



NILE BASIN INITIATIVE
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NILE BASIN SEASONAL HYDROLOGICAL OUTLOOK

June - September 2024



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Tribute to Mr. Jackson Twinomujuni, Nile-TAC Member



In memory of Mr. Twinomujuni, distinguished Water Resource Expert in transboundary cooperation, who passed away on 6th June 2024. His immeasurable contribution to the Nile Cooperation will be sincerely missed.

INTRODUCTION

The Nile River Basin is of unparalleled social, historic and economic importance to the ten riparian countries of Burundi, DR Congo, Egypt, Ethiopia, Kenya, Rwanda, South Sudan, Sudan, Tanzania, and Uganda, and it is the world's longest river. The River Nile is extremely sensitive to changes in precipitation with variations impacting lake levels and river discharges. Equally, increase in temperature affects the rates of evaporation and evapotranspiration hence influencing the water balance of the basin. Rainfall and river flow records show that the basin has had its share of droughts and floods. These natural events have seriously impacted on the livelihoods of many people and the environment. Given the centrality of the freshwater resources to economic and social development of the Nile basin region, it is important to have a good understanding and forecast these variables to support planning, management and disaster risk reduction interventions.

The Intergovernmental Authority on Development (IGAD) Climate Prediction and Applications Centre (ICPAC) released the March to May 2024 seasonal forecast in February 2024. The highest probabilities for wetter than usual conditions were anticipated in central to western Kenya and in the cross-border areas of Ethiopia, Kenya, and Uganda. This resulted in widespread flooding and unprecedented records of rising water levels in the rivers and lakes in April and May 2024. The flooding events caused significant damages to public infrastructure, displacement of thousands of people, loss of lives and livelihoods to many communities in the lake region.

Rapid assessment conducted by the Nile Basin regional expert group in May 2024 reported unprecedented rise in water levels in the rivers and equatorial lakes due to increased river inflow to the lake and precipitation over the lakes resulting to the lakeshore flooding and inundation further bringing lakeshores business to halt and reversing all the recent economic gains. In the assessment the impacts of the increased levels of Lake Victoria, Lake Kyoga and Lake Albert to the downstream countries in the period of June and July 2024 were determined and necessary advisories provided to support planning and disaster risk reduction.

ICPAC released regional climate seasonal forecast for June -September 2024 in May 2024. The seasonal forecast indicates an increased likelihood of above-normal rainfall (wetter conditions) over most parts of the Greater Horn of Africa (GHA). Therefore, this report details the current situation and regional hydrological outlook for the season of June to September 2024 based on the ICPAC seasonal forecast for June-September 2024 and regional and national hydrological monitoring system and tools.



PERFORMANCE OF MARCH-MAY 2024 OUTLOOK

The ICPAC released the March to May 2024 seasonal forecast in February 2024, which indicated a higher probability of wetter-than-normal conditions across most parts of the Greater Horn of Africa. Notably, the areas were expected to experience these wetter conditions were Kenya, southern Ethiopia, South Sudan, Uganda, Burundi, Rwanda, and north-western Tanzania. The highest probabilities for wetter than usual conditions were anticipated in central to western Kenya and in the cross-border areas of Ethiopia, Kenya, and Uganda.

High rainfall amounts exceeding 1000mm was observed in a few areas in central Kenya and in southern coast of Tanzania (Figure 1). Moderate to high rainfall amounts of between 500-1000mm were observed in southwestern part of Ethiopia, in western and central parts of Kenya, in southern and western Burundi, and in southern and

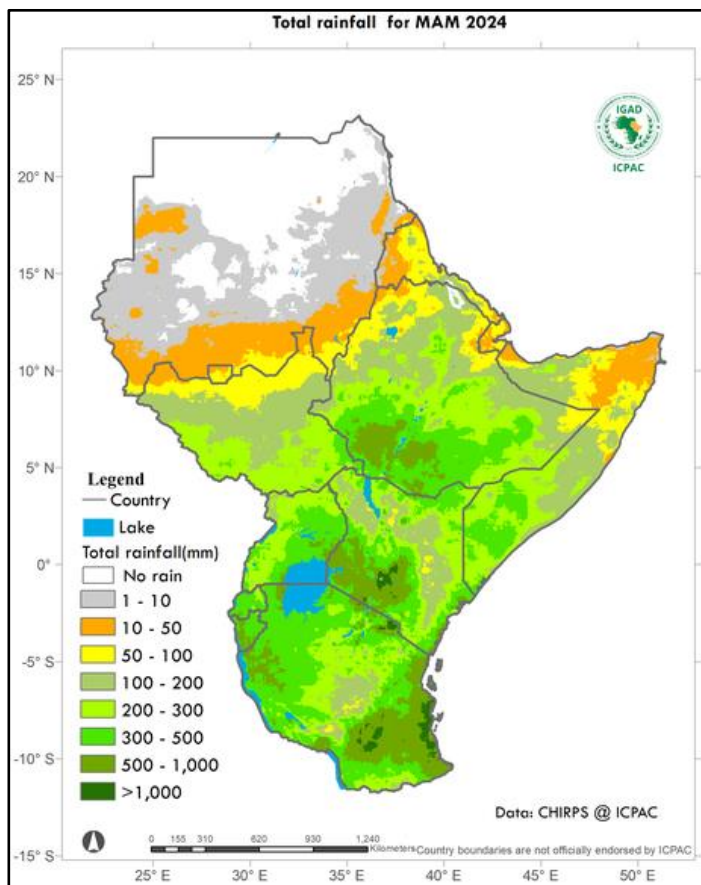


Figure 1: Observed rainfall conditions for March to May (MAM) 2024

coastal parts of Tanzania. Moderate rainfall between 100 - 500

mm was observed in several parts of South Sudan, Ethiopia, in central and southern Somalia, in much of Uganda, Rwanda and Burundi, and in several parts of Kenya and Tanzania. Light rainfall between 10 - 100 mm was observed in several parts of Eritrea and Djibouti, in southern parts of Sudan, in northern parts of South Sudan, in parts of northern and northeastern Ethiopia and in northeastern parts of Somalia.

This resulted in widespread flooding and unprecedented records of rising water levels in the rivers and lakes in April and May 2024. The flooding events caused significant damages to public infrastructure, displacement of thousands of people, loss of lives and livelihoods to many communities in the lake region

The high level of increased inflows of rivers into the equatorial lakes and the rainfall over these open water bodies witnessed in April-May 2024 has significantly reduced as previously projected in the hydrological outlook for NEL regions issued in May 2024 (Figure 2). Meanwhile, most of the NEL rivers are currently showing a falling trend as the dry season approaches while the rivers from the Eastern Nile were projected to start increasing in levels in June through August 2024 as the region on-set the rainy season.



