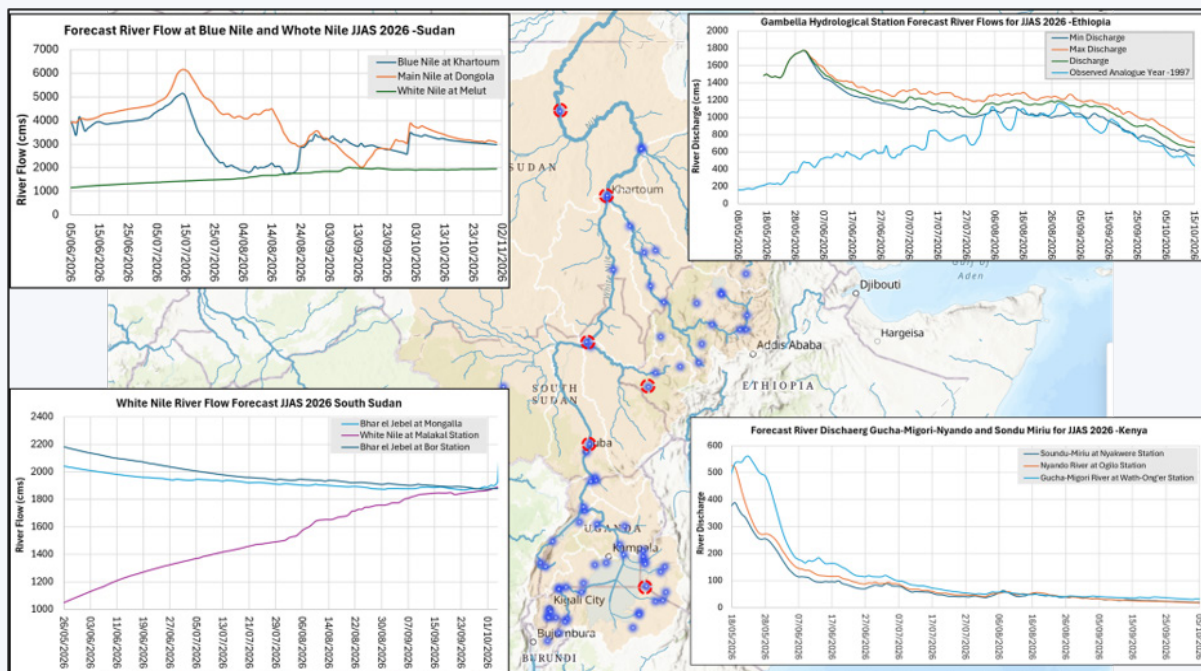


Figure 10: June-September Forecast River flow condition Bhar el Jebel, White Nile, Baro Akobo Sobat, Gucha Migori River, Nyando River and Sondu Mirru River.

#### 4.2.2 Impacts on the Lakes Levels and Reservoirs

Lake's systems point to a general declining trend in both water levels and river flows, a signal that is strongly consistent with the prevailing rainfall outlook (Figure 11). The Lake Victoria water level forecast shows the lake peaking around mid-May 2026

at approximately 1,136.1 m amsl before entering a sustained decline through the remainder of the season, projected to fall to near 1,135.5 m by November — a trajectory driven by reduced catchment inflows from Uganda and Kenya as the dry season progresses. This is mirrored in the White Nile flow forecast, where outflows from Lakes Victoria, Kyo-

ga, and Albert start above 2,200 m<sup>3</sup>/s in May but progressively recede toward 1,800–1,850 m<sup>3</sup>/s by October 2026, while the Lake Victoria contribution (cyan line) drops markedly from ~1,650 to ~1,300 m<sup>3</sup>/s, reflecting reduced inflows upstream.

In Ethiopia, the Lake Tana inflow forecast tells a contrasting seasonal story: inflows are low (~50–100 cms) at the start of the period but build sharply through July and August – peaking between 550–650 cms – before collapsing back toward baseline by November, following the classical Ethiopian Kiremt (main rainy season) pulse. These hydrological patterns are directly coherent with the latest ICPAC/GHACOF JJAS 2026 rainfall outlook (issued 18–19 May 2026), which forecasts a high likelihood of below-normal rainfall across much of the northern Greater Horn of Africa, with the highest probability of below-normal conditions projected

over central, northeastern and northwestern Ethiopia, southern Sudan, and northern Uganda, where probabilities exceed 60% and peak up to 80% in northeastern Ethiopia. The evolving 2026 climate conditions closely resemble those of strong El Niño years of 1997 and 2023, when observed rainfall was below normal over substantial parts of Ethiopia, South Sudan, Uganda, and western Kenya. Consequently, the subdued Lake Victoria levels and declining White Nile flows are a direct hydrological response to the suppressed rainfall expected over the Equatorial Lakes catchments in Uganda and Kenya, while the Lake Tana inflow peak – though still occurring – is likely to be muted compared to wetter years, given the lower probability of exceeding 500 mm of rainfall in parts of the Ethiopian Highlands during the June–September season.

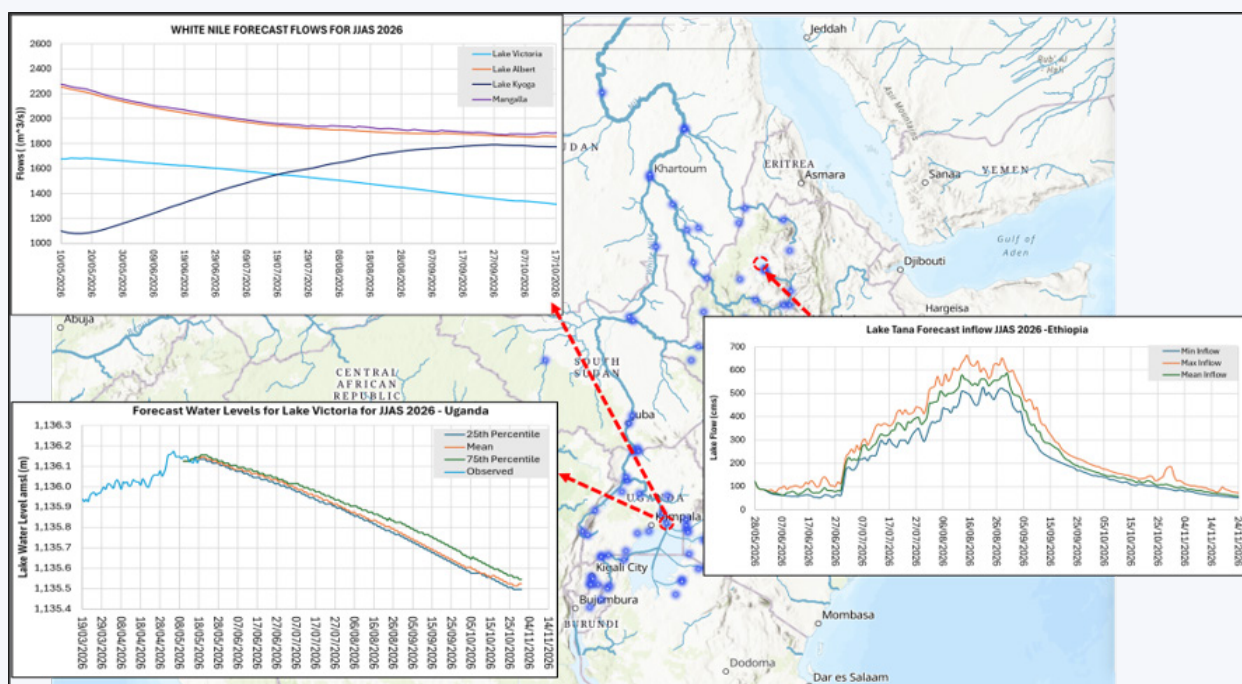


Figure 11: Forecast Lake Water levels in June-September 2026.

Overall, the JJAS 2026 outlook presents a hydrologically stressed scenario for the Nile Basin. The convergence of below-normal rainfall across major contributing catchments and basin-wide above-normal temperatures is likely to translate into reduced river flows. Taken together, the forecasts signal a drier-than-normal JJAS season across the Nile Basin headwaters, with downstream implications for hydropower generation, water supply, and irrigation

planning along the Kagera, Mara Nzoia, Semiliki, White and Blue Nile corridors. Other consequences include constrained reservoir filling, elevated evaporative losses from lakes, and potential hydropower shortfalls. Downstream countries – particularly Sudan and Egypt will bear the greatest cumulative risk from upstream hydrological deficits.

## 5. COUNTRY OUTLOOK AND IMPLICATIONS

This section provides a summary of current situations and implications of the projected climate and hydrological outlook in the Nile Basin Member States for the JJAS 2026 Seasonal.

### 5.1 Burundi

Burundi has a surface area of 27,834 km<sup>2</sup> of which about 48% is within the Nile Basin hence constituting 0.4 percent of the basin drainage area (Figure

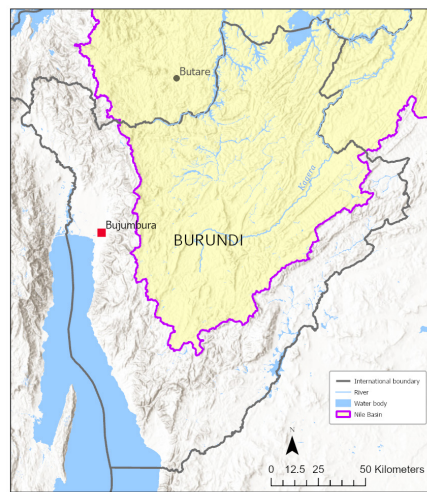


Figure 12: Map of Burundi within the Nile Basin.

12). The annual rainfall varies between 850mm and 1,600 mm with an average mean rainfall of 1,100 mm. The low-land areas of Burundi are sometimes affected by floods during heavy rains. The flood prone areas include the shorelines of Lake Tanganyika, Rweru and Cyhoha and some parts of the small streams and rivers such as Ruvyironza, Ruzizi and Ruvubu.

#### 5.1.1 Performance of the MAM 2026 Season and Impacts

The Institut Géographique du Burundi (IGEBU) seasonal forecast for the March–May (MAM) 2026 Season rains predicted a spatially differentiated outlook across the country (Figure 12): Zone I (central and eastern Burundi) carried a dominant probability of above-normal rainfall (A=50%, while southwestern and southern Burundi) leaned toward near-normal conditions as the most likely outcome. However, observations revealed a broadly mixed but partially skilful forecast performance.

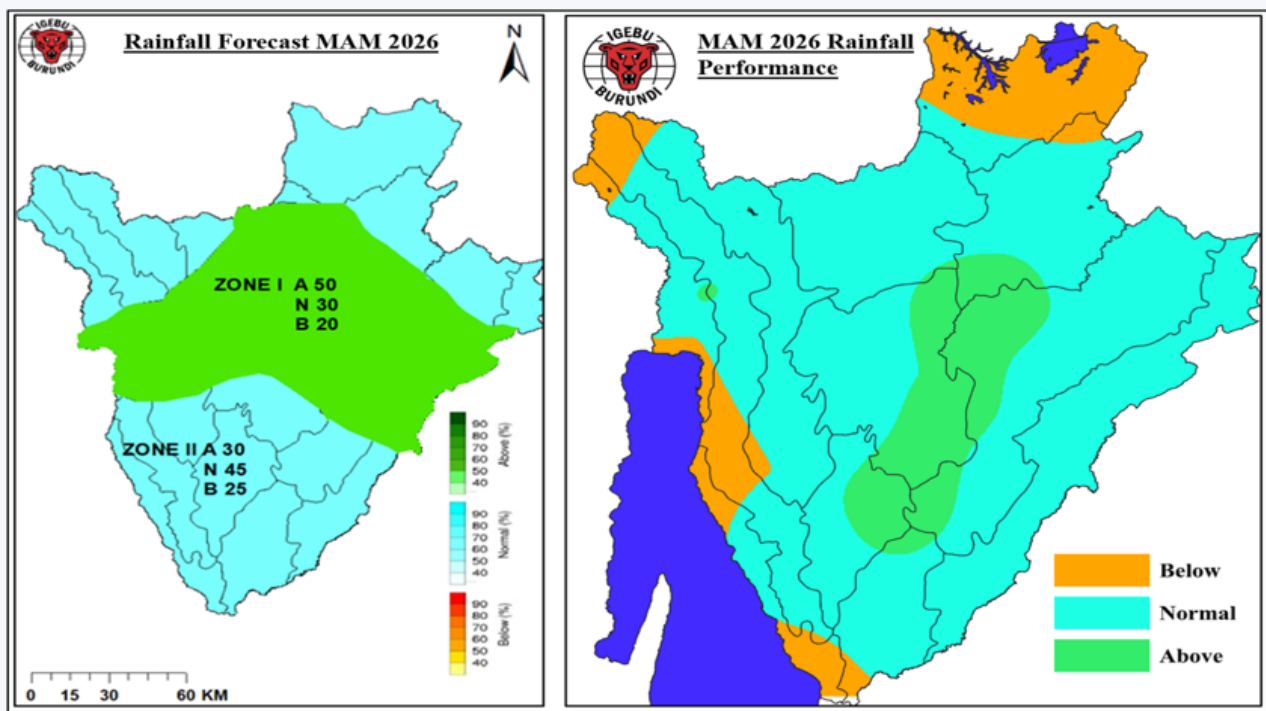


Figure 13: Performance of MAM 2026 climate outlook in Burundi

Heavy rainfall from mid-February onward indicated an early onset of the MAM season across the western sector of the region, including Burundi, which was consistent with the above-normal signal. However, as the season evolved, conditions became more variable: an approximately 20-day dry spell occurred at the peak MAM season month of April, and by early May, cumulative seasonal rainfall deficits persisted across northeastern Burundi, suggesting that while Zone I's above-normal signal was largely realised in the early part of the season, the mid-season dry spell introduced a notable departure from the forecast in parts of the northeast. Zone II's near-normal forecast for the southwest also appears broadly verified, as March to early May rainfall totals across much of Uganda, Rwanda, and Burundi were generally near average, though localised deficits tempered the overall performance.

Overall, the IGEBU forecast demonstrated reasonable directional skill – correctly identifying central Burundi as wetter and the south as near-normal – but the April dry spell and sub-regional variability highlight the continued challenge of capturing intra-seasonal disruptions within a tercile-based seasonal outlook.

Based on the Climate Outlook of MAM 2026 that had predicted above to near normal conditions in most parts of Burundi. The observation of river fellows mirrored the predictions in rivers and lakes in Burundi. Analysis of the streamflow data for Ruvubu River, which collects water from Burundi towards the Nile, at Gitega and Musinga hydrological station indicated variation with mostly above the long term mean levels and flow (Figure 14 and Figure 15).

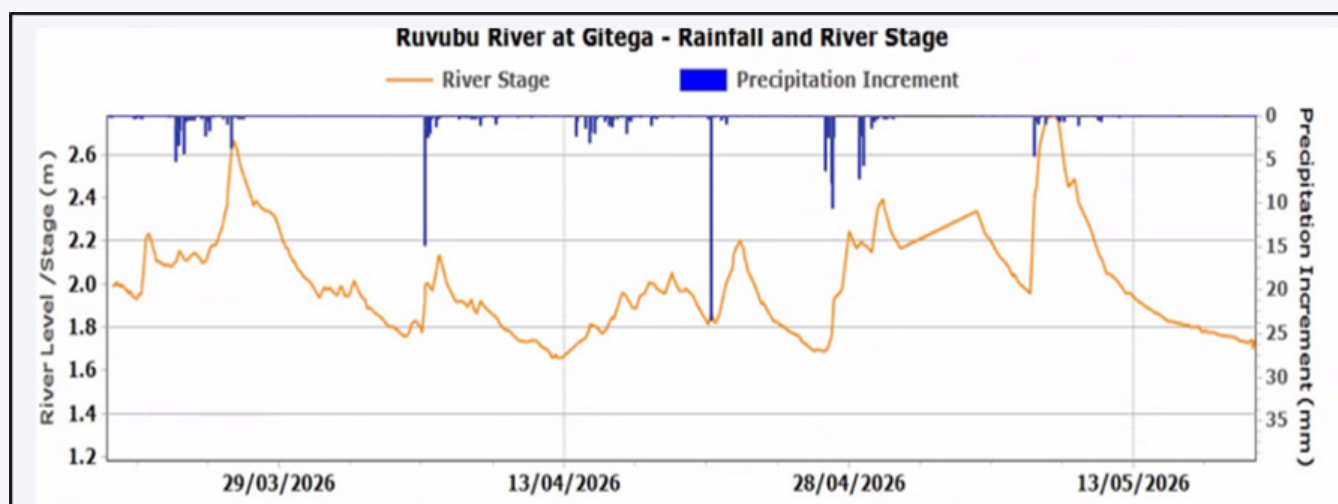


Figure 14: Ruvubu River observed water level at Gitega station for the MAM 2026..

During the MAM 2026, observations indicated the occurrences of riverine floods caused infrastructure damage, flash floods led landslides, destruction of riverbanks with some landslides recorded, destroying houses in some and causing displacement of the population, the majority of whom are women, children, and the elderly (Congo basin). However, the most impacted areas were in the Congo Basin due to the existing infrastructure and its topography, especially around the city of Bujumbura. For example, the Gatumba area was severely affected by the intense rains and flooding. According to data

shared by the Ntahangwa commune administration, about 4,455 households, comprising 22,275 people, were affected and needed assistance. A total of 503 households, comprising 2,326 people, are the most affected and are the priority for evacuation.

The most affected areas include Bujumbura Municipality; Mukaza, Kamenge, and Mutimbuizi health districts are experiencing compounded flooding and rising water tables, Lake Tanganyika Coastal areas with low-lying regions and ports along

the lake, as well as the Gatumba area, which suffered from overflow and high-water levels, worsening previous years' impacts. The rural and plain

provinces such as Rumonge, Cibitoke, Kirundo, and Makamba also saw massive displacement and damage to farmlands.

