



NILE BASIN INITIATIVE
INITIATIVE DU BASSIN DU NIL



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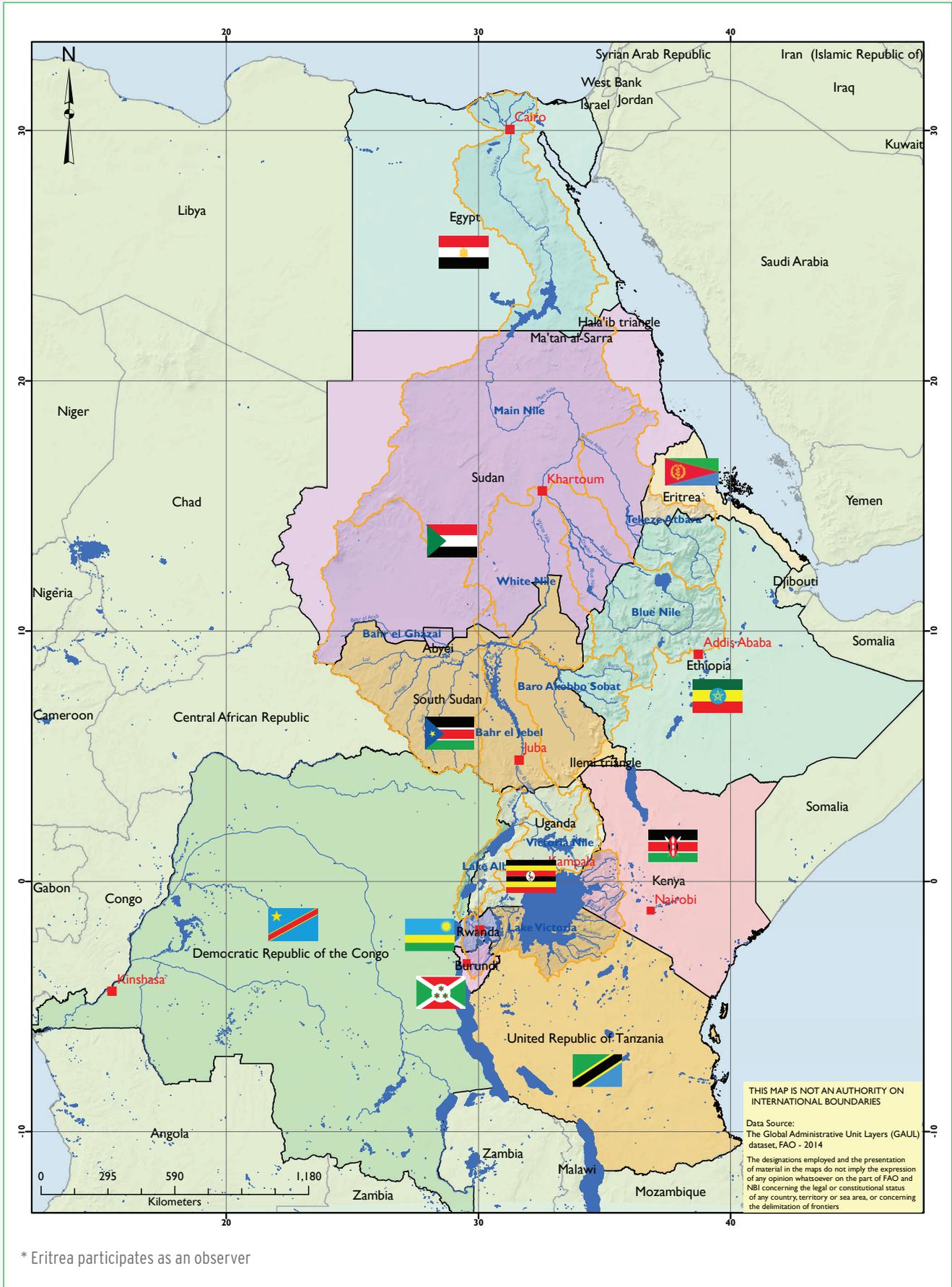
FORUM PROCEEDINGS

5TH NILE BASIN DEVELOPMENT FORUM



Theme: Investing in Nile Cooperation for a Water Secure Future
October 23 - 25, 2017. Radisson Blu Hotel and Convention Centre, Kigali

NBI MEMBER STATES



* Eritrea participates as an observer

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LIST OF ABBREVIATIONS

ADC	Atbara Dam Complex
CFA	Cooperative Framework Agreement
COM	Council of Ministers
DSS	Decision Support System
ED	Executive Director
Eflow	Environment Flow
EN	Eastern Nile
EO	Earth Observation
GCF	Global Climate Fund
GERD	Grand Ethiopian Renaissance Dam
GIZ	Deutsche Gesellschaft fur Internationale Zusammenarbeit
GoE	Government of Ethiopia
H.E	His Excellency
ICT	Information Communication Technology
MC	Master of Ceremony
NBDF	Nile Basin Development Forum
NBI	Nile Basin Initiative
RSS	Republic of South Sudan
SADC	South Africa Development Commission
TB	Transboundary
Twh	Tera watt hour
UBNRB	Upper Blue Nile River Basin
UNFCCC	United Nations Framework Climate Change
WA	Water Availability
WEF	Water Energy Food

PREFACE BY EXECUTIVE DIRECTOR, NBI



It is my pleasure to present to you the proceedings of the 5th Nile Basin Development Forum.

The Nile Basin Development Forum is a high level science-policy dialogue on how Nile cooperation can contribute to sustainable development in the Nile Basin. The aim of the Forum, which is organized every two years, is to create communities of people who are well informed, actively engaged in and promoting Nile cooperation as the only means of achieving sustainable management and development of the shared Nile Basin water resources as well as addressing shared risks, threats and challenges across the Basin.

The 5th Nile Basin Development Forum (NBDF) is part of a series of the Nile Basin Development Fora that are held after every two years with the aim of promoting science - policy dialogue in the Nile Basin. The Theme of the 5th NBDF was ***“Investing in Nile Cooperation for a water secure future”*** and eight related sub-themes. The theme and subthemes are in resonance with the contemporary global agenda of UN Sustainable development goals; AUs Agenda 2063, the Continental

Agenda of Africa Water Vision 2025, and the NBI 10 year Strategy.

The decision to hold the 5th Nile Basin Developed Forum was made during the 22nd Nile Council of Ministers’ meeting held in Khartoum, Sudan, on 19th June 2014. Previous Nile Basin Development Fora were held in the following cities; the 1st NBDF in-Addis in 2006, the 2nd in Khartoum in 2008, the 3rd in Kigali in 2012, and the 4th in Nairobi in 2014.

The Forum is an important event that brings together stakeholders of diverse backgrounds to share knowledge and understanding of the Nile Basin including cooperation, collectively synthesize the prevailing issues, and forge a way forward. The forum is a fertile ground of ideas and new thinking in the science and cooperation trends that can influence the policy regime in the basin. The event is largely informal enabling participants to freely and candidly discuss and contribute to any topic with the aim of sustainable development in the Nile Basin.

I wish to extend my special gratitude to the government and people of Rwanda for hosting the 5th Nile Basin Development Forum, especially this for the second time the event is hosted by Rwanda. I wish also to thank the Ministry of Environment, for your support and tireless efforts in organizing this high level regional event. I would also like to express my sincere thanks to our development partners, in particular the German Government, The World Bank and Cooperation in International Waters in Africa who have supported us both financially and technically in organizing this Forum.

The 5th NBDF was conducted through a program that comprised of plenary and parallel group sessions which were arranged in such a way that participants progressively took stock of the known, explored solutions and pathways and how to take it forward and finally made a call for action. The 5th NBDF was attended by slightly below 500 participants.

The call for action was made to major stakeholder categories of the Nile basin Initiative. To the Nile Basin Governments, as custodians of the Nile, to promote science-informed policy making, dialogue and

recommit to accord Nile Basin cooperation priority to leave a habitable, prosperous, peaceful Nile Basin for posterity. To the Media, to cultivate accurate and truthful reporting that promotes inter-riparian trust, confidence and mutuality. The call to the Regional Economic Communities was to create synergies and complementarity with NBI. To the Academic and Research Institutes, to align their work with Nile Basin Water Resources Management and Development priorities, and address knowledge gaps. To Civil Society, to support sustainable Nile Basin policies at multiple levels, safeguarding particularly local communities. The call to the International Community was to continue supporting and funding Nile Basin cooperation at this critical juncture.

I wish to extend my special gratitude to the government and people of Rwanda for hosting the 5th Nile Basin Development Forum, especially this for the second time the event is hosted by Rwanda. I wish also to thank the Ministry of Environment, for your support and tireless efforts in organizing this high level regional event. I would also like to express my sincere thanks to our development partners, in particular the European Union and the German Federal Government, The World Bank and Cooperation in International Waters in Africa who have supported us both financially and technically in organizing this Forum.

PART I – INTRODUCTION

1. Brief on NBDF and the 5th NBDF

The Nile Basin Development Forum (NBDF) is a high-level regional event that brings together stakeholders from within and outside of the basin to deliberate on opportunities and challenges in the sustainable management and development of the shared water resources of the Nile Basin.

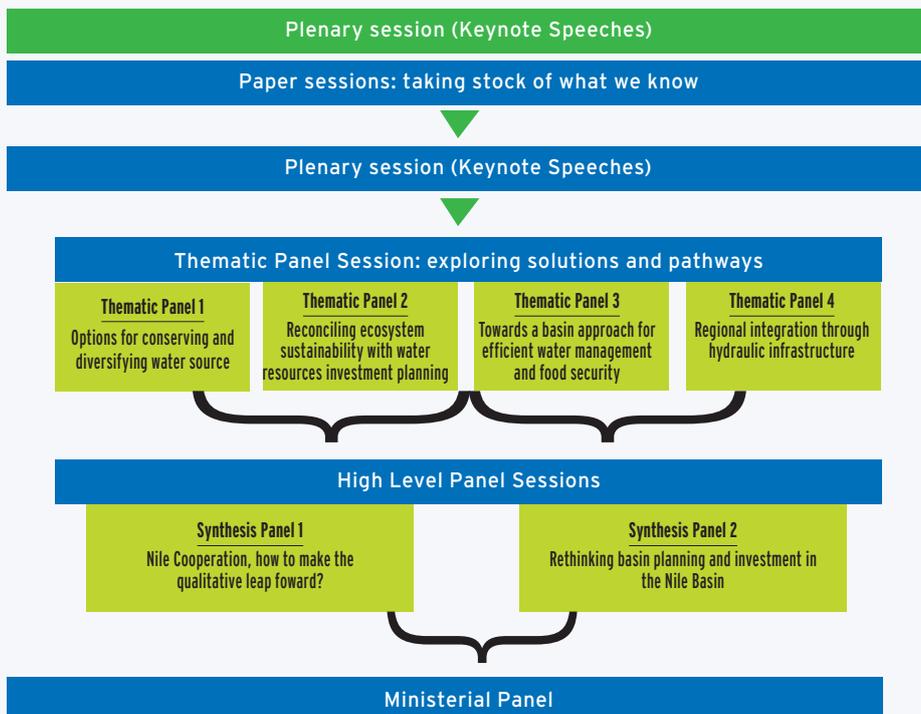
The NBDF is a science – policy dialogue forum organized every 2 – 3 years by the Nile Basin Initiative (NBI), together with national and international partners. It aims at providing a privileged platform for deliberations on Nile Basin water resources - the risks, opportunities and related trends - among policy makers, academia, civil society and other Nile Basin stakeholders.

The overall objective of the NBDF is to foster dialogue among a broad spectrum of stakeholders on key agenda items and the way forward for the sustainable development and management of the Nile Basin. This

comes in line with the NBI's **Shared Vision Objective:** *'To achieve sustainable socio-economic development through the equitable utilization of, and benefit from, the common Nile Basin water resources'*.

The specific objectives of the NBDF are:

- To enhance and continue building confidence and trust among countries of the basin through participation of a broader range of stakeholders including government officials, private sector, civil society and NGOs, local water users and external funding agencies;
- To raise awareness of the benefit sharing of cooperative development of the Nile Basin;
- To provide a forum for open discussion of NBI projects and initiatives;
- To introduce new ideas, share knowledge and best practices.



The 5th NBDF was held 23 - 25th October in Kigali Convention Centre in Kigali, Rwanda under the theme “*Investing in Nile cooperation for a water secure future*” and eight sub-themes. It brought together close to 500 people from Nile Basin and beyond and featured 4 Plenary Sessions; 15 Paper/Technical Sessions at which 60 technical papers were presented; 4 Multi-Stakeholder Dialogues (Synthesis Sessions) and a High-level Ministerial Panel. The overall flow of the sessions is as indicated in Figure 1.

The 2017 NBDF is the 5th in a series; Four Forums have been conducted to date each having their specific themes as highlighted below:

- **1st NBDF, Addis Ababa, Ethiopia, 2006:** *The Role of the Nile River in Poverty Reduction and Economic Development in the Basin.*
- **2nd NBDF, Khartoum, Sudan, 2008:** *Environment and Water Resources Management for Peace and regional Cooperation in the Nile Basin*
- **3rd NBDF, Kigali, Rwanda, 2011:** *Climate Change and its Implications for Sustainable Development and Cooperation in the Nile Basin – Threats and Opportunities to Nile Basin Cooperation.*
- **4th NBDF, Nairobi, Kenya, 2014:** *Building Sustainable Nile Cooperation in a Complex River Basin: Challenges, Lessons and Prospects.*

2. Opening Session

The 5th NBDF opened by the Guest of Honour, the Dr. Vincent Biruta, the Minister of Natural Resources of Rwanda and member of the Nile Council of Ministers (Nile-COM member).

Prior to the opening speech, poems were presented by school children and short remarks were made by Eng. Innocent Ntabana, Executive Director of the NBI Secretariat, HE Amb. Rolf Welberts, German Special Envoy for Nile Cooperation Affairs, and William Rex, CIWA Program Manager World Bank.



HE Hon. Dr. Vincent Biruta delivering his opening speech



Setting the scene: Dr. Abdulkarim H Seid, NBI Secretariat

The kick-off of the Forum sessions was then announced by the program introduction delivered by Dr. Abdulkarim Seid, Chair of the Forum Programme Committee.

The Guest of Honour, Hon. Dr. Vincent Biruta, opened the Exhibition and participants visited the exhibition which mainly exhibited the various outputs of the NBI.

The Nile Project Concert and the Nile Media Awards 2017 took place in the evening of the opening day. The Nile Media Awards 2017 seeks to recognize journalists from within the Nile Basin for the excellent reporting on Nile cooperation issues in order to promote increased, accurate and factual reporting on these issues. A number of journalists were recognized and received awards from dignitaries from several regional institutions that participated at the Forum.

3. Plenary Session

The first Plenary Session of the 5th NBDF explored the concept of ‘water security’, what it means for the Nile Basin, and how cooperation can help achieve it for both upstream and downstream countries alike.

The session included two key note addresses: The first on “River Basin Management Pathways to Water Security”, by Dr. Don Blackmore, and the other on “Water security through regional basin planning – an example from the SADC region”, by Prof. Zebedia Phiri. Both were delivered in the plenary before participants broke out into paper presentation sessions.