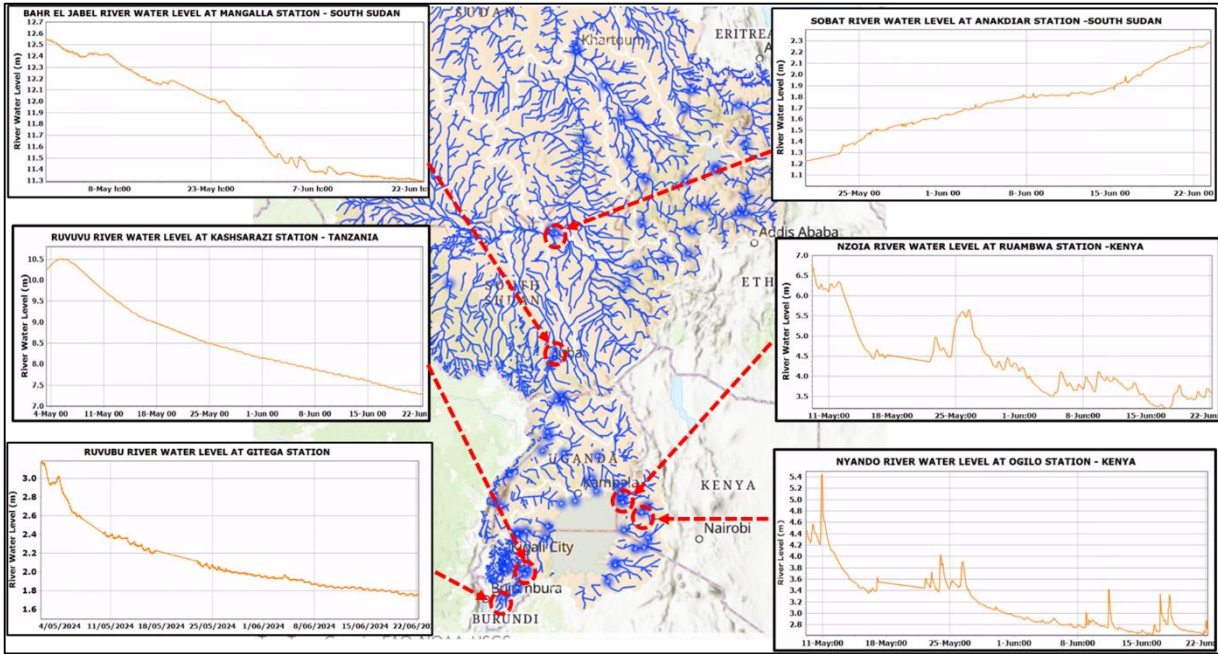


Figure 2: Declining River level trend in NEL region and increasing river water level for Sobat River in South Sudan, Eastern Nile.

In March to May 2024, predicted rising water levels for Lake Victoria were based on the agreed curve. The predicted water levels plotted alongside the actual water levels in green indicated that the actual water levels fluctuated around the predicted values with similar trends.

By the end of May 2024, the predicted and actual water levels were very close. It should be observed that the observed lake water levels are a product of the inflow and the managed outflow from the lake and without management interventions, the water levels would be higher and more land on the lakeshores might be inundated.

Comparison of the water levels of Lake Victoria during the flood years of 1964, 2021 and 2024 reveals 2024 as the year in which water level started above 1964 but below 2021 in January and February. The month of May 2024 has stood out as the time the highest water level of Victoria was recorded and this corresponds to the wetter rainfall conditions over the basin. The 1964 and 2024 hydrographs look similar in the season of MAM but the year 2024 recorded a higher average monthly water level in the month of May compared to 13.34 meters and 13.43 meters recorded in May of 1964 and 2021 respectively. However, despite the reduced inflow for Lake Victoria, the levels are expected to remain high as controlled by release from the lakes. Meanwhile Lake Kyoga is on a sharp rising trend, and it's expected to continue a rising trend in the month of June 2024 based on the weather forecast of JJAS 2024.

The forecast provided in March 2024 for the outlook of Lake Victoria water level slightly overestimated and underestimated the Lake Victoria Water level in April and May 2024 respectively (Figure 3). However, both the forecast and observed lake water level converged in June 2024.

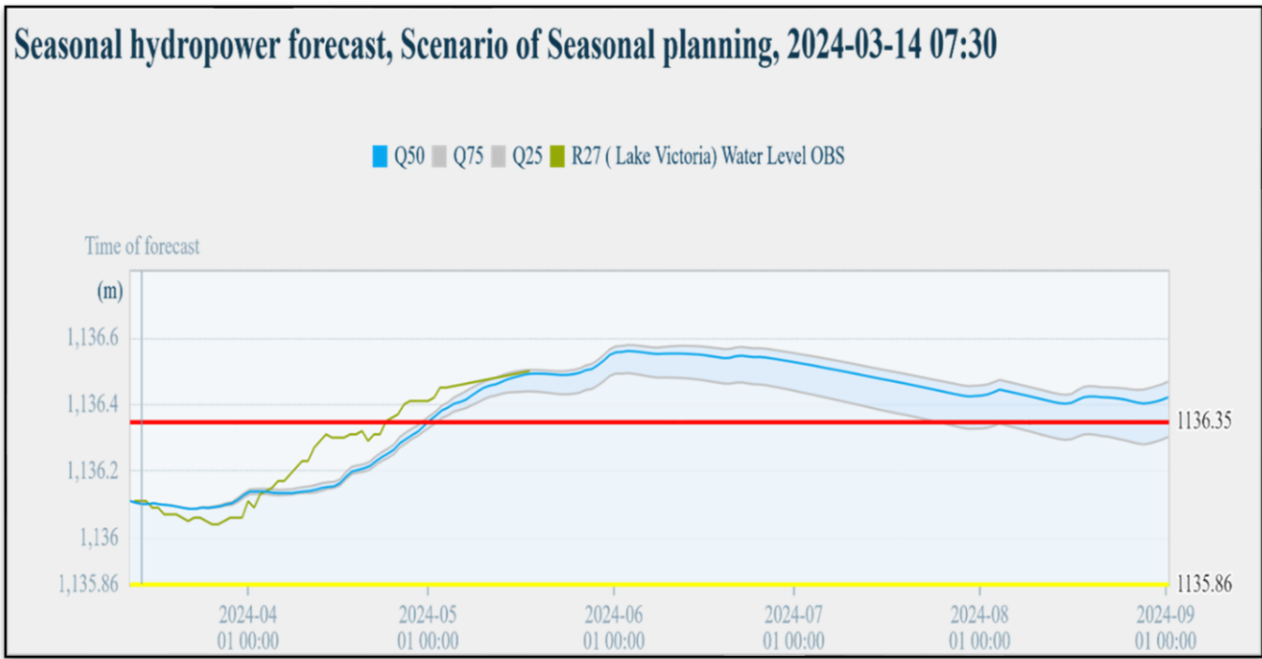


Figure 3: Seasonal forecast for the Lake Victoria water level

JUNE – SEPTEMBER 2024 OUTLOOK

The June to September (JJAS) is an important rainy season, especially in the northern and western parts of the Greater Horn of Africa, where it generally contributes more than 40% of the annual rainfall and more than 90% in parts of the north part of the basin.