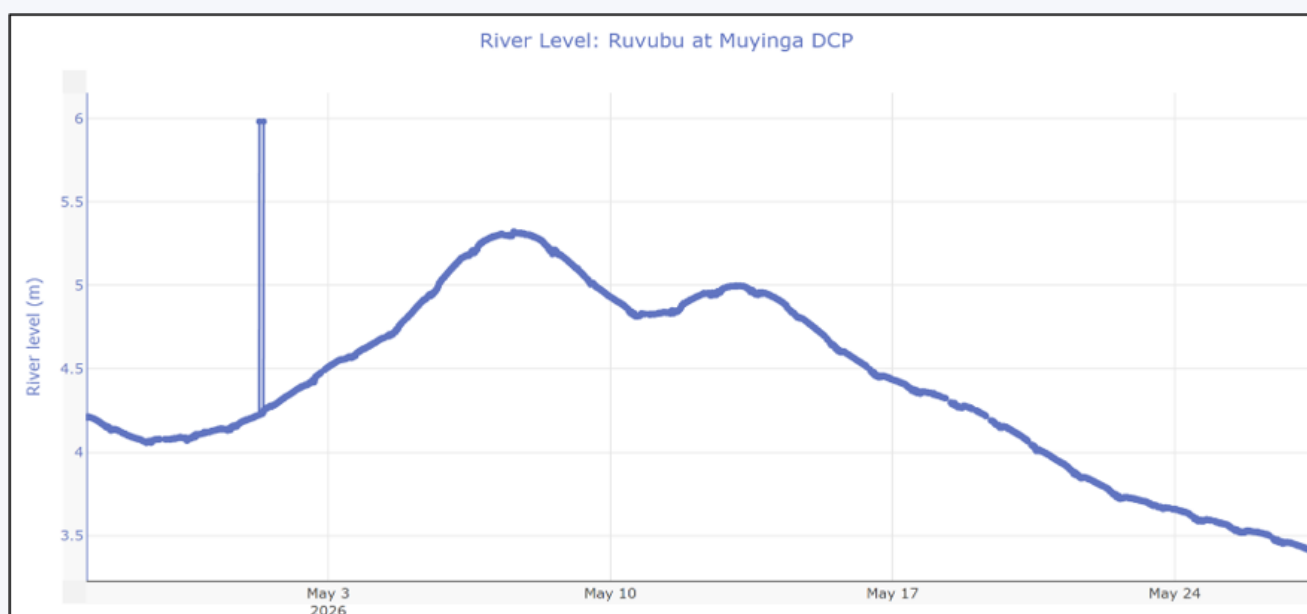


Figure 15: Ruvubu River observed water level at Muyinga Station for the MAM 2026.

### 5.1.2 Climate and Hydrological Outlook for JJAS 2026 and Implications

The June–September (JJAS) season represents the major dry season in Burundi, typically lasting from May to September, with major rains occurring from February to May – meaning JJAS is climatologically a period of naturally reduced rainfall and declining river flows across the country. Against this seasonal baseline, the GHACOF JJAS 2026 outlook issued by ICPAC on 18–19 May 2026 forecasts a high likelihood of below-normal rainfall across much of the northern Greater Horn of Africa. For Burundi specifically, this combination of the climatological dry season and a regionally drier-than-normal outlook significantly amplifies the hydrological stress across the country's river systems including Ruzizi and Ruvubu. The Ruzizi River – the backbone of Burundi's transboundary hydropower system – will be under immense pressure, as dry-season flows on the Ruzizi average around 71 m<sup>3</sup>/s at the Lake Kivu outlet and can reach critically low levels near, constraining generation at the Ruzizi I and Ruzizi II hydropower stations and potentially delaying progress on the under-development 206 MW Ruzizi III run-of-river project shared between

Burundi, DRC, and Rwanda.

Nationally, the Rwegura, Mugere, Jiji, Mulembwe, and Ruzibazi hydropower plants – which collectively form the mainstay of Burundi's electricity supply – will all face reduced generation capacity during the JJAS season as catchment inflows from the Congo-Nile Ridge and central highland rivers decline sharply, with historical precedent showing that reduced water volumes in dry years have caused hydropower plant performance to fall by as much as 19%, forcing REGIDESO to implement selective load-shedding across the national grid. A similar situation is expected for Ruvubu river – one of the main tributaries of the Kagera with implication of reduced flow for Rusumo Hydropower station hence the probable reduced share of REGIDESO from Rusumo.

For water supply and irrigation, the dry season drawdown of streams and shallow aquifers fed by the MAM rains will be more pronounced given the April dry spell that reduced cumulative soil moisture recharge across parts of northeastern Burundi during the preceding season; urban wa-

ter supply systems in Bujumbura dependent on the Ntahangwa and Muha rivers, as well as rural irrigation schemes along the Imbo Plain bordering Lake Tanganyika, will face heightened water stress from July onward as baseflows diminish. Lake Tanganyika levels – which had risen to 777.30 m amsl during the peak of the MAM season following flooding events – will recede progressively through the dry season, reducing gravity-fed abstraction capacity for both domestic supply and smallholder irrigation in the lakeshore provinces of Rumonge and Makamba. Water resource managers and the national utility REGIDESO are therefore advised to optimise reservoir storage from any residual MAM inflows, prioritise water allocation between hydropower and domestic supply, and implement demand-side conservation measures ahead of what is forecast to be a drier-than-average JJAS 2026 season across the Nile and Congo basin headwaters that bound Burundi’s hydrological landscape.

### 5.1.3 Recommendations and Advisories

Based on the current observation and model simulations, the following advisory recommendations were issued.

1. Water resource managers and the national utility, REGIDESO, are advised to optimise reservoir storage from any residual MAM inflows.
2. Take advantage of this dry period to expand and rehabilitate the observation network.
3. Prioritise water allocation between hydropower and domestic supply
4. Continue to monitor the levels of rivers and lakes and adopt adaptive measures.
5. Identify areas at risk for the next rainy season
6. Acquiring modern hydrological forecasting tools and strengthening staff capacity.
7. Automation of the entire observation network for effective early warning information.

8. Protect all at-risk areas by planting trees upstream and creating contour lines that promote infiltration by preventing surface runoff.
9. Redesigning drainage channels in cities, taking into current situations and probable future scenarios.

## 5.2 Democratic Republic of Congo

The Democratic Republic of the Congo (DR Congo) is a country in Central Africa with a land surface area of 2.3 million km<sup>2</sup>. The Country is drained mainly by the Congo River. About 1% of the country drains to the Nile River Basin constituting about 0.7% of the Nile Basin area. The Nile Basin in DRC is predominantly found in the northeastern part of the country. The region experiences a tropical climate with distinct wet and dry seasons. The climate in the region is influenced by both the equatorial and tropical monsoon systems, and the hydrological patterns are driven by rainfall, temperature, and the runoff from the surrounding highlands.

Despite the small part of the country in the Nile Basin relative to the country’s size, the impact of the climate and hydrology is still considerable as it shares borders with five other NBI Member States (Burundi, Rwanda, South Sudan, Uganda, and Tanzania). The shared water resources of Lake Albert, Lake Edward and Semliki River between DR Congo and Uganda are vital for both countries and support the lives and livelihood of several communities. The Rutshuru and Rwindi River flow into Lake Edward while Semliki River flows out of Lake Edward into Lake Albert hence hold significant hydrological consideration for the Albert Nile.

### 5.2.1 Performance of the MAM 2026 Seasonal and Impacts

Broader climate monitoring indicated widespread rainfall deficits across much of DRC during the MAM period, aligning with both regional forecasts and drought pressures across parts of the country. Observational data and monitoring products

(e.g., NOAA’s SPI analysis) showed above-average rainfall anomalies over large parts of the DRC—including Albertine region—during the MAM 2026 period, consistent with the broader above normal rainfall signals. In general, the MAM 2026 forecast broadly underscored the variability and captured the overall trend of above-normal rainfall, particularly across the Nile Equatorial Lakes, East Africa, and adjacent portions of the DR Congo.

Observed hydrological impacts (river/lake levels declines) and areas of flood prone were generally consistent with forecasts, though localized heavy

rainfall events—such as those in Bukavu—illustrate sub-seasonal extremes not fully resolved in broad seasonal outlooks. However, the combined signals of above-average rainfall and localized extremes underscore the need for integrated monitoring and flood and drought risk management across trans-boundary basins and urban-rural landscapes. The observation on Lake Edward indicated an increasing trend of lake water levels from January to May 2026 and Lake Albert water levels showed a limited variation during the similar period (Figure 17 and Figure 18).

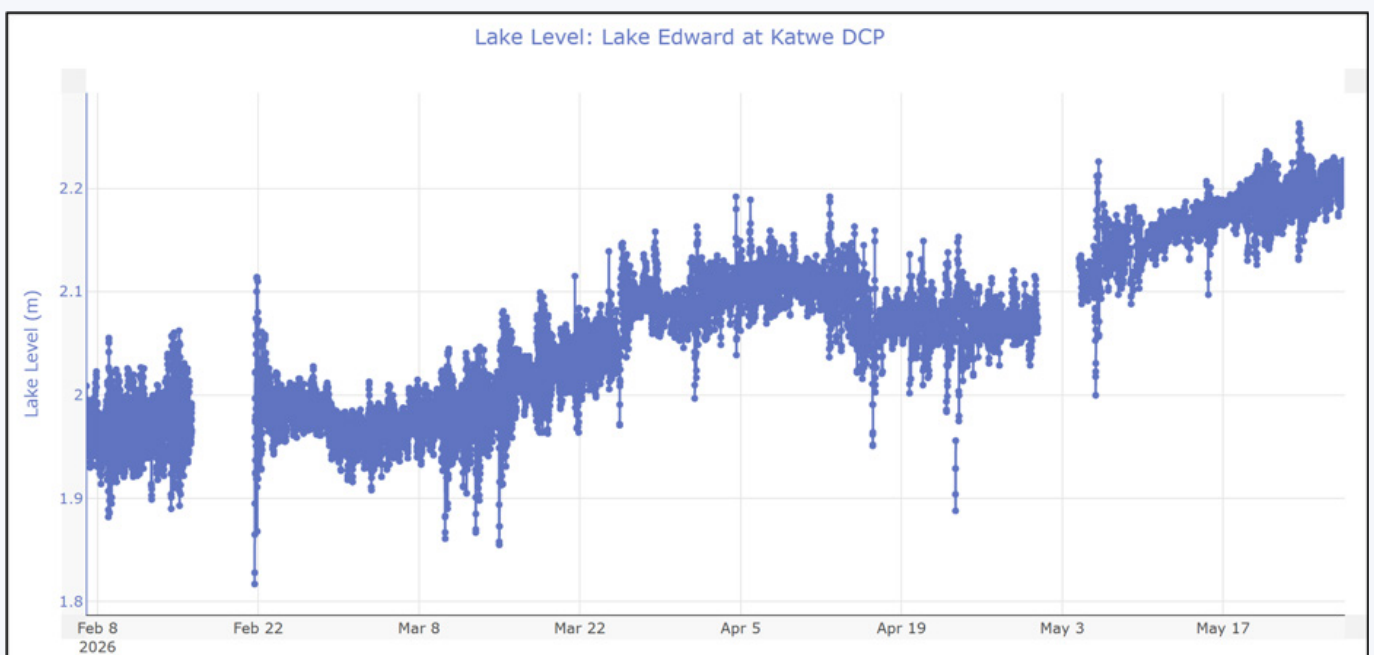


Figure 16: Observed Water levels for Lake Edward during the MAM 2026 Season.

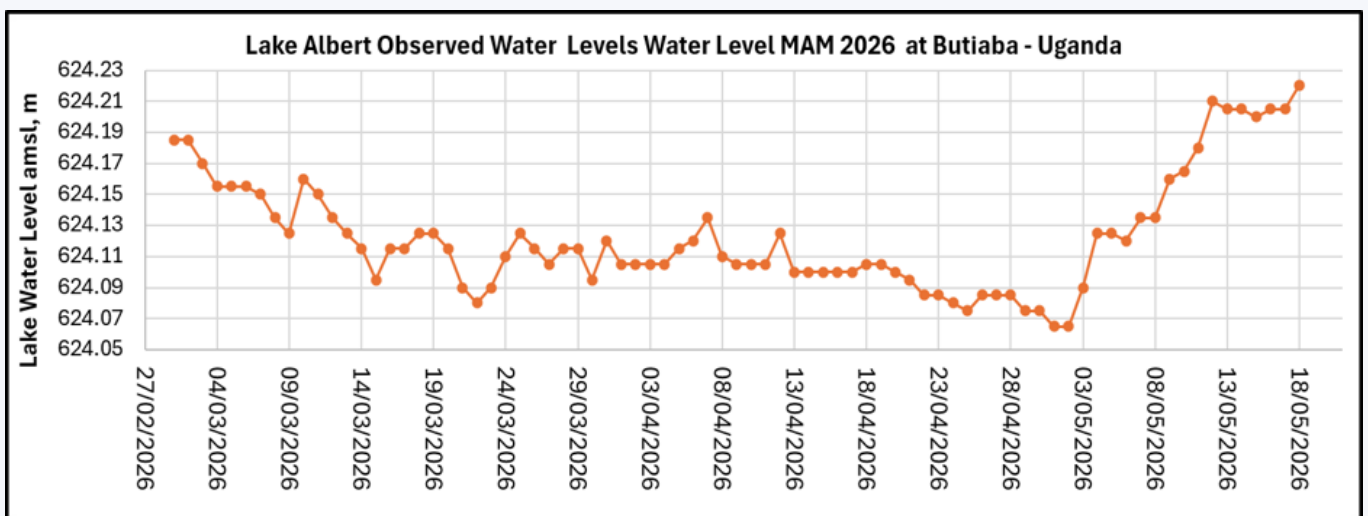


Figure 17: Observed Water levels for Lake Albert during the MAM 2026.

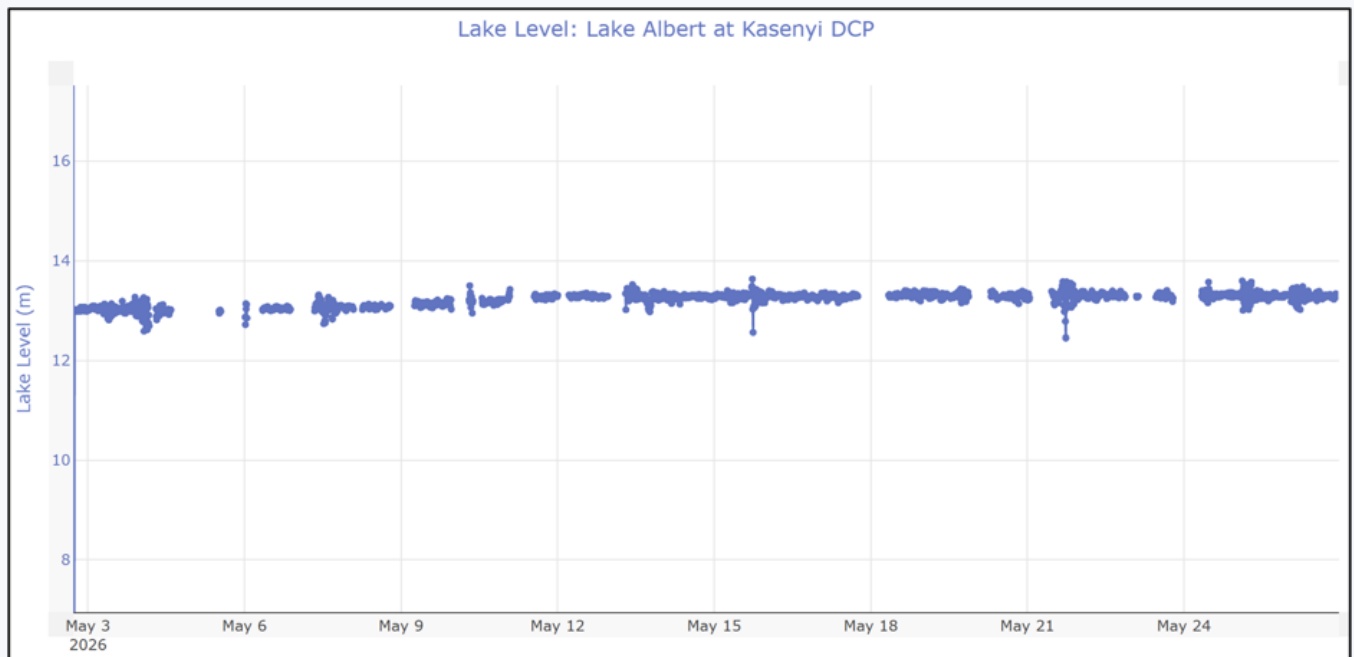


Figure 18: Observed Water levels for Lake Albert during the MAM 2026 Season.

### 5.2.2 Climate and Hydrological Outlook for JJAS 2026 and Implications

The June–July–August–September (JJAS) 2026 season over the Nile Basin part of the Democratic Republic of Congo, including the Semliki River catchment and the shared waters of Lake Edward and Lake Albert, is expected to experience near-normal to below-normal rainfall conditions with warmer-than-average temperatures across much of the Greater Horn of Africa. The outlook issued by ICPAC indicates an increased likelihood of suppressed rainfall over parts of Uganda and the surrounding equatorial regions, which may influence inflows into the Semliki River system and the hydrological behaviour of the Albert Nile system.