Two main messages came out from the Plenary Session:

- The first keynote speech was based on experiences and lessons from the shared river basins around the world: the Murray-Darling Basin in Australia, the Mekong River Basin and the Indus River Basin;
- Investments in water are critically important in order to unlock the potentials of a river basin. However, in a shared river basin, more investments can be attracted and investor confidence enhanced if arrangements for shared development and



Dr. Don Blackmore, delivering Keynote speech

management of the river basins are locked in treaties, contracts or licenses.

- Due to rapid population growth, the per capita water availability is projected to decrease. This trend applies for most of the world but rapid decline is projected for Africa – apparently due to the relatively higher rate of population growth in Africa.
- As water in the Nile Basin becomes an increasingly scarce resource, given the impacts of climate change, demand continues to rise with the growing populations and economies of the Nile Basin states. However, there are a wide range of options available to riparian states seeking to meet these growing



Partial view of participants of the opening Session

demands by investing in cooperative solutions to managing water resources in an integrated and equitable manner. The first speaker stated that sustainable intensification of water use as the only way forward in immediate future

- The second keynote shared the experiences of the Zambezi Watercourse Commission (ZAMCOM) established with the mission to promote the equitable and reasonable utilization and the efficient management and sustainable development of the water resources of the Zambezi Watercourse.
- The experience of the ZAMCOM shows that cooperation is an imperative – not an option.

The Opening Session was followed by breakout parallel sessions along the 4 sub-themes:

1. Water Availability;
2. Environmental Conservation;
3. Water-Food-Energy Nexus;
4. Transboundary Governance and
5. Economic Perspectives.

These were technical sessions; each with 4-5 research papers being presented and discussed. Three rounds of paper presentation sessions collected the experience of scientists and practitioners on topics ranging from water resources and food security, energy access – and the nexus between these three –, water ecosystems, governance, financing options and knowledge assets. These have been arranged in five Parallel session series, as outlined below, with each session featuring presentations from four experts, as well as a short discussion and Questions and Answers (Q&A) from the audience.

Paper presentation sessions - Taking stock of what we know					
	Ensuring Water Availability (WA) for a growing demand	Sustaining the water Ecosystems (ECO) of the Nile Basin	Water-Energy-Food Nexus (WEF)	Governance (GOV) in the Nile Basin	Economic (ECN) Perspectives for Basin Management
	Room MH 1+2	Room MH 4	Room MH 3	Room AD 12	Room AD 10
10:30 - 12:00	WA1 - Climate change	ECO1 - Catchment/ Watershed management	WEF1 - Food production and water management	GOV1 - Transboundary cooperation: sharing experiences	ECN1 - Economic valuation of ecosystem services
12:00 - 13:30	Lunch Break				
13:30 - 15:00	WA2 - WR Availability and Variability	ECO2 - Sustainable management of Wetlands	WEF2 - Multi-sector planning and tradeoffs	GOV2 - Hydro-politics of the Nile Basin	ECN2 - Hydro-economics of water allocation
15:00 - 15:30	Coffee Break				
15:30 - 17:00	WA3 - Enhancing water resources supply	ECO3 - Environmental flows	WEF3 - Coordinated planning and management	GOV3 - Multi-track hydro diplomacy	ECN3 - investment and trade: the current landscape

PART II - SESSION SUMMARIES, KEY MESSAGES AND RECOMMENDATIONS

Paper Session I: Ensuring water availability for a growing demand

This session aimed to build common understanding on current and projected future water availability, variability (natural and due to climate change) and accessibility of water resources in the Nile Basin and generate options for enhancing water supply/ availability for meeting the growing water demands.

1.1 WA1 - Climate change

The session had four paper presentations:

- Climate Change projections for the Nile Basin: what do the climate models tell us?
- Analysing the future climate change of Upper Blue Nile River Basin (UBNRB) using statistical down scaling techniques
- Impact of climate change on precipitation distribution and water availability in the Nile Basin
- The National Impact of 1.5 and 2 Degree Global Warming over Africa, and the Role of Aridity.

The session considered the following discussion questions:

- What are the projected changes in precipitation and temperature over the Nile Basin due to climate change?
- What are the causes for and the best ways for dealing with variations between outputs of Global Circulation Models (GCMs) in projecting the future climate of the Nile Basin?
- What are the implications of a global average temperature increase of 1.5° C and 2° on future temperature of the Nile Basin (Ref. the Paris Agreement)?

The session concluded with the following recommendations/key messages:

- Historical studies used limited number of ensemble members. It showed there was no common agreement among the GCMs and there was a level of uncertainty in the projected rainfall and flow over the Nile Basin.



Dr. Modathir Zaroug (NBI - SEC), presenting at the session "WA1 - Climate change"

- The main causes of disagreements among GCM outputs are (i) model structure adopted, (ii) land use cover assumed, (iii) tuning of some parameters to reflect reality on the ground, (iv) different physics behind the models, and (v) different components used in the models.
- Using Regional Climate Models is one of the recommended approaches to reduce uncertainty due to GCM output variation. Further, robust statistical downscaling techniques that are tested and proven to work in the Nile Basin conditions are recommended.
- Median temperature across all African countries is significantly different, and warmer, when compared with 2.0 and 1.5 °C global warming projections. East Africa in general showed the lowest increase in temperature.

1.2 WA2 - Water Resources Availability and Variability

The session had four paper presentations:

- Surface water availability and variability in the Basin and climate change impacts in the Nile Basin.
- Use of EO Data for Monitoring River Basins.
- Assessment of Ground Water of Blue Nile Sudan.
- Flood forecasting and early warning.

The session considered the following discussion questions:

- Contention on whether the Nubian Sandstone Aquifer are majorly fossil water or there is water recharge from the Nile river and their extent.
- Quantification of modelling errors in the flood modelling processes and which processes of the three indicated major process contributes most to the errors.

The session concluded with the following recommendations/key messages:

- The water flowing in the river Nile is 5% of the water that falls as rainfall. The basin should consider how to manage the other 95% for more productive uses.
- NBI has a platform for data sharing, storage and data products. There is a need for countries and experts to take advantage of these products for management of their respective water and land resources.
- There is limited use of available Earth observation data even though quite a lot of products have been developed from these sources. This data needs to be supported as a means of complementing ground observation data.
- There are limited studies concerning the recharge processes of the Nubian Sandstone Aquifer.
- There is a need to expand flood studies to cover flash floods in the Eastern Nile Basin.



Dr. Seifu Kebede (Addis Ababa University), presenting at session "WA3 - Enhancing water resources supply"



Dr. Yasir Abbas Mohamed (Hydraulic Research Center, Sudan), presenting at session “WA3 - Enhancing water resources supply”

- Flood studies management improvement requires introduction of the telemetric systems, improvement of data sharing mechanisms, build more capacity for modellers and improve the awareness on the use the flood warning information.

1.3 WA3 - Enhancing Water Resources Supply

The session had four paper presentations:

- Scope for diversifying water resources supply in the Nile Basin.
- Rainfall Harvesting Projects in Sudan.
- Challenges and success factors to enhancing rural community resilience to drought- Case study Bugesera in Rwanda.
- Groundwater availability and potential in the Nile Basin.

The session considered the following issues / discussion questions:

- Currently, detailed studies of the conjunctive use of blue water and green water are limited.
- There is use of recycled water in the Nile Delta in

Egypt, drainage water in the irrigation schemes; however there is a need to improve water harvesting and utilisation as an alternative source of water.

- Concern that if groundwater in the Nubian aquifers is not used, it could gradually discharge into the ocean or deteriorate in quality.
- Quantification of groundwater potential needs to consider groundwater recharge in the highlands, storage in the lowlands and the associated quality. Ground water should not only be considered for its quantity but also for its productive capacity/use. For example, many wetlands in tropical Africa are maintained by groundwater.
- The composition and recharge mechanisms of the Nubian aquifers are still contentious.
- Current techniques for water harvesting are not documented. This hinders knowledge transmission and storage for future use.
- Lack of groundwater legislation frameworks in the Nile.

The session concluded with the following recommendations/key messages:

- Consideration of measures to reduce evapotranspiration in the Nile Basin, especially in large wetlands like the Sudd, in South Sudan.
- A need to investigate more on the quality of groundwater in the different areas as this can be influenced by the underlying geological formations.
- There is a need to compile and consolidate existing groundwater research information as currently much of this information is not used.
- More discussion and insights required concerning alternative water supply sources.

2. Paper Session II: Sustaining the water ecosystems of the Nile Basin (ECO)

The objective of this session was to take stock of current understanding and knowledge of the two most critical elements of the Nile Basin environment – 1) Wetlands and Catchments; 2) Explore options for their sustainable management determining technical, policy and institutional requirements.

2.1 ECO1 - Catchment/Watershed Management

The session had four paper presentations:

- Soil and Water conservation, experiences from upper Blue Nile Basin, Ethiopia
- Assessing impact of land use and land cover change on stream flow response: Dinder and Rahad
- Livelihood Contribution of landscape restoration
- Catchment restoration for a sustainable renewable energy production in Upper Nyabarongo Catchment, Rwanda: Experiences, challenges and policy recommendations

The session considered the following issues/discussion questions:

- Watershed degradation is common in Nile Basin region: Ethiopian Highlands, Dinder and Rahad Catchment and associated Mayas Wetlands, Nyabarongo Catchment of Rwanda
- Watershed degradation and associated soil erosion in Nile Basin leads to cropland loss, productive capacity decrease and habitat and ecosystems loss resulting into hydrological and ecological impacts
- Ongoing Soil and Water Conservation Interventions in Nile Basin Watersheds needs to be replicated and scaled up for critical impact on Watershed Hydrology
- Watershed restoration should factor multiple factors such as topography, soil type, soil depth, climate, species type as indicated in Ethiopian Highlands case studies



Panel discussion of the session WEF1 - Food production and water management

- Valuation of Watershed restoration in connection with ecosystem services and livelihoods should factor more ecosystem services and involve large-scale watershed or landscape restoration for critical impact as indicated in North West Ethiopia Case Study
- Watershed restoration should involve diverse land husbandry techniques and be informed by sediments fingerprinting appraisal and hotspots prioritization as in the case of Nyabarongo catchment in Rwanda
- The imperative of Institutional framework involving stakeholders to ensure sustainability of watershed restoration initiatives
- Valuation of Watershed restoration in connection with ecosystem services and livelihoods should factor more ecosystem services and involve large-scale watershed or landscape restoration for critical impact as indicated in North West Ethiopia Case Study
- Watershed degradation and associated soil erosion leads to cropland loss, productive capacity decrease and habitat and ecosystems loss resulting into hydrological and ecological impacts

The session concluded with the following recommendations/key messages:

- On-going soil and water conservation interventions in Nile Basin watersheds needs to be replicated and scaled up for critical impact on Watershed Hydrology
- Impact of watershed restoration on multiple ecosystem services and associated human well-being needs to be valued to enable investment on watershed restoration to scale
- The need for watershed restoration strategies for Nile Basin region to factor driving factors such as climate change, population increase and urbanization.
- The need for Nile Basin Region Countries to join Bonn Challenge like Rwanda and Uganda which is a global endeavour based on forest landscape restoration approach and aims to vegetate deforested and degraded land by 150-350 million hectares within 2020-2030 period.

2.2 EC02 - Sustainable use and management of Wetlands

The session had four paper presentations:

- Supporting Sustainable Management of the Mara Wetlands in the Mara River Basin
- Community Conservation Agreements Model for Sustainable Management of Winam Gulf Wetlands
- How Healthy is the Lake Victoria Ecosystems Goods and Services?: Gender-Ecosystem-Poverty linkage Perspective
- Incentives Based Conservation Approach for Nile Basin Wetlands Wise-use

The session considered the following issues/discussion questions:

- Wetlands Integrated Management Plans requires establishment of implementation mechanisms such as Stakeholders Ownership and Conservation Investment Plan to unlock funding for the operationalization of the plan
- Potential of Incentives and Voluntary Based Conservation Agreements models for conservation of Nile Basin Wetlands
- The need for monitoring protocol and associated indicators for measuring impact of wetlands conservation and water levels issues and associated wetlands water requirements

The session concluded with the following recommendations/key messages:

- The need for integration of wetlands management plan into River Basin Plan such as Mara Wetlands Plan and Mara River Basin Planning.
- Wetlands Integrated Management Plans requires establishment of implementation mechanisms such as Stakeholders Ownership and Conservation Investment Plan to unlock funding for the

operationalization of the plan

- Nile Basin Initiative needs to support National Governments to develop National Reports on Wetlands including critical aspect of wetlands extend within the Countries for Ramsar Obligation and Informed Planning
- The need for Ethiopia to join Ramsar Convention
- The need to link wetlands, human rights and river basin planning

2.3 EC03 - Environmental Flows

The session had four paper presentations:

- A Framework Model for Strategic Environmental Assessment for River Engineering Development: NB Case Study
- Environmental flow assessment



Dr. Mohsen Alarabawy (NBI - SEC), presenting at the session "EC03 - Environmental Flows"

- NBI experience; Environmental flow for the Nile Basin: Framework for regional evaluations and a case study from the Mara river
- Evaluation of experiences with e-flow assessments in the East Africa

The session considered the following issues/discussion questions:

- The need to factor issues of environmental sustainability, environmental flows and integrated water resource management in river basin planning
- Environmental Flows should be an integral component of Investments Assessment
- The need for legal framework for Nile Basin countries on E-flow learning from Water Acts of Kenya and Tanzania and practice in South Africa
- Harmonization of methodologies for E-flow assessments in Nile Basin region
- Capacity building on E-flows of Nile Basin counties by Nile Basin Initiative
- Factoring of upstream and downstream perspectives on E-flow
- Developing of National Policies and Laws for E-flow for Nile Basin Countries
- Comprehensive approach to E-flow assessments, strategic assessments, water balance assessments, investments assessments and ecosystem issues
- Limited cases of SEA in the region
- E-flows methodologies to consider flow-ecology-resource objective-human needs linkages

The session concluded with the following recommendations/key messages:

- The need to factor issues of environmental sustainability, environmental flows and integrated water resource management in river basin planning
- The need for extra work on E-flow embedding, operation, monitoring and adaptation as there is average advance on methods, funding, capacity development and assessment with respect to E-flow.
- The need for E-flow methodologies and process best practice community in Nile Basin Region
- The need for legal framework for Nile Basin Countries on E-flow learning from Water Acts of Kenya and Tanzania and practice in South Africa
- Harmonization of methodologies for E-flow assessments in Nile Basin region
- Capacity building on E-flow of Nile Basin Counties by Nile Basin Initiative
- Factoring of upstream and downstream perspectives on E-flow
- Developing of National Policies and Laws for E-flow for Nile Basin Countries
- Comprehensive approach to E-flow assessments, strategic assessments, water balance assessments, investments assessments and ecosystem issues
- Legal and institutional framework responsive to environmental flows at regional level

3. Paper Session III: Water - Energy - Food Nexus (WEF)

This session shall identify key intra-, inter-sectoral and upstream-downstream trade-offs and explore/propose/recommend strategic options for regional coordinated approaches (infrastructure, institutions and policies) to meet the growing water, energy, and food demands in the Nile Basin region.