CLIMATE OUTLOOK

The 67th Greater Horn of Africa Climate Outlook Forum (GHACOF67) led by IGAD Climate Prediction and Applications Centre (ICPAC) released regional climate outlook for June - September 2024 in May 2024. The forecast indicates an increased likelihood of above-normal rainfall (wetter conditions) over most parts of the Greater Horn of Africa (GHA) (Figure 4). The post-processed seasonal forecast for JJAS 2024, consolidated from nine different global models initialized in May 2024, indicates increased chances for wetter conditions (above-average rainfall) over most areas (Ethiopia, South Sudan and Sudan) where JJAS is a rainy season.

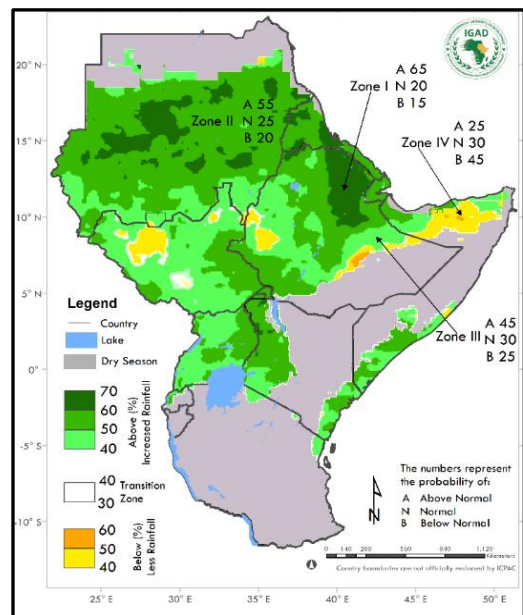


Figure 4: Seasonal rainfall forecast JJAS 2024



Enhanced probabilities (65%) of above average rainfall are predicted over northeastern Ethiopia, isolated areas in central part Sudan and Eritrea. Raised probabilities (55%) of wetter conditions are also indicated over south-western and central Ethiopia, much of Sudan, eastern South Sudan, eastern Uganda, and parts of western and coastal Kenya. On the other hand, isolated areas over western Ethiopia, and western South Sudan are likely to experience drier-than-average (below-normal) conditions.

Therefore, the impacts of this climate and weather outlook on hydrological system and major water bodies in the region were assessed leveraging on the analysis of hydrological observations from Regional Hydrological Monitoring System, National monitoring stations, regional tools and satellite observations to generate the Nile Basin Regional Hydrological Outlook for June-September 2024.

HYDROLOGICAL OUTLOOK

The impact of this climate and weather outlook on hydrological system and major water bodies in the region was assessed leveraging on the analysis of hydrological observations from Regional Hydrological Monitoring System, National monitoring stations, regional tools and satellite observations. The reduction of lake level is expected to remain low for June-September 2024. As reeling effect, the lake levels remain high due to the arrival of April-May 2024 River flows. However, the situation in the Eastern Nile region is different as the rainy season just begun. Increased river flows from the highlands of Ethiopia are anticipated due to a 65% probability of above-average rainfall predicted for the region. Therefore, a more comprehensive country level outlook that details the isolated areas of focus in the hydrological outlook of the basin is provided.

Data and information indicate reduced flow in many NEL rivers' inflowing into Lake Victoria, that is expected to continue to September 2024. However, some incidences of flooding due to above average rainfall projected over the area might be experienced during this season. Given the near-normal to above-normal rainfall in the Lake Victoria basin, the water levels in the lake tributaries (Kagera, Mara, Nzoia, Nyando, Sio, Katonga) are likely to subside but remain higher than the dry season averages. Isolated flash flood incidences may occur in the northeastern tributaries. The Lake Victoria levels are expected to remain relatively high. Although inflows from the southwestern parts of the lake might decrease due to drier conditions, the overall balance of inflows and outflows will likely maintain the lake at high but stable levels.

Outflows from Lake Victoria: The sustained high outflows from the lake observed during the MAM season are expected to continue, supported by above normal inflows and rainfall over the lake.



Water levels in Lakes Kyoga and Albert: Continued high inflows from Lake Victoria, combined with additional inflows from rainfall in the Kyoga and Albert regions, will lead to increased water levels downstream. These lakes have already been experiencing higher-than-normal water levels due to previous rainfall patterns. Maximum water levels in Lake Kyoga and Lake Albert are expected around November or December this year, likely exacerbating flooding around their shorelines and impacting communities and ecosystems in these areas.

Bahr el Jabel, Bahr el Ghazal and Baro-Akobo Sobat: With above-normal rainfall in the northern parts of Uganda, South Sudan and Ethiopia (Bahr el Jabel and Baro-Akobo Sobat) and the expected high runoff and the effect of the sustained high outflow from Lake Victoria might increase the Bahr el Jabel level and flows. The high-water levels in Bahr el Jabel are likely to cause a back water effect in the Bahr Ghazal system leading to flooding in the areas of Bentiu, Mayom and Pariang. Other flood prone areas of Central Equatorial, Unity state Jonglei, Warap State, Upper Nile among others will likely be affected

White Nile River: Due the expected above normal rainfall in Baro-Akobo Sobat and Bahr el Jabel rivers, and the back water effect from Jebel Aulia dam in Sudan, the water level of the White Nile River may rise. Jebel Aulia Dam is currently being operated at fixed rate (1,500 cubic meter per second) due to the ongoing war in Sudan. With the current operational restriction and expected higher inflows from the White Nile a significant back water effect is expected on the White Nile may cause flooding from the confluence of the White Nile (Khartoum) to the area of Melut stretching more than 600 kilometer (about 3723 miles) in Sudan and South Sudan

In addition to the back water effect, the sustained release restriction from the dam is likely to lead to a buildup storage beyond the design capacity leading to failure of Jebel Aulia. The failure of the Dam would result in a devastating effect in Khartoum and further downstream along the main Nile. Figure 5 shows the location of Jebel Aulia dam on the White Nile, just before the confluence with the Blue Nile River in Sudan



Figure 5: Location of Jebel Aulia Dam

Blue Nile, Tekeze-Atbara and Baro-Akobo Sobat Rivers:

With Eastern Nile (Ethiopia, South Sudan, and Sudan) predicted to experience above-normal rainfall, major tributaries like the Blue Nile and the Tekeze-Atbara River are expected to have increased inflows. The Blue Nile, originating in Ethiopia, contributes a substantial portion of the Nile's flow. Above-normal rainfall in this region will lead to higher water levels in the Blue Nile, boosting the overall water volume in the Nile River.



The combination of the peak flow of the Blue Nile (higher than average flow at El el diem Station) which is expected in August-September, the persistent high flows of the White Nile combined with the current operational challenges at the Jebel Aulia Dam are expected to result in extraordinary flooding in Khartoum, upstream and downstream of the Jebel Aulia Dam.