Despite JJAS being a relatively drier season in the equatorial sector compared to the March–May rainy season, the region remains hydrologically significant because the Semliki River conveys water from Lake Edward into Lake Albert, supporting downstream flows of the Albert Nile. The hydrological outlook suggests that river flows and lake levels may remain within near-normal ranges but could show localized reductions in response to the

anticipated below-normal rainfall and enhanced evapotranspiration driven by above-average temperatures. Communities dependent on fisheries, water transport, hydropower generation, and agriculture around the Lakes Edward–Albert system may therefore experience moderate water stress, reduced soil moisture, and localized declines in fish productivity and water quality.

There is also a possibility of isolated heavy rainfall events over the escarpments and mountainous areas of eastern DR Congo, which could trigger flash floods, landslides, sediment transport, and erosion along tributaries draining into the Semliki River and the lakes. Continued monitoring of river flows, lake levels, water quality, and ecosystem conditions is therefore essential to support early warning, transboundary water resources management, and disaster preparedness within the shared basin. Strengthening regional coordination between DR Congo and Uganda through the Nile Basin Initiative framework will remain critical for sustainable management of the shared water resources during the JJAS 2026 season.

### 5.2.3 Recommendations and Advisories

1. Strengthen continuous monitoring of rainfall, river flows, and lake levels in the Semliki River, Lake Edward, and Lake Albert systems to support timely early warning and response to emerging hydrological risks and adaptive planning and management.
2. Enhance preparedness for localized floods, landslides, and soil erosion in mountainous and escarpment areas through community awareness, evacuation planning, and reinforcement of vulnerable infrastructure.
3. Promote water conservation and efficient water resource management practices to address the anticipated near-normal to below-normal rainfall conditions and increased evapotranspiration during the JJAS 2026 season.
4. Strengthen surveillance of water quality and aquatic ecosystems in Lake Edward and Lake Albert to safeguard fisheries, public health, and livelihoods dependent on the shared lake systems.
5. Enhance cross-border coordination and information sharing with Uganda and regional institutions under the Nile Basin Initiative framework for coordinated management of shared water resources and disaster risk reduction.
6. Improve dissemination of climate and hydrological advisories to local authorities, fishing communities, farmers, transport operators, and humanitarian agencies to support informed decision-making and preparedness actions.
7. Prioritize protection and restoration of wetlands, riverbanks, and catchment areas to reduce sedimentation, enhance ecosystem resilience, and maintain sustainable river and lake flows during the season.

## 5.3 Ethiopia

Ethiopia is a landlocked country located in the Horn of Africa region of East Africa with a land surface area of about 1.1 million Km<sup>2</sup> of which about 33% is within the Nile Basin, constituting about 12% of the basin area. The Blue Nile known as Abbay, Baro Akobo, Mereb and Tekeze are the main tributaries of the Nile River (Figure 18). Abbay is the source of the Blue Nile. It accounts for 20% of Ethiopia's land area, for about 50% of its total average annual flows which emanate from the Ethiopian highlands.

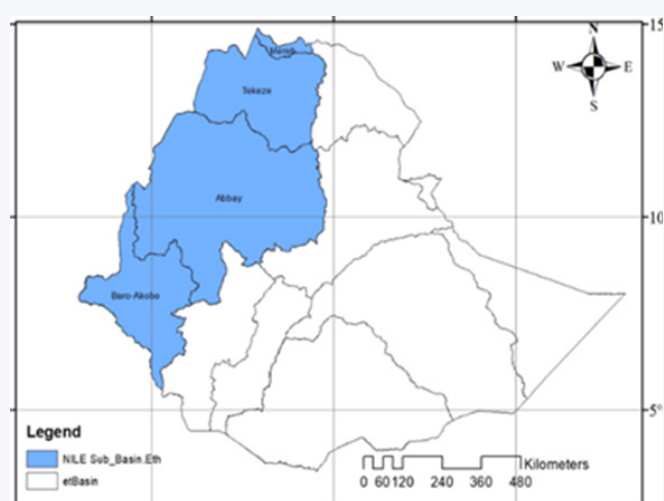


Figure 19: Map with Nile Basin part in Ethiopia

The rivers of the Abbay basin contribute on average about 62% of Nile River flows. Together with the contribution of Baro Akobo and Tekeze rivers, Ethiopia accounts for at least 85% of the flows to the Nile River.

### 5.3.1 Performance of the MAM 2026 Seasonal Impact

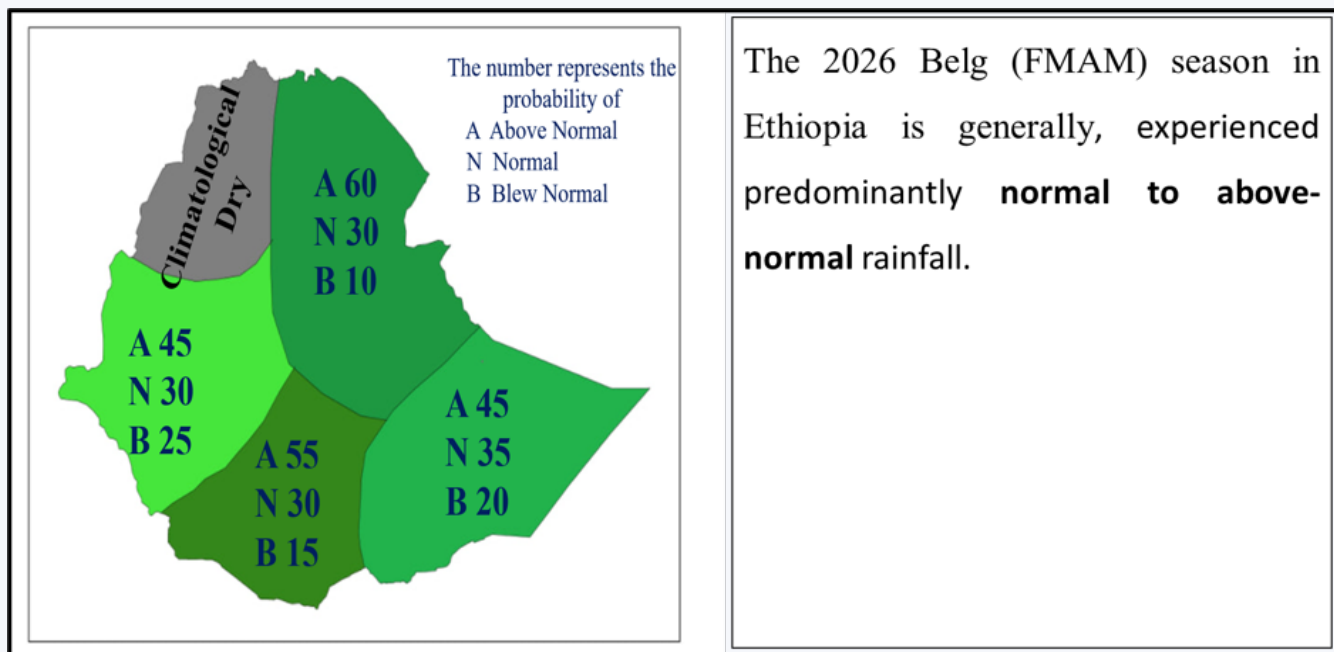


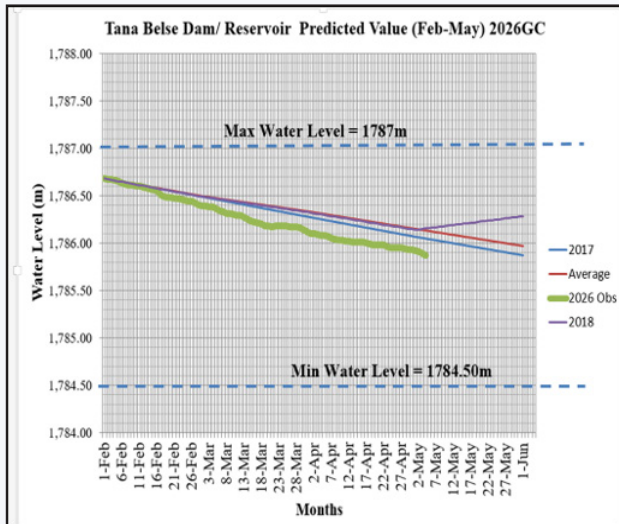
Figure 20: February -May 2026 rainfall pattern

However, excessive rainfall in some basins, particularly the Rift Valley Basin, triggered flooding that caused minor property damage and loss of life. In addition, a landslide due to heavy rainfall occurred in the Gamo zone (Figure 21).



Gamo zone surrounding Aribaminch woreda qola shale sego river damaged property March 10,2026

Figure 21: Occurrence of flooding in Gamo in Aribaminch during the March 10th, 2026.



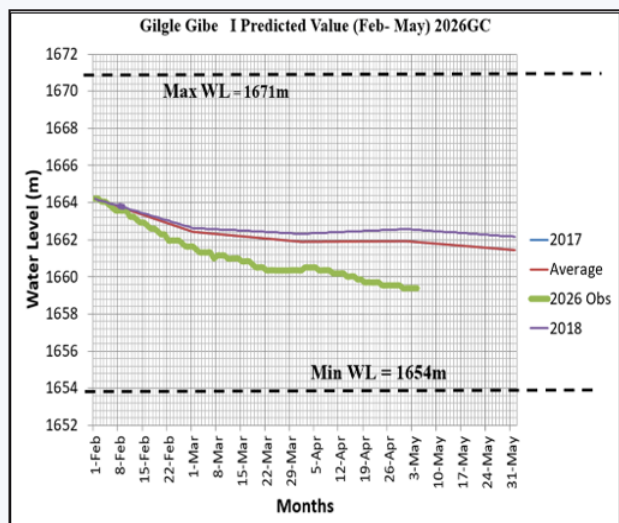
### Hydrological Observations

- **Inflow Deficit:** 2018 (purple line), which showed a distinct recovery and upward trend starting in late April, the 2026 data shows a continuous decline. This suggests that the Belg rains in the Tana basin have been largely ineffective or absent this year.

### Management Implications

- The water balance for Tana Beles is under notable stress. With the water level currently tracking below all provided historical reference years, careful management of the power tunnel intake is necessary.

Figure 22: Predicated and observed reservoir water levels and trend in Tana Belsa dam during the February-May 2026 and implications.



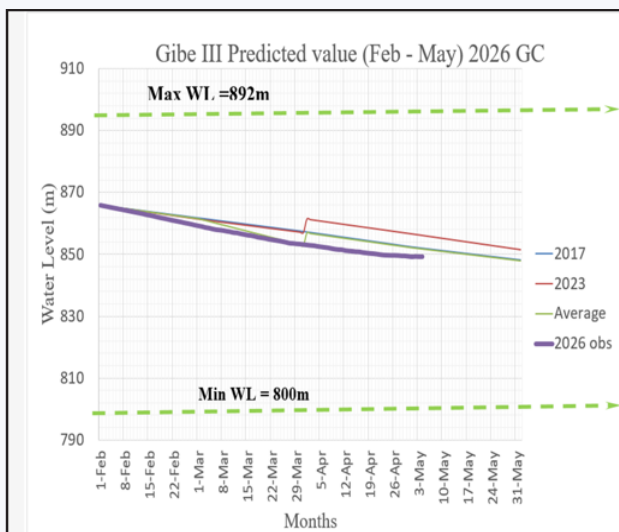
### Hydrological Observations

- The 2026 observed water level (thick light-green line) has dropped much faster and further than the historical average (red line) and the 2017/2018 reference years.

### Management Implications

- the water level is **2.60 meters below the historical average**, there is a heightened risk of approaching the minimum operating level prematurely if the Kiremt (main) rains do not arrive by June.
- Optimized energy dispatch and careful monitoring of the remaining active storage volume are recommended to maintain generation stability.

Figure 23: Predicated, observed reservoir water levels and trend in Gilge Gibe 1 dam during the February-May 2026 and implications.



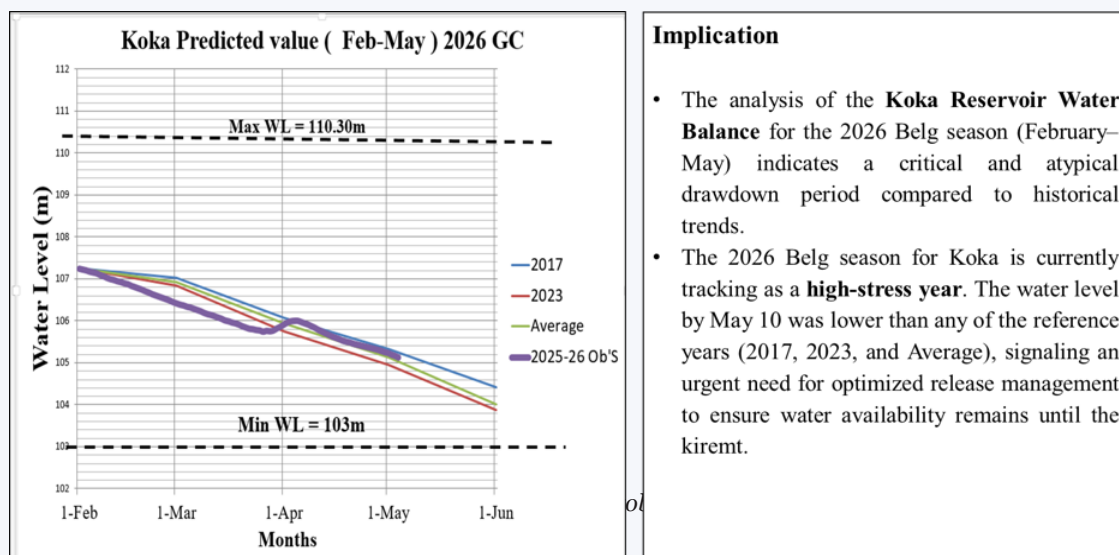
### Hydrological Observations

- The 2023 trend, which show a smaller decline rate starting in April, the 2026 curve continues to flatten at a lower elevation, suggesting very small inflow performance from the Omo basin during this secondary rainy season.

### Management Implications

- Careful discharge planning is recommended to maintain grid stability until the main inflows arrive in June.

Figure 24: Predicted, Observed reservoir water levels trends in Gibe III dam during the February-May 2026 and implications..



**Implication**

- The analysis of the **Koka Reservoir Water Balance** for the 2026 Belg season (February–May) indicates a critical and atypical drawdown period compared to historical trends.
- The 2026 Belg season for Koka is currently tracking as a **high-stress year**. The water level by May 10 was lower than any of the reference years (2017, 2023, and Average), signaling an urgent need for optimized release management to ensure water availability remains until the kiremt.

Figure 25: Koka dam's Predicted and observed water levels and implications during the February-May 2026 period.

### 5.3.2 Climate and Hydrological Outlook for JJAS 2026 Season and Implications

The Ogaden basin, along with parts of the Wabishebele and Genaledawa basins, is forecast to receive below normal rainfall. This is expected to result in a reduction in water supply, causing challenges for domestic use, livestock, and irrigation, as well as reduced hydropower production and increased risk of water contamination. In response, key proposed

measures include raising awareness on water quality and waterborne diseases, providing water treatment chemicals, and promoting awareness of water harvesting technologies. Table 1 provides summary on the JJAS 2026 forecast implications and key response measures for various basin.

Table 1: Summary of the JJAS 2026 forecast, implications and key responses measures

Basin	Forecast	Implication	Proposed Key Response measures
Ogaden, some part of Wabishebele, and Genaledawa	Below normal	Reduction in water supply	Awareness raising on water quality and water-borne diseases
		Challenges of water supply for domestic and livestock, and irrigation	Provision of water treatment chemicals
		Reduction in hydropower production	Awareness raising on water harvesting technologies
Tekeze Basin, Awash Basin, Denakil Basin, Omo-Gibe Basin,	Normal	Sufficient water available	Proper water management
		Potential for stable hydropower production	Water conservation measures
			Continue monitoring of the system
Baro Akobo and some part of Abay basin	Above Normal	Sufficient water available	Proper water management
		Potential for stable hydropower production	Water conservation measures
			Continue monitoring of the system

### 5.3.3 Recommendations and Advisories for Stakeholders in Ethiopia

1. Invest in rainwater harvesting and small-scale irrigation infrastructure.
2. Monitor river discharge in key basins for hydro-power and downstream planning.
3. Map and monitor flood-prone zones, particularly along major rivers.
4. Strengthen community-based flood early warning systems.
5. Improve rural and urban drainage systems to mitigate flood impacts.
6. Follow up and update on the monthly and decadal forecasts disseminated by the Ethiopian Meteorological Institute (EMI)
7. Multi-channel advisories for the dissemination of flood warnings and safety information like radio, SMS, community meetings, and water extension services
8. Provided timely advisories for irrigation managers, pastoral communities, and urban water utilities.
9. Working closely with Ethiopian Electric power (EEP) for proper management of dams and reservoirs holding sufficient water for the next season and releasing surplus water.

## 5.4 Kenya

Kenya falls within the Lake Victoria basin in the Horn of Africa region of East Africa with a land surface area of about 583,370 km<sup>2</sup>. The Lake Victoria basin represents 8.5% of the basin drainage area in Kenya and about 1.5% in the Nile River Basin (Figure 26). The major rivers in Kenya draining into Lake Victoria are Nzoia, Mara, Nyando, Sondu-Miriu and Gucha-Migori. Lake Victoria serves as a primary source of food and income for many people living along its shores due to its vast fisheries. It provides vital transportation routes between

various towns along the shoreline as well as Kenya and neighboring countries. The lake also plays a significant role in regulating the local climate, making it a crucial part of the Kenyan economy and ecosystem.



Figure 26: Map of part of the Nile Basin in Kenya.

