

NileNews

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Implementation of the USD 5.3 million groundwater project kicks off

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Underground wells are a source of clean water for more than 70% of the rural population in many parts of the Nile Basin.

The project covers three shared aquifers involving seven NBI Member States. These are Kagera aquifer shared by Burundi, Rwanda, Tanzania and Uganda; Mt. Elgon aquifer shared by Kenya and Uganda and Gedaref-Adigrat aquifer share by Ethiopia and Sudan.

The Executive Director of the Nile Basin Initiative (NBI) Secretariat, Prof. Seifeldin Hamad Abdalla and the United Nations Development Programme (UNDP) Resi-

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DID you know?

The total area of peatlands and other organic soils in the Nile Basin amounts to about 30,445 sq. kilometres (3,044,500 ha) Find out more: <https://bit.ly/3iogyiB>



Dear Reader,

We have just concluded the fourth and last quarter of the financial year 2019/2020, having spent the entire quarter working mostly from home, due to the COVID-19 pandemic.

I would like to take this opportunity to appreciate the staff for their commitment, resilience and versatility to ensure that our business continues.

Among the key areas of progress during the quarter is the start of implementation effective June 1, 2020, of the USD 5.3 million Ground Water project. The project document was signed by the United Nations Development Programme (UNDP) Resident Representative for Uganda, Ms. Elsie G. Attafuah and myself. The aim of the 5-year project funded by the Global Environment Facility (GEF) is to improve the understanding of available groundwater resources and demonstrate how to optimise the joint or conjunctive use of surface and ground waters.

We also embarked on the preparation on our work plan and budget for the financial year 2020/2021 in readiness for its presentation to our governance for approval. At the same time, we, with technical support from the World Bank, have put together a new 5-year project document, Nile Cooperation for Climate Resilience, which

will also be presented to our governance for approval in July 2020.

The COVID – 19 pandemic has no doubt affected implementation of some of our planned activities, with some events conducted online while others, such as the 6th Nile Basin Development Forum and the 3rd Nile Media Awards earlier planned to take place in October 2020, have been re-scheduled to take place in 2021.

That said, the situation we are in today is also a moment in time when the work of the Nile Basin Initiative (NBI) is most critical. One of the measures touted by experts to prevent the spread of COVID-19 is through washing hands regularly with soap and water. This clearly demonstrates the central role that water plays in our daily lives and activities.

This reality underpins the importance of NBI's goal number one of its 10-year (2017 – 2027) Strategy, aimed at enhancing availability and sustainable management of the transboundary Nile water resources. This involves identifying and preparing investment projects to increase storage capacity in the basin; supporting the improvement of water use efficiency in major water-use sectors; strengthening river basin monitoring and analysis of data from monitoring networks; as well as promoting conjunctive use of surface and ground water resources.

As governments of the NBI Member States take measures to ensure the safety of their citizens, we at the Secretariat are closely following the guidance provided regularly by the government of Uganda while at the same time encouraging employees to work from home whenever possible.

As we look forward to getting out of this situation, I would like to request the staff to stay focussed, first on their own health and that of their loved ones and families and, very key, to ensure continuity and steadiness of NBI's business.

Stay safe!

Prof Seifeldin Hamad Abadalla



Ms. Elsie G. Attafuah

dent Representative for Uganda, Ms. Elsie G. Attafuah recently signed a USD 5.3 million groundwater project document, to be implemented over a period of five years.

The aim of the project, whose implementation commenced on June 1, 2020, is to improve the understanding of available groundwater resources and demonstrate how to optimise the joint use of surface and ground waters.

The interaction between groundwater and surface water systems (rivers, wetlands, lakes) has not been adequately considered in most transboundary river basin management initiatives, including the Nile Basin. The most pressing driver of heightened interest around groundwater in the Nile Basin is the growing imbalance between water demand and water supply.