COUNTRY OUTLOOK

BURUNDI

Burundi, as the most upstream country in the Nile River basin, plays a significant role in the basin's hydrology. During the MAM (March-April-May) season, heavy precipitation, driven by the El Niño phenomenon, caused significant flooding due to river overflows and rising water levels in lakes. Rivers and lakes reached historic peaks, greatly impacting several communities and public infrastructure. However, since the end of May, the country has entered its dry season, and rivers and lakes are gradually returning to their normal flow levels. Figure 6 shows a hydrograph of Ruvubu River at the Gitega and Muyinga stations, indicating a declining water level trend. It is expected that the dry period in Burundi will continue until the end of September, with river levels remaining low throughout the JJAS (June-July-August-September) 2024 period. Consequently, no flooding is anticipated in this part of the Nile basin during this period

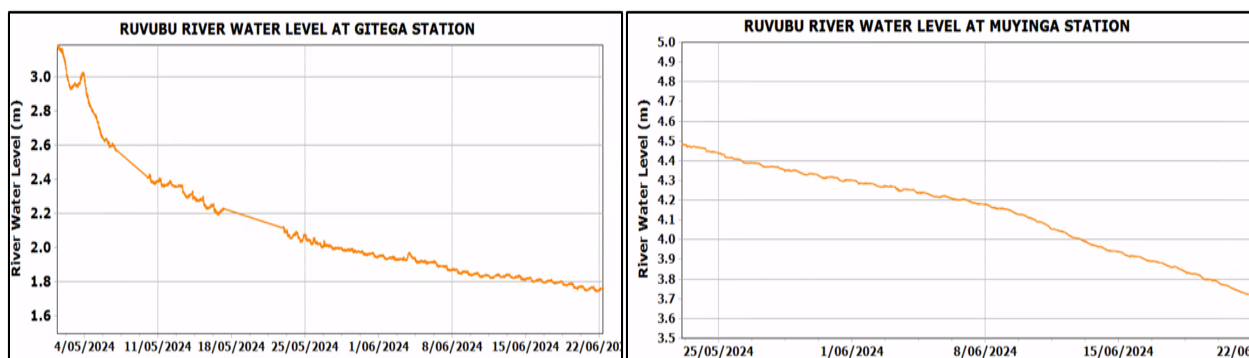


Figure 6: The River water level at Gitega and Muyinga declining to normal condition in June 2024.

Therefore, it is expected that in Burundi, the dry period will continue until the end of September and the levels of river are equally expected to remain low through the JJAS 2024 with no likelihood of flooding expected in the Nile basin part of

DR Congo

Though about one percent of the country is part of the Nile Basin, it still plays an important role in the country's ecology and economy, and the Nile Basin climate and hydrology as it shares borders with five other NBI Member States (Burundi, Rwanda, South Sudan, Uganda, and Tanzania), as well as the shared water resources of Lake Albert, Lake Edward, Lake Kivu and Lake Tanganyika. However, limited data and information is available to generate meaningful analysis and information on the outlook of the Nile DR Congo.



ETHIOPIA

Performance of the previous outlook including current-Ethiopian was not included on the previous outlook and can't report anything on the pervious outlook. However, the country has three distinct seasons: the driest season is called Bega (October to January), Belg (February to May) which often has considerably less rainfall and the rainy season Kiremt (June to September) is a primary rainy season, and it accounts for 50-80% of the annual rainfall.

In the upcoming rainy season, above normal rainfall is expected over Central and South Tigray, Afar, East Amhara, northern Somali and eastern portions of the country. Moreover, western Tigray, west Amhara, Benishagulgumuz, west Oromiya, Gambella and Southwestern regions of Ethiopia will dominantly receive above normal rainfall as well, Central and south-western portions of the country will dominantly receive normal to above normal rainfall. The expected LA NINA and positive IOD will benefit the southeastern portions of the country. They will get rainfall in the coming August and September months.

Based on the expected above normal rainfall, flooding may occur in areas of Lake Tana subbasin and Gambella plain.

KENYA

Kenya is one of the countries that bore the greatest impact of floods during the 2024 MAM period, affecting livelihoods, infrastructure and social facilities across the country with more than one hundred fatalities reported. The Kenya Meteorological Department (KMD) reported that some parts of the country recorded more than 100mm above the normal monthly rainfall.

The rains have since subsided towards the end of May and subsequently, the river levels started to recede. The KMD climate outlook for June-July-August (JJA) 2024 indicate a likelihood of above average rainfall in the Lake Victoria basin (Figure 7). River flows are therefore expected to increase, and isolated floods are likely to be experienced within the low-lying areas.

Rivers within the western Kenya that drain into the Lake Victoria (Mara, Nzoia, Nyando, Sondu and Gucha Migori) have recorded significant drop in water levels.

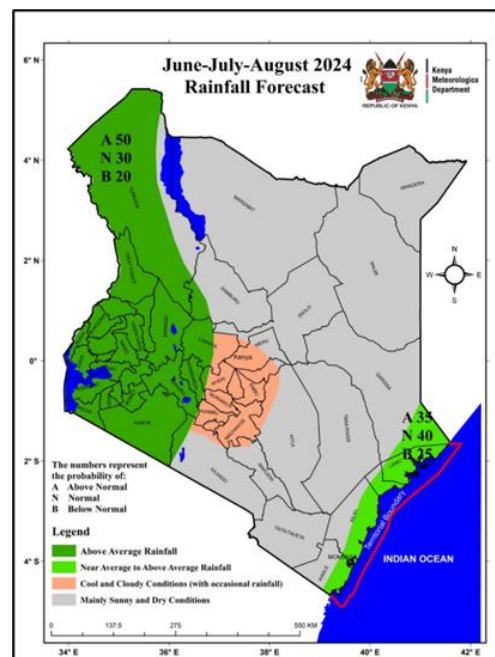


Figure 7: Rainfall forecast for Kenyan for the period of JJA 2024 (Source KMD).

Data and information from the regional and national monitoring station on Nzoia river indicate that the water level has drastically reduced from 5.2 meters on 8th May 2024 to 1.2 meters on 18th June 2024 (Figure 8).



This is replicated in Nyando and Gucha –Migori rivers with reduction of 2.3 meters from 16th April 2024 to 1st May 2024 and 4 meters from 11th April 2024 to 20th June 2024 respectively. It should be noted however, that the Lake levels are still high hence the shoreline areas in the lower Nzoia, lower Nyando and Sondu River mouth are still inundated.