1. WEF 1 - Food Production and Water Management

The session had five paper presentations:

- Regional agricultural trade and investment in the Nile Basin;
- Technical efficiency of large scale irrigated wheat production in Blue Nile basin, case of Koga irrigation scheme;
- Impacts of irrigation development in the Upper Blue Nile basin using Nile Basin DSS;
- Satellite based ICT for improved crop production in the Gezira Scheme – Sudan

The session considered the following discussion questions:

- How can we translate the national levels opportunities into regional level?
- The capacity of the farmers to adopt to ICT could be a challenge. How do you adapt?
- How do we move forward at a regional level on issues of Governance in WEF?
- The papers presented have dwelt more on cereals and left livestock and fisheries. Is there any danger for Reservoirs to be used for both grain irrigation, cattle and fisheries production?
- Did the presentation quantify fisheries outputs using the NB DSS? How can we move the WEF agenda forward at regional level?

The session concluded with the following recommendations/key messages:

- Need to utilize NBI to move the WEF agenda at regional level even though, NBI is seen to be more focused on water than energy;
- Nile Basin should analyse the current situation (how-much water is available and how much food is needed) to make the right decisions of where to produce food to ensure food security for all.

WEF 2 - Multi-Sector Planning and Trade-offs

The session had four paper presentations:

- Eastern Nile Multi-Sectoral Investment Opportunity Analysis
- Influence of Roseires Dam Heightening on Performance of Al-Guneid Irrigation Pumps in Sudan
- Using WEAP Model to Monitor and Manage the Blue Nile River Basin
- Mainstreaming value of Ecosystems and Biodiversity in Development Planning: Tana River Basin

The session considered the following discussion questions:

- In the last presentation, what were the negative impacts?
- Was the demand more than the supply?
- Was it the poor planning and hence sustainability was not catered for Environmental Flow?
- How do you bring everybody together to work in the same thinking?
- What kind of joint committees works better for coordinated operation of dams?

The session concluded with the following recommendations/key messages:

- Close cooperation between the dam authorities and irrigation departments is a key factor

- Wider cooperation between the riparian countries through the establishment a joint technical regional committee for optimum operations of reservoirs.
- Inclusive and participatory planning is very important in multi-sectoral development
- Need to involve all actors including governments in valuation of ecosystem services

2. WEF3 - Coordinated Planning and Management

The session had four paper presentations:

- Towards operation of dam cascades, approaches of NBI in the Eastern Nile
- Challenges facing Atbara Dam Complex (ADC) Operation Management
- Seeking Compromise with the GERD
- National Water Projects in the Eastern Nile Basin: Drivers to Conflict or Cooperation?

The session considered the following discussion questions:

- What are the options to mitigate any possible impacts from GERD filling and operation on the High Aswan Dam (HAD)
- What do the solutions generated through optimization of cascade dam operation tell us about

the opportunities for coordinated operation?

- Downstream developments have impacts upstream by foreclosing future opportunities. Therefore, who benefits more from national projects if we compared downstream and upstream developments?

The session concluded with the following recommendations/key messages:

- Filling of the GERD should be done cautiously to ensure/minimize impacts on downstream uses, especially the HAD. If countries cooperate, there are filling options that enable achievement of this objective.
- For long-term operation of the GERD, the following would be success factors:
 1. Cooperative solutions exist that cause no harm to downstream water supplies
 2. There could be a balance power/energy trade-offs for Egypt and Ethiopia
 3. Data sharing and flexible power contracts are critical
- Multi-objective optimization of operation rules would generate multiple options for coordinated operation of cascade dams that would help EN countries on how best to manage their shared water resources in a manner that minimizes risks and maximizes their mutual benefits.

4. Paper Session IV: Governance (GOV)

The objective of this session was to identify constraints and opportunities for effective transboundary water governance, explore options and draw workable recommendations for cooperative management and development of the Nile Basin.

4.1 GOV1 - Transboundary cooperation: Sharing experiences

The session had four paper presentations:

- Beyond legalisms: toward cooperative governance of resource security
- TB water governance and cooperation through Benefit Opportunities Assessment Dialogue in the Sio-Malaba-Malakisi sub-basin
- Project based transboundary cooperation: the case of GERD-P
- GERD and Hydro-politics in the Eastern Nile, from water to benefit sharing?

The session considered the following discussion questions:

- Mistrust/perceptions among riparian states, how they obstruct effective cooperation, but also how they could be overcome
- Benefit-sharing and its incentives – but also the risk of increasing dependency and potentially vulnerability downstream to policies upstream

The role of technical collaboration processes in other river basins

The session concluded with the following recommendations/key messages:

- Continued efforts are required to build trust among riparian states – technical collaboration can and should serve as one prominent avenue to do so, in particular:

1. More information sharing is needed to enhance trust and build joint knowledge base
 2. Collaborative scientific analysis to generate foundation for informed decision-making
- Need to work towards permanent institutional arrangements (besides legal frameworks) for regional integration
 - Projects on the Nile could use NBI platform for prior notification
 - Benefit-sharing concept should continue to be explored – especially in the face of unevenly distributed benefits and costs at present – but countries also need to recognise the inherent shared responsibility over the Nile based on biophysical realities

Countries want regional integration – but on their own terms – and policy must develop as those terms are increasingly understood and known. This requires flexibility in our approach to regional integration.

4.2 GOV2 - Hydro-politics of the Nile Basin

The session had four paper presentations:

- Collective Action Theory and Nile Basin Cooperation: Past Experience, Future Directions
- Hydro politics, Hydro-hegemony and the Problem of Egypt's Securitization of the EN Basin
- Role of water diplomacy in TB cooperation in EN: Application of experimental games
- The Emotional River: The Hydro Political Psychology of the Nile

The session considered the following discussion questions:

- How can political realities (country/national interests) be balanced with collective interests?
- Does the subsidiarity principle (i.e. collective action



Audience of session "GOV1 - Transboundary cooperation: Sharing experiences"

- at the sub-basin, trilateral or bilateral level) weaken or strengthen basin-wide collaboration?
- How can subjective perceptions and emotions shape negotiation processes, both negatively and positively?
- Scenario analysis as an innovative approach to finding solutions for transboundary cooperation

The session concluded with the following recommendations/key messages:

- The real, tangible long-term benefits of cooperation (and risks of non-cooperation) in the Nile Basin are not clear – need to demonstrate more convincingly in order to encourage all countries to join the cooperation process
- Incremental building of trust and relationships allow for deepened cooperation – ability to cooperate can be improved over time
- Emotions affect decision-making processes (especially in the context of the Nile) but these emotions need to be moderated by facts. The media can play an important role here, and one can already see – following efforts by the NBI and others – that inflammatory reporting has somewhat decreased.

- High-level engagement and strong institutional arrangements are needed to address the current shortcomings in terms of cooperation in the Nile Basin.
- The current negotiation processes in the Nile Basin can benefit if countries: Improve skills in communication, diplomacy and promotion of cooperation

For the first time in the history of the NBDF, hydro-politics receives its own session – this indicates that the issue and an improved understanding thereof is becoming more prevalent and important in the Nile Basin.

4.3 GOV3 - Multi-track Hydro-diplomacy

The session had four paper presentations:

- Realizing the water security of the Nile Basin states: exploring the options
- The role of media and science communication in shaping debates and negotiations over the Nile
- Integrated diagnostic approach to understand stakeholder’s role and impact on water governance in the Nile Basin

- The Nile Project: culture and education dimensions of water diplomacy

The session considered the following discussion questions:

- How to communicate water science to the public accurately?
- What potential does citizen diplomacy hold in the context of the Nile Basin?
- Most “multi-stakeholder” or “citizen diplomacy” debates revolve around an elite (musicians, scholars, journalists etc.). But how to engage normal citizens?
- How to broaden stakeholder base in the Nile Basin Discourse?
- How to downscale regional interventions to local communities?

The session concluded with the following recommendations/key messages:

- No other river conjures up such colourful imaginations as the Nile – not just among its citizens, but around the world. This brings with it the potential to engage a large number of passionate individuals to foster positive exchange in the basin.
- There is a strong shared cultural heritage in the

Nile Basin which can be built upon to emphasise commonalities rather than differences between countries and people.

- Conflict and cooperation co-exist in the debate surrounding Nile Basin issues.
- “Facts” and “Science” are not necessarily ultimate truths, but can be used to manufacture reality and promote certain narratives. The public debate stands to gain if journalists quote their sources and acknowledge the complexity of scientific debates.
- Creativity and innovation in communicating water science is essential toward building informed constituents and decision making. This can be realized through joint research, publication and dissemination among the relevant stakeholders (governments, media, non-governmental organizations, the wider public);
- Shared platforms can help put transboundary water cooperation into practice.
- Organisations and governments must reach out to local communities with water resources interventions that matter to them most, such as flood preparedness and mitigation, guarantees local support and ownership.



Dr. Alan Nicol, presenting at the session “GOV2 - Hydro-politics of the Nile Basin”

5. Paper Session V: Economic Perspectives for Basin Management (ECN)

This session seeks to create a shared understanding of how economic considerations are currently impacting the management of water resources, as well as the potential opportunities for economics, trade and business in furthering sustainable development of the Nile waters.

5.1 ECN1 - Economic Valuation of Ecosystem services

The session had four presentations:

- The Value of the Sudd Wetland: Implications for Integrated Policies in the Nile River Basin
- Applying standardized methodology to value biodiversity and ecosystem services in the Lake Victoria Basin
- Rapid Assessment of Ecosystem Service values at Yala Wetland, Kenya
- Economic Valuation of Wetlands Ecosystems for Wise Use Review and Case Studies from the Nile Basin

The session considered the following discussion questions:

- If Sudd wetland well protected, will provide more water to Sudan and Egypt
- Sudd wetland is a natural flood control
- US\$ 1billion potential value of the Sudd wetland
- Stakeholders' engagement and participation key towards sound valuation of wetland

The session concluded with the following recommendations/key messages:

- Consider ecosystem/wetland valuation as important measure for sustainability
- Engage key stakeholders during ecosystems valuation

5.2 ECN2 - Hydro-Economics of Water Allocation

The session had four presentations:

- Water in national economic planning: utilization, challenges and valuation
- Eastern Nile Multipurpose Option Scoping Model
- Projecting downstream impacts of the GERD: the case of irrigated schemes in Sudan
- Updating the hydrology of the Baro-Akobo-Sobat

The session considered the following discussion questions:

- Sound national and regional policies to address climate changes and rocketing global food prices e.g. taxing on water use (irrigation) increases productivity and reduces overall demand for water;
- ENMOS-Model-supports identification of economically, socially and environmentally viable projects;
- Surface water modelling to establish baseline information and various room for analytical efforts on water;
- Sediments will remain in Ethiopia due to water storage facility at GERD;
- Irrigation command area covered at 90% in Sudan because of GERD with a notable water use reduction

The session concluded with the following recommendations/key messages:

- Harmonized interventions/policies on water related sectors at national and regional levels geared value added irrigated water for reduced water demand overall water demand e.g. taxing on water use (Increasing the value of irrigated water reduces the water demand);
- ENMOS found good to develop about 80% potential irrigation sites and 5TWh/year hydropower;
- Possible to optimize water use through well-developed models (ENMOS);
- Improving water balance through regular monitoring of water levels

5.3 ECN3 - Investment and Trade: Exploring the current landscape

The session had four presentations:

- Political economy of large scale agricultural investment in the Nile Basin: exploring opportunities and challenges
- Food, Fodder and Flowers: virtual water trade in the Nile Basin
- Business Corporations in the Eastern Nile Basin: Engine or Barrier of Effective Water Governance?
- Climate finance: opportunities for investment in the water sector

The session considered the following discussion questions:

- Consider/explore Intra-basin Virtual water trade to address water management/allocation;
- Many key actors are missing in the decision-making machinery of NBI (hydropolitics is key);
- Clarification on the definition of Climate Finance as per UNFCCC (GCF, GEF and Adaptation fund): Recommended Green Climate Fund being reliable.

The session concluded with the following recommendations/key messages:

- Enhance involvement of key actors in NBI decision making process (throughout scales: local, national, trans-boundary)
- Invest more on hydropolitics/further engagement of Multilateralism as development and governance doctrines;
- Bring regional agricultural trade to the high level political agenda
- Enhance negotiation capacity at local scale to ensure sound and optimal investments in NBI frameworks;
- More recommended financing source: Green Climate Fund (Access funds through national government or accredited entities/authorities);
- Protecting the local communities from the negative effects (bad deals) of direct investment/investors

6. Plenary Session 2: Coordinated planning and management of shared water resources for enhancing water security in the Nile Basin

Three presentations were made on country perspectives on future water demands, challenges and strategies for addressing the growing water demands. The presentations were on country perspectives of water availability and demand – current and future – from Ethiopia, Rwanda and Sudan. The country perspective presentations were followed by three keynote speeches on:

- Exploring how to address projected growth in water demands, NBI's approach (by Dr. Abdulkarim Seid);
- Indicative scenarios of cooperative solutions for addressing up- and downstream water demands (by Prof. Dale Whittington);
- Adapting water governance to emerging needs and challenges, example from the Colorado river basin (by Prof. Edith Zagona)

A summary of the three keynote speeches/presentations is given below:

The presentation on the NBI strategic water resources analysis revealed that the Nile currently supplies water for approx. 5.4 Mill ha of irrigated land basin-wide; Dams with aggregate storage capacity of over 200 BCM provide water for hydropower, irrigation, flood control and municipal and industrial water supply. The future projection showed that total basin dam storage capacity is expected to more than double; Hydropower capacity to increase nearly fourfold. Irrigated area is expected to increase by approximately 70 percent of the current value by ca. 2050;

The presentation concluded by stressing the need to coordinate and optimize basin-wide water use to minimize risks of substantial water shortfalls. In particular, options for diversifying the water supply, including increasing the basin water yield; optimizing water use and allocation across sectors and countries

and increased coordination of national water resources development planning and management are critical in order to meet the growing water demand sustainably and minimize risk of conflict due to competing water needs. The Second phase of analysis will explore options further based on the member countries efforts in identifying solutions for addressing the impending water scarcity.

The second key note presentation on 'The Role of Economic Analysis in Managing Water & Managing Emotions in the Nile Basin' hypothesized that 'ancient Instincts can operate at the river basin level river conditions and institutional response'

By taking the example of Grand Ethiopian Renaissance Dam and High Aswan Dam the key note presentation explored opportunities and challenges of upstream and downstream cooperation between riparian countries. The keynote states putting in place mechanism for sharing risks (termed as 'shared sacrifices') and reducing anxieties among water user communities are critically important.

The third key note address on 'Adapting water governance to emerging needs and challenges, example from the Colorado river basin' explained the Colorado River Compact and subsequent 'Minutes' and demonstrated how the U.S and Mexico managed to transform from conflict to collaboration. The presentation attempted to draw parallel between Colorado and Nile.

The presentation underlined the importance of transparency in data and information sharing, using modeling and analysis tools that are developed collaboratively in resolving complex transboundary rivers problems. The importance of managing drought conditions and sharing water shortages among water sharing countries through transparent, knowledge-based negotiation was stressed.