This requires members states to increase efforts to look for alternative water sources. Groundwater holds the promise of closing the gap between water supply and demand, and in buffering the effects of climate variability. The other driver of interest around groundwater is the role that groundwater plays in addressing the Sustainable Development Goal (SDG) targets for drinking water (SDG 6.1) and other SDG6 targets such as Integrated Water Resources Management SDG 6.5. To reach SDG 6 goals, groundwater delivered through multiple delivery

mechanisms (e.g. boreholes, springs, reticulated systems, dug wells) has a vital role to play.

The project, funded by the Global Environment Facility (GEF), covers three shared aquifers involving seven (7) NBI Member States. These are the Kagera aquifer shared by Burundi, Rwanda, Tanzania and Uganda; Mt. Elgon aquifer shared by Kenya and Uganda and Gedaref-Adigrat aquifer shared by Ethiopia and Sudan.

Member States will be supported in improving the knowledgebase and capacity for sustainable management and utilisation of groundwater resources. This is in addition to putting in place and supporting cross-border mechanisms for joint management and sustainable utilisation of shared aquifers.

<< This requires members states to increase efforts to look for alternative water sources. Groundwater holds the promise of closing the gap between water supply and demand, and in buffering the effects of climate variability.

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Pilot projects will also be implemented in the study areas to demonstrate novel approaches for sustainable groundwater management. The results and lessons will help to inform the development of national and regional action plans. Successful pilots from this project will be scaled up through national and sub-regional initiatives.

The Groundwater project is one of the interventions by NBI during the the implementation of the 10 year strategy (2017 – 2027), aimed at supporting Member States to address the rising water demands for their rapidly growing economies and population.

Elizabeth Agiro,
Media Relations Expert
Nile-SEC, Entebbe

Unprecedented rise in water levels of Lake Victoria

In the recent months, Lake Victoria has experienced rising water levels that have caused significant flooding impacts on Lake shoreline communities in Kenya, Tanzania and Uganda as well as downstream communities near Lake Kyoga and Lake Albert. NBI Secretariat's, Dr Modathir Zaroug shares some insight in the following article.

Lake Victoria is the largest lake in Africa and the second largest freshwater lake in the world¹. It has a surface area of around 69,000 km². The Lake is shared by Kenya (6%), Uganda (43%) and Tanzania (51%)¹⁰; while Burundi and Rwanda are also part of its catchment area which covers 184000 km² (Fig.1). All the five countries are members of the Nile Basin Initiative (NBI).

The main outlet of Lake Victoria, is in Jinja (Uganda) and it is here where the White Nile, which is part of the mighty River Nile starts flowing northwards through Uganda. The White Nile keeps changing names as it journeys through South Sudan and Sudan^{2&3}.

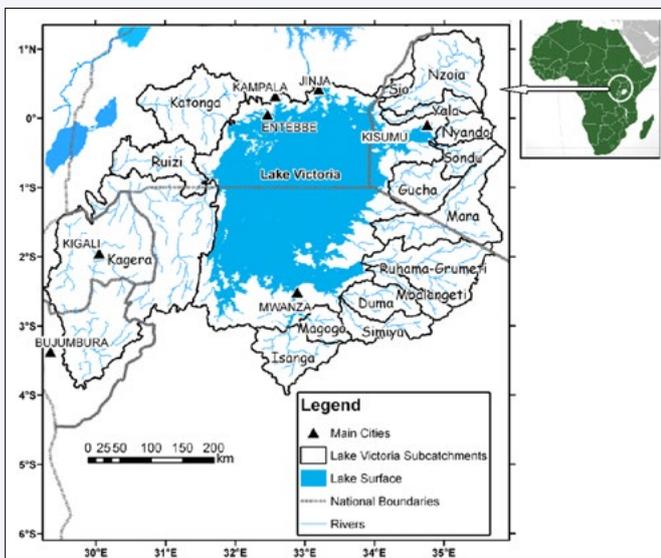


Fig. 1. Lake Victoria Basin and its sub-catchments⁴.