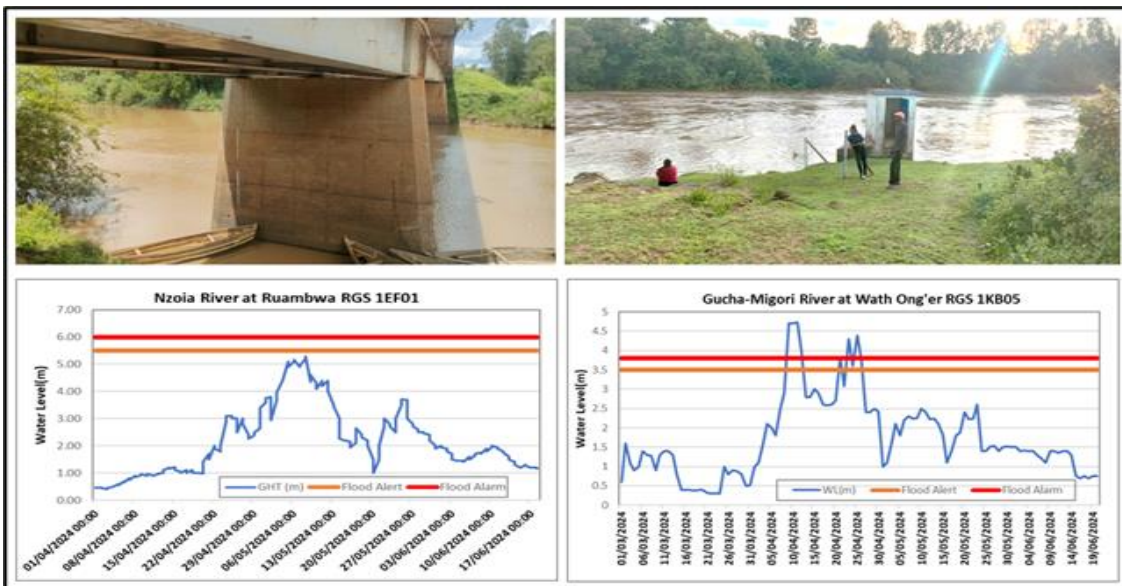


Figure 8: River levels with reference to flood warning and alert level for Nzoia at Ruambwa and Gucha Migori Wath Ong'er stations indicating decline.

RWANDA

Rwanda is one of the countries located in the most upstream part of the Nile Basin draining approximately 67% of Rwanda's territory. 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 and the country's economy, including droughts, floods, and landslides which result in damage to infrastructure, loss of lives and property (including crops) and contribute to soil erosion and water pollution. Adaptation and mitigation measures are key concerns and a priority for the country.

The previous NEL outlook predicted an increase in rainfall pattern in the region including Rwanda, which helped Rwanda to increase preparedness and mitigation measures in the areas prone to floods. This contributed to reducing flood risks in the previous rainy season of March-April-May (MAM) 2024.

Based on the seasonal outlook for June to August (JJA 2024) published by the Rwanda Meteorology Agency (Meteo-Rwanda); June-July-August (JJA) is the major dry season for the country where the expected rainfall is less compared to other seasons. Consequently, the river flows will reduce during this JJA season, and there is no risk of flood incidents (Figure 9).



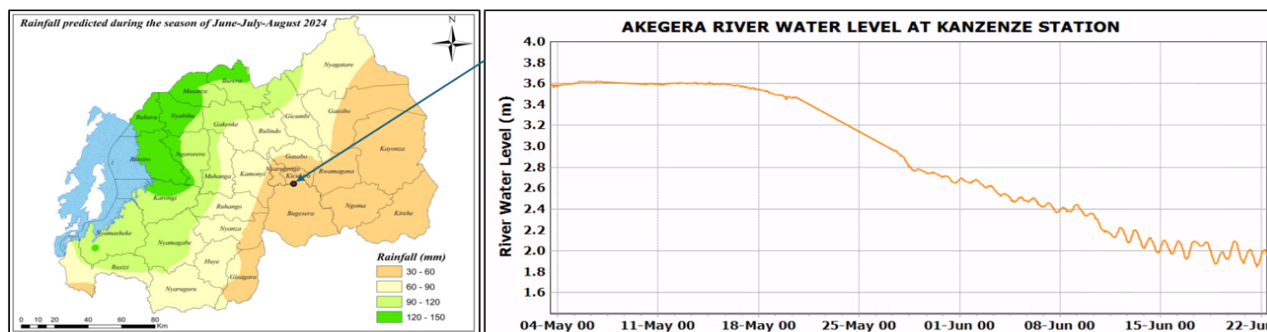


Figure 9: JJA 2024 seasonal rainfall forecast and the current declining river flow (Source: Meteo-Rwanda and RWB)

SOUTH SUDAN

MAM 2024 brought earlier rainfalls in March and continued through to May for areas especially in the greater equatorial region of South Sudan. More rainfalls were recorded at Nimule, a station closer to Ugandan border, than in Mangala, a station in the interior of the region. River Nile water levels increased closer to the maximum ever recorded levels and the situation continues to JJAS 2024.

No riverine floods were recorded. However, incidences of flash floods have been witnessed in Central Equatoria, Eastern Equatoria and Warp states. Though not quantified, reported damages and impacts include loss of lives and damage to markets, access roads and residential buildings.

MAM 2024 outlook has triggered government response to impending flooding because of reported high Lake Victoria water levels which will coincide with wetter than usual JJAS major rainy season for South Sudan. The Government estimates 3.3 million people likely to be affected by upcoming floods requiring about 270 million dollars in emergency funding.

Brief on country level climate outlook June –September and hydrological impacts South Sudan meteorological service (SSMS) has issued JJAS 2024 seasonal rainfall forecast which indicates wetter than normal conditions expected throughout the country except for Northern Bahr-el-Ghazal where three counties are likely to receive below normal rainfall. Currently, an increasing trend in river Nile water levels have been observed at Nimule and Mangalla station in the first half of June 2024 (Figure 10). At Mangala, the water levels are 30 centimeters below maximum ever recorded water levels. Additionally, the war in Sudan has affected the normal operation of Jebel Aulia dam which will likely exacerbate the flooding situation in South Sudan given that its backwater effect extends up to Melut in Upper Nile State. This backwater effect will likely cause a negative consequence as the outflow from White Nile, Khor Adar and other tributaries will only spread and inundate more areas including Paloch, Adar and Manyo in addition to Melut and Renk.



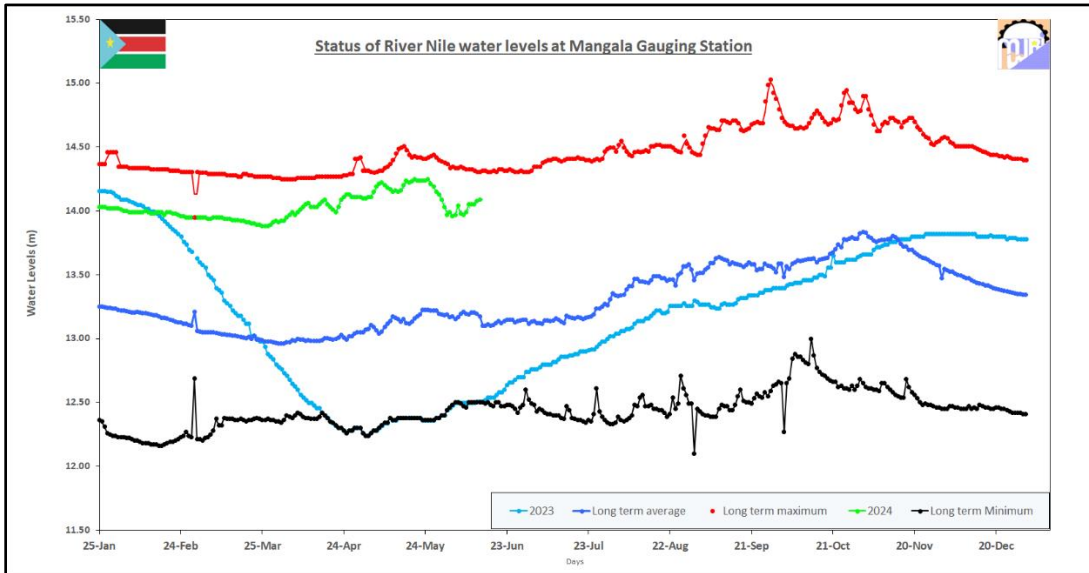


Figure 10: Bahr el Jebel River water level at Mangalla regional hydrological monitoring station