### 5.4.1 Performance of the MAM 2026 Season and Impacts

The Kenya Meteorological Department (KMD) climate outlook for March-April-May (MAM) 2026 indicated a likelihood of near to above average rainfall in the Lake Victoria basin. It was observed that many parts of the western Kenya received average rainfall during the MAM 2026 season. Rapid increase in flows was witnessed across all the major rivers. Rivers Nzoia, Yala, Nyando, Mara, Sondu and Gucha-Migori as well as the shoreline streams recorded increased flows at the onset of the season surpassing the flood alarm levels (Figure 27). The Migori town and Ahero market were hit by severe flooding triggered by the Rivers Migori and Nyando respectively breaking their banks. River Migori burst its banks and caused severe flooding on February 23, 2026, and again on March 6, 2026. The swollen river destroyed the footbridge, washing away adjacent stalls in the market, and displacing hundreds of people. Subsequently, the Kenya National Highways Authority (KeNHA) temporarily closed the Migori River Bridge to ensure public safety and facilitate repair (Figure 28). On the other hand, Ahero Bridge in Kisumu County was breached and overflowed by the swollen river on 21st to 22nd March 2026 occasioning displacement of hundreds of people prompting an urgent advisory for motorists on Kericho-Awasi-Kisumu Road to seek alternative routes.

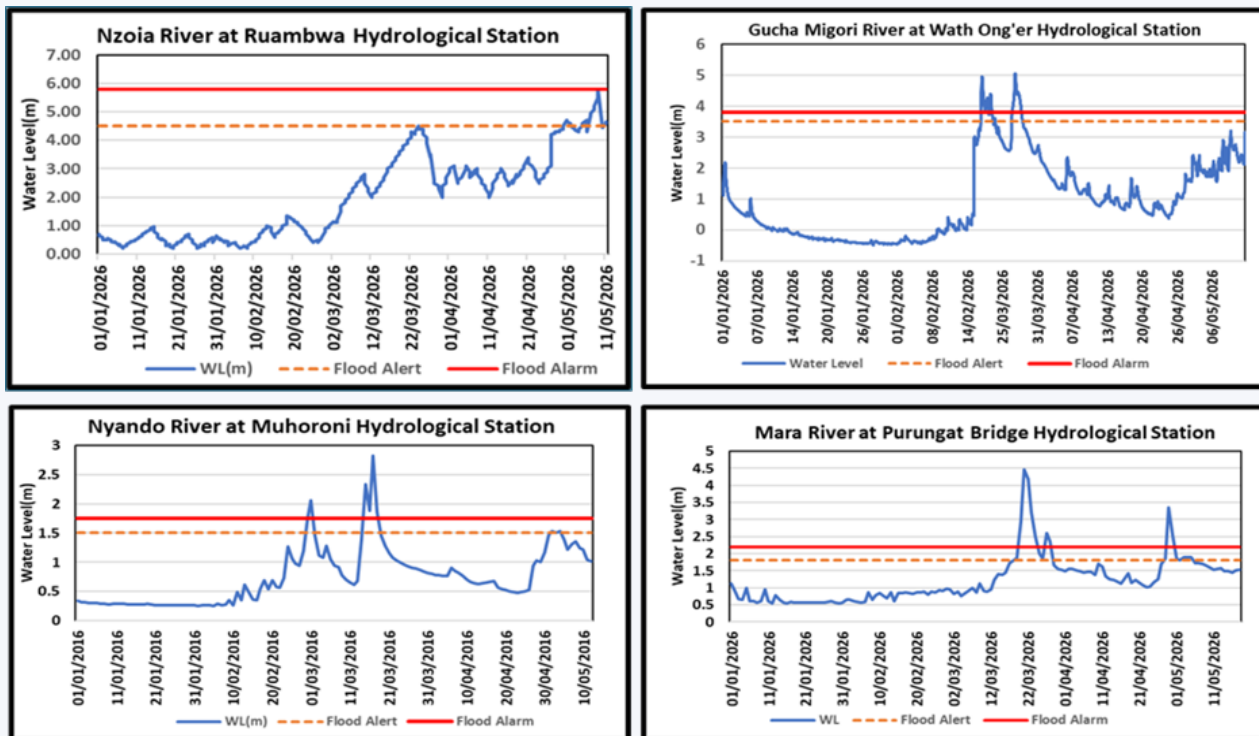


Figure 27: Observed water levels across the river of sub-basins of Lake Victoria in Kenya.

**Kenya National Highways Authority (KeNHA)**  
Quality Highways, Better Connections

**TRAFFIC ADVISORY**  
**TEMPORARY CLOSURE OF MIGORI RIVER BRIDGE**  
**7<sup>TH</sup> MARCH, 2026**

The Kenya National Highways Authority (KeNHA) wishes to inform the public and all motorists that the **Migori River Bridge** has been temporarily closed to traffic starting today, **7th March 2026**, until further notice.

The closure has been caused by **rising water levels in River Migori** following the ongoing heavy rains.

Motorists are therefore advised to use the **Kiringi Bridge** along the **Migori – Kehancha Road** as an alternative route.

KeNHA is closely monitoring the situation. Repair works will begin immediately once the water levels go down and it is safe for work to continue.

The Authority regrets any inconvenience caused and appreciates the public's cooperation.

Eng. Luka Kimeli  
DIRECTOR GENERAL

For all your enquiries email us at: [enquiries@kenha.co.ke](mailto:enquiries@kenha.co.ke) Toll Free Line: 0800 211 244 Customer Care: 0700 423 606 #RoadSafetyStartsWithYou

Website: [www.kenha.co.ke](http://www.kenha.co.ke)



Figure 28: Traffic advisory on the closure by Highway Authority and the status of Migori Bridge on 7th March 2026.

Other areas that were affected by the floods included Nyatike in lower Gucha Migori, Budalangi, Namanja, Msoma and Mabinja villages in lower

Nzoia, Nyakwere in lower Sondu (Figure 29). Flash floods were also experienced in Kisumu city, Nyamira and Kisi towns..



Figure 29: Status of Nyando River (left) and Lower Sondu at Nyakwere (right) in March 2026.

### 5.4.2 Climate and Hydrological Outlook for JJAS 2026

The Kenya Meteorological Department (KMD) and the Greater Horn of Africa Climate Outlook Forum (GHACOF73) predict drier and warmer-than-average conditions for the June-July-August/September (JJAS) 2026 season. Rainfall is expected to be below-normal, accompanied by sustained high temperatures, raising concerns for agricultural output and water resources across the region. It predicts below normal condition (55% probability); 15% probability above normal and 30% probability near normal in western Kenya including the Lake Victoria basin.

Consequently, rivers within the Lake Victoria ba-

sin predicted to experience normal to below normal flows. However, the shoreline areas are expected to remain inundated during most part of the JJAS season due to the effects of enhanced MAM rains. Simulation and forecasting of Nzoia, Yala, Nyando, Sondu and Gucha Migori rivers indicate declining flow trends during the JJAS season. The simulation indicates that Gucha Migori river is expected to recede from 451.95m<sup>3</sup>/s in June 2026 to 31.69m<sup>3</sup>/s at the end of September 2026. Similarly, Nyando and Sondu rivers are expected to recede from 510.4 m<sup>3</sup>/s to 19.3m<sup>3</sup>/s and 350.4m<sup>3</sup>/s to 21.3m<sup>3</sup>/s respectively during the same period. (Figure 30).

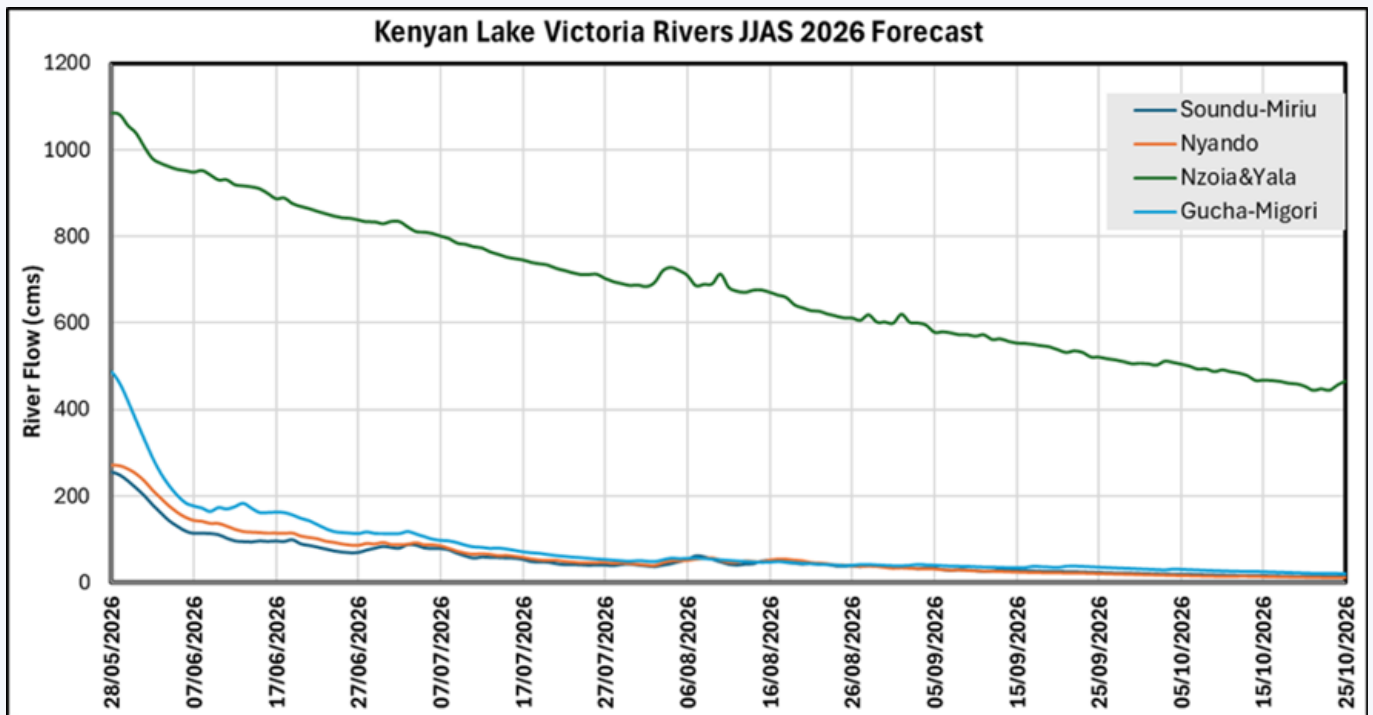


Figure 30: River flow forecast for Nzoia, Yala Nyando, Sondu and Gucha Migori rivers for JJAS 2026 season.

### 5.4.3 Implications of JJA 2026 Seasonal Outlook

Arising from the JJAS forecast, both positive and negative impacts are expected in Agriculture, Water Resources, Infrastructure and transport, Energy, Health and Tourism sectors:

- . The JJAS is the harvesting season within the Lake Victoria basin in Kenya. Farming activities include both cash crops like tea, sugarcane and coffee as well as subsistence crops like maize, beans, sweet potatoes etc. With the anticipated below average rainfall, harvesting of crops and preparation of farms for the subsequent short rain season will be done as traditionally planned. However, pasture is expected to be reduced in the lower dry reaches.
- . It is anticipated that there will be sufficient water resources for competing uses as a result of the enhanced MAM 2026 rainfall. However, reduced groundwater recharge is anticipated.
- . Reduced hydroelectric power generation is expected at Sondu Miriu, Gogo and other small hydroelectric power plants within the basin.
- . No potential destruction of roads and other infrastructure is anticipated during this season and those that were impassable are expected to be motorable.
- . Reduced incidences of water borne diseases is expected
- . The tourism sector is anticipated to benefit from the anticipated drier season since access to the national parks, e.g Maasai Mara will not be hampered by floods. On the other hand, much as the river flows are expected to recede, the environmental flows are likely to be maintained for ecological services.

### 5.4.4 Recommendations and Advisories for Stakeholders in Kenya

Declining river flows are expected across the Nzoia, Yala, Nyando, Sondu, Kuja Migori sub basins. However, the rivers are expected to maintain normal flows throughout the season. The shoreline areas are likely to remain inundated due to sustained high lake water level. The following interventions and advisories are therefore proposed.

1. Dissemination of the JJAS 2026 Hydrological Outlook to relevant agencies (County/National);
2. Provide low-flow watch advisories for water utilities dependent on Rivers Nzoia, Nyando, Yala, Sondu, Mara, Gucha, Migori and their tributaries;
3. Maintain and rehabilitate the Hydrological monitoring network;
4. Undertake water pollution surveillance on point pollution sources.
5. Respective counties within the Lake Victoria basin, Kenya should clear and rehabilitate drainage systems during the dry seasons in anticipation of the rainy seasons
6. Maintain and repair dykes along lower Nzoia and Nyando river;
7. vii. Continuous monitoring water levels and flows.

## 5.5 Rwanda

Rwanda is in the most upstream part of the Nile Basin with a land surface area of about 26,338 km<sup>2</sup> with about 76% in the Nile River Basin representing 0.6% of the Nile Basin drainage area. The Rwandan's hydrographic system is split into two basins divided by the Congo-Nile ridge, with water systems to the west of the ridge flowing into the Congo Basin, whereas those to the east of the ridge discharge into the Nile Basin (Figure 31). The country is increasingly experiencing the impacts of climate change. Rainfall has become increasingly intense, and the variability is predicted to increase by 5% to 10%.

Changes in temperature and precipitation and their distributions are the key drivers of climate and weather-related disasters that negatively affect Rwandans. Historically, droughts, floods, and landslides have resulted in infrastructure damage, loss of lives, livelihood and property, and increased soil erosion and water pollution.

### 5.5.1 Performance of the MAM 2026 Season and Impacts

The MAM season was forecasted to receive a slight-

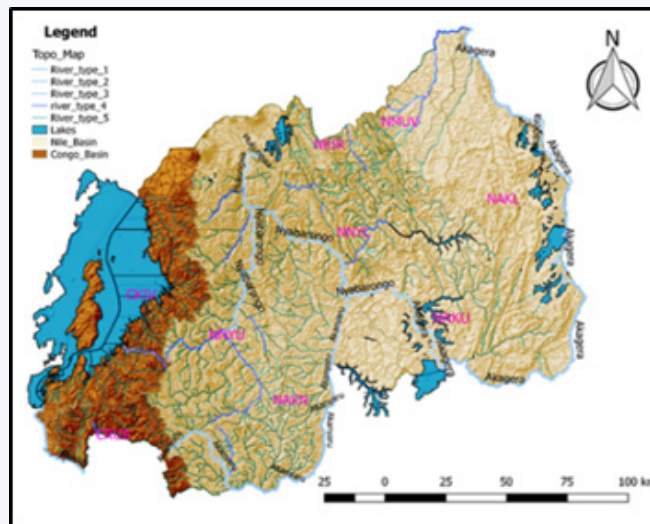


Figure 31: Rwanda drainage system

ly above-normal rainfall across the country. Consequently, river levels and flows and lake water level were expected to increase. The predictions on the rise in water levels in rivers and lakes were confirmed with ground observation data at various monitoring stations across the country. Most of the hydrological observation stations recorded above normal water levels with evaluation from February to May showing increasing trends (Figure 32 and Figure 33).

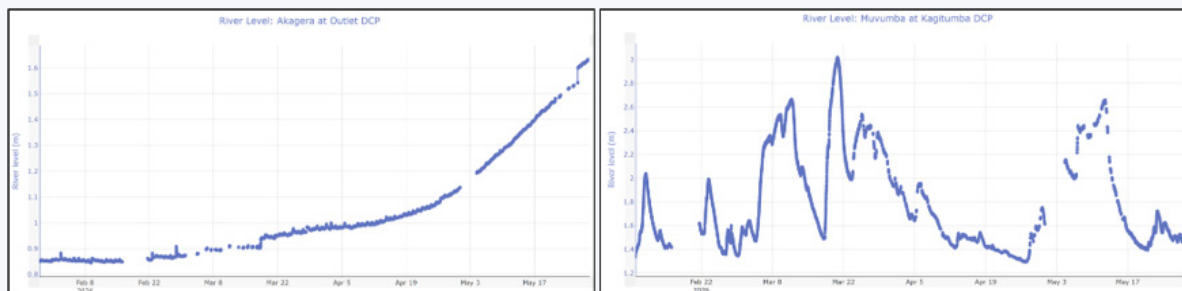


Figure 32: Observed water levels of Akagera River at Kanzenze station from February to May 2026

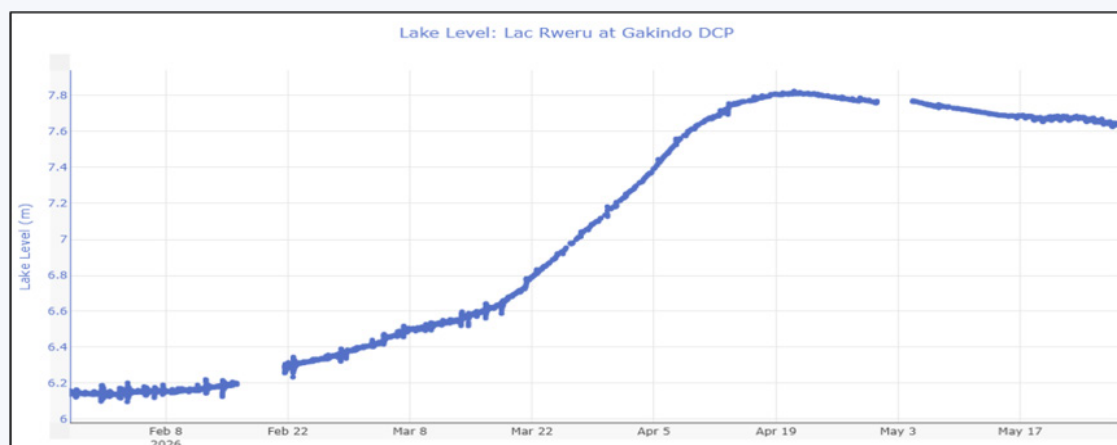


Figure 33: Observed water levels of Lake Rweru at Gakindo station from Feb to May 2026

Surprisingly, there were recorded high river water levels and flows in March compared to April, which is not normally experienced in terms of hydrological conditions. Incidences of flash and riverine floods were observed along the rivers and gullies due to

high rainfall intensity. Reported impacts (from 1st March to 20th May) highlight the flood-related incidents as predicted by the MAM hydrological outlook (Figure 34).