Lake Basin Climate

The diurnal, seasonal and inter-annual variability of Lake Victoria (and East Africa generally) climate results from a complex interaction between the Inter-tropical Convergence Zone (ITCZ), El Niño/Southern Oscillation (ENSO), Quasi-biennial Oscillation (QBO), large scale monsoonal winds, meso-scale circulations and extra-tropical weather systems. These interactions are responsible for the anomalous behavior of the Lake system and many studies have been carried out to understand the influence of these systems on water balance of the Lake. The Lake surface receives a high amount of rainfall of above 1500 mm, which represents about 85 percent of the water entering the Lake; the remaining inflow comes from the 23 rivers that drain the catchment. The annual evaporation rate from the Lake surface is about 1350 mm.

Recent rainfall variations

In the recent months, Lake Victoria has experienced rising water levels that have caused significant flooding impacts on the Lake Shoreline communities in Kenya, Tanzania and Uganda as well as downstream communities near Lake Kyoga and Lake Albert. Based on analysis using the CHIRPS v2.0 dataset, the rainfall in Lake Victoria exhibited above average rainfall since May 2019. A considerable increase in rainfall in 2019 was experienced in October by 79%, in November by 56%, and in December by 74% compared to the long term average. Observed rainfall in 2020 increased in January by 83%, in February by 25%, in March by 43%, and in April by 33% compared to the long term average. However May rainfall was less than the long term average (Fig. 2).

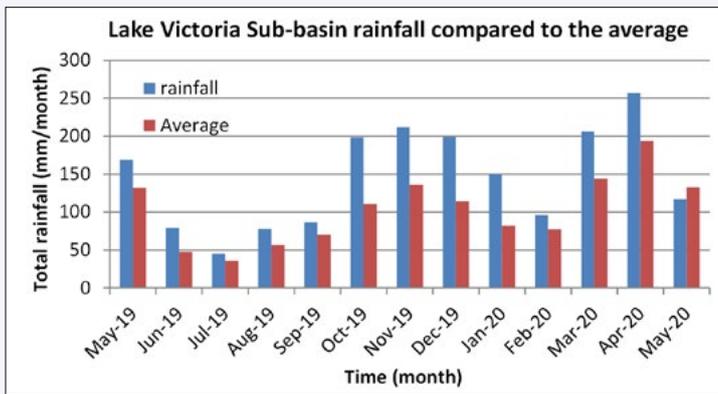


Fig. 2. Lake Victoria Sub-basin rainfall in the recent months compared to the average.

The cause of these major increases in rainfall in Lake Victoria Sub-basin was due to a positive Indian Ocean Dipole (IOD) phase^{5,6,7} caused by warmer sea temperatures in the western Indian Ocean region, with the opposite in the east (Fig. 3). This resulted in the higher-than-average rainfall and floods in eastern Africa. The positive IOD occurs when the westerly wind weakens and the easterly wind forms and allows warm water to shift towards Africa. The 2019 IOD was the most extreme event over the past 40 years⁸.

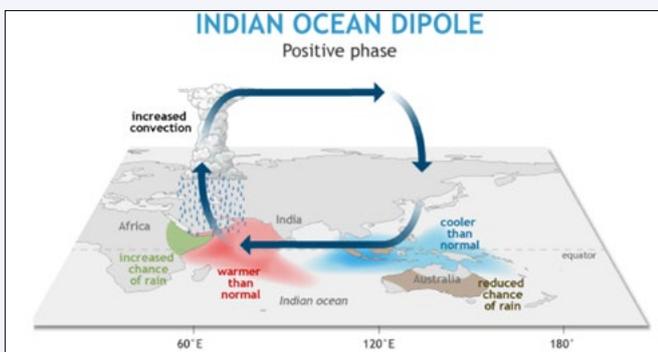


Fig.3. Positive Indian Ocean Dipole (IOD)⁸.