7. Thematic Panel Sessions: Exploring solutions and pathways

Four parallel panel sessions draw on the vast knowledge collected on day two and begin to explore possible solutions and pathways to the sustainable and cooperative management and development of the Nile Basin's resources. Each panel will feature three short expert inputs to stimulate discussion.

7.1 Thematic Panel 1: Options for conserving and diversifying water source

The session had three presentations:

- Enhancing and diversifying water sources: scanning the options for the Nile Basin;
- Improved demand side management and use of non-conventional water;
- Groundwater as complementary water source

The session considered the following discussion questions:

- What are the potentials for diversifying water sources in the Nile Basin?
- How would demand-side management contribute towards conserving water?
- What are the scopes for conjunctive use of blue and green water?

The session concluded with the following recommendations/key messages:

- Limited scope for a significant increase of blue water supply, without large environmental impacts affecting aquatic habitats and ecosystems.
- Groundwater resources is used mainly for domestic water supply
- Reuse of irrigation water has great potential, though water quality standards need to be maintained.
- Conjunctive use of blue and green water, has great

potential to increase water productivity at basin scale. Example is the water harvesting for drinking and agricultural water uses, in particular in the Savannah region.

- An integrated approach of the blue and green water management (supply and demand) is essential to diversify water supply and increase water productivity at the river basin or sub-basin scale.
- Improving performance of national water resources infrastructure is key for demand side management and increasing the availability of water.
- Increased conjunctive use of surface and groundwater helps in improving resilience to climate change, improve food security through supplementary irrigation and enhance water supply systems for rural and urban communities.

7.2 Thematic Panel 2: Reconciling Ecosystem Sustainability with Water Resources Investment Planning

The session had three presentations:

- Environmental flows: how to use existing best practice in the Nile Basin region
- Water requirements of wetlands: Integrating wetland sustainable use and management in basin planning
- Integrated watershed management for protection of water source areas and sustainable livelihoods

The session considered the following discussion questions:

- The need for embedding e-flow assessments in water resources planning and management culture through capacity building, responsive institutional outlay (policies and laws) and availing of e-flow measurement tools for wider application

- The need for Nile Basin Countries to invest on Watershed restoration and by extension landscape restoration tapping on Bonn Challenge and NDCs for political good will and financial commitments
 - The need for Nile Basin Countries to invest on wetlands, ecosystems and biodiversity conservation due to their ecological and hydrological link to River Nile and associated ecosystem services and human-wellbeing.
- The session concluded with the following recommendations/key messages:**
- The need for Nile Basin Countries to invest on Watershed restoration and by extension landscape restoration tapping on Bonn Challenge and NDCs for political good will and financial commitments
 - The need for Nile Basin Countries to invest on wetlands, ecosystems and biodiversity conservation due to their ecological and hydrological link to River Nile and associated ecosystem services and human-wellbeing.
 - The need for embedding e-flow assessments in water resources planning and management culture through capacity building, responsive institutional outlay (policies and laws) and availing of e-flow measurement tools for wider application
 - Strategic environmental assessment and environmental impact assessment should be an integral component of water resources investment planning



Panel members of the “Thematic Panel 3: Towards a basin approach for efficient water management and food security”

7.3 Thematic Panel 3: Towards a basin approach for efficient water management and food security

The session had three presentations:

- Food security through basin-wide approaches of agricultural water management
- The critical role of global and regional virtual water trade in the Nile Basin
- Agriculture and Food Security in NBI's Strategy

The session considered the following discussion questions:

- Approaches to food security in the Nile Basin region and countries – one needs to understand what are the policies that have been tried, what worked and not
- Need to understand the differences between food trade, productivity and security
- Role of Sudan as a possible breadbasket for the Nile basin region
- Rhetoric about regional integration not exemplified by action (eg. trade barriers, markets, prices, ...)
- Regional hydro-politics need to be coupled with global/regional markets and trade mechanisms

- How can global (inter-regional) and intra-regional trade be addressed, namely by regional institutions such as NBI, EAC, COMESA, etc.

The session concluded with the following recommendations/key messages:

- National-based approaches to food self-sufficiency do not work
- Strengthen regional institutions in capacity to innovate and coordinate agricultural interventions at the regional level
- Countries should increase financing and investment in agricultural water management – and develop relevant infrastructure according
- Emphasis placed on collaborative approaches, both multi-sector and multi-country
- Possible solutions and pathways to address food security – at regional, national and local levels – need to be identify
- The NBI should play a role – according to its current mandate or an extended mandate – in a crucial socio-economic sector such as agriculture, namely by building on previous SVP and SAP programmes and studies, specific on this topic (agriculture, irrigation, food production, etc).



Plenary Session 2: Coordinated planning and management of shared water resources for enhancing water security in the Nile Basin

7.4 Thematic Panel 4: Regional Integration Through Hydraulic Infrastructure

The session had four paper presentations:

- Coordinated operation of cascade of dams, experiences from the Colorado Basin, USA
- Power inter-connection and energy trade, NBI's experience
- Regional integration through hydraulic infrastructure: the economic arguments;
- New approaches for regional water-energy integration

The session considered the following discussion questions:

- How was the initial allocation of Nile waters made among states that have water sharing agreement?
- How do you see trading hydropower regionally, compared to satisfying energy needs locally or at national level?
- Currently there is no appreciation of the risk in the Nile Basin with respect to water uses and supply. How can we trade power in a political instability environment?
- Do we need to wait until CFA is ratified and then power trade to continue? Or we can have bilateral agreements and move on?
- What is the advantage of this regional integration and what are the mitigation measures to help us move forward?
- Was the rate of infrastructures development in Colorado connected to watershed management?

- What happens where there are more than 2 objectives in the performance matrix?
- What is special in the Nile Basin that makes it difficult to implement a regional infrastructure?

The session concluded with the following recommendations/key messages:

- Support the Water-Energy-Food Nexus
- Need for coordinated cascade management of dams
- Focusing on joint prioritization and development
- Coordinated sub-basin power planning
- Establish a preparation fund for project acceleration delivery
- In the long run, there is need to have a regional Nile Basin Water Policy
- Political instability is impacting on development in the Nile Basin
- Need to have a joint coordinated project implementation and joint operation and management of the project in the Nile Basin countries
- There is need to have an agreement between the Nile riparian countries, especially those that have these cascades of dams
- Enhance sub-basin and bilateral cooperation level and then work upwards to basin-wide level. This is because at the moment the realization of the Cooperative Framework Agreement (CFA) at Nile Basin level is taking long
- There is need to agree on the size of infrastructures at each riparian country and have joint monitoring tools to assess the impacts of these developments.

8. Synthesis Panel Session: How to take it forward?

Two parallel synthesis panels seek to further focus the discussions of the previous days and translate them into specific options for Nile Basin countries to take move their cooperation forward.

8.1 Synthesis Panel 1: Cooperation: How to make the qualitative Leap forward

The session had two paper presentations:

- Strengthening the dialogue: structured dialogue as a means for exploring breakthrough options in transboundary cooperation
- International water law perspectives

The session considered the following key issues/ discussion questions:

- International water law basically is law of cooperation. In order to get over the current impasse over the CFA countries need to “go beyond water sharing to benefit sharing”; “work out a compromise to get Sudan and Egypt sign into the CFA”. By way of illustration of such compromise formula, that “Egypt and Sudan accept to drop the

clause on water security in the CFA while upstream signatory countries accept to include provision on prior notification”.

- There is no silver bullet in international cooperation over water. Legal and institutional arrangements are necessary but not sufficient because states primarily act according to what they perceive is in their best interest, not necessarily according to or in order to adhere to international law or conference resolutions.

The session concluded with the following recommendations/key messages:

- There is the need to go beyond the current impasse, which is not sustainable. There also seems to be agreement - though without explicitly answering the how-to-get there aspect or defining the content on the urgent need for a qualitatively new era in Nile Basin cooperation.
- One strand emphasized the legal option i.e. the speedy conclusion of the CFA (which could possibly mean any one of the following: amending or otherwise trading off among the various provisions of the CFA and getting the two most downstream countries on board; proceeding on with the current process, get three more countries to ratify the CFA and transition NBI into a permanent RBC)



Dr. Susanne Schmeier (GIZ) moderating the “Synthesis Panel 1: Nile Cooperation, how to make the qualitative leap forward?”

- Another strand emphasized the urgency to go ahead with much-needed water resources investment work where significant deficit in water infrastructure is felt. There is no specific modality proposed, however, but the implication is that water resources development cannot be postponed indefinitely, or held hostage to the current stalemate over the CFA.
- Yet a third strand proposes issue-linkages i.e. bringing additional options to the negotiation (trade in agriculture/virtual water; power trade; agriculture water use efficiency and productivity; basin planning (regional optimization) in agriculture; ecosystem and environment) and with these additions expand the solution space and menu of solution options to get out of the current impasse over the CFA.

8.2 Synthesis Panel Session 2: Rethinking Basin Planning and Investment in the Nile Basin

The session had two short input presentations:

- NBI's 10 Year Strategy: Re-thinking regional investment and basin planning
- International experience in joint basin planning and investments

The session considered the following discussion questions:

- It is not physical water scarcity but economic water scarcity that affects the Nile Basin, i.e. one can see water is physically flowing but you cannot access it because of lack of investments.
- Do we feel that Nile Basin has the triggers (disasters/crisis) to force partners to go for joint planning and investments?
- Where is the technical capacity building in the 10 Year NBI Strategy?
- Do the Nile Basin countries' policies factor water



H.E. State-Minister Hirut Zemene (Ethiopia), at session "Synthesis Panel 1: Nile Cooperation, how to make the qualitative leap forward?"

scarcity as a priority issue? This because we all agree there is water scarcity in the region and hence investments are need in the demand side or supply side (watershed and water harvesting initiatives in the upper basin, which will save water for downstream countries).

The session concluded with the following recommendations/key messages:

- There is need for investment in large water infrastructure in the basin. There is need to have an inter-sectoral coordinated planning at national and regional level and this need to be brought to the highest policy level
- Packaging quality projects for bankability is an area that needs consideration so as to accelerate intervention and coordination in investments
- There is need to look at population demography which is impacting on the critical ecosystems of the basin
- Making use of developed tools into action from "pilot" to "large scale" towards planning and monitoring of the basin resources vis-à-vis investments
- Need for climate resilience investments that can take care of the basin
- Uptake on low cost technologies could help in water access
- There should be an institution of monitoring the implementation of the proposed resolutions from the NBDF. NBI could be mandated to this.

9. High-level Ministerial Panel: Rapporteur's Notes



Panel members (by order): H.E. Mutaz Abdalla Salim (Minister, Sudan); H.E. Dr. Vincent Biruta (Minister, Rwanda); H.E. Dr. Sileshi Bekele (Minister, Ethiopia); H.E. Sophia Pal Gai (Minister, South Sudan), Eng. Innocent Ntabana (ED NBI)

The moderator, as opener, put forth questions to the High Level Ministerial panellists pertaining to the status of the Nile Basin cooperation, how to advance and speed up basin-wide cooperation given that cooperation under NBI is already 19 years old and counting. The High-Level Panel participants included the Nile-COM members of Ethiopia (HE Dr. Sileshi Bekele), of Rwanda (H.E. Dr. Vincent Biruta), South Sudan (H.E. Sophia Pal Gai), Sudan (H.E. Mutaz Abdalla Salim), and the Executive Director of the Nile Basin Initiative Secretariat (Eng. Innocent Ntabana).

- The Panellists agreed on and converged on the imperative of speeding up Nile basin-wide cooperation. H.E. Dr. Seleshi of Ethiopia underscored that 19 years is a brief period considering the complex background and context from which Nile Basin cooperation began. Citing that NBI has created a hitherto non-existent basin platform that has since then promoted dialogue; enabled the planning and implementation of joint water resources investments, however limited in dimension; the conclusion of the CFA (where three of the six signatory countries have ratified). He urged looking forward via-NBI and to develop the basin in a cooperatively manner, by resolving differences

through dialogue and collaboration.

- Her Excellency Sophia Pal Gai from South Sudan highlighted that her country is a new member of the NBI family (joined NBI in 2012). She expressed her hope to benefit more from cooperation under NBI.
- Ambassador Mutaz from Sudan urged the need to come out with bold ideas, workout trade-offs around the CFA to unlock the impasse and emphasized the need for an “all-inclusive agreement” and urged that the consequences of non-cooperation need to be understood. He also said being positive and open-minded and the need to see things from the vantage of the other riparians (i.e. their threat-opportunity perceptions).

The moderator in the next round forwarded questions pertaining to:

- How can science inform policy-making?
- How to build new Nile Basin political leadership on the basis of new scientific ideas and findings?
- How does the threat of climate change, drought, refugees – basically problems of regional nature – can be handled by ‘creating a different sort of nationalisms’?



Mr. Daniel Kalinaki moderating the "Ministerial Panel - moving the agenda forward together"

To which different responses were given, including:

- In general, all the panellists have agreed that is excellent that the NBI is generating knowledge and helping member countries to understand the science of the river better, but this has to be complemented in parallel with trust and confidence building such as this platform (NBDF) is.
- The need for courage to adopt new ideas and to take up into national and regional policy making the science that is being made was stressed in the panel as the essence of this forum is to move us in this direction.
- **Next, the moderator asked all a question pertaining to:** Whether the panellists are optimist about the future of Nile Basin cooperation given that 'not all are on board at the moment
- The Sudanese Minister does not subscribe to the "water scarcity" discourse which emphasizes the relative constancy of the volume of Nile waters while populations are exploding, which he said created misperceptions and panic. We are not short of water which is God's abundance, he said, in so long as we cooperate and share. He said he is optimist about the future of Nile Basin cooperation.

- The need to further strengthen the trust among the basin countries was underscored in the panel discussion. To the spirited question whether she perceives "the glass as full or as empty or if at all there is any.
- It was also stated that the NBI provides the only basin-wide platform for cooperative management and development of the Nile Basin. A lot has been invested on NBI by member countries, development partners and the international community. It is important to safeguard the gains made under NBI and keep up the optimism in order to addressing current and emerging challenges facing the cooperation.

Below some of the main messages that summarise the discussions:

- Speeding up, broadening and deepening Nile Basin cooperation under NBI is a must, rather than a choice.
- In assessing NBI's achievements both unwarranted jubilation and pessimism are not helpful. When assessing the past, there is the need to have a perspective considering the baseline from which Nile basin-wide cooperation began. When planning for the future, there is the need to feel a sense of urgency, given the possibility for the proliferation and compounding of the basin challenges.
- There is the need to inform national and Nile Basin wide water resources policy-making by findings of science. The knowledge, data and information NBI is generating is critical and needs to be supported. A forum like the 5th NBDF is where the opportunity for science and policy making dialogue and needs to be sustained.