SUDAN

The rainfall distribution over Sudan is characterized by monomodal rainfall patterns, which influence the hydrology through local runoff. Additionally, Sudan's hydrology is greatly influenced by inflows from the Blue Nile and Tekeze sub-basins, originating from the Ethiopian Plateau, and the White Nile, which drains the equatorial lakes region. The ICPAC forecast predicts above-average rainfall over Sudan, as well as over the equatorial lakes region and the Ethiopian Highlands during the June to September season.

The combination of above-average rainfall in Sudan with high flows from the White Nile, Blue Nile, and Tekeze Atbara is likely to result in flooding during August and September 2024. The flooding resulting from sustained high outflows from Lake Victoria and high flows from the Eastern Nile, combined with the constrained operations of the Jebel-Aulia Dam, could significantly impact infrastructure, lives, and livelihoods in Sudan.

These impacts could include flooding and damage to infrastructure such as dams, roads, and bridges, particularly affecting the Jebel-Aulia Dam on the White Nile. This could disrupt transportation networks, irrigation systems, storage facilities, and other agricultural infrastructure, primarily impacting the Gezira Scheme and White Nile Agricultural Schemes. As a result, food production and food security in the country could be severely affected, among other consequences. The combination of the above average rainfall over the Sudan with high flows from the White Nile, Blue Nile, and Tekazi Atbara will result in unprecedented peak of the flood during August and September 2024.



TANZANIA

The Tanzania Nile Basin is within the Lake Victoria basin and cover about 120,000 square kilometer catchment area and supports a population of about 6 million (Figure 11). The main rivers include Kagera, Simiyu, Mbaraget, Grumeti, Duma, Mara, Ngono and Mori. In the season of MAM 2024, the basin received about 500mm of rainfall as above normal condition as forecasted by the Tanzania Meteorological Agency (TMA). The rainfall event

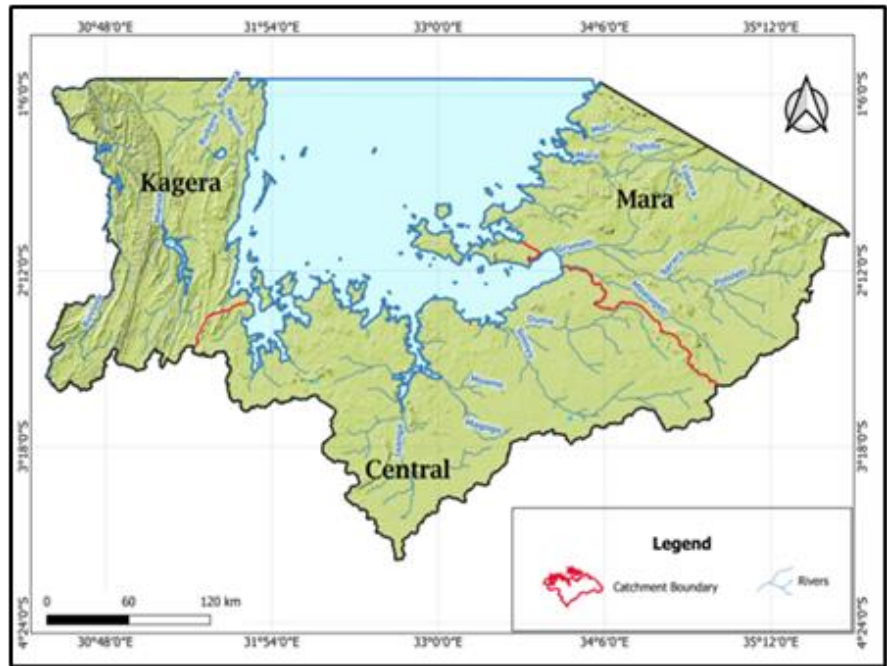


Figure 11: Lake Victoria Basin - Tanzania

caused significant flooding in many parts of the basin affecting both public infrastructure, lives and livelihood of many communities in the basin.

The information from both regional and national monitoring stations recorded above normal river flow and lake level condition during the same period of MAM 2024.

However, the current measurements indicate declining in both river water and lake levels in the basin and the trend is expected to continue till September with no flooding expected (Figure 12). However, the review of both climate and hydrological situation is continuously reviewed in the face of new data and more additional information will be shared with the relevant agencies on any changes to the projection.

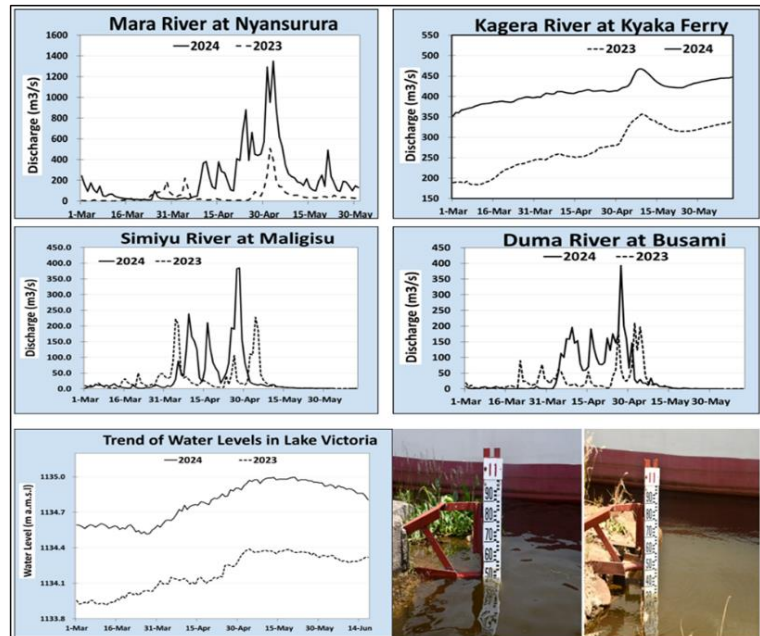


Figure 12: River and lake water level - Tanzania



UGANDA

Uganda is a central part of the Nile Equatorial Lakes (NEL) region and hosts several major lakes, including Victoria, Kyoga, Albert, and Edward. These lakes influence the hydrology of the Nile Basin and impact downstream countries through the White Nile River. In particular, the outflow from Lake Victoria plays a big role in regulating the water levels of downstream water bodies, such as Lake Kyoga, Lake Albert, and the Bahr al-Jabal River in South Sudan.