Historical and current water level variation

The Lake level rise in the early 1960s was a result of abnormally heavy rains; in the last six months of 1961, 2323 mm of rain were recorded, nearly 100% higher than its average value. Very high rainfall was recorded during the first six months of 1962 (1884 mm/year, about 50-60% above average), and 1963 (1739 mm), and 1964 (1739 mm). As a result the lake levels rose by 2.5 m by 1964⁹ which was the historical highest level before 2020. From 1964 onwards, Lake levels continued falling with some isolated increases (e.g. in 1982 and

1997/98) until they reached a minimum of 10.4 m in 2006. Due to the recent heavy rains however, by May 2020 the water level had exceeded the historical mark and hit 13.42 m.

Discharge analysis

The discharge at Jinja, where the White Nile commences, has been recorded since 1900^{10&11}. The average annual flow is approximately 32 billion m³ (1948 to 2014) at Jinja station in Uganda⁹. The recent rise of water level led to release of around 2400 to 2600 m³/sec, which is around 207 to 225 million m³/day respectively. By aggregating this amount to 30 days, the flow is currently 6.2 to 6.7 billion m³/month compared to a long term average of 2.3 billion m³/month.

Implications on upstream and downstream Nile Basin countries

- ▶ Shoreline communities and businesses in low lying areas in Uganda and Kenya have been severely affected, and some communities displaced. In addition, some infrastructure have been damaged or made inaccessible while crops were washed away.
- ▶ Hydro power generation at Owen Falls Dam in Uganda has been affected by a number of floating islands resulting in temporary blackouts that sometimes affect Uganda. The high velocity of the flow from Lake Victoria tributaries and the wind pushed the floating islands towards the only outlet. High persistent outflows are also causing river bank erosion downstream and risking collapse.
- ▶ Downstream communities were also affected especially around Lake Kyoga. The picture (in Fig. 4) shows a Uganda Government hydrological measuring instrument that has been submerged.
- ▶ Higher discharges are expected this year if the high rainfall episodes continue and water levels remain very high. This will have major impacts in South Sudan and Sudan and the countries should prepare for the potential negative impacts over the coming year.



Fig. 4. Submerged hydro-met station around Lake Kyoga, in Uganda.

Addressing the common challenge of rising Lake Victoria water level

The Nile Basin Initiative (NBI) continues to support efforts of its Member States to jointly address their water resources management challenges. Some of the interventions by NBI are;

- ▶ Generating knowledge and information products that support the countries and people of the Nile Basin to better manage their shared water resources. These include the Nile Basin Water Resources Atlas, the state of basin reports, quarterly basin monitoring bulletins, strategic water resources analysis, ongoing development of the Nile Basin River Flow Forecasting System, and studies of projected hydrological scenarios for the Nile Basin under climate change¹².
- ▶ The Nile Basin Regional HydroMet Project currently under implementation will establish the first Regional HydroMet System for the Nile Basin, which will support monitoring and data collection efforts of Member States and the region at large.
- ▶ The common platform for dialogue enables countries to engage, consult and deliberate with each other and other Nile stakeholders including joint planning and management of water and related resources in the Nile Basin including Lake Victoria.

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Peatlands study findings to help Nile Basin countries improve National Determined Contributions

A pioneering study on peatlands of the Nile Basin region has provided coarse findings on peatlands extent, carbon stock, land-use threats and practical strategies for their sustainable use and management. The study was collaboratively undertaken by Nile Basin Initiative, Greifswald Mire Centre, Wetlands International and German Development Agency (GIZ) with financial support from The International Climate Initiative (IKI) of the Federal Minister for the Environment, Nature Conservation, and Nuclear Safety (BMU), Germany.