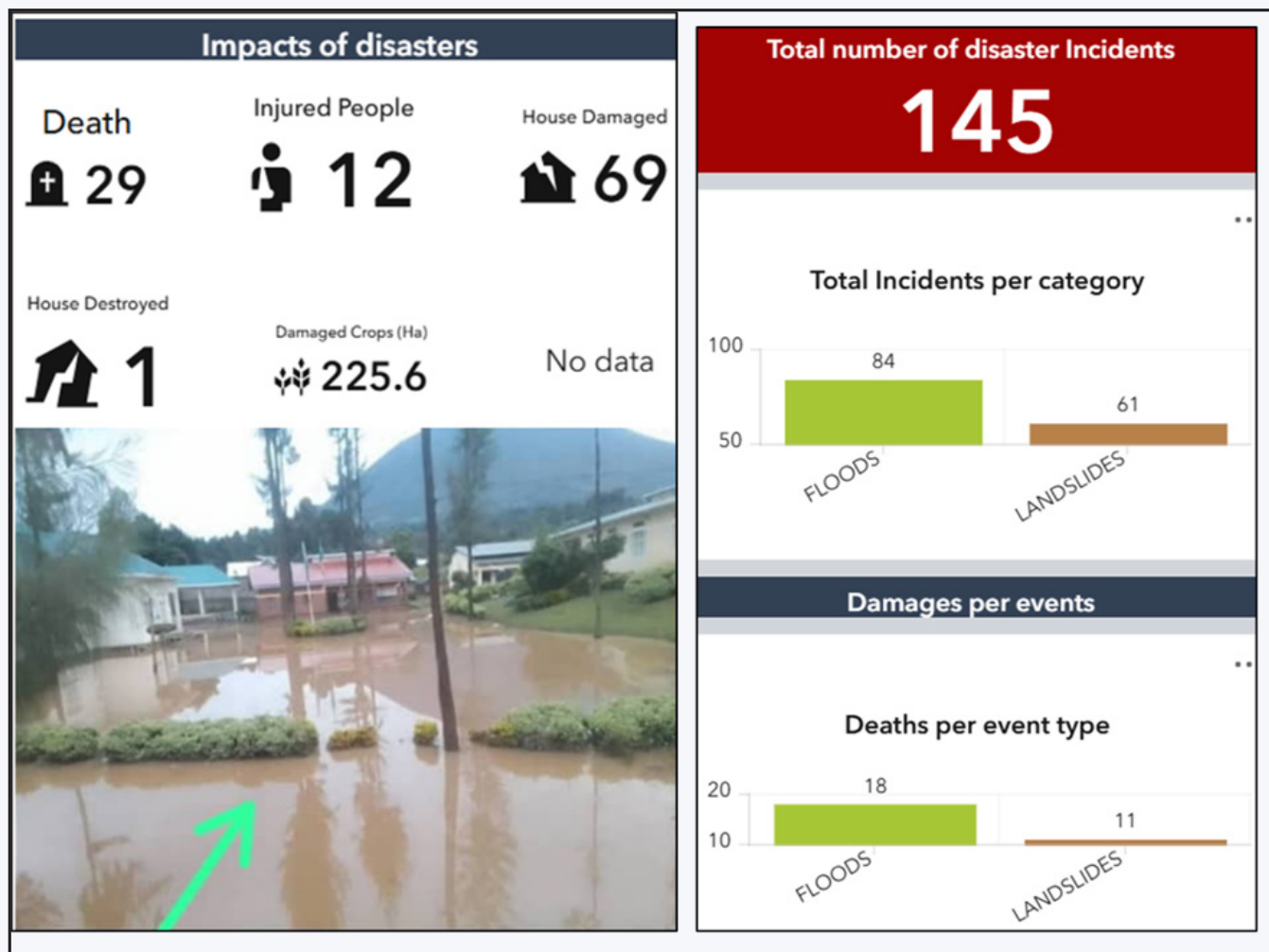


Figure 34: Flood and landslide impacts recorded in MAM 2026 season.

### 5.5.2 Climate and Hydrological Outlook for JJAS 2026 and Implications

The JJAS is considered a main dry season in Rwanda. The seasonal forecast for June to September (JJAS) 2026 published by ICPAC indicated the main dry season with a forecast of below normal rainfall. Consequently, river flows are expected to decrease which may lead to lakes and reservoir water level reduction.

The forecast for Akagera River at Kanzenze and Gatore stations indicate a continuous decrease in river flows from June to September. The river flow is ex-

pected to decline from 204 cms in June to 73 cms in September representing about 65% drop (Figure 35), hence reduced inflow to the connected lakes.

riverine and flash floods as well as an increased sedimentation in rivers, lakes and dams in various areas, especially in the North-West of Rwanda.

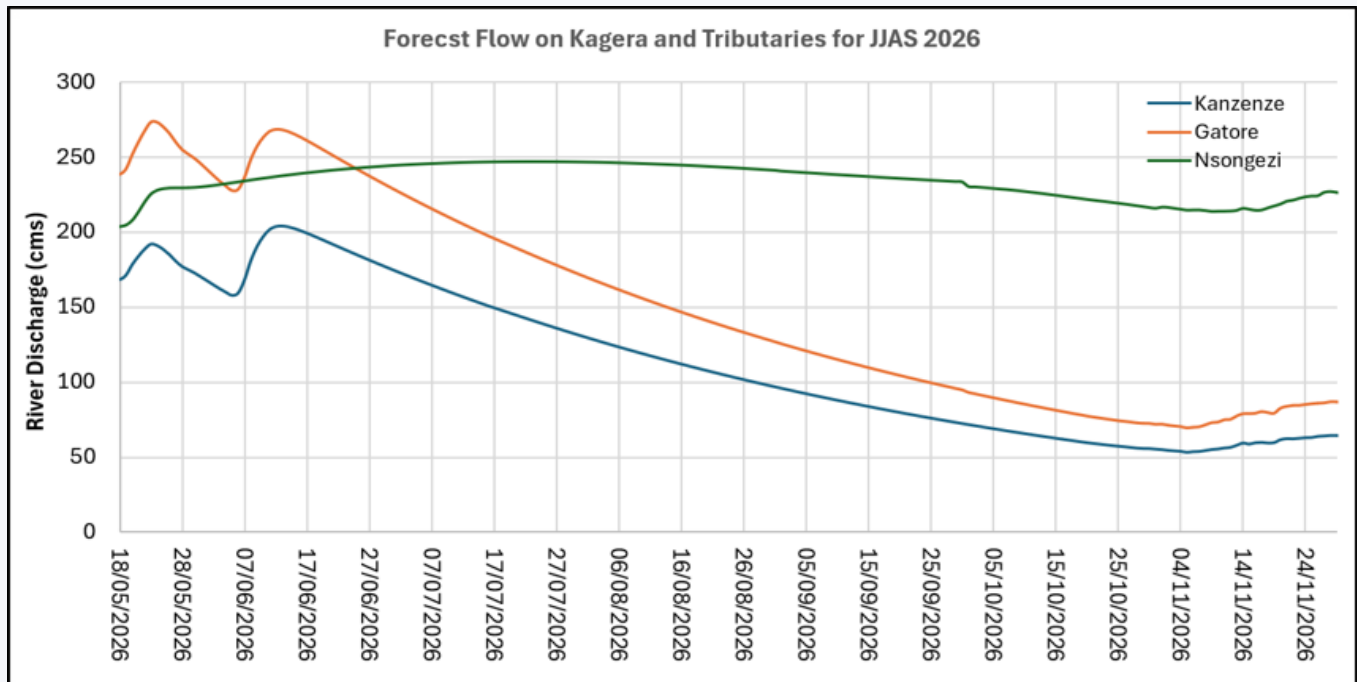


Figure 35: Akagera River flow forecast at Kanzenze and Gatore and Nsongezi Hydrological Stations for JJAS 2026.

The reduced flow from Akagera River and inflow to Lake Rweru is expected to minimally impact the hydropower production and operations at Rusumo Hydropower Plant, as the lake levels will attenuate the flow downstream to Rusumo Hydropower. Other impacts include, reduction of agriculture production, reduction in lakes and reservoirs water levels, reduced water availability for domestic water supply, and reduced energy production for runoff hydropower plants.

### 5.5.3 Recommendations and Advisories

1. Optimize dams and small reservoirs operations through collaboration between the Rwanda Water Resources Board (RWB) and dams' operators.
2. RWB to continue monitoring, forecasting and issuing regular updates on river flows to inform quick intervention measures and strategies of water conservation.
3. Strengthen rural water access points through repair and use of boreholes and springs in anticipation of surface water shortages.
4. RWB to encourage water users to take measures of water conservation and water use efficiency.

5. Prioritise water storage development for different uses such as dams and reservoir,
6. Implementation of water conservation measures such as groundwater recharge, and wetland restoration.
7. Increasing groundwater boreholes as an alternative to surface water for domestic water supply.

## 5.6 South Sudan

South Sudan is in the mid-stream part of the Nile Basin covering an area of about 644,329 km<sup>2</sup> with about 98% in the Nile River Basin representing 20% of the basin drainage area. The country drainage system consists of four basins namely, White Nile, Bahr El Jebel, Sobat and Bahr El Ghazal (Figure 36). The Sudd wetland, located within Bahr-El Jebel and Bahr El Ghazal basins, is a regionally important hydrological feature in addition to the Machar Marshes in Sobat Sub basin. The country received annual rainfall of 500mm to 1800mm. Most rivers in South Sudan are transboundary in nature-shared with neighbouring countries of Uganda, Sudan, Ethiopia and Kenya.

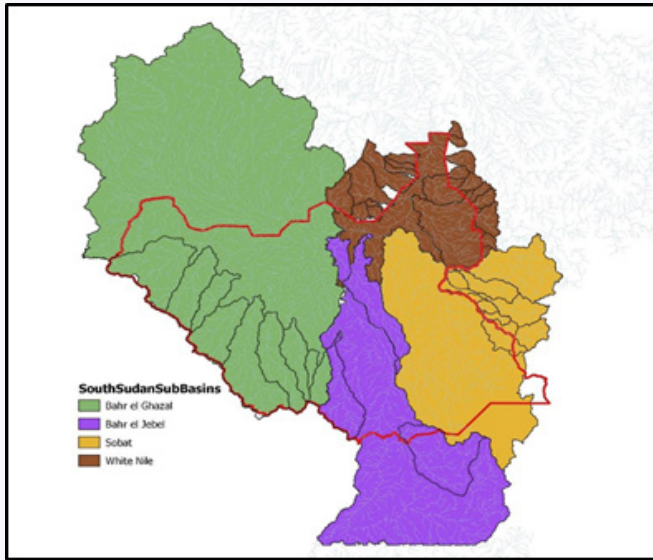


Figure 36: South Sudan drainage system

These rivers are monitored by an eighth hydrometric station of which seven are either manual and/or automatic and one is manual. Under the NBI-Hydro met Project, five of these stations have been upgraded into fully functional regional hydrological observatories, enhancing real-time data acquisition and basin-wide interoperability. Furthermore, the re-activation of 18 flood emergency gauge stations under the Regional Climate Resilience Program (South Sudan Project) has significantly

strengthened the country’s capacity for hydrological monitoring, flood forecasting, and early warning dissemination during the 2026 flood season.

### 5.6.1 Performance of the MAM 2026 Season and Impacts

Normal to above normal rainfalls forecasted in parts of Central Equatoria, Eastern Equatoria, Lakes, Unity, Warrap, Jonglei and Upper Nile states consistent with the ICPAC seasonal forecast for MAM2026 (Figure 37). Warmer-than-average Temperatures across most parts of South Sudan with higher probabilities over isolated areas in the far North-east and Northwest of the country.

Observations indicate above normal rainfall received during MAM with up to 200mm of rain received in March in the south-eastern part of Eastern Equatoria and up to 150mm of rain observed in Central, Western and parts of Eastern Equatoria States (Figure 37). A cumulative MAM2026 performance has not been produced since the season is ongoing.

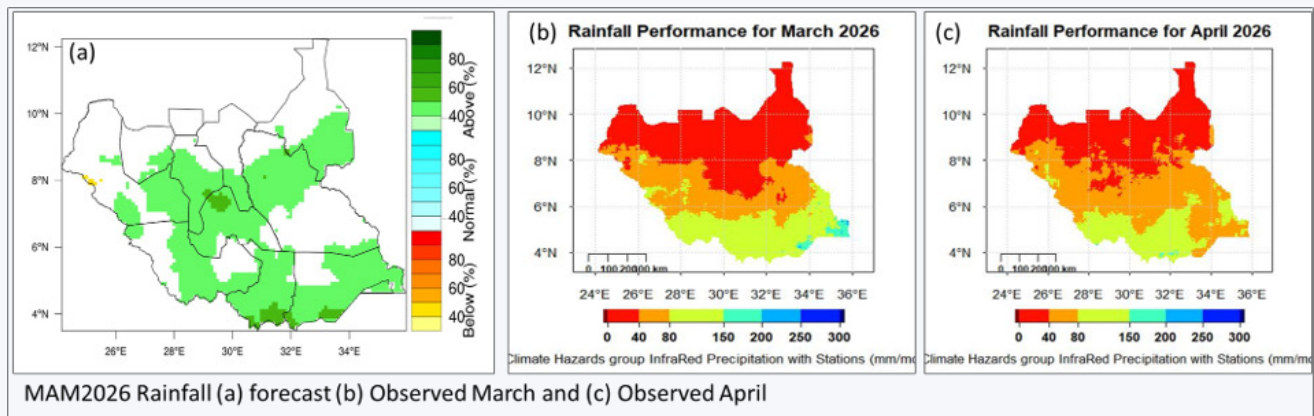


Figure 37: MAM2026 rainfall (a) forecast (b) observed March and (c) observed April 2026.

Hydrological observations at key hydrometric stations in Nimule, Juba, Mangala and Malakal (Figure 38) generally indicate an early rise in water levels right from mid-March consistent with the observed early rainfalls during MAM 2026. Nonetheless, water levels are generally below flood alert

levels for all principal hydrometric stations along the Nile.

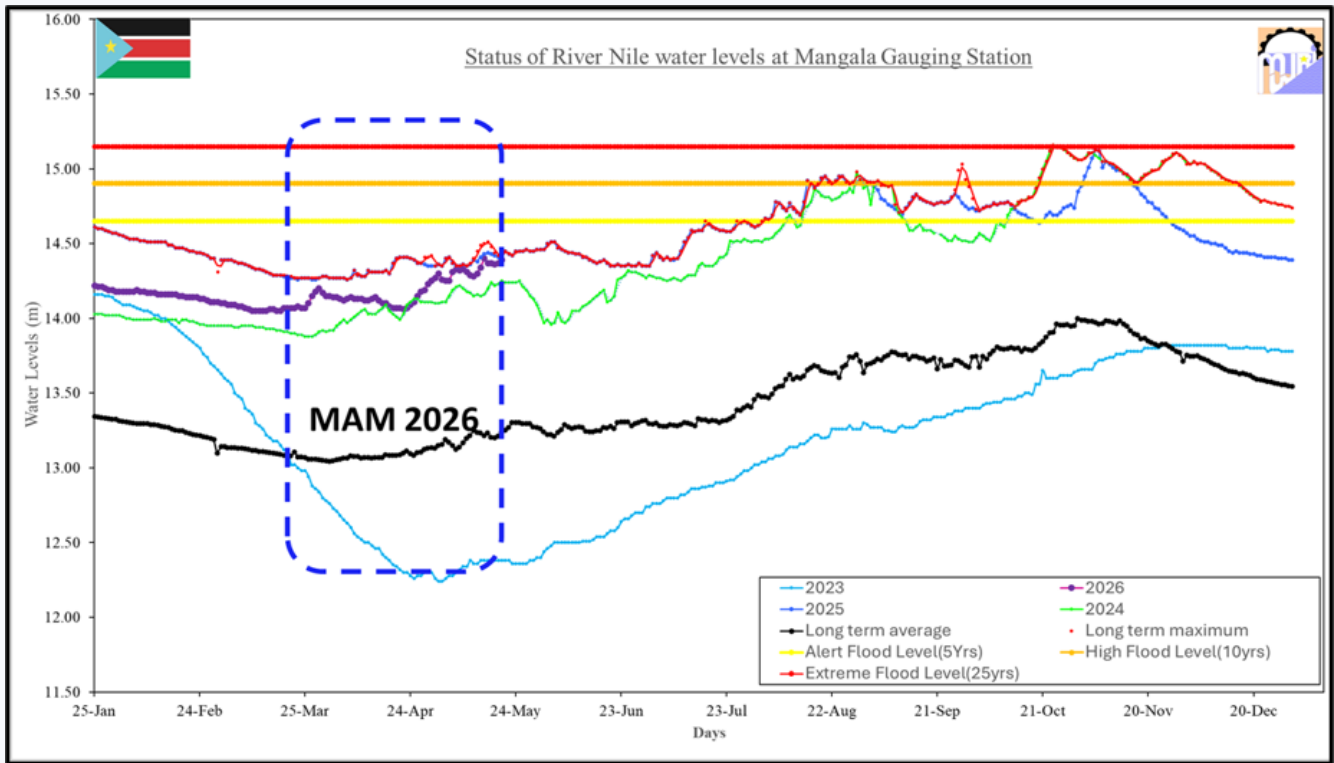


Figure 38: observed MAM 2026 water levels on Bhar el Jebel River at Mangala, South Sudan.