Performance of the previous outlook including current situation

The March-April-May (MAM) rainfall outlook indicated a 40% chance of above-normal rainfall around Lake Victoria. The forecast also showed that the catchment area of Lake Kyoga would receive above-average rainfall. The hydrological outlook projected that high inflows into Lake Victoria from the tributaries would persist until late May and early June, resulting in sustained high outflows from the lake. The Nine months forecast by UEGCL model in March 2024 indicated that the levels of Lake Victoria will rise unprecedentedly with peak in June and start receding in July 2024 (Figure 13).

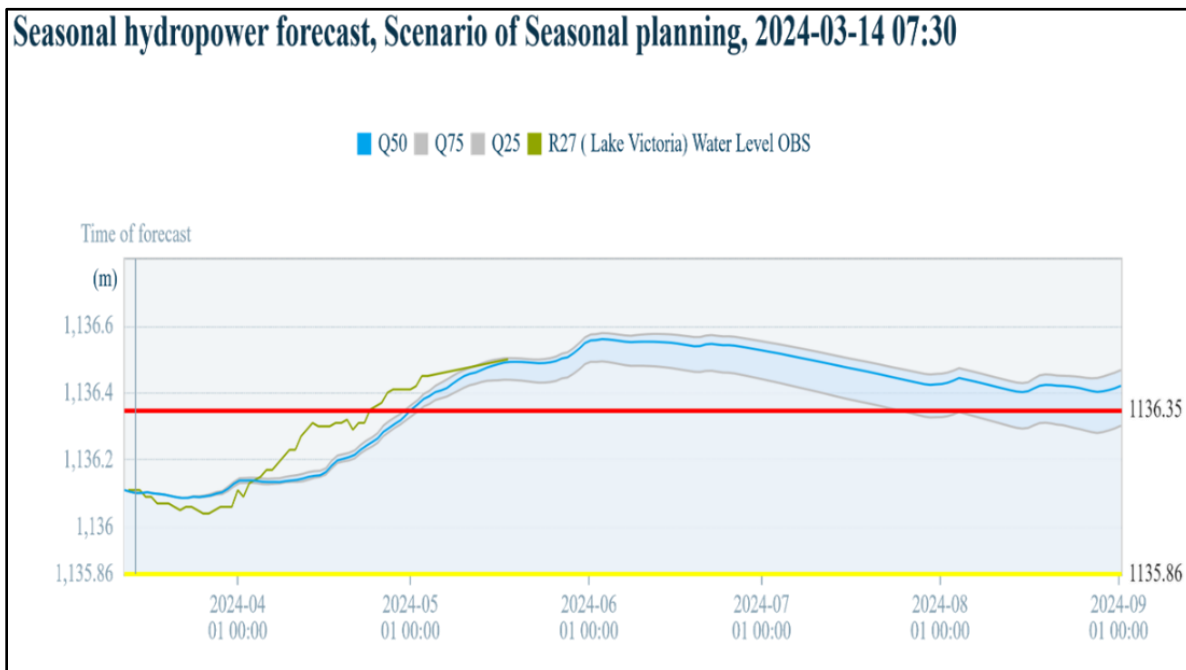


Figure 13: Seasonal forecast of Lake Victoria water level issued on 14th March 2024 at 07:30 (source UEGCL)

This prediction proved accurate as Lake Victoria experienced persistent high inflows, surpassing its historical maximum water levels of 13.50 meter observed on 14th May 2021 at the Jinja water level gauge. On May 11, 2024, the Jinja gauge recorded a new maximum water level of 13.69 meters (Figure 14). Despite the high outflows, Lake Victoria's water levels remained very high, though dropped to 13.50 meters by June 22, 2024.



The record high outflows from Lake Victoria, combined with above-normal rains in the Lake Kyoga catchment, led to increased water levels in Lake Kyoga and Lake Albert, causing flooding around their shorelines. Lake Kyoga is on a sharp rising trend with the current water level at 14.20m making it 0.21meters only below the highest historical level of 14.41meters observed in 2020.

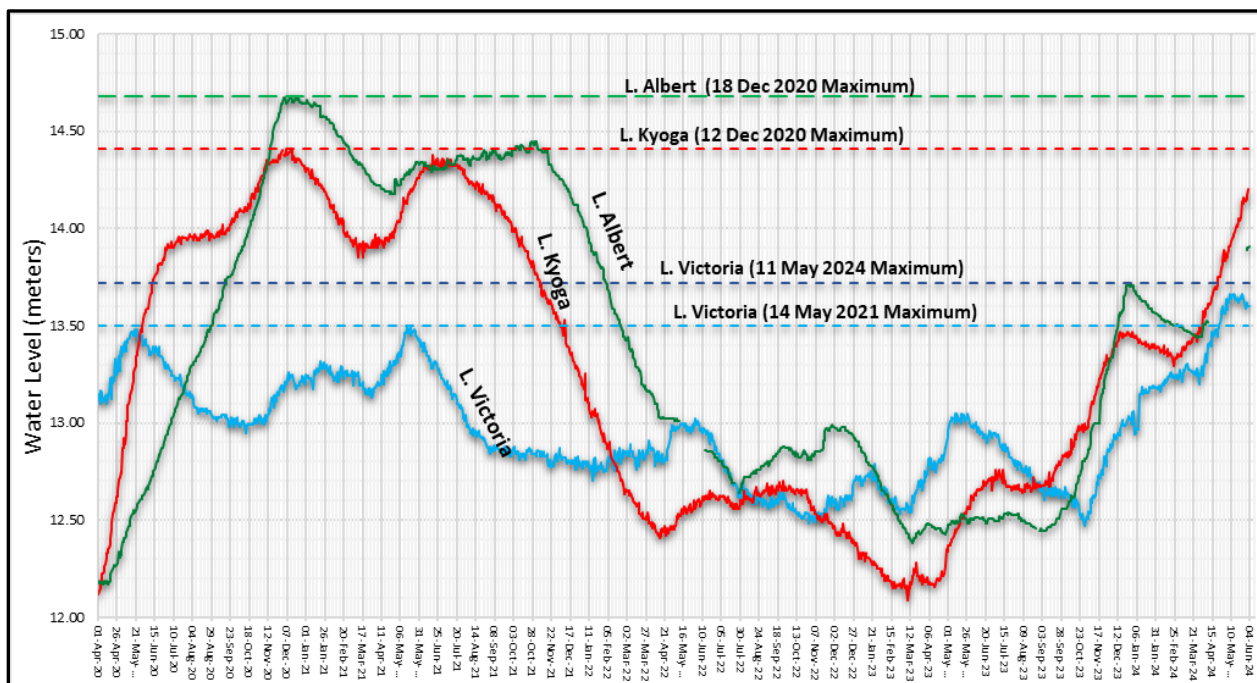


Figure 14: Trend in water levels for Lakes; Victoria, Kyoga and Albert (MoWE) from 2020 to 2024

climate outlook for June to September Season: the JJAS forecast indicates a dry season over the southern part of the country especially parts of southwestern, central, Lake Victoria basin and parts of eastern region. However, northern, northwestern and northeastern parts of Uganda are expected to receive above-normal (above average) rainfall. Areas of southwestern Uganda are likely to experience dry conditions while the rest of the country including areas of Lake Victoria are expected to experience near normal to above normal rainfall.