10. Fifth Nile Basin Development Forum (NBDF) CALL FOR ACTION

October 25, 2017

The NBDF, a science-policy dialogue forum of the NBI, held its 5th Conference in Kigali, Rwanda on 23-25 October 2017. Attended by over 400 participants, including Ministers of Water Affairs of Ethiopia, South Sudan and Sudan, along with the Minister of Environment of Rwanda and several Permanent and State Secretaries, parliamentarians, diplomats, Nile Basin Media, civil society and the development partner community, the Conference addressed the two most current critical issues of Nile Basin, namely *water security and basin cooperation*. The paper presentations and panel discussions have enabled Participants to deliberate, exchange ideas and appreciate the timeliness of these two issues and thus speak in one voice to call for **expedited basin-wide cooperative action** and address the following priority tasks, in the absence of which the Nile Basin would potentially face risks that otherwise could be mitigated, even avoided.

The Need for Qualitative Leap in Nile Basin-wide Cooperation

NBI has achieved a lot since its establishment in 1999. Under NBI member countries have jointly formulated policies; embarked on cooperative water resources investments; developed analytic tools and models; undertook strategic analyses which flagged both basin potentials and risks. These are only beginning steps. A lot still remains to be done. Egypt is yet to resume participation in the NBI. Transitioning NBI into a permanent institution on the basis of a legal arrangement has yet to be realized. Water resources investments and infrastructure are proliferating basin-wide without coordination, putting the Nile under growing pressure which could engender potential social, ecological and economic risks that could spill over into regional security and political risks. These risks, however, are avoidable and water security of the basin can be met,

provided there is basin-wide sustainable cooperation. Embarking on incremental series of creative, bold cooperation enhancing initiatives on many fronts and on many levels is a must. The urgency of preparing the Nile Basin public on the common threats and the risks of continuing business-as-usual in the face of changing basin hydrologic, climatic, socio-economic dynamics cannot be overemphasized.

The Need for Rethinking basin planning and investment

The potential for win-win outcomes in the Nile Basin has not been fully realized. To enable this therefore there is the need for developing commonly agreed upon Basin Sustainability and Planning standards and norms (e.g. environmental flow; water use efficiency, etc.) that supports the identification and preparation of cooperative transboundary water resources development projects able to generate a basket of benefits of sufficient diversity and scale which reconciles the needs and priorities of both upstream and downstream countries while addressing externalities.

The Need to conserve and diversify water sources to ensure availability

The Nile Basin still offers potentials for enhancing supply and managing demand better. For example, sustainable conjunctive use of ground water with surface water; enhanced utilization of rainfall, including green water harvesting; increased use of non-conventional water sources, such as desalination and re-use of waste water; reduction of storage and conveyance system losses and overall increase in water yield; preparation and implementation of joint investment in water storage facilities to enhance resilience against climate extremes and shocks – all these and many such measures – need to be explored and accorded priority.

The Need to sustain the Water Ecosystems of the Nile Basin

The Nile Basin hosts unique ecosystems (watersheds; wetlands; biospheres) flora, fauna and biodiversity therein which are of global significance. These environmental assets are increasingly being brought under stress due to development. There is therefore the need to expedite basin wide cooperative action in order to: secure the environmental flows required to conserve and preserve as needed these water dependent ecosystems; scale up integrated watershed management already successfully piloted in basin countries; enhance joint monitoring and improvement of water quality; promote ecosystem-based approaches, including green infrastructure.

The Need to promote basin approach toward efficient agriculture and food security

There is still significant potential for increasing agricultural productivity and boosting food security in the Nile Basin. Putting in place a basin-wide, cooperative approach will yield better results. There is the need to accord priority and preference for intra-basin investment in agriculture. How best to optimize agricultural production according to comparative advantages across the basin needs to be explored. There is still space to maximize water use efficiency and productivity in agriculture. Trade in agriculture among Nile Basin countries including harmonization of agricultural policies in line with continental and global level conventions and commitments needs to be encouraged. Infrastructure investments in agriculture, including irrigated agriculture while developing and utilizing agricultural information management systems for enhancing joint planning needs to be considered.

The Need to promote regional integration through hydraulic infrastructure

The Nile holds promising potential for hydropower production. As countries embark on developing hydraulic infrastructure to increase storage capacities and hydropower production, however, it is important to develop these in a coordinated manner. There is the need to coordinate generation of cascade of hydropower plants across the Nile Basin with concurrent expansion of grid interconnection and power trade. Further, there is the need to promote efficient allocation of water between water consuming sectors, integrating economic perspectives into national, regional and basin-wide water resources planning management and development

Considering the foregoing Nile Basin Priorities, therefore, we call upon:

Nile Basin Governments: as custodians of the Nile, to promote science-informed policy making, dialogue and recommit themselves to accord Nile Basin cooperation priority to leave a habitable, prosperous, peaceful Nile Basin for posterity.

The Media: To cultivate accurate and truthful reporting that promotes inter-riparian trust, confidence and mutuality.

Regional Economic Communities: To create synergies and complementarity with the NBI.

Academic and Research Institutes: To align their work with Nile Basin water resources management and development priorities, and address knowledge gaps

Civil Society: To support sustainable Nile Basin policies at multiple levels, safeguarding particularly local communities.

The International Community: To continue supporting and funding Nile Basin cooperation at this critical juncture.

Kigali, October 25, 2017

11. Closing Session

The NBDF 5 ended with closing remarks by the Executive Director of the NBI Secretariat and the Rwandan Minister of Environment. (See annex 4)

The 5th NBDF was hailed as a successful Forum by participants and dignitaries that attended the Forum.



Plenary during Closing Session

ANNEX 1. NILE MEDIA AWARDS 2017 CEREMONY AND NILE PROJECT CONCERT

The Nile Media Awards 2017 recognized journalists from within the Nile Basin for excellent reporting on Nile cooperation issues in order to promote increased, factual and increased, accurate and factual reporting on these issues.



Winners of the Nile Basin Media Awards



ANNEX 2. EXHIBITION AND BOOK LAUNCH

Open Space: exhibition visits



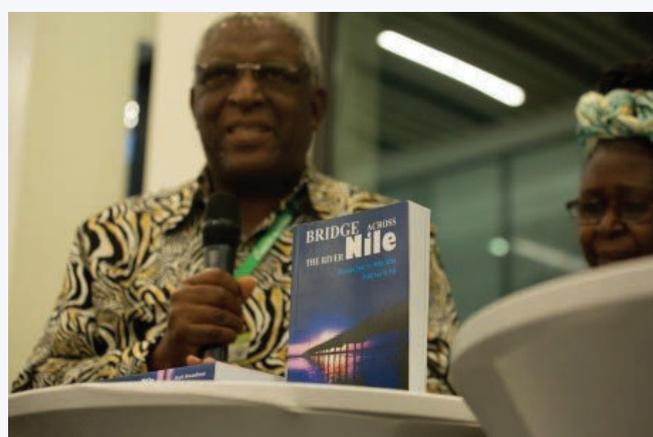
Book launches

The following three books were launched at the Forum.

1. *Realizing the Water security of the Nile Basin States: balancing the Existing Water Uses and Potential Water Uses*, by Dr. John Rao Nyaoro
2. *The River Nile: a bridge to cooperation*, by Prof. Mark Mwandosya
3. *The Grand Ethiopian Renaissance Dam and the Nile Basin: Implications for transboundary water cooperation*, by Dr. Zeray Yihdego, Prof. Alistair Rieu-Clarke and Dr. Ana Elisa Cascão



Left: Dr. John Rao Nyaoro and Dr. Ana Elisa Cascão

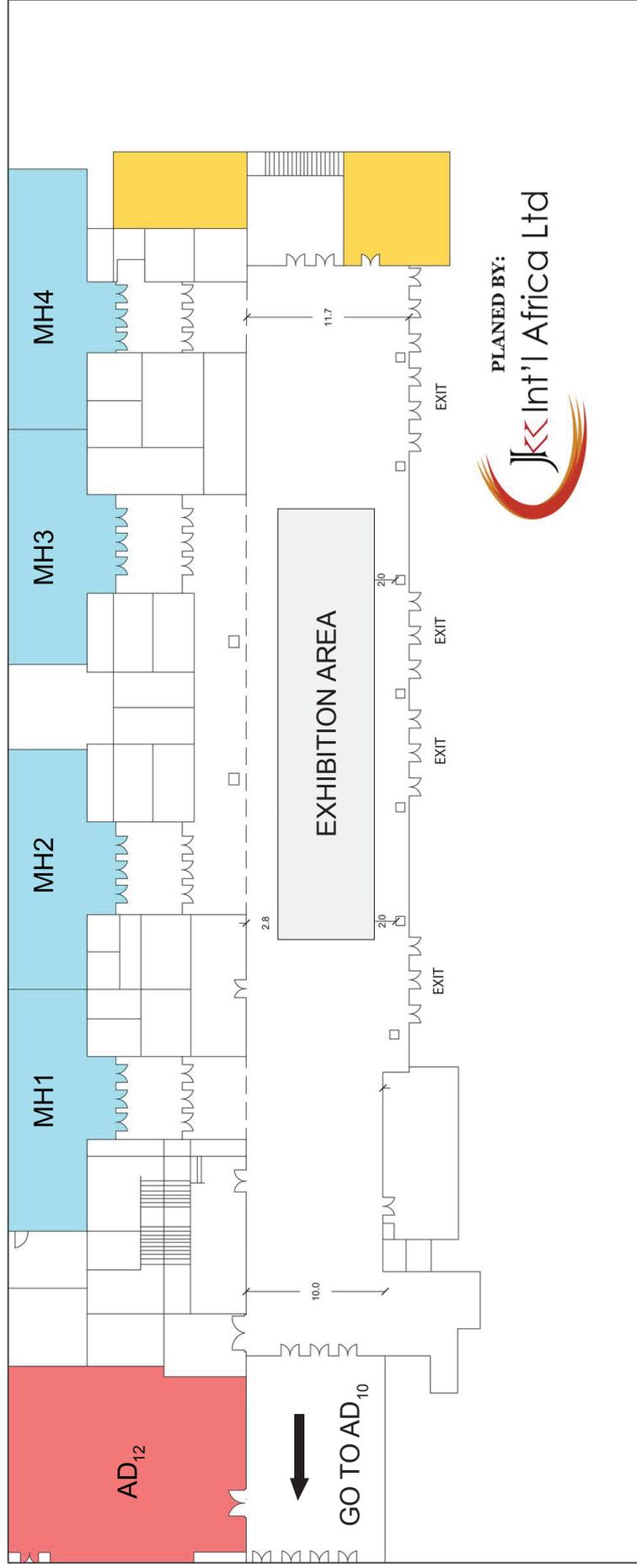


Right: Prof. Mark Mwandosya

PROGRAMME OVERVIEW

Day 1 – October 23, 2017				
15:30 – 18:00	Opening Session - Room MH1 + 2			
16:00 – 21:00	Nile Media Awards ceremony and concert by The Nile Project - Room MH 3 + 4			
Day 2 – October 24, 2017				
09:00 – 10:00	Plenary Session 1 – Water Security – from concept to practice - Room MH1 + 2			
10:00 – 10:30	Coffee break			
Paper presentation sessions – Taking stock of what we know				
Ensuring Water Availability (WA) for a growing demand	Sustaining the water Ecosystems (ECO) of the Nile Basin	Water-Energy-Food Nexus (WEF)	Governance (GOV) in the Nile Basin	Economic (ECN) Perspectives for Basin Management
Room MH 1+2	Room MH 4	Room MH 3	Room AD 12	Room AD 10
WA1 - Climate change	ECO1 - Catchment/ Watershed management	WEF1 - Food production and water management	GOV1 - Transboundary cooperation: sharing experiences	ECN1 - Economic valuation of ecosystem services
10:30 – 12:00	Lunch Break			
12:00 – 13:30	Lunch Break			
13:30 – 15:00	ECO2 - Sustainable management of Wetlands	WEF2 - Multi-sector planning and tradeoffs	GOV2 - Hydro-politics of the Nile Basin	ECN2 - Hydro-economics of water allocation
15:00 – 15:30	Coffee Break			
15:30 – 17:00	ECO3 - Environmental flows	WEF3 - Coordinated planning and management	GOV3 - Multi-track hydro diplomacy	ECN3 - investment and trade: the current landscape
15:30 – 17:00	WA3 - Enhancing water resources supply			
Day 3 – October 25, 2017				
08:30 – 10:15	Plenary 2 – Water Security in the Nile Basin - Room MH 1 + 2			
10:15 – 10:45	Coffee Break			
Panel Sessions – Exploring solutions and pathways				
10:45 – 12:15	Thematic Panel 1: Options for conserving and diversifying water source	Thematic Panel 2: Reconciling ecosystem sustainability with water resources investment planning	Thematic Panel 3: Towards a basin approach for efficient agricultural water management and food security	Thematic Panel 4: Regional integration through hydraulic infrastructure
	Room MH 1 + 2	Room MH 3	Room AD 12	Room AD 10
12:15 – 13:30	Lunch Break			
13:30 – 15:15	High Level Synthesis Panel Sessions – How to take it forward			
	Synthesis Panel 1: Nile Cooperation, how to make the qualitative leap forward? Room MH 1+2			
	Synthesis Panel 2: Rethinking basin planning and investment in the Nile Basin Room MH 3			
15:15 – 16:00	Coffee Break			
16:00 – 17:00	Ministerial panel - Room MH 1 + 2			
17:00 – 17:30	Closing - Room MH 1 + 2			

FLOOR PLAN



PLANNED BY:
Jk Int'l Africa Ltd

DAY 1 - Monday, October 23, 2017

Participants are expected to register for the event at the Opening Session. Organisers, hosts and partners welcome participants to the Fifth Nile Basin Development Forum and introduce the programme for the following days. The Guest of Honour will visit the exhibition which will be open to participants for the duration of the NBDF.

Opening Session

Room MH 1 + 2

15:30 - 16:00	Registration over tea and coffee
16:00 - 16:05	Welcome statement by Dr. Claudine Uwera, Master of Ceremony (MC)
16:05 - 16:15	Poem presentation by School Children
16:15 - 16:25	Welcome remarks by Eng. Innocent Ntabana, Executive Director, NBI Secretariat
16:25 - 16:35	Welcome remarks by HE Amb. Rolf Welberts, German Special Envoy for Nile Cooperation Affairs
16:35 - 16:45	Welcome remarks by William Rex, CIWA Program Manager World Bank
16:45 - 16:55	Welcome remarks Nile-COM Member of Rwanda (tbc)
16:55 - 17:05	Opening speech by the Guest of Honour
17:05 - 17:25	Introduction to the program by Dr. Abdulkarim Seid, Chair of the Programme Committee
17:25 - 18:00	Exhibition Opening

The Nile Media Awards 2017 seek to recognize journalists from within the Nile Basin for excellent reporting on Nile cooperation issues in order to promote increased, factual and increased, accurate and factual reporting on these issues.

Nile Media Awards 2017 Ceremony and Nile Project Concert

Room MH 3 + 4

18:00 - 19:00	Nile Media Awards Ceremony (incl. dinner)
19:00 - 21:00	The Nile Project Concert

DAY 2 – Tuesday, October 24, 2017

As water in the Nile Basin becomes an increasingly scarce resource, given the impacts of climate change, demand continues to rise with the growing populations and economies of the Nile Basin states. However, there are a wide range of options available to riparian states seeking to meet these growing demands by investing in cooperative solutions to managing water resources in an integrated and equitable manner. The first Plenary Session of the 5th NBDF will explore the concept of water security, what it means for the Nile Basin, and how cooperation can help achieve it for up- and downstream countries alike.