The registered positive impacts of MAM 2026 include no cases of riverine floods since river water levels remained below flood alert marks, the early rainfall improved water availability for domestic and agricultural and replenished community water harvesting systems in Eastern States thereby strengthening household and agricultural water security and clear raw river water reduces cost of water treatment at Juba urban water treatment plant. However, some negative impacts were also recorded such as on 18 March 2026, an intense, short-duration downpour over the Juba city triggered a severe flash flood which resulted in extensive damage to property, infrastructure, and residential dwellings. Multiple major transport. Extreme rainfall in Kajokeji County of Central Equatoria caused flash floods in Lubajo Stream and carried away a passenger vehicle causing the death of nine women and a baby boy on 25th March 2026. On 03rd April 2026, flash floods in Wau, Western Bahr-el-ghazal blocked and flooded some supermarkets. Also, on 18 April 2026 heavy rainfall with thunderstorm killed one person and injured three people in

Southern Malakal, Upper Nile State

Some of the observed negative impacts of MAM2026 are shown in (fig. vv) of different locations affected by flash floods .



Figure 39: Flash flood impacts in MAM2026.

### 5.6.2 Climate and Hydrological Outlook for JJAS 2026 and Implications

The South Sudan Meteorological Service (SSMS) has released the national climate outlook after ICPAC released the JJAS 2026 seasonal outlook (Figure 40). High chances (>80%) of below normal rainfall and higher chances (>85%) of above

normal temperatures are expected in the four basins (Bahr-el-Ghazal, Sobat, Bahr-el-Jebel and White Nile) of South Sudan. Areas in northern Upper Nile, north-western Unity and north-eastern Warrap States may receive above normal rainfall though with low probability ( $\leq 40\%$ ).

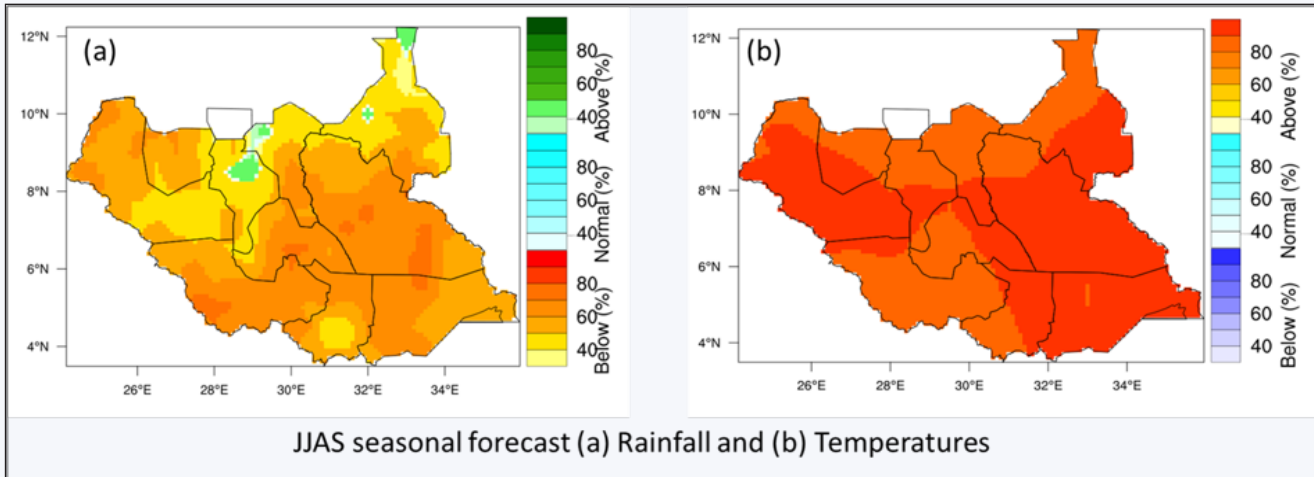


Figure 40: JJAS2026 forecast (a) rainfall and (b) temperatures

Based on climate seasonal outlook, a hydrological outlook has been generated, from the tools mentioned in Section 2, for key gauging stations at Mangala, Bor and Malakal (Figure 41) indicating declining trends in river flows at Mangala and Bor.

At Malakal however, an increasing trend will be observed which can be attributed to inflows from Sobat River. Similar river flow forecasting is expected for all other rivers in the four basins of South Sudan.

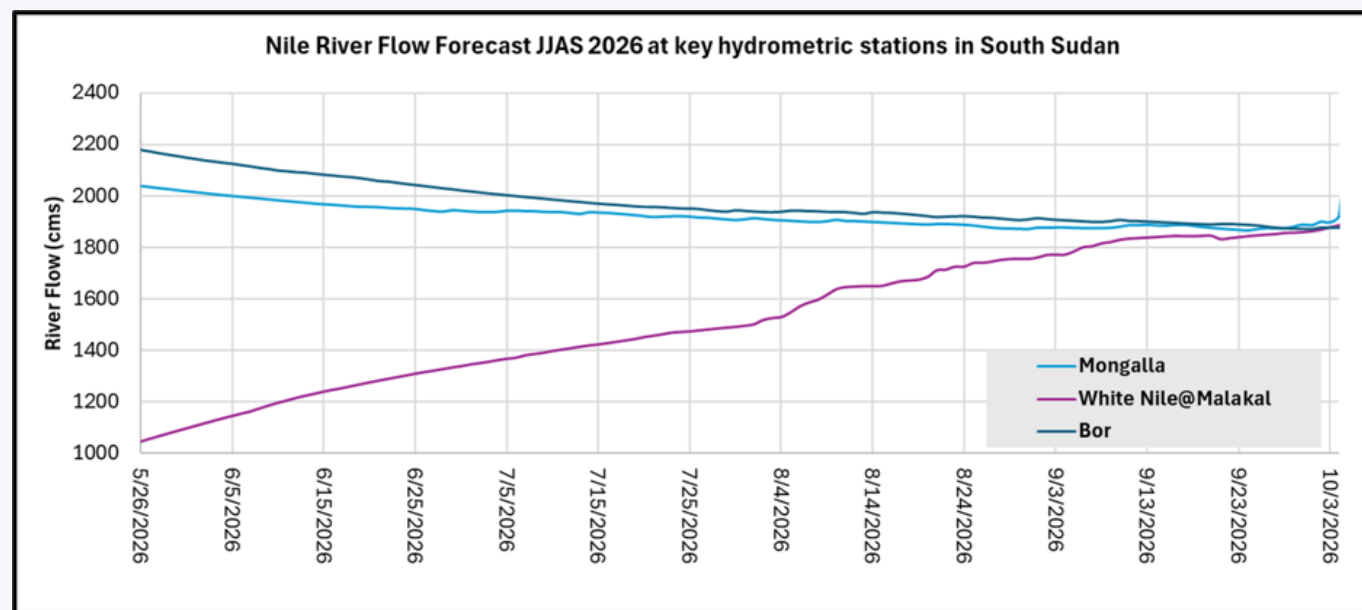


Figure 41: Hydrological JJAS 2026 forecast at Mangala, Bor and Malakal gauge stations.

### 5.6.3 Recommendations for Stakeholders in South Sudan

Based on the current observations and the forecast for the JJAS 2026 season, the following recommendations and advisories are hereby issued to provide guidance on the necessary actions that reduces the risk and enhances resilience

#### Short-Term Interventions

1. Clearing drainage infrastructure and repairing worn-out dykes, and
2. Desilt the hafirs to increase their capacities to harvest more water.
3. Continuous monitoring of river water levels and flows
4. Awareness raising on water conservation
5. Cooling and rehydration measures
6. Continue data and information sharing between countries

7. Update flood/drought preparedness and response plan

#### Long-Term Interventions

- i. Promote transboundary hydrometeorological data and information sharing and real-time information exchange among Nile Basin countries to improve coordinated flood and drought management.
- ii. Invest in hydraulic infrastructure development such as dams, reservoirs and engineered dykes for flood and drought management.
- iii. Promoted the use of Nature-based solutions (NBS) for floods and drought management
- iv. Scale up the implementation of flood and drought resilient programs.

## 5.7 Sudan

Sudan has a total land area of approximately 1.864 million km<sup>2</sup>, of which about 1.4 million km<sup>2</sup> lies within the Nile River Basin, representing nearly 75% of the national territory and approximately 44% of the total Nile Basin drainage area. Within Sudan, the basin comprises the Blue Nile, White Nile, and Atbara River sub-basins. The Blue Nile and White Nile converge at Khartoum, forming the main Nile River, which flows northward for approximately 1,755 km before entering Egypt and reaching the High Aswan Dam (Figure 42). The hydrological regime of the Nile in Sudan is characterized by pronounced seasonality driven by monsoonal rainfall over the Ethiopian Highlands, with the majority of annual discharge occurring during the July–October period. This seasonal pattern is primarily, which contributes most of the flow to the Blue Nile and Atbara River, while the White Nile provides a more regulated baseflow, driven by rainfall over Equatorial Nile systems.

The Nile constitutes a critical socio-economic and

environmental resource for Sudan. It supports extensive irrigated agriculture, supplying water for key crops such as cotton, wheat, and sorghum, and underpins some of the country's most productive agricultural systems. The river also plays a central role in hydropower generation, with major infrastructure such as the Merowe Dam depending on sustained river flows for electricity production. In addition, Nile flows contribute to the recharge of major groundwater systems. The Nile functions as an important inland transportation corridor and supporting regional trade and connectivity.

Sudan is one of the most downstream countries within the Nile River system, receiving the majority of its surface water inflows from upstream trans-boundary sources, including both the Eastern Nile and the Equatorial Nile systems. The White Nile flood regime in Sudan is primarily influenced by inflows from the Equatorial Nile (Bahr el-Jebel) and the Sobat River, the latter draining the Baro–Ako-bo sub-basin in southwestern Ethiopia.

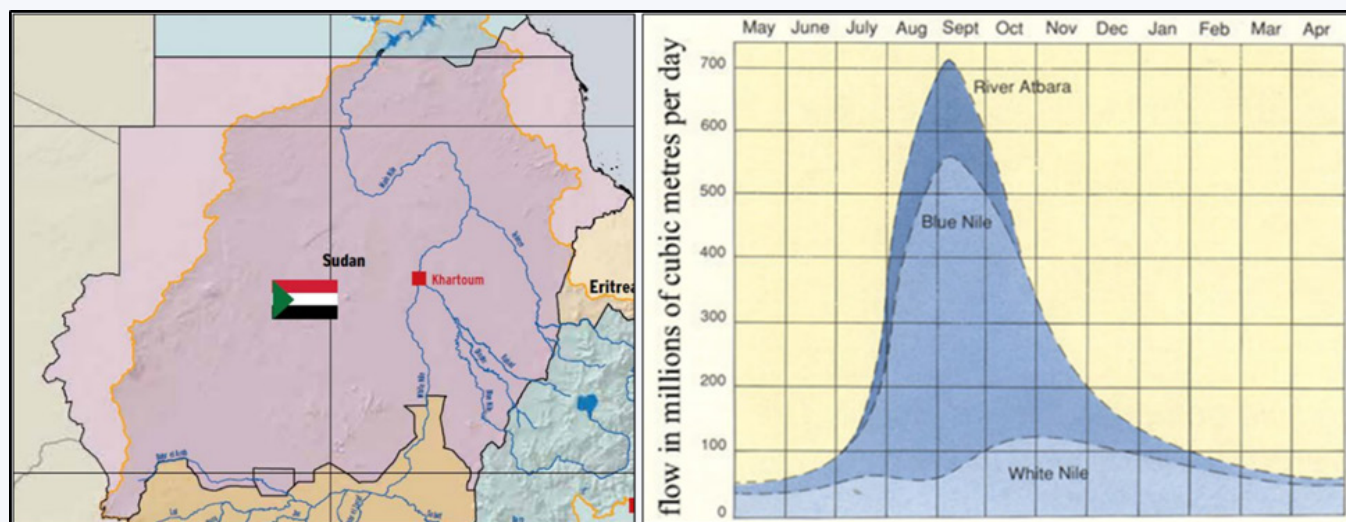


Figure 42: Nile Basin in Sudan and Nile Hydrograph

### 5.7.1 Performance of MAM 2026 Season and Impacts

The MAM 2026 climate outlook from ICPAC GHACOF72 and the SMA seasonal product indicated wetter-than-normal probabilities over parts of the upper Nile headwater regions, with near-normal rainfall conditions over Sudan. The supplied station observations show that this seasonal sig-

nal translated differently across Sudan stations. Deim showed strongly above-normal inflow during March–April and remained above the long-term mean, while Upper Atbara had early-season pulses followed by a sharp reduction in May (Figure 43). For Dinder and Rahad, MAM is generally a low-flow/pre-rainy-season period, and the ma-

for hydrological response is expected later during JJAS 2026. Table 2 provides summary of stations forecasted flow conditions and observation during

MAM 2026, performance and impacts..

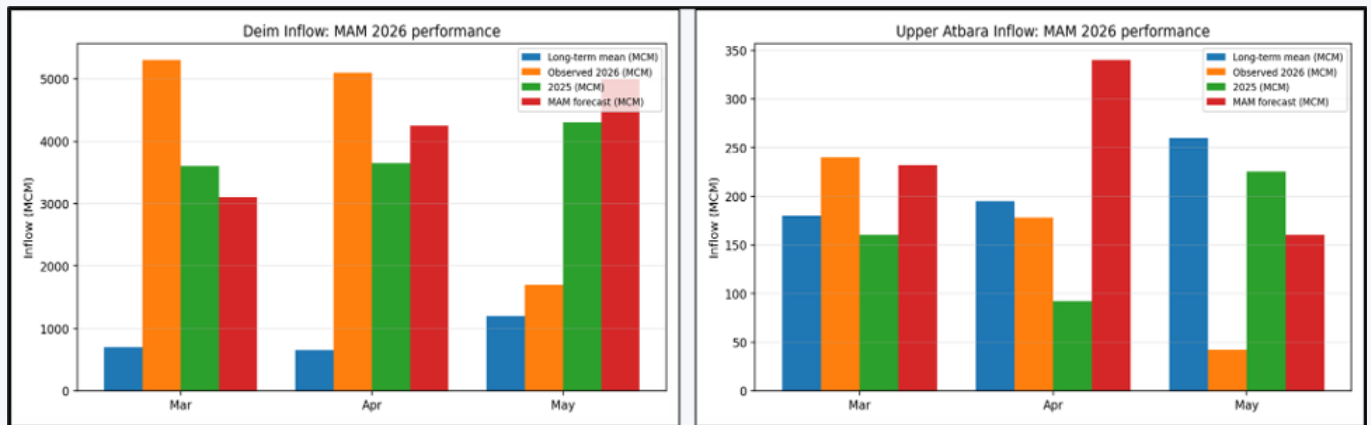


Figure 43: Deim and Atbara MAM 2026 performance compared with forecast and long-term mean.

Table 2: Station-wise verification summary of MAM 2026 hydrological outlook.

Station	MAM 2026 outlook signal	Observed MAM 2026 behaviour	Performance rating	Impacts
Deim	Above-normal tendency in upper Blue Nile headwaters	Observed flows were much higher than LTM and remained above LTM in May	Good for direction; May forecast over-estimated	High early Blue Nile inflow, improved storage, continued need for monitoring
Upper Atbara	Near/above-normal early pulse but high variability	Observed March was above LTM; April near LTM; May fell below LTM	Fair: March captured, April/May overestimated	Variable Atbara response, no sustained flood signal during MAM
Dinder	Low pre-season flow; limited MAM signal	No supplied MAM inflow graph; basin usually responds mainly during JJAS	Not quantified from supplied files	Minimal direct MAM hydrological impact
Rahad	Low pre-season flow; limited MAM signal	No supplied MAM inflow graph; basin usually responds mainly during JJAS	Not quantified from supplied files	Minimal direct MAM hydrological impact
Khartoum	Gradual rise influenced by upstream Blue Nile and Atbara response	No supplied MAM graph; main Nile expected to reflect upstream contribution with lag	Not quantified from supplied files	No major MAM flood indication from supplied data

### 5.7.2 Climate and Hydrological Outlook for JJA 2026 and Implications

The June-September period is the main hydrological season for Sudan. The ICPAC GHACOF73 JJAS 2026 rainfall outlook indicates an enhanced likelihood of below-normal rainfall over much of the region, Sudan is more likely to be near-normal/transition, while localized eastern and southeastern

catchments may still experience episodic intense rainfall. The hydrological forecast should therefore be interpreted as below-normal to near-normal seasonal runoff, with continued risk of short-duration high flows during July-September. The expected implications are the negative impacts on Agriculture, Water Resources and Availability, Transport, and Energy

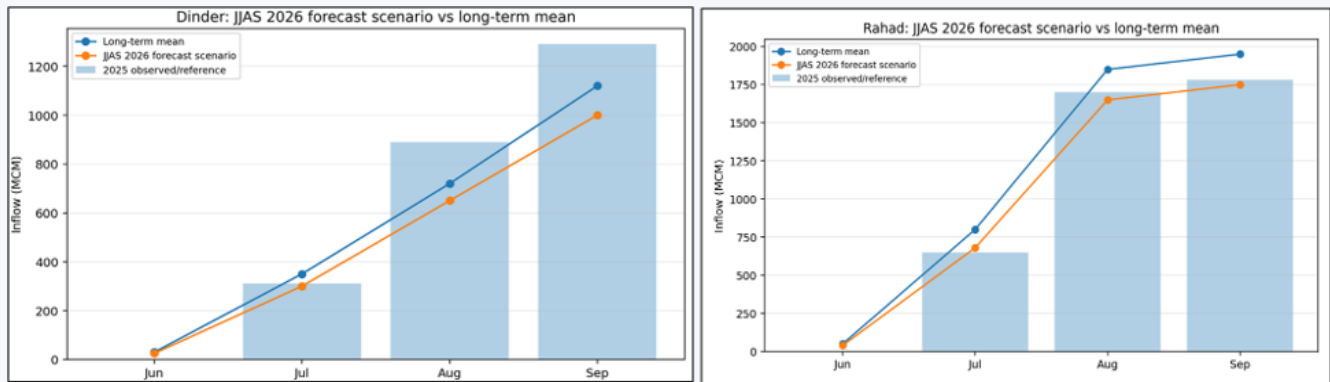


Figure 44: Dinder and Rahad JJAS 2026 forecast scenario versus long-term mean.