Peatlands are not only habitats for high carbon sequestration and storage crucial for climate change mitigation, but also critical for provision of multiple ecosystem goods and services, such as, water supply, unique biodiversity habitat, floods control, drought buffering and diverse livelihoods support, such as, tourism, fishing, wet agriculture or paludiculture and livestock keeping. These make peatlands restoration and conservation critical in overall integrated water resources management and climate change resilience building in the Nile Basin.

Therefore, generated information on peatlands provides a sound knowledgebase for river basin planning and climate change action. The total area of peatlands and other organic soils in the Nile Basin amounts to about 30,445 sq. kilometres (3,044,500 ha). This area contains a peat carbon stock of 4.2 - 10 Giga tones of Carbon (GtC), which is 10% of the total tropical peatland carbon stock.

The Nile Equatorial Lakes (NEL) region is estimated to contain 12,534 sq. kilometres of peatlands and contributes 58.5% of the total carbon stock of the Nile Basin. The majority of the NEL region peat carbon stock is located within the sub-basins of Lake Victoria and the Victoria Nile, especially the Kagera subset, which contains about 50% of all peatlands in the NEL region. The Lake Albert

sub-basin also contains substantial peatland areas but is the smallest of the NEL region. The most important concentration of peatlands in the Nile Basin lies possibly in the Sudd wetlands, where the estimated area of organic soils is 15,780 sq. kilometres, which would represent about 50% of the total peatland area and 37% of the total carbon stock of the entire Nile Basin.

The Blue Nile sub-system (Ethiopia) holds an estimated

« The peatlands study findings provides a starting point for Nile Basin countries to recognise the existence of peatlands landscape and associated carbon stock in their respective sub-basins and capitalise on that information towards climate change mitigation and adaptation. »

peatland extent of about 1,110 sq. kilometres, concentrated around Lake Tana and the south-western Ethiopian Highland. The latter peatlands have only recently been discovered and remain largely unknown. The foregoing peatlands study results are well captured in figure I and II herein.

Nile Basin peatlands are under increasing land use threats and are disappearing at an alarming rate. The responsible land use threats include burning and clearing for agriculture and settlements, invasive species, peat extraction for energy, drainage for infrastructure, draining monoculture plantations. Other threats include changing rainfall patterns and fire hazards. The consequences are increased carbon dioxide emissions as well as loss of carbon stocks and productive land.

Nile Basin countries are parties to United Nations

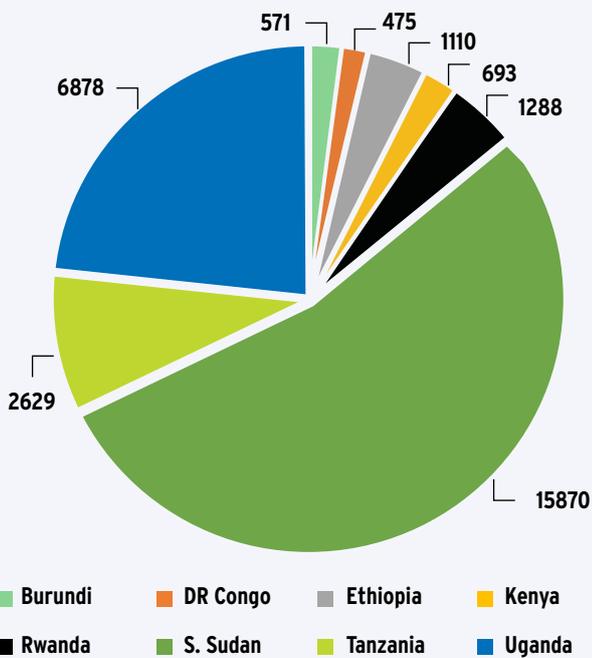


Figure I: Indicative Distribution of Peatland and Organic Soil Areas of Nile Basin Region in Km²