<p>Plenary Session 1: Water Security – from concept to practice Room MH 1 + 2</p> <p>Brief introduction to the programme and theme of NBDF; by Dr. Claudine Uwera, MC</p> <p>Keynote 1: River Basin Management Pathways to Water Security; by Dr. Don Blackmore</p> <p>Keynote 2: Water security through regional basin planning – an example from the SADC region; by Prof. Zebedia Phiri</p> <p>Moderator: Dr. Claudine Uwera, MC</p> <p>Rapporteurs: Dr. Wubalem Fekade and Dr. Mohsen Alarabawy</p>	<p>09:00 – 10:00</p>
<p>Coffee Break</p>	<p>10:00 – 10:30</p>

A first step in moving towards a basin-wide approach to managing the shared waters of the Nile is to take stock of the knowledge and solutions already available in the Basin. Three rounds of paper presentation sessions will collect the experience of scientists and practitioners on topics ranging from water resources and food security, energy access – and the nexus between these three – , water ecosystems, governance, financing options and knowledge assets. These have been arranged in five parallel session series, as outlined below, with each session featuring presentations from four experts as well as a short discussion.

Session Series	Session Series I: Ensuring water availability for a growing water demand (WA)	Session Series II: Sustaining the water ecosystems of the Nile Basin (ECO)	Session Series III: Water – energy – food nexus (WEF)	Session Series IV: Governance (GOV)	Session Series V: Economic Perspectives for Basin Management (ECN)
	<p>Room MH 1</p> <p>This session aims to build common understanding on current and projected future availability, variability (natural and due to climate change) and accessibility of water resources in the Nile Basin and generate options for enhancing water supply/ availability for meeting the growing water demands.</p>	<p>Room MH 2</p> <p>The objective of this session is to take stock of current understanding and knowledge of the two most critical elements of the Nile basin environment – wetlands and catchments; explore options for their sustainable management determining technical, policy and institutional requirements.</p>	<p>Room MH 3</p> <p>This session shall identify key intra- , inter-sectoral and u/s – d/s tradeoffs and explore/ propose/ recommend strategic options for regional coordinated approaches (infrastructure, institutions and policies) to meet the growing water, energy, and food demands in the Nile Basin.</p>	<p>Room AD 12</p> <p>The objective of this session is to identify constraints and opportunities for effective transboundary water governance, explore options and draw workable recommendations for cooperative management and development of the Nile Basin.</p>	<p>Room AD 10</p> <p>This session seeks to create a shared understanding of how economic considerations are currently impacting the management of water resources, as well as the potential opportunities for economics, trade and business in furthering sustainable development of the Nile waters.</p>

Paper presentation sessions: taking stock of what we know

WA1 - Climate change Moderator: Dr. Ahmed Khalid Rapporteur: Eng. Arsene Mukubwa Room MH 1	ECO1 - Catchment/Watershed Management Moderator: Eng. Colleta Ruhamia Rapporteur: Mr. Leonard Akwany Room MH 2	WEF1 - Food production and water management Moderator: Dr. Rashid Mbazira Rapporteur: Mr. Andy Tola Room MH 3	GOV1 - Transboundary cooperation: sharing experiences Moderator: Ms. Dorothy Kagawa Rapporteur: Mr. Tom Waako Room AD 12	ECN1 - Economic valuation of ecosystem services Moderator: Dr. Michel Masozera Rapporteur: Mr. Emmanuel Chonza Room AD 10
Climate Change projections for the Nile Basin: what do the climate models tell us? Dr. Modathir Zaroug	Soil and Water conservation, experiences from upper Blue Nile Basin, Ethiopia Dr. Seifu A. Tilahun	Regional agricultural trade and investment in the Nile Basin Dr. Claudia Ringler Harnessing Water for Food Security: Challenges and options Dr. Eltigani Abdelgallil	Beyond legalisms: toward cooperative governance of resource security Ms. Belynda Petrie	The value of the Sudd Wetland: implications for integrated policies in the Nile River Basin Dr. Hannes Lang Prof. John Gowdy
Analyzing the future climate change of Upper Blue Nile River Basin (UBNRB) using statistical down scaling techniques Mr. Dagnenet Fenta Mekonnen	Assessing impact of land use and land cover change on stream flow response: Dinder and Rahad Eng, Khalid Hassaballah	Technical efficiency of large scale irrigated wheat production in Blue Nile Basin, case of Koga irrigation scheme Mr. Anteneh Belay	Transboundary water governance and cooperation through Benefit Opportunities Assessment Dialogue in the Sio-Malaba-Malakisi sub-basin Mr. John Owino	Applying standardized methodology to value biodiversity and ecosystem services in the Lake Victoria Basin Dr. Brenda Bergman
Impact of climate change on precipitation distribution and water availability in the Nile Basin Mr. Zelalem Mekonnen	Livelihood Contribution of landscape restoration; Mr. Yitbarek Tibebe Weide Semaet	Impacts of irrigation development in the upper blue Nile Basin using Nile Basin Decision Support System Eng. Habtam Achenif	Project based transboundary cooperation: The case of GERD-P Eng. Gedion Asfaw	Rapid Assessment of Ecosystem Service values at Yala Wetland, Kenya Mr. Justus Amayo
The National Impact of 1.5 and 2 Degree Global Warming over Africa, and the role of Aridity Dr. Modathir Zaroug	Catchment restoration for a sustainable renewable energy production in Upper Nyabarongo Catchment, Rwanda Mr. Francois Tetero	Satellite based ICT for improved crop production in the Gezira Scheme - Sudan Prof. Younis Gismalla	GERD and hydro-politics in the Eastern Nile, from water to benefit sharing? Dr. Rawia Tawfik	Economic Valuation of Wetlands Ecosystems for Wise Use Review and Case Studies from the Nile Basin Dr. Amel Azab
Discussion	Discussion	Discussion	Discussion	Discussion
10:30 - 12:00				
12:00 - 13:30 Lunch Break				

WA2 - WR Availability and Variability Moderator: Dr. Ahmed Khalid Room MH 1+2	ECO2 - Sustainable use and management of Wetlands Moderator: Eng. Colleta Ruhamia Room MH 4	WEF2: Multi-sector planning and tradeoffs Moderator: Dr. Rashid Mbazira Room MH 3	GOV2 - Hydro-politics of the Nile Basin Moderator: Ms. Dorothy Kaggwa Room AD 12	ECN2 - Hydro -economics of water allocation Moderator: Michel Masozera Room AD 10
<p>Surface water availability and variability in the Basin and climate change impacts in the Nile Basin</p> <p>Dr. Mohammed Ahmed Hassan</p> <p>Use of Earth Observation Data for Monitoring River Basins.</p> <p>Ms. Milly Mbuliro</p> <p>Assessment of ground water of Blue Nile Sudan</p> <p>Dr. Elmusalami Fadlallah</p> <p>Flood forecasting and early warning</p> <p>Eng. Surafel Mamo Woldegbrael</p> <p>Discussion</p>	<p>Supporting Sustainable Management of the Mara Wetlands in the Mara River Basin</p> <p>Mr. Emmanuel Mjimwa</p> <p>Community Conservation Agreements Model for Sustainable Management of Winam Gulf Wetlands</p> <p>Ms. Roniance Adhiambo</p> <p>How Healthy is the Lake Victoria Ecosystems Goods and Services?: Gender-Ecosystem-Poverty linkage Perspective.</p> <p>Dr. Aloyce Hapelwa</p> <p>Incentives Based Conservation Approach for Nile Basin Wetlands Wise-use by</p> <p>Mr. Amos Thiongo</p> <p>Discussion</p>	<p>Eastern Nile Multi-Sectoral Investment Opportunity Analysis</p> <p>Dr. Omer El-Awad</p> <p>Influence of Roseires Dam Heightening on Performance of Al-guneid Irrigation Pumps in Sudan</p> <p>Prof. Ali Adeeb</p> <p>Using WEAP Model to Monitor and Manage the Blue Nile River Basin</p> <p>Eng. Mohamed Mokhtar</p> <p>Mainstreaming value of Ecosystems and Biodiversity in Development Planning: Tana River Basin</p> <p>Mr. Wamubeyi Brian Jared</p> <p>Discussion</p>	<p>Collective Action Theory and Nile Basin Cooperation: Past Experience, Future Directions</p> <p>Dr. Alan Nicol</p> <p>Role of water diplomacy in TB cooperation in EN: Application of experimental games</p> <p>Dr. Mahsa Motlagh</p> <p>The Emotional River: The Hydro Political Psychology of the Nile</p> <p>Mr. Wondwosen Michago Seide</p> <p>Discussion</p>	<p>Water in national economic planning: Utilization, challenges and valuation.</p> <p>Dr. Khalid Siddig</p> <p>Eastern Nile Multipurpose Option Scoping Model</p> <p>Ms. Azeb Mersha</p> <p>Projecting downstream impacts of the GERD: the case of irrigated schemes in Sudan</p> <p>Dr. Shamseddin Ahmed</p> <p>Updating the hydrology of the Baro-Akobo-Sobat</p> <p>Dr. Verno Jonker</p> <p>Discussion</p>
13:30-15:00				
15:00-15:30				
Coffee Break				

WA3 - Enhancing water resources supply Moderator: Dr. Ahmed Khalid Room MH 1	ECO3 - Environmental Flows Moderator: Eng. Colleta Ruhamia Room MH 2	WEF3 - Coordinated planning and management Moderator: Dr. Rashid Mbazira Room MH 3	GOV3 - Multi-track Hydro-diplomacy Moderator: Ms. Dorothy Kaggwa Room AD 12	ECN3 - Investment and trade: exploring the current landscape Moderator: Michel Masozera Room AD 10
Scope for diversifying water resources supply in the Nile Basin Dr. Yassir Abas	A Framework Model for Strategic Environmental Assessment for River Engineering Development Mr. Lugard Kaunda Ogaro	Towards operation of dam cascades, approaches of NBI in the Eastern Nile Eng. Michael Abebe	Realizing the water security of the Nile Basin states: exploring the options Dr. John R. Nyaoro	Political economy of large scale agricultural investment in the Nile Basin: Exploring opportunities and challenges Ms. Ramy Hanna
Rainfall harvesting projects in Sudan Dr. Ahmed Adam	Environmental flow assessment: NBI experience; include case studies (dinder) Dr. Mohsen Alarabawy	Challenges facing Atbara Dam Complex (ADC) Operation Management Prof. Abdalla Abdelsalam Ahmed	The role of media and science communication in shaping debates and negotiations over the Nile. Dr. Emanuele Fantini	Food, Fodder and Flowers: the critical role of global and regional virtual water trade in the Nile Basin Dr. Ana Elisa Cascao
Challenges and success factors to enhancing rural community resilience to drought- Case study Bugesera in Rwanda Eng. Lazare Nzeyimana	Environmental flow for the Nile Basin: Framework for regional evaluations and a case study from the Mara river Dr. Gordon O'Brien	Seeking compromise with the GERD Dr. Kevin Wheeler	Integrated diagnostic approach to understand stakeholders' role and impact on water governance in the Nile Basin Mr. Mohamed Tawfik	Business Corporations in the Eastern Nile Basin: Engine or barrier of effective water governance? Ms. Abeer Abazeed
Groundwater availability and potential in the Nile Basin Dr. Seifu Kebede	Evaluation of experiences with e-flow assessments in the East Africa Prof. Michael McClain	National Water Projects in the Eastern Nile Basin: Drivers to conflict or cooperation? Eng. Mina Michel Samaan	The Nile Project: Culture and education dimensions of water diplomacy Mr. Mina Girgis	Climate finance: Opportunities for investment in the water sector Mr. Herman Kwoba
Discussion				
Open Space: exhibition visits, side meetings and book launches: - Realizing the Water security of the Nile Basin States: balancing the Existing Water Uses and Potential Water Uses, Dr. John Rao Nyaoro - The River Nile: a bridge to cooperation, Prof. Mark Mwandosya - The Grand Ethiopian Renaissance Dam and the Nile Basin: Implications for transboundary water cooperation, Dr. Zeray Yihdego, Prof. Alistair Rieu-Clarke, Dr. Ana Elisa Cascao				
15:30-17:00				
17:00 - 18:00				

DAY 3 – Wednesday, October 25, 2017

Day 3 aims to pave a way forward for Nile Basin countries to explore joint solutions to river basin management. The Plenary introduces current strategies at the national level, NBI's approach to exploring possible solution pathways and examples of how two other river basins are addressing similar challenges.

08:30 – 10:25	<p>Plenary Session 2: Coordinated planning and management of shared water resources for enhancing water security in the Nile Basin Room MH 1 + 2</p> <ul style="list-style-type: none"> Review of Day 2, introduction to Day 3; Dr. Claudine Uwera, MC Country perspectives (5) on future water demands, challenges and strategies for addressing the growing water demands Sudan: Eng. Ahmed Adam Rwanda: Dr. Omar Munyaneza Uganda: Eng. Sowed Sewagudde Ethiopia: Dr. Yilma Seleshi Keynote 1: Exploring how to address projected growth in water demands, NBI's approach; by Dr. Abdulkarim Seid Keynote 2: Indicative scenarios of cooperative solutions for addressing up- and downstream water demands; by Prof. Dale Whittington Keynote 3: Adapting water governance to emerging needs and challenges, example from the Colorado River Basin; by Prof. Edith Zagona <p>Moderator: Dr. Claudine Uwera, MC Rapporteurs: Dr. Wubalem Fekade and Dr. Mohsen Alarabawy</p>
	Coffee Break