### 5.7.3 Recommendations and Advisories

#### Short-Term Interventions

1. Activate close monitoring of Deim, Upper Atbara, Dinder, Rahad and Khartoum and the other key stations.
2. Use Sudan-IBF, Sudan-FFEWS, EN-FFEWS, NB-FEFFS, and NB-FFEWS products to update riverine and flash flood advisories, especially after heavy rainfall alerts in Ethiopian and Eritrean headwaters.
3. Maintain readiness for localised flash flooding even under below-normal seasonal forecast conditions, particularly in Blue Nile, Kassala, Gedaref, Sennar and Khartoum vulnerable areas.
4. Prepare reservoir and irrigation operation plans, considering observed July-August inflows confirm the seasonal trajectory.

#### Long-Term Interventions

- i. Promote transboundary hydrometeorological data and information sharing and real-time information exchange among Nile Basin countries to improve coordinated flood and drought management.
- ii. Enhance real-time telemetry, rating curve updating for Deim, Upper Atbara, Dinder, Rahad and Khartoum and the other key sta-

tions.

- iii. Develop station-specific seasonal verification routines to compare forecasted, long-term mean and observed flows after every season.
- iv. Improve basin-scale hydrological modelling by assimilating ICPAC, SMA, Sudan-IBF, Sudan-FFEWS, NB-FEFFS, EN-FFEWS and national hydrometric observations.
- v. Update floodplain maps and community response plans for the vulnerable Nile, Blue Nile, Atbara, Gash, Dinder, and Rahad reaches.
- vi. Promote integrated reservoir operation and drought/flood contingency planning under increasing rainfall variability and warmer-than-normal temperature conditions.

## 5.8 Tanzania

Tanzania lies in the upstream part of the Nile Basin, covering approximately 945,100 km<sup>2</sup>, of which about 12% falls within the Nile River Basin. This area represents around 2.7% of the entire Nile Basin drainage area. The Lake Victoria Basin within Tanzania supports a population of about 15 million people and is divided into five catchments: Kagera, Mara, Simiyu, Magogo-Moame, and Isanga (Figure 45). The main rivers in these catchments include the Kagera, Simiyu, Mbaraget, Grumeti, Duma, Mara, Ngono, Magogo-Moame, Isanga, and Mori.

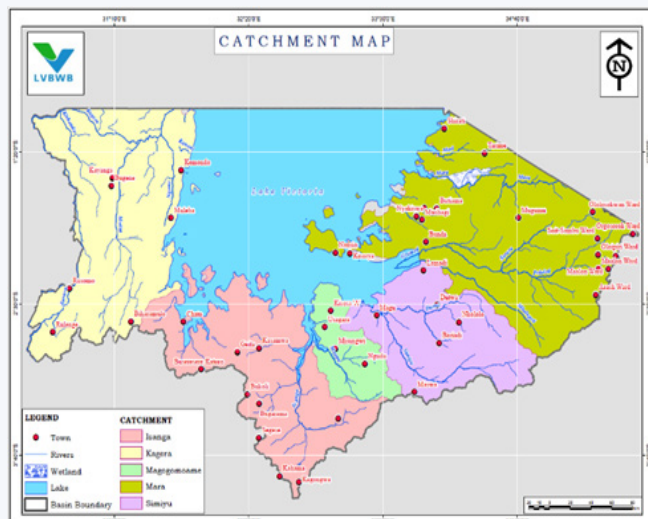


Figure 45: Lake Victoria Basin drainage area in Tanzania

### 5.8.1 Performance of MAM 2026 Season

During the March to May 2026 season, the basin received rainfall ranging from 60 mm to 500 mm, which was within the normal to above-normal

range as forecasted by the Tanzania Meteorological Agency (TMA) and GHACOF as shown below by Figure 46.

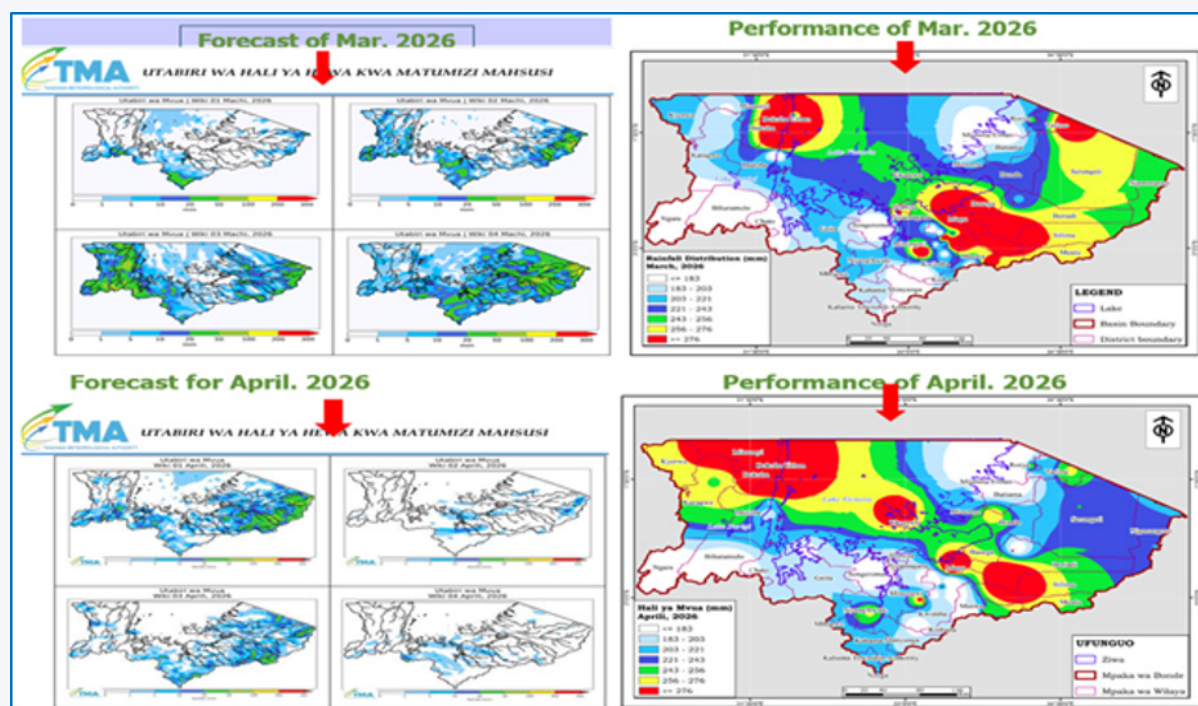


Figure 46: Forecast VS Performance in MAM 2026.

Information from both regional and national monitoring stations during the March–May (MAM) 2026 season indicated that river inflows were extremely high in some catchments, such as the Mara catchment, compared to the inflows recorded during MAM 2025, particularly in March 2026.

This was attributed to the normal to above-normal rainfall received across the basin during March and April 2026. However, the water levels of Lake Victoria remained similar to the values recorded during MAM 2025 (Figure 47).

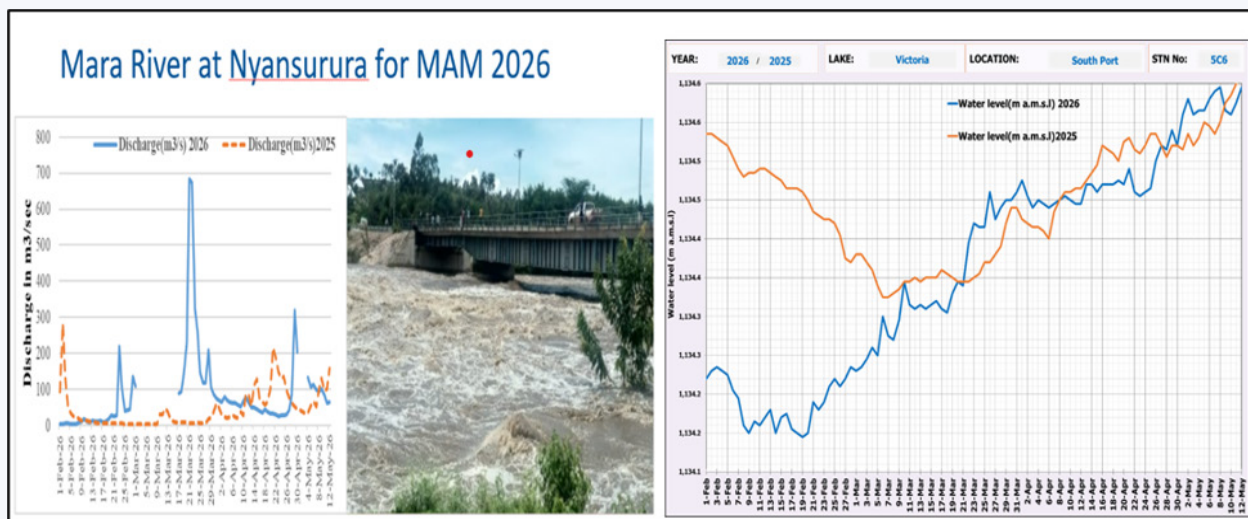


Figure 47: Trend of river inflows and Lake Victoria water levels for MAM 2026.

### 5.8.2 Climate and Hydrological Outlook for MAM 2026 and Implications

#### Climate Outlook for JJAS 2026

According to the IGAD Climate Prediction and Applications Centre / GHACOF report, dry seasonal conditions are expected across most parts of Tanzania during the JJAS 2026 season. In addition, there is a 40% to 90% probability of above-normal temperatures across the entire country.

#### Hydrological Outlook for JJAS 2026

The forecast for the Kagera River at Kyaka Ferry, based on the analogue year of 1997, indicates that river flows are expected to remain below the 1997

recorded flow of 382 m<sup>3</sup>/s, varying between 300 m<sup>3</sup>/s and 210 m<sup>3</sup>/s. Furthermore, inflows to the Rusumo Hydropower Station are projected to decline from the current 289 m<sup>3</sup>/s to approximately 88 m<sup>3</sup>/s by the end of September 2026. Given its limited storage capacity as a river run off hydro-power, the Rusumo Hydropower Station requires an estimated flow of approximately 320 m<sup>3</sup>/s from the Kagera River (Ruvubu and Akagera tributaries) to operate optimally and generate 80 MW of electricity for the national grids of Rwanda, Burundi, and Tanzania. Figure 48 describes the hydrological outlook.

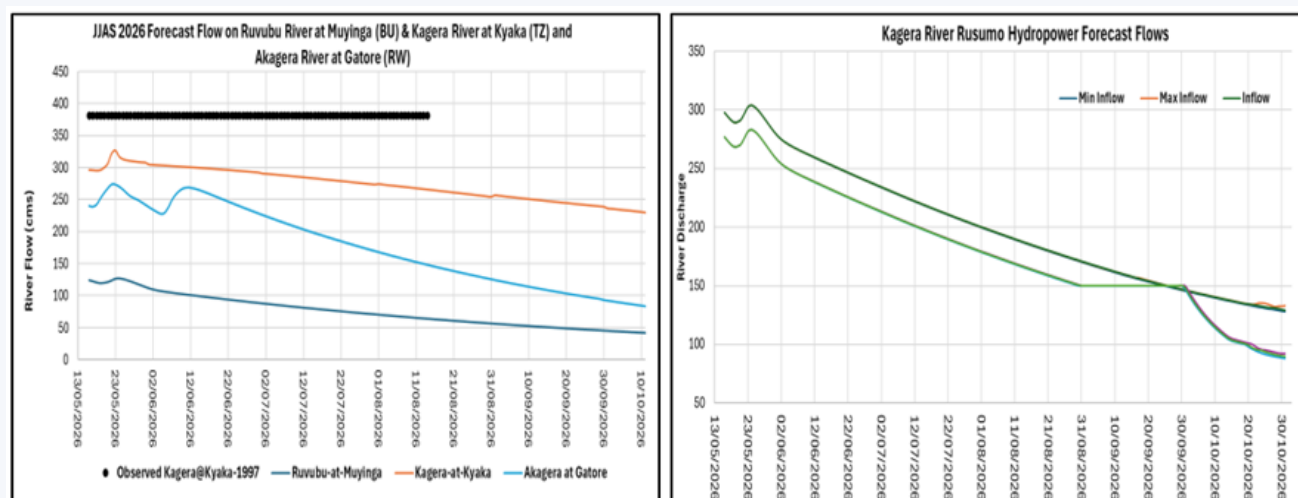


Figure 48: Hydrological outlook for Kagera at Kyaka Ferry and Rusumo Power inflow for JJAS 2026.

## Implications of the JJAS Season in Tanzania

- i. Agriculture** -Farmers are encouraged to facilitate timely harvesting, proper storage, and post-harvest handling of crops to minimize losses and maintain food security.
- ii. Infrastructure** -Infrastructure that was damaged or weakened by floods during the MAM season should be reinforced and rehabilitated. This includes roads, bridges, drainage systems, and other public infrastructure to improve resilience against future flood events and ensure continuity of transportation and social services.
- iii. Water Resources** -Although water levels in rivers, dams, and reservoirs are expected to gradually decline during the JJAS season, severe water shortages are unlikely due to the substantial rainfall received during the MAM season. Water authorities should continue to promote efficient water use and conservation practices to sustain adequate supply until the next rainfall season.
- iv. Energy**-The good rainfall performance during the MAM 2026 season is expected to support stable hydropower generation and improve the reliability of electricity supply during the JJAS period. Energy authorities should continue implementing appropriate water management measures to maintain sustainable power production.

### 5.8.3 Recommendations and advisory

#### Short-Term Interventions

1. Water authorities should monitor water levels in dams, rivers, and reservoirs to ensure a sustainable water supply.
2. Basins currently experiencing favorable river flows and reservoir inflows during the MAM and JJAS seasons, where these are not the primary rainfall seasons, should conserve and uti-

lize available water resources efficiently to sustain supply until the next rainfall season (OND 2026).

3. Rehabilitation of water infrastructure, including hydrological monitoring networks, dams, roads, and bridges, should be prioritized.
4. Communities should be provided with water-related information to enhance awareness of efficient water use and conservation practices.
5. Hydropower authorities should implement appropriate water management measures to ensure the continuity of services.

#### Long-Term Interventions

- i. Redesign water infrastructure systems, including hydrological monitoring networks, dams, bridges, and urban drainage systems, to minimize and mitigate the impacts of flooding.

## 5.9 Uganda

Uganda, a landlocked country in Eastern Africa, lies almost entirely within the Nile Basin, with 98% of its 235,880 km<sup>2</sup> territory contributing about 7.4% of the basin's drainage area. Its hydrology is dominated by a network of rivers, lakes, wetlands, and aquifers, with Lake Victoria as the principal source of the White Nile River (Figure 42). The Victoria Nile links Uganda's major lakes Victoria, Kyoga, and Albert, forming a natural regulation system that buffers seasonal variability and sustains flows downstream. The country's equatorial climate with bimodal rainfall supports relatively stable runoff, while tributaries, wetlands, and groundwater maintain base flows and ecological balance. Uganda's water system underpins hydropower, irrigation, and navigation, making it central to Nile Basin water security and cooperation.



Figure 49: Drainage system in Uganda

### 5.9.1 Performance of MAM 2026 Season and Impacts

Most parts of the country received near normal-to-normal rainfall and to some extent above normal, with an early onset around Lake Victoria areas and parts of the Eastern region. The North-Western and the North-Eastern regions had a late onset, Figure 50. This spatial variation of rainfall distribution resulted into the increase of water levels of Lake Victoria by 0.40m but 0.38m below the maximum water level recorded in 2024, Lake Kyoga increased by 0.07m and below the maximum ever recorded by 0.80m and Lake Albert increased by 0.15m with a decrease of 0.94m in relation to the maximum ever recorded for March -April-May 2026 season. (Figure 51 and Figure 52) shows the performance of the major lakes of the country

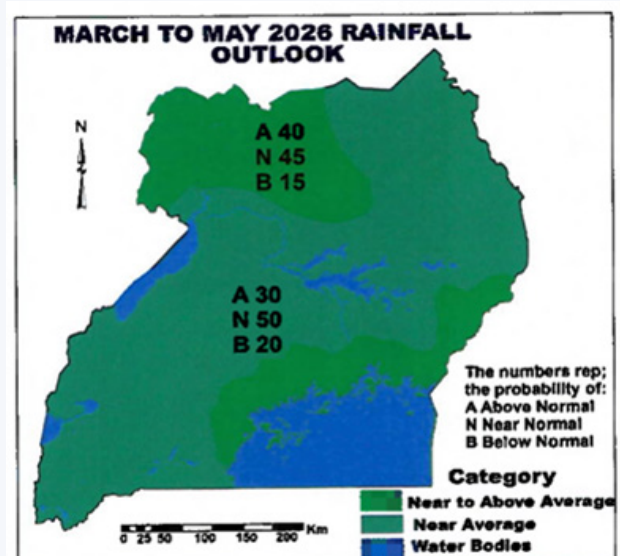


Figure 50: Uganda MAM 2026 Rainfall Outlook



Figure 51: Observed Lake water levels for Victoria, Kyoga and Albert during MAM 2026 Season.