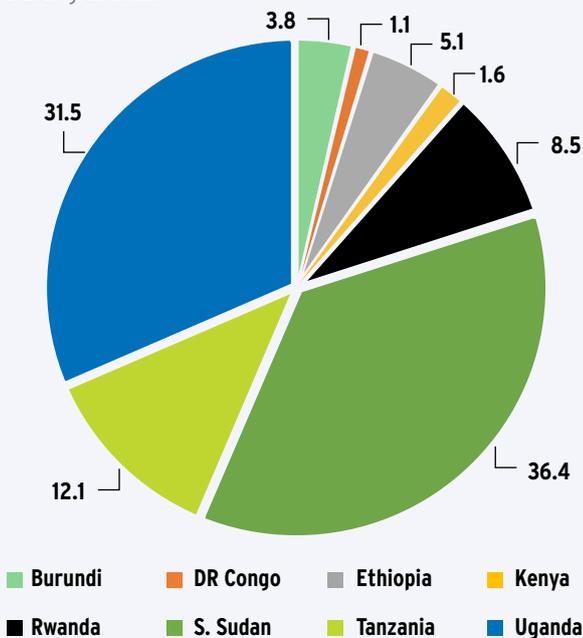


Figure II. The contribution (in %) of various countries to the estimated total peat carbon stock of the Nile Basin.

Framework Convention on Climate Change (UNFCCC) and associated Paris Agreement. This convention and agreement confer commitment to Nile Basin countries to endeavour towards stabilisation of greenhouse gases in the atmosphere, decrease and limit temperature increase to 1.5°C and endeavouring for overarching climate compatible development.

The Paris Agreement of 2015 resulted into declaration of national climate change mitigation goal and targets through National Determined Contributions (NDCs). The NDC is a commitment instrument and communication from each country detailing its actions towards reduction of national greenhouse gas emissions. Others have also used it to capture their adaptation goals to the impacts of climate change. The NDC is submitted every five years and the next one is due in 2020. Therefore, Nile Basin countries are currently revising and improving their NDCs for submission. The submitted NDCs from Nile Basin countries lacks elaborate inclusion of carbon-rich peatlands ecosystems. There is urgent need for these countries to include peatlands and associated organic soil in their NDCs and work towards reducing of peatlands draining and facilitate their restoration through rewetting so as to reduce emissions. This is in tandem with the need to enhance and increase mitigation ambition in consequent NDCs if the globally projected increased emissions and global warming of 3°C is to be reduced to desired 1.5°C. Furthermore, tap on peatlands multiple ecosystem services for climate change adaptation and enabling sustainable use and management through wet agriculture or paludiculture.

The peatlands study findings provides a starting point for Nile Basin countries to recognise the existence of peatlands landscape and associated carbon stock in their respective sub-basins and capitalise on that information towards climate change mitigation and adaptation. Moreover tap on blended financing in carbon markets such as voluntary carbon market, compliance carbon market and international climate change funding pool to actualise their respective NDCs climate change mitigation goals through mobilising and securing funding for the sustainable use and management of peatlands.

Leonard Akwany,
Regional Wetlands Expert
Nile-SEC, Entebbe

6th Nile Basin Development Forum postponed to 2021

As earlier planned, the 3rd Nile Media Awards will be held during the 6th NBDF

The 6th Nile Basin Development Forum (NBDF) and the 3rd Nile Media Awards earlier scheduled to take place on October 27 – 29, 2020 in Addis Ababa, Ethiopia have been postponed due to the COVID-19 pandemic. The Nile Basin Initiative (NBI) and the host country - Ethiopia, have agreed to postpone both events to 2021. The new date will be confirmed as soon as possible.

The Organising Committee would like to sincerely thank all those who positively responded to the call for abstracts for the 6th NBDF. On the other hand, the deadline for submission of entries for the Nile Media Awards has been extended to September 30, 2020.

In the meantime, the NBI Secretariat together with the host country and our partners will continue to work on the detailed preparations so as to ensure successful events.