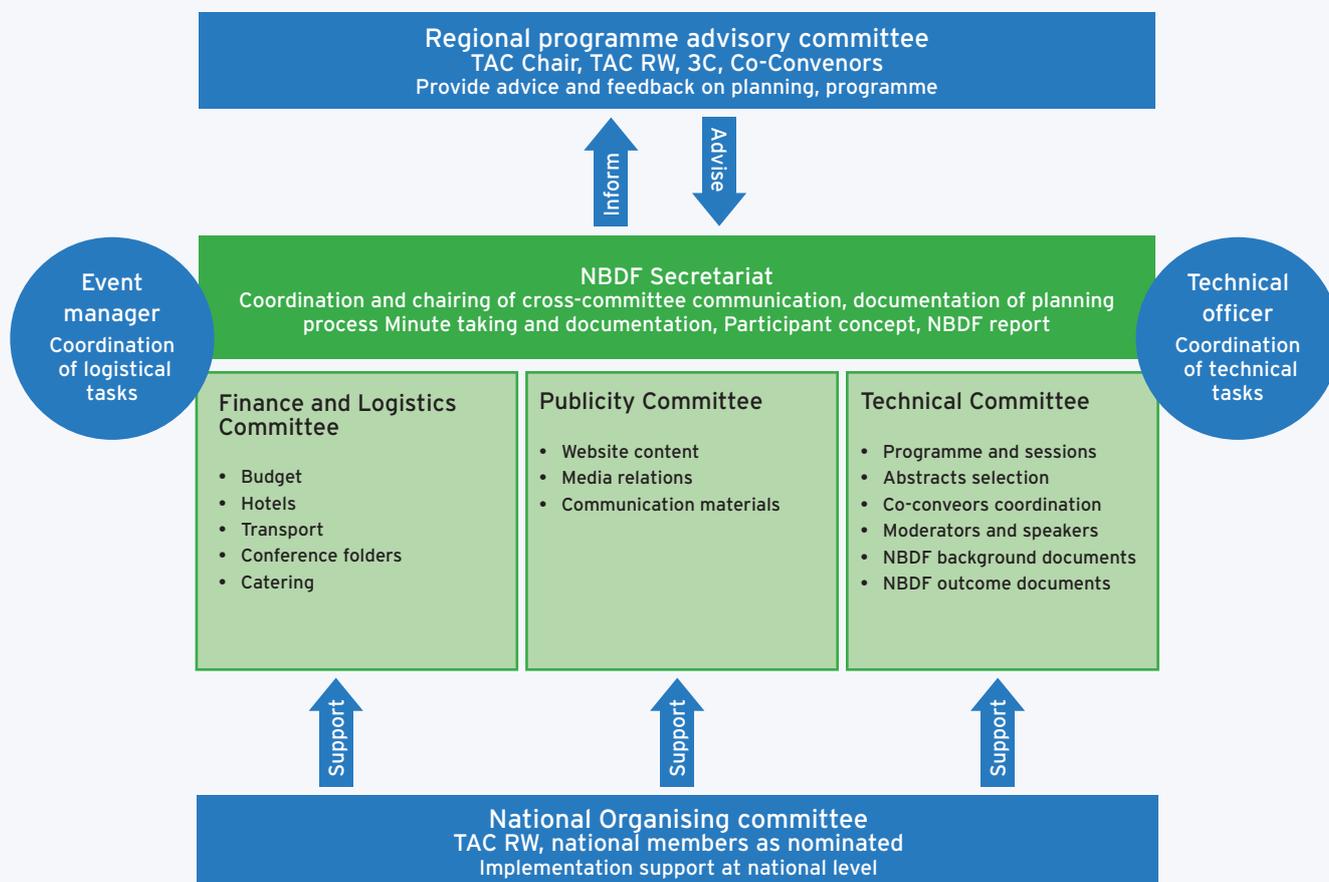
Four parallel panel sessions draw on the vast knowledge collected on day two and begin to explore possible solutions and pathways to the sustainable and cooperative management and development of the Nile Basin's resources. Each panel will feature three short expert inputs to stimulate discussion.

Panel Sessions: exploring solutions and pathways				
10:45 – 12:15	<p>Thematic Panel 1: Options for conserving and diversifying water source Moderator: Dr. Ahmed Khalid Rapporteur: Eng. Arsene Mukubwa Room MH 1 + 2 Dr. Yassir Abbas</p> <p>Enhancing and diversifying water sources: scanning the options for the Nile Basin</p> <p>Improved demand side management and use of non-conventional water; Dr. Mohammed Ahmed Hassan</p> <p>Groundwater as complementary water source Dr. Seifu Kebede</p> <p>Short interventions by additional panellists: Prof. Seifeldin Abdalla; Dr. Yilma Sileshi; Eng. Jackson Twinomujuni; Mr. Francis Wajo</p>	<p>Thematic Panel 2: Reconciling ecosystem sustainability with water resources investment planning Moderator: Dr. Walte Grossmann Rapporteur: Mr. Leonard Akwany Room MH 3 Prof. Michael McClain</p> <p>Environmental flows: how to use existing best practice in the Nile Basin region</p> <p>Water requirements of Wetlands: Integrating wetland sustainable use and management in basin planning Dr. Paul Ouédraogo</p> <p>Integrated watershed management for protection of water source areas and sustainable livelihoods Dr. Seifu A. Tilahun</p> <p>Short interventions by additional panellists: Eng. Alier Oka; Ms. Astrid Hillers; Mr. Laisser Sadiki; Ms. Lucy Iyango; Mr. Francois Tetero</p>	<p>Thematic Panel 3: Towards a basin approach for efficient water management and food security Moderator: Dr. Rashid Mbaziara Rapporteur: Mr. Tom Waako Room AD 12 Eng. Bart Hilhorst</p> <p>Food security through basin-wide approaches of agricultural water management</p> <p>The critical role of global and regional virtual water trade in the Nile Basin Dr. Ana Elisa Cascão</p> <p>Agriculture and Food Security in NBI's Strategy Eng. Innocent Ntabana</p> <p>Short interventions by additional panellists: Prof. Younis Gismalla; Dr. Omer El-Awad Dr. Badreldi Elhas; Mr. Fred Mwango</p>	<p>Thematic Panel 4: Regional integration through hydraulic infrastructure Moderator: Eng. Fekahmed Negash Rapporteur: Mr. Andy Tola Room AD 10 Prof. Edith Zagona</p> <p>Coordinated operation of cascade of dams, experiences from the Colorado Basin, USA</p> <p>Power inter-connection and energy trade, NBI's experience. Eng. Ellilad Nyabeeya</p> <p>Regional integration through hydraulic infrastructure: The economic arguments Prof. Julien Harou</p> <p>New approaches for regional water-energy integration Short interventions by additional panellists: Kevin Wheeler, Prof Abdalla Abdussalam; Sowed Sewagudde; Eng. Teshome Atnafe</p>
	Discussion and audience Q&A	Discussion and audience Q&A	Discussion and audience Q&A	

Lunch Break	
Two parallel synthesis panels seek to further focus the discussions of the previous days and translate them into specific options for Nile Basin countries to move their cooperation forward.	
13:30- 15:15	<p>High Level Panel Session: how to take it forward</p> <p>Synthesis Panel 1: Nile Cooperation, how to make the qualitative leap forward? Moderator: Dr. Susanne Schmeier Rapporteurs: Dr. Wubalem Fekade, Mr. Tom Waako <i>Room MH 1+2</i></p> <p>Qualitative leap in Nile cooperation, reflecting on the outcomes of the paper and panel sessions, by Rapporteur</p> <p>Strengthening the dialogue: structured dialogue as a means for exploring breakthrough options in transboundary cooperation Prof. Jon Martin Trondalen</p> <p>International water law perspectives Dr. Salman Salman (via Skype)</p> <p>Short interventions by: H.E. State-Minister Hirut Zemene; Prof. Seifeldin Abdalla; Dr. John Nyaoro; Eng. Florence Adongo</p> <p>Discussion: Q and A from audience, panel members reflection</p>
15:15 - 16:00	Coffee Break
16:00 - 17:00	<p>Ministerial Panel - moving the agenda forward together Room MH 1 + 2 Moderator: Mr. Daniel Kallinaki,</p> <p>Rapporteur: Dr. Wubalem Fekade and Dr. Mohsen Alarabawy</p> <p>- Reporting back on key issues: Dr. Wubalem Fekade (hydro-diplomacy, cooperation) and Dr. Mohsen Alarabawy (investment, building blocks) (10 Mins)</p> <p>- Introduction by Moderator (5 Minutes)</p> <p>- Panel discussion on key issues/recommendations from sessions (40 Minutes) Panellists: ED + Ministers of water affairs from Nile Basin available at the forum Eng. Innocent Ntabana, Executive Director NBI Secretariat</p> <p>H.E. Minister Vincent Biruta, Rwanda; H.E. Minister Dr. Seleshi Bekele, Ethiopia; H.E. Minister Sophia Pal Gai, South Sudan; H.E. Minister Mutaz Abdalla Salim, Sudan; H.E. Ambassador John L Mugerwa, Uganda; Ministers of Burundi, DRC, Kenya, Tanzania (tbc)</p> <p>Wrap-Up of the Ministerial Panel deliberations, by moderator</p>
17:00 - 17:30	<p>Closing <i>Room MH 1 + 2</i></p> <p>Messages from the forum, by Dr. Wubalem Fekade Word of thanks, by Executive Director of NBI Concluding remarks by Development Partners Closing remarks by Host Country Nile-COM member</p>

ANNEX 4. ORGANIZATION OF THE 5TH NBDF

NBDF Organizational Chart



Members of the Regional Organizing committee:

Eng. Innocent Ntabana, Dr. Abdulkarim Seid, Mr. William Oduk, Ms. Jane Baitwa, Ms. Florence Adongo, Ms. Jacqueline Nyirakamana, Mr. Tetero, Francois Xavier, Dr. Malte Grossmann.

Members of the Technical/Program Committee:

Dr. Wubalem, Dr. Mohsen, Mr. Tom Waako, Ms. Dorothy Kagwa, Ms. Sarah Bebb.

Members of the Finance, Budget and Logistic Committee:

Mr. William Oduk, Mr. Collin Mutungi, Ms. Josephine Lwasa, Mr. Charles Mwine, Mr. Patrick Rutagwera, Ms. Beatrice Adongakulu, Ms. Nakibilango Esther.

Members of the Communications Committee:

Ms. Jane Baitwa, Ms. Sarah Bebb, Ms. Angiro Elizabeth.

Members of the National Organizing Committee:

Ms. Jacqueline Nyirakamana, Mr. Tetero Francois Xavier.

Technical Officer:

Mr. Godwin Asfaw

Technical Advisor:

Ms. Anne Cascao.

Lead Rapporteurs:

Dr. Wubalem, Dr. Mohsen Alarabawy

ANNEX 5. OPENING AND CLOSING SPEECHES

Welcome remarks by the Executive Director of the NBI Secretariat, Eng. Innocent Ntabana - At the Opening Ceremony of the 5th Nile Basin Development Forum



23rd of October of 2017

- The Guest of Honour,
- The Chairman of the Nile Council of Ministers and Ethiopia's Minister of Water, Irrigation and Electricity, Eng. Sileshi Bekele
- H.E. Amb. Rolf Welberts, German Special Envoy for Nile Cooperation Affairs,
- Mr. William Rex, representative of the World Bank in Washington,
- Distinguished Participants,
- Members of the Press,
- Ladies and Gentlemen.

It is a great pleasure for me to welcome you all to this 5th Nile Basin Development Forum, which is starting today 23rd October and ending on 25th October, 2017.

Allow me to begin with a few words of gratitude to the

government of Rwanda for hosting this event for the second time, and the Ministry of Environment, for your support and tireless efforts in organizing this high level regional event. I would also like to express my sincere thanks to our development partners, in particular the German Government, The World Bank and Cooperation in International Waters in Africa who have supported us both financially and technically in organizing this Forum.

Guest of Honor,

The Nile Basin Development Forum is a high level science-policy dialogue on how Nile cooperation can contribute to sustainable development in the Nile Basin. The aim of the Forum, which is organized every two years, is to create communities of people who are well informed, actively engaged in and promoting Nile cooperation as the only means of achieving sustainable

management and development of the shared Nile Basin water resources as well as addressing shared risks, threats and challenges across the Basin.

Distinguished Ladies and Gentlemen,

The theme for this year is **‘Investing in Nile Cooperation for a Water Secure Future’**.

It is no doubt that today, the challenge of water security is rife in the Nile Basin and it is growing. A growing population and economies of the Nile Basin States as well as impacts of climate change only adds more uncertainty about water availability and demand, and possibly more tensions between users.

However, there are a wide range of options available to Nile Basin states seeking to meet these growing demands by investing in cooperative solutions to managing water resources in an integrated and equitable manner. I look therefore forward to discuss with everyone, this very important issue for the Nile Basin.

Guest of Honor, Distinguished participants,

I am happy to note that the Nile Basin Initiative has so far implemented a number of activities that contribute at achieving the theme. Notable among them is that in 2016, the Nile Council of Ministers endorsed the baseline that represents the current status of the Nile Basin Water Balance (water availability, water demand and water use), and approved the second phase of the collaborative water supply and water demand assessment based on results of the first phase. In addition, we have maintained the platform for cooperation, with the aim of broadening public and political support for transboundary water cooperation amongst the Nile Basin countries.

Guest of Honor,

Early this month, the Nile Council of Ministers approved the Nile Basin Initiative 10-year Strategy for the period 2017 – 2027. Among the six goals of the Strategy, the

first is **enhancing availability and sustainable management of the transboundary Nile water resources**. Under this goal, the Nile Basin Initiative will identify and prepare investment projects to increase storage capacity in the Basin; support the improvement of water use efficiency in major water-use sectors; and strengthen river basin monitoring and analysis of data from monitoring networks. This is in addition to promoting conjunctive use of surface and ground water resources; as well as improving preparedness to flood and drought risks in Nile sub-basins.

Other goals of the strategy are energy security, food security, environmental sustainability, climate change and last but not least, transboundary water governance. I would like to point out here distinguished ladies and gentlemen, that the issues to be discussed during this Forum are in line with our 10-year Strategy, which in turn has been shaped by other regional and global policy documents such as the Africa Water Vision 2025, the AU’s Agenda 2063, and the UN’s Sustainable Development Goals (SDGs).

Guest of Honor, Ladies and Gentlemen,

I would like to end by quoting W.H. Auden, an English-American poet who said – *“Thousands Have Lived without Love, Not One without Water”*. These words should remind each one of us how dear water is and therefore how none can survive without it. Let me therefore reiterate the call to all NBI Member States to continue working together towards sustainable Nile cooperation and dialogue with NBI’s broader stakeholders and regional actors in order to ensure a water secure future for the children of our children.

Thank you for your attention.

I wish you all very fruitful deliberations and an enjoyable stay in Kigali!

Remarks by Dr Vincent Biruta, Rwanda's Minister of Environment at Opening of the 5th Nile Basin Development Forum



Good afternoon,

On behalf of His Excellency Paul Kagame, President of the Republic of Rwanda, it is my pleasure to welcome you all to Rwanda and to commend your decision to hold this important gathering here in Kigali.

Rwanda is indeed honoured to host the fifth Nile Basin Development Forum. As it has been recalled, this is the second time Rwanda has hosted this important forum.

The theme for this year's forum, "Investing in Nile Cooperation for a Water Secure Future", is timely given the water scarcity conditions affecting most of our countries.

Water security is one of the key challenges of our time and we need to work together to manage this precious and shared resource. Indeed, shared challenges need shared solutions.

The development challenges we face are similar and regional in nature. Isolated and uncoordinated responses may not provide sustainable solutions.

Water has economic, social, and environmental, as well as foreign policy and security dimensions. As Nile Basin countries, we share the objectives of reducing poverty, fostering social-economic transformation, and promoting the sustainable use of natural resources.

We therefore, have to engage in a cooperative discourse to find regional solutions to these regional challenges. While we plan at the regional scale, we need to act at the local scale. Let us use this forum to deepen our understanding of these challenges, to network and share experiences, and identify areas of common interest and how to take them forward.

This momentous occasion demonstrates solidarity, unity and continued commitment among the Nile Basin Initiative member states and our partners. I implore our dear participants to network and make maximum use of the knowledge you will be exposed to in this forum. I encourage you to engage in free, honest, open and frank discussions so that a true picture of the basin issues is depicted.

The Nile Basin Initiative is playing a key role in providing a platform for cooperation and facilitating joint action on the management and development of shared water resources.