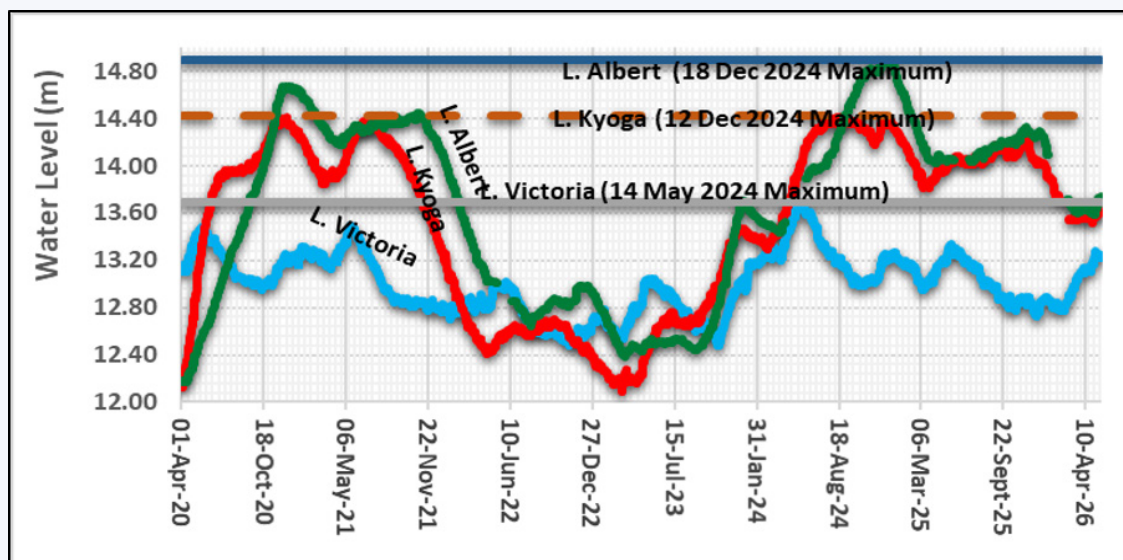


Figure 52: Comparison of the current water levels to the maximums ever recorded for lakes Victoria, Kyoga and Albert.

### 5.9.2 Climate and Hydrological Outlook for JJAS 2026 and Implications

It was forecasted to have a probability of 15% to receive rainfall above/near normal, 30% for the occurrence to be normal and 55% below normal over most parts of the country with Southwestern 30% below normal. Generally, the country is to receive below normal rainfall, (ICPAC's climate outlook forecast for JJAS 2026 season). Hydrologically, during this season, water levels of major lakes will remain steady due to their current state irrespective of forecast.

It is projected by the nation's Meteorological Department that most parts of the country will experience warmer than average temperatures and below normal rainfall (Figure 53). The Northern region (West Nile and Karamoja) is expected to have isolated to intermittent showers (0.15% above normal), while Central and Western regions including Lake Victoria basin have prolonged dry spells (0.10% above normal) as indicated in for the seasonal forecast and major lakes flow forecasts respectively.

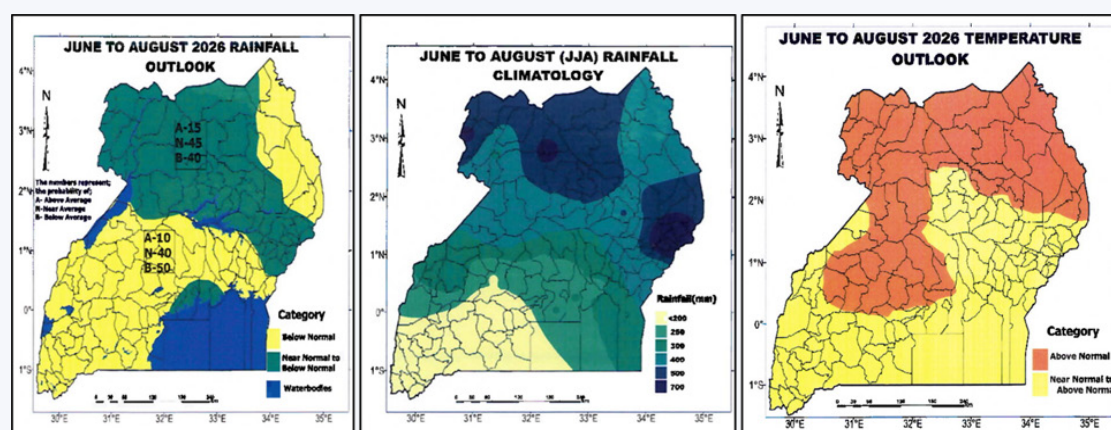


Figure 53: National seasonal forecast for JJA 2026.

### 5.9.3 Recommendation and Advisory

1. Continued monitoring of water levels to be able to control the storage within L. Victoria,
2. Community awareness,
3. Updating the downstream countries about the prevailing water level conditions,
4. Optimum Water allocation/water storage/safe release,
5. Continuing production of monthly bulletins,
6. Rehabilitation of damaged and vandalised HydroMet infrastructures,
7. Farmers advised planting drought-tolerant crop varieties and invest in water-harvesting systems rather than depending entirely on rain-fed agriculture

## 6. BASIN WIDE IMPLICATION AND ADVISORY

### 6.1 Increased likelihood of below normal rainfall

#### 6.1.1 Key Recommendations and Advisories

##### Short-Term Interventions

##### Water Resources & Reservoir Management

- Activate drought operation protocols for dams and reservoirs; prioritize storage conservation over release for non-critical uses.
- Implement real-time streamflow monitoring on Blue Nile, Atbara, Sobat, Bahr el Jebel, Lake Albert, Victoria Nile and Lake Victoria tributaries to trigger early warning thresholds for drought conditions.
- Provide low-flow watch advisories for water utilities dependent on the Nile River system.
- Strengthen joint drought contingency planning among Nile Basin Member States.

##### Agriculture & Irrigation

- Promote efficient irrigation strategies across major irrigation schemes.
- Promote drought-tolerant and short-cycle crop varieties for rainfed farming communities
- Suspend or defer expansion of new irrigated areas during the season; concentrate water on existing productive schemes.
- Issue agro-meteorological advisories to crops and livestock farmers to match production in light of the reduced moisture availability.

##### Water Resources

- Pre-position emergency food and water supplies in drought-prone areas.

- Activate Early Warning–Early Action (EWEA) frameworks/protocols e.g for pastoral and agropastoral communities.
- Strengthen water trucking and alternative water supply logistics in water-stressed urban and peri-urban centers.

##### Humanitarian & Food Security

- Pre-position emergency food and water supplies in drought-prone areas.
- Activate Early Warning–Early Action (EWEA) frameworks/protocols e.g for pastoral and agropastoral communities.
- Strengthen water trucking and alternative water supply logistics in water-stressed urban and peri-urban centers.

##### Long-Term Interventions

- Promote investment in water storage infrastructure — small and micro-dams, water harvesting to buffer against recurrent seasonal deficits.
- Expand conjunctive use of surface water and groundwater resources, particularly in catchments prone to rainfall deficits.
- Implement watershed rehabilitation programs — reforestation, soil and water conservation — in degraded catchments to improve long-term water retention.

## 6.2 Increased Likelihood of above normal rainfall

### 6.2.1 Key Recommendations and Advisories

#### Short-Term Interventions

- Leverage on the NB Flash Flood Forecasting System for any early warning information in the areas of Bhar el Ghazel and Main Nile.
- Increase surveillance for water borne disease in the affected areas.

#### Long-Term Interventions

- Mainstream climate-smart agriculture practices to capitalize on above-normal rainfall years through improved water harvesting and soil moisture conservation
- Build multi-year water storage capacity to carry surplus wet-season water into subsequent drought years, reducing inter-annual hydrological variability impacts
- Strengthen implementation of the National Adaptation Plans (NAPs) to enhance flood-drought cycle management within development planning frameworks of all Nile Basin Member States
- Invest in flood-resilient infrastructure — elevated roads, flood-proof granaries, protected water intake structures — in repeatedly inundated areas.
- Enhance capacity both technical and institutional on flood forecasting and management including recovery.

## 6.2 Cross Cutting Recommendations

- Standardize water-level gauging systems across the Basin by harmonizing zero-gauge references to a common datum.
- In the analysis of the JJAS 2026 climate forecast, it was observed that there was a discrepancy between regional and the na-

tional climate outlook, it was recommended that national outlook for JJAS be used for response planning.

- Update NB-FFEWS and EN-FFEWS focusing on newly identified flash flood prone areas by country,

## 7. ACKNOWLEDGMENT

The Nile Basin Initiative (NBI) expresses its profound gratitude to the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) for its generous funding and steadfast support, provided through the German Federal Ministry for Economic Cooperation and Development (BMZ), under the project “Support to Transboundary Cooperation in the Nile Basin.” This initiative has been instrumental in fostering regional collaboration and advancing sustainable water resource management across the Nile Basin. We also extend our heartfelt appreciation to the regional expert members for their

invaluable contributions and expertise. Special gratitude is owed to the IGAD Climate Prediction and Applications Centre (ICPAC), the Lake Victoria Basin Commission (LVBC), and The World Meteorological Organization (WMO) for their dedicated support to the Nile Basin Regional Expert Working Group on Hydrology forum. Their collective efforts have significantly strengthened regional cooperation and enhanced the hydrological knowledge base critical to the sustainable development of the Nile Basin.

### 7.1 REGIONAL EXPERT WORKING GROUP-HYDROLOGICAL OUTLOOK JJAS 2026

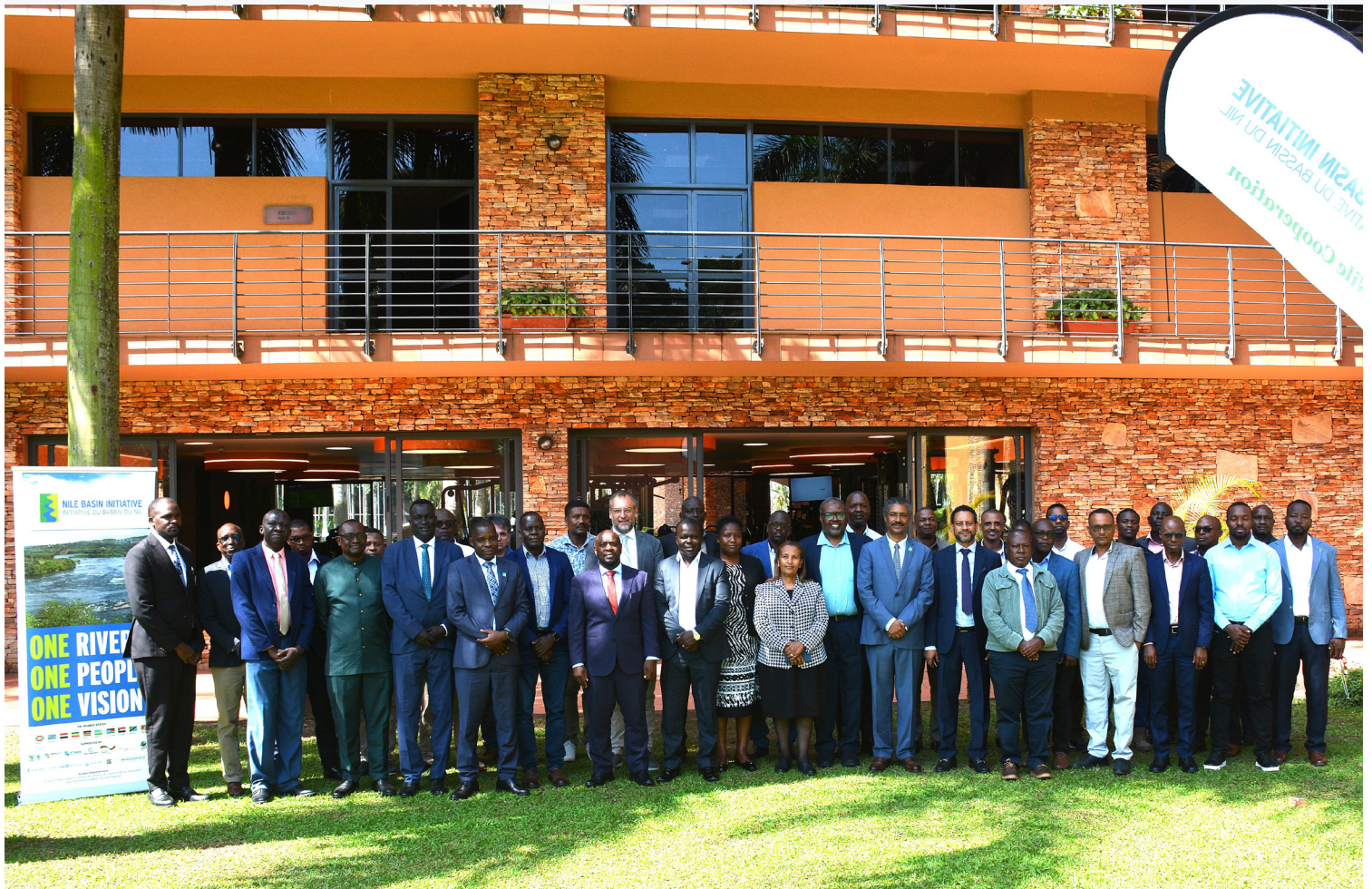
No	Name	Position	Organization	Country
1	Calvince Wara	Regional Hydrological Expert	Nile Basin Initiative	Uganda
2	Ferdinand Kirura	Head of National Hydrological Services	Institut Géographique du Burundi	Burundi
3	Teferra Beyene	Nile TAC - Ethiopia	Ministry of Water and Energy	Ethiopia
4	Reuben Ngessa	Head of Hydrological Services	Water Resources Authority	Kenya
5	Justin Vwaweke	Head of water resources Office	Ministry of Environment	DR Congo
6	Fiston Kabasake	Head of fishing Division	Ministry of Fisheries & Livestock	DR Congo
7	Michael Brhane	Head of Hydrological Services	Ministry of Water and Energy	Ethiopia
8	Reuben Ngesa	Head of Hydrological Services	Water Resources Authority	Kenya
9	Zerihun Anbesa	Water Resources Expert	ENTRO	Ethiopia
10	Alsaad Ndayizeye	River Flood Control Specialist	Rwanda Water Resources Board	Rwanda
11	Damascene Kayiranga	Project Officer /Kagera RBM	NELSAP	Rwanda
12	Emmanuel Yohannis	Hydrologist	Ministry of Water Resources and Irrigation((MWRI)	South Sudan
13	Koboji Charles Yakata	Head of Hydrological Services	Ministry of Water Resources and Irrigation (MWRI)	South Sudan
14	Hussein Musa	Hydrologist	Ministry of Water Resources and Irrigation	Sudan
15	Ndobiri M. Mollel	Head of Surface Water and dam Safety-LVBWB	Lake Victoria Basin Water Board	Tanzania
16	Zaake Benon	Chief, Safety & Quality Officer	Uganda Electricity Generating Co	Uganda
17	Pamela Agaba	Assistant Commissioner	Ministry of Water & Environment	Uganda
18	Aggrey Kyewe	Senior Hydrologist	Ministry of Water & Environment	Uganda
19	Dr. Mary Akurut	Chief, Safety Health Environment & Quality Officer	Uganda Electricity Generating Company Limited (UEGCL)	Uganda
20	Tom Waakoa	Programme Officer	Nile Basin Initiative	Uganda
21	Alain Amahoro	Regional Information Expert	Nile Basin Initiative	Uganda



*Group Photo for some of the Nile Basin Regional Expert Working Group on Hydrology –at the 73rd Greater Horn of Africa Climate Outlook Forum (GHACOF 73).*



*REWG on Hydrology Working Session during the generation of the JJAS 2026 Hydrological Outlook and Advisory 20-21 May 2026.*



The 4th Technical Session of the Nile Basin Regional Expert Working Group on Hydrology held on 1st - 5th June 2026 Kamapala, Uganda.

# ONE RIVER ONE PEOPLE ONE VISION



## NILE BASIN INITIATIVE INITIATIVE DU BASSIN DU NIL

### NBI Member States



Burundi



DR Congo



Egypt



Ethiopia



Kenya



Rwanda



South Sudan



The Sudan



Tanzania



Uganda

#### NILE BASIN INITIATIVE SECRETARIAT

P.O. Box 192

Entebbe - Uganda

Tel: +256 417 705 000

+256 417 705 117

+256 414 321 424

+256 414 321 329

Email: [nbisec@nilebasin.org](mailto:nbisec@nilebasin.org)

Website: [www.nilesec.nilebasin.org](http://www.nilesec.nilebasin.org)

#### EASTERN NILE TECHNICAL REGIONAL OFFICE

Dessie Road

P.O. Box 27173-1000

Addis Ababa - Ethiopia

Tel: +251 116 461 130/32

Fax: +251 116 459 407

Email: [entro@nilebasin.org](mailto:entro@nilebasin.org)

Website: [www.entro.nilebasin.org](http://www.entro.nilebasin.org)

#### NILE EQUATORIAL LAKES SUBSIDIARY ACTION PROGRAM

Program Coordination Unit

Kigali City Tower

KCT, KN 2 St, Kigali

P.O. Box 6759, Kigali Rwanda

Tel: +250 788 307 334

Fax: +250 252 580 100

Email: [nelcu@nilebasin.org](mailto:nelcu@nilebasin.org)

Website: [www.nelsap.nilebasin.org](http://www.nelsap.nilebasin.org)