The NBDF has since become one of the largest gatherings in the Nile Basin region, for science-policy dialogue. Its aim is to foster cooperation and create a common understanding and appreciation among a wide range of stakeholders on issues and challenges of the Nile Basin.

The forum also provides an opportunity for sharing latest information, knowledge and best practices as well as building partnerships among professionals in trans-boundary water resources management and development.

The goal of the Nile Media Awards is to promote increased, factual and balanced reporting on Nile cooperation and Nile Basin issues.

Find out more:

6th Nile Basin Development Forum
- <http://6nbdn.nilebasin.org/>

3rd Nile Media Awards
- <https://nilebasin.org/mediaawards/>

Stay safe and we look forward to seeing you in Addis Ababa at the 6th NBDF and 3rd Nile Media Awards ceremony in 2021.

Jane K. Baitwa,
Communication and stakeholder Engagement Specialist
Nile-SEC, Entebbe

Soon to be released...

In a new book soon to be released, **River Basin Organisations (RBOs) in Water Diplomacy**, NBI's very own Dr Abdulkarim Seid and Dr Wubalem Fekade together with Dr Ana Elisa Cascao and Dr Malte Grossmann of GIZ – Uganda (Nile Projects) contributed a chapter on the Nile titled: ***'Water diplomacy and conflict transformation in the Nile River Basin: The key role of the Nile Basin Initiative over the past 20 years'***. In one of the book reviews, Jeremy Bird, former Director General of the International Water Management Institute (IWMI) writes that the book provides welcome in-

sights into how river basin organisations from a range of political, cultural and physical settings have addressed sensitive development decisions. It goes beyond descriptions of institutional form and function to examine how RBOs have engaged in water diplomacy and the related difficulties, successes and limitations.

Find out more:

https://www.routledge.com/River-Basin-Organizations-in-Water-Diplomacy/Kittikhoun-Schmeier/p/book/9780367218133?fbclid=IwAR1iHqGgCNywdSvgzHojCUoGujH3kdo8FC8hNO_RAiyryrbrNH-4lVrnJTg#.XuiR9LYsliA.twitter

WHAT'S ON? July - September 2020

#	Event	Venue
1	NBI Governance meeting (54 th Nile-TAC)	July 27 th - 28 th
2	Training in Negotiation skills and conflict management	Aug - 4 th Week
3	Validation workshop of Medium Term Review of NBI Basin Wide Programme	Aug - 4 th Week
4	Regional stakeholder consultation workshop on financing transboundary water investments	Aug - 1 st Week
5	Training in IPSAS	Sept - 3 rd Week
6	Regional Expert Working Group Meeting - River flow Forecasting	Sept - 1 st Week
7	Training on Decision Support System Software web service	July - 2 nd - 3 rd Week
8	Training and Stakeholder workshop on Decision Support System web service	Sept - 2 nd Week
9	Training on Integrated Knowledge Portal (IKP) cycle 2	Aug - 1 st Week
10	Training and Stakeholder workshop on IKP cycle 3	Sept - 4 th Week
11	NBI Governance meetings (28 th Nile-COM)	Sept



In light of the COVID-19 pandemic and also in line with government of Uganda guidelines, management of the NBI Secretariat took a decision to allow staff to work from home for a period of time, in order to slow down or prevent the pandemic.

We encourage all citizens in the Nile Basin to wash hands often with soap and water, clean frequently touched surfaces and objects and maintain social distance, among others. Keep informed as health authorities provide the latest information on the situation in your country and follow their specific instructions. Stay safe!

NBI MEMBER STATES



Burundi



DR Congo



Egypt



Ethiopia



Kenya



Rwanda



South Sudan



The Sudan



Tanzania



Uganda



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NBI SHARED VISION OBJECTIVE

To achieve sustainable socio-economic development through the equitable utilisation of, and benefit from, the common Nile Basin water resources.

Want to know more about NBI?



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