I applaud the member states and their partners for the cooperation, commitment and support. The challenges are however more complex than the level of intervention and this calls for more efforts to match and contain the evolving and complex challenges.

Investing in Nile cooperation is not an option, but a must if we are to properly and sustainably address the issue of water security within the Nile Basin.

From time to time, upstream and downstream water users might have different and conflicting needs, perceptions, interests, claims and cultures. However, we believe that such diversity should be the best ground and reason for cooperation. Indeed, cooperation is a less expensive and the only viable solution to these challenges and issues.

Water intertwines with our livelihoods, sense of dignity and development. And while human beings may live within defined political boundaries, water exists in natural domains with no borders.

This is why we must take full advantage of the three days that we will be gathering here to refresh our knowledge and explore the innovations towards a water secure

future and to build a common understanding of the shared risks, opportunities and prospects of the shared Nile Basin water resources.

In your discussions and deliberations, I encourage you to develop concrete strategies for taking advantage of the shared water resources in the Nile Basin to ensure water security for all countries.

The adequate solutions that you shall be able to propose in the course of this forum will lay a solid foundation for all relevant future undertakings dependent upon water within the Nile Basin.

To member states countries represented here today, I commend the efforts you are making to advance cooperation on water management through the Nile Basin Initiative.

I wish to also thank the Nile Basin Initiative Secretariat for the good planning and organisation of this forum. My special appreciation goes to partners who are with us to today and who have supported the organisation of this forum.

With these remarks, I declare the fifth Nile Basin Development Forum officially open and wish you fruitful deliberations.

Thank you for your kind attention.

H.E. Amb. Rolf Welberts, German Special Envoy for Nile Cooperation Affairs delivering a welcome remark



Guest of Honor,

Honorable Ministers present,

Distinguished participants from all walks of life from the Nile Basin and beyond,

It is a great honor to be asked to deliver opening remarks to you today on behalf of the German Government as we have gathered here this week to exchange views on the state and future of Nile cooperation. Germany has been supporting the Nile countries in their pursuit of a Shared Vision for the Nile for 14 years now and is – in a joint effort with the World Bank also sponsoring this Forum.

This Forum stands in the long tradition of the Nile 2000 Conferences preceding the foundation of NBI in 1999. During these conferences, the riparian states developed this shared vision of “sustainable socio-economic development through the equitable utilization of, and benefits from, the common Nile Basin water resources.” Since the foundation of NBI, the Nile basin community of interest now convenes regularly at the

Nile Basin Development Forum to deliberate on the future direction of this journey.

From our own experience in the four major rivers we share with our neighbors - the Rhine, Danube, Elbe and Odra, we firmly believe that a broad basin wide dialog – not only between governments, but between the various water stakeholders and between those that are knowledgeable about the basins water issues – the water user stakeholders and the scientific communities - is key to building a consensus on a shared vision and ... what may be even more challenging about how to get there.

The topic of this year’s forum suggests exploring the required next steps in terms of “investing in Nile cooperation for a water secure future”.

A water secure future for all Nile riparians is indeed the common goal – making reference to the UN Definition this would translate into “sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against water

risks, and for preserving ecosystems in a climate of peace and political stability". This is surely something we can all subscribe to.

However, what does water security mean exactly in the practice of managing the shared resource of the Nile waters? This is the questions this forum is setting out to explore.

It is very clear to everyone that the water resources of the Nile are a limited resource that will not become more plentiful. At the same time it is also very clear that growing populations and growing economies will lead to an increasing water demand. Equally is well understood all over the world that cooperation is required to jointly address water security for all in such a context.

However, cooperation is not only required in managing the water usage and the hydraulic infrastructure that regulates the Niles flows. Cooperation is also required to address energy and food security in the Nile region – energy and food being key prerequisites for economic development and both with strong dependencies on the basins water resources. The necessity to look beyond the water and address the potentials of more close regional cooperation in the domains of economic cooperation across the Nile region - in trade and investments in agriculture and energy - was clearly recognized by the Heads of State during their first ever Nil Summit this year in Uganda.

It is therefore very timely to jointly reflect further at this Forum: what does water security mean to each of the countries in their future aspirations? And what does water security require in terms of collective action of the basin community of states? We will engage this week as experts and policy makers to find answers that

can bring us forward.

In this we can build on almost two decades of experience in developing cooperation within and beyond the Nile Basin Initiative. The development partners including Germany have supported Nile countries in their pathway to cooperation. Infrastructure is being put in place to cooperatively make use of shared water resources – such as the power interconnections across the basin that will soon enable countries to share benefits from hydropower development across borders. We are however also keenly aware of the less tangible results of change across the last years – such as the wealth of knowledge on the Nile Basin System that has been generated and the marked change on the relations and trust between the basin professionals and stakeholders. This – everyone I have talked to confirms this – has been one of the large successes of NBI: nobody now can really imagine a basin without such a platform for dialogue.

Having said that - a pathway to more close cooperation is not an automatism and it cannot be taken for granted. It needs a continuous effort of all the riparian people and states to continuously engage in the debate on the issues that are of importance to the others. All of us here – in our various capacities as citizens, governments and partners - therefore have to take our part of the responsibility to keep cooperation on track.

I wish to close by thanking the Government of Ruanda for hosting and the NBI for preparing this year's Forum – and by wishing us all very lively, constructive and forward looking debates over the coming days.

Remarks of William Rex, World Bank for the opening of NBDF 5, 2017



Honorable Ministers, Ambassadors, Permanent Secretaries, Heads of regional Nile institutions, other Nile Stakeholders, and fellow development partners, it is an honor to be here with you today at the opening of the 5th Nile Basin Development Forum.

The history of the Nile is one of the world's greatest stories. It involves millennia of human ingenuity, cooperation, investments and progress. It is humbling to think that in this grand sweep of history, the roughly two decades of cooperation through the Nile Basin Initiative is like the blink of an eye.

Nevertheless, it also means that the stakeholders of NBI have almost 20 years of experience, lessons, and relationships that draw them together. It means that as we look to the future, we have a strong foundation to build on. And look to the future we must, for the world ahead of us is not like the world behind us.

All over the world growing economies and populations are putting increasing stress on finite water. And as water stress grows, it is inevitable that communities, cities and countries look to exploit more water, including water that they share with other communities, cities, countries, or simply the environment around them.

At the same time climate change means that the water of our future will not be the water of our past.

These fundamental pressures are not unique to the Nile. They are playing out in most parts of the world. They are, however, unique in the history of the Nile. At no other time in the river's history has it been subject to the sorts of pressures that it has today.

I mention this long sweep of history because it is important to keep today's issues in a broader perspective. Challenges and set-backs will abound, but progress requires cooperation, and as so many other experiences show us, cooperation will bear fruit over the long term.

It is also a reminder of why the theme of this Forum: "Investing in Nile Cooperation for a Water Secure Future" is so important. If we want a water secure future we must invest. We must invest in the information to guide our decisions. We must invest in the institutions that enable our cooperation. And we must invest in the infrastructure – both natural and built – that secures our water for generations to come.

The World Bank started investing in Nile countries' quest for cooperation, along with a committed group of development partners, about two decades ago in the formation of the NBI, and the idea that the countries of the region would come together to jointly develop their shared water resources in cooperation.

Today the World Bank continues to invest, both within the riparian countries in support of their development visions, and in the information, institutions and infrastructure that facilitate cooperation between countries.

We are very happy to support efforts such as this NBDF, which provide a chance to review and discuss analyses of challenging development issues.

We are deeply grateful to all of the academics and experts who will be presenting their research at the forum, to civil society for providing their perspectives, and to officials and policy makers for considering how these ideas can be put into practice.

In less than two decades, the Nile countries have created an environment with active transboundary information sharing, regional norms and processes to share information, and joint prioritization, planning, and implementation of investment projects. The NBI processes have led to a pipeline of nearly \$6 billion of investment projects, with nearly \$1.5 billion of that total under implementation. For example, projects such as the Rusumo Falls Hydroelectric Project, which is financed by the World Bank and other partners, will generate power for Burundi, Rwanda and Tanzania. NBI helped the countries prepare and is helping countries implement the project, proving that Nile waters really are a “gateway of regional cooperation.”

Thanks to NBI’s coordinating role, yet another power interconnection linking the countries who share Lake Victoria will be inaugurated in the near term. These interconnections allow the Nile countries to develop the least cost power generation options, be it within or outside their borders, further connecting the Nile riparians.

In the Eastern Nile, three countries – Ethiopia, Sudan, and South Sudan – have agreed to establish a regional dam safety office. They also share in joint forecasting of flooding during the rainy season, which indirectly benefits 1.7 million people in urban and rural flood prone communities. Nile Ministers are now routinely approving water resources management and development projects prepared by the NBI, demonstrating cooperative planning of projects of regional significance – and instilling norms that lead to achieving economies of scale, harnessing synergies, and enhancing regional peace and security.

These examples testify to how investments can boost cooperation through regional integration that will ultimately help the countries of the region to develop. They are powerful examples of why the cooperation on the Nile is so imperative to keep alive if joint development of the region is to be achieved.

We recognize that progress is not linear, as transboundary progress rarely is. Experiences in other shared river basins show that building strong cooperation often takes many decades and experiences many challenges along the way. The World Bank, together with the development partners, is supporting the NBI as it provides a neutral forum for technical dialogue among the parties sharing the Nile waters. We encourage the Nile countries to continue to find ways to pursue new dialogue and cooperation, and to find common ground to help address the development challenges of all the riparians.

It is often said that each great journey starts with a single step. So, let us each today take another step towards the collective stewardship of the Nile. And if we string enough of these steps together, then in a decade we will look back on the successful implementation of the 10-year strategy. And if we keep doing that then future generations will look back in 100 or even 1000 years and see that while the Nile was under great pressure, the riparian countries and communities cooperated to ensure that the great story of the Nile continued.

Thank you.

Closing remarks by the Executive Director of the NBI Secretariat, Eng. Innocent Ntabana - At the Closing Ceremony of the 5th Nile Basin Development Forum



October 25, 2017

**Radisson Blu Hotel & Convention Centre, Kigali
– Rwanda**

- Guest of Honor, Hon. Vincent Biruta - Minister of Environment and Host Nile Council of Ministers,
- The Chairman of the Nile Council of Ministers and Ethiopia's Minister of Water, Irrigation and Electricity, Eng. Sileshi Bekele,
- Honorable Ministers
- Your excellences Ambassadors and High Commissioners,
- Representatives of Development Partners,
- Distinguished Participants

The 5th Nile Basin Development Forum on the topical theme '*Investing in Nile Cooperation for a Water Secure Future*' is coming to an end.

It is indeed my pleasure to make a few closing remarks and express gratitude to all those who made this event a reality. It is with humility that I thank the Government of Rwanda for accepting to host this forum but most importantly for the excellent organization and with hospitality you have demonstrated to all the delegation since their arrival.

Honorable Ministers, members of the Nile Council of Ministers, for being with us all the 3 days despite your busy schedules in your respective countries.

Special thanks go to all keynote speakers, paper presenters, moderators, panelists and rapporteurs.

I thank members of both the regional and national organizing committees, for the invaluable inputs.

I do also wish to express my gratitude to Management and staff of Radisson Blu Hotel & Convention Center, Kigali for taking good care of us throughout the days of the Forum.

Guest of Honor,

A conference becomes a success only if participants arrive. They are the lifeblood of a conference. Thus, I do express sincere thanks to all of you who have come from the 10 Nile Basin Initiative Member States and beyond, to participate in the 5th Nile Basin Development Forum. Thank you for being interested in the Nile Basin Initiative and the Nile Basin in general and for your active participation, which has made the Forum a brilliant dialogue, a clash of wisdom and a feast of thoughts.

Distinguished Participants,

Sustainable Nile Cooperation is a key ingredient for a water secure future in the Nile Basin. This has been clearly demonstrated in the presentations and in-depth discussions throughout this Forum.

I therefore urge you to take forward the messages and possible solution pathways emerging from this Forum as well as networks established, to contribute to a water secure future in the Nile Basin region and consequently make it a better place for all living beings. I wish to pledge that the Nile Basin Initiative will take these forward more so since they are in line with the goals of our 10-year Strategy.

Guest of Honor, Distinguished Participants,

Before I conclude, allow me to thank the Government of Germany, GIZ and The World Bank for sponsoring the forum and all our Development Partners here present for your sustained support to NBI

I wish you all a safe journey back home!

Remarks by Rwanda's Minister of Environment Dr. Vincent Biruta at the Closing of the 5th Nile Basin Development Forum



It is my great pleasure to address you at the closing of the fifth Nile Basin Development Forum. I wish to thank you for participating in this highly productive forum.

The last three days have been characterised by thoughtful, frank and open discussions and is it good that we are concluding them on a note of optimism. And I should say conditional optimism, because it will depend on cooperation. I think that word was the most used over the last three days and we should go beyond using the word only but also implementing cooperation mechanisms in our basin.

I have no doubt that the outcomes of this forum will go beyond the aspirations of the basin, and benefit other water related organisations around the world. The scope and depth of the shared understanding gained here will surely transform perspectives in water scarcity related issues globally.

The recommendations agreed here in Kigali will certainly inform the regional and national agendas for water resources management and development for the coming years. I am also glad that the recommendations mirror the Nile Basin Initiative ten-year strategy and its aspirations.

I wish to take this opportunity to express my sincere appreciation to the Nile Basin Initiative member states and Council of Ministers in particular, for having accepted our offer to host the fifth Nile Basin

Development Forum.

I would like to thank all our stakeholders and development partners from beyond the basin who have devoted resources to make the forum a success. In particular, I wish to thank the Federal Republic of Germany, GIZ, the World Bank, and CIWA.

I wish also to express my appreciation to the experts who have shared their knowledge and experiences at this forum and I wish to congratulate again the media awardees. I hope they are still here and did not leave the forum after receiving their awards, but have also been able to cover to the three days of this forum.

My sincere appreciation also goes to the Executive Director of the Nile Basin Initiative Secretariat, and your team, for the many months of hard work that went in to making the forum not only a reality, but also a success.

I conclude by once again thanking you all for taking time to be with us and, more importantly, for being part of this noble venture to advance Nile Basin cooperation in the spirit of ensuring a water secure future for all.

Last but not least, I would like to wish you all, at least for those who are leaving tonight or tomorrow, safe journeys back home. In doing so, I hope that you will stay longer and enjoy the beauty of this country, be able to visit our water bodies and to see what we are doing to protect our water resources. We are ready to take you around. Feel free to stay here, and we will be with you to take you around while you enjoy the beautiful things to see in the City of Kigali.

Before pronouncing this fifth Nile Basin Development Forum closed, I would like to announce that Ethiopia will be the host for the next forum in two years' time. Thank you, Ethiopia.

With these few words, I hereby close the fifth Nile Basin Development Forum.

Thank you for your kind attention.

Disclaimer: The views expressed in this publication do not necessarily represent those of the Nile Basin Initiative or those of its Member States

This Forum Document is compiled by the Forum Consultant/Technical Officer, Eng. Gedion Asfaw with inputs from the Forum organizers.



ONE RIVER ONE PEOPLE ONE VISION



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