AFRICA 2023

The Fourth International Conference and Exhibition on

Water Storage and Hydropower Development for Africa

Speke Resort Munyonyo Conference Centre, Lake Victoria, Uganda

NEW DATES: 10 to 12 July, 2023

PROGRAMME AND TOURS

Organizers:

THE INTERNATIONAL JOURNAL ON HYDROPOWER & DAMS

in partnership with:

CIGB ICOLD

International supporting organizations include:

ICID·CIID

Local supporting organizations:

UCOLD

UEGCL Generating for Generations

THE REPUBLIC OF UGANDA
MINISTRY OF ENERGY AND MINERAL DEVELOPMENT

NATIONAL WATER AND SEWERAGE CORPORATION

THE REPUBLIC OF UGANDA
MINISTRY OF WATER AND ENVIRONMENT

Regular updates will be posted on our website and published in *Hydropower & Dams*
www.hydropower-dams.com/Africa2023

MISSION

The objective of the regional conferences for AFRICA, co-hosted by **Aqua~Media International** and **ICOLD**, in collaboration with the governments of the host countries, is to bring together a group of experts from all parts of the world to focus on issues of specific interest for Africa, in the field of water storage and hydropower development.

Typically, participants include high-level representatives of ministries and utilities, private development groups, consulting practices, international and regional development banks, contractors, and equipment suppliers.

Themes begin with project identification and planning, progress through to financing, design, environmental protection, social aspects, and then construction, operation, maintenance and refurbishment.

Cross-border collaboration for transboundary schemes, challenging sites and climate resilience, as well as capacity building and training, are topics that always feature high on the agenda.

AFRICA 2023 will be the fourth conference and exhibition in this series. The first took place in Addis Ababa, Ethiopia, in 2013, under the auspices of the African Union, with a keynote address from the Commissioner for Energy and Industry. The second was held in Marrakech, Morocco in 2017, under the High Patronage of HE King Mohammed VI.

AFRICA 2019 moved south to Windhoek, Namibia, and had strong participation from NamPower, the Global Water Partnership - Southern Africa, and the Southern African Power Pool. The World Bank, African Development Bank, and the African Union, have all contributed much to the programmes.

Uganda is an enthusiastic local partner for **AFRICA 2023**. International delegates and accompanying persons will meet in beautiful surroundings, for three days of sessions, preceded by workshops and training seminars, and followed by tours to hydro schemes.

There will be plenty of additional networking opportunities, and cultural excursions.

STEERING COMMITTEE

M. Abebe, Ethiopia
D. Aelbrecht, France
H.I. Aker, Turkey
I. Araki, Japan
I. Arinaitwe, Uganda
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F. Avellan, Switzerland
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P. Boeriu, UNESCO-IHE
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A. Hughes, UK
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C. Kayitenkore, Burundi
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H. Kreuzer, Switzerland
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K. Laksiri, Sri Lanka
F. Lempérière, France
B. Leyland, New Zealand
L. Lia, Norway
M. Lino, France
M. Marence, The Netherlands
P. Mason, UK
M. McWilliams, UK
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H. Mutikanga, Uganda
S. Muyenga-Muyenga, Namibia
A. Nombre, Burkina Faso
A. Noorzad, Iran
H. Obermoser, Switzerland
A. Palmieri, Italy
D. Paschini, France
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J. Plummer Braeckman, UK
B. Popa, Romania
J. Reynolds, UK
M. Rogers, USA
F. Coelha da Rocha e Silva, Portugal
D. Roult, France
A. Schleiss, Switzerland
S. Sparkes, Norway
M. Stehle, Namibia
J. Teyssieux, France
C. Tindimugaya, Uganda
A. Tremblay, Canada
B. Trouille, USA
O. Westberg, Norway
D.A. Williams, UK
K-T. Yum, Korea
Xu Zeping, China
G. Zenz, Austria

UGANDA HOSTS AFRICA 2023

THE REPUBLIC OF UGANDA
MINISTRY OF ENERGY AND MINERAL DEVELOPMENT

Uganda as host country

Uganda, also known as the Pearl of