Hydrological Outlook for June to September Season: Lake Victoria Levels: Given the near-normal to above-normal rainfall in the Lake Victoria basin, the lake levels are expected to remain relatively High (Figure 15). Although inflows from the southwestern parts of the Lake Victoria Basin might decrease due to drier conditions, the overall balance of inflows and outflows will likely maintain the lake at high but stable levels.

Outflows from Lake Victoria: The sustained high outflows from Lake Victoria observed during the MAM season are expected to continue, supported by steady inflows from the North and Northeastern tributaries and rainfall over the lake. This will maintain high water levels in the White Nile as it exits the lake.



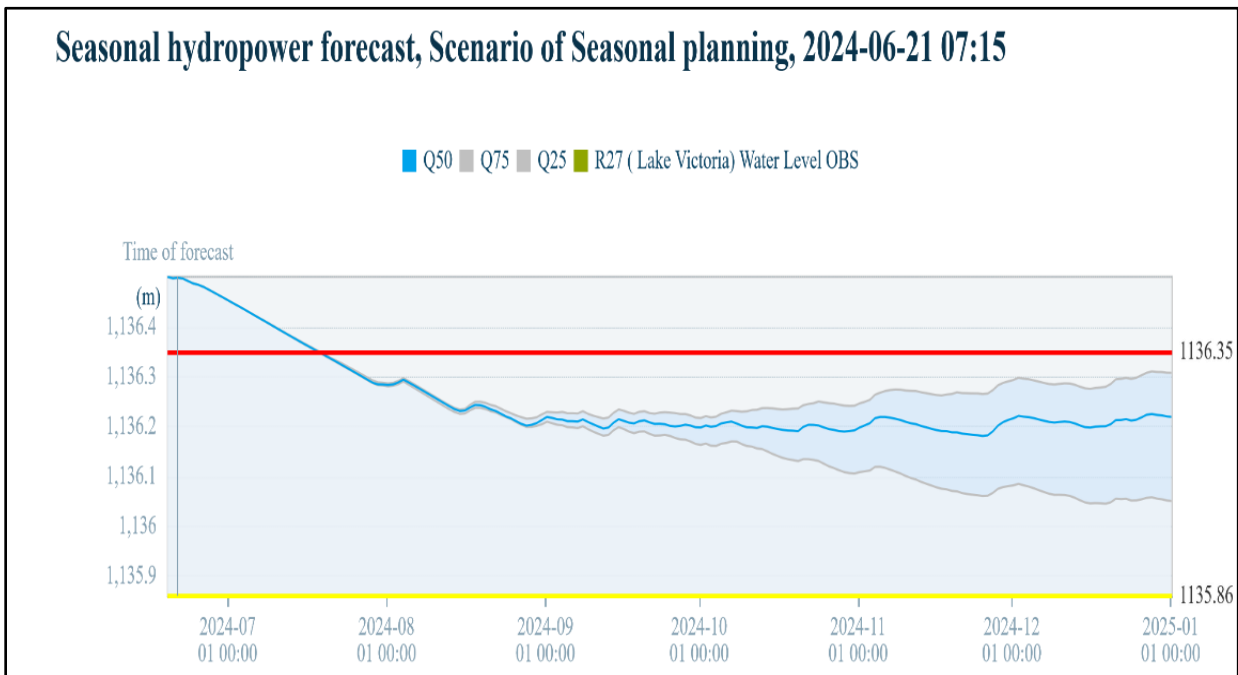


Figure 15: Forecast of Lake Victoria water level up to the end of the year (Source UEGCL)

Nile River Flow and water levels in Lakes Kyoga and Albert: With above-normal rainfall in the northern parts of Uganda, increased runoff will raise White Nile flows. Continued high inflows from Lake Victoria, combined with additional inflows from rainfall in the northern regions, will lead to increased water levels in downstream water bodies such as Lake Kyoga and Lake Albert. These lakes have already been experiencing higher-than-normal water levels due to previous rainfall patterns. Maximum water levels in Lake Kyoga and Lake Albert are expected around November or December this year, likely exacerbating flooding around their shorelines and impacting communities and ecosystems in these areas.

Impact on infrastructure, lives and livelihoods

A rapid risk assessment indicates that about 480 parishes (in 40 districts) with a total population exceeding 3 million in the vicinity of Lake Victoria, Lake Kyoga, Lake Albert and along the main River Nile System, are at risk of shoreline flooding during this flood season. There is need to Undertake community mobilization, sensitization and awareness raising on the impacts of rising water levels and flooding in the country and notify districts projected to be affected by rising water levels and flooding to activate their rapid response teams. Construct some protection measures (gabions, sand dams etc) along critical section of rivers and lakes to protect communities, property and infrastructure.



HYDROLOGICAL ADVISORY

The hydrological outlook for the Nile Basin from June to September indicates a period of high-water levels, sustained high inflows, and heightened risk of flooding across various regions, particularly along the White Nile. The current operational restrictions at the Jebel Aulia Dam in Sudan, combined with expected high inflows due to expected above normal rainfall from the Baro-Akobo Sobat, Bahr el Jabel and Blue Nile rivers, are likely to exacerbate the flooding risk and potentially lead to dam failure. This situation requires urgent and coordinated actions to mitigate potential adverse impacts on communities, infrastructure, and ecosystems.

Lake Victoria Basin: Near-normal to above-normal rainfall will keep Lake Victoria's levels very high but stable. Tributaries may experience isolated flash floods. Shoreline areas will remain inundated, and disruptions to infrastructure services are expected to persist. Increased outflows from Lake Victoria are required to manage the water levels. There is a need to sustain the high outflows from the Lake to create sufficient room for the inflows during the October – November-December wet season.

Inflows from Lake Victoria and local rainfall will increase water levels, in Lakes Kyoga and Albert reaching the maximum levels in November or December exacerbating flooding around shorelines. Above-normal rainfall in Bahr el Jabel, Bahr el Ghazal, Baro-Akobo Sobat will lead to high flows in the White Nile and potential flooding in the areas of Bentiu, Mayom and Pariang. Other flood prone areas of Central Equatorial, Unity state Jonglei, Warap State, Upper Nile among others will likely be affected. National and local governments in the flood prone areas should.

1. Enhance monitoring systems for real-time data on rainfall, water levels, and dam conditions information. Emphasis should be put on the emergency rehabilitation of the Malakal regional hydrological station that was recently destroyed by natural fire. The regional station is very critical for the early warning information in reference to the Jebel Aulia Dam.
2. Establish early warning systems for communities at risk, particularly from Khartoum to Mellut and in flood-prone areas along the White Nile and its tributaries.
3. Activate flood response management strategies in vulnerable countries and improve the emergency preparedness in each Member States considering the emerging challenges.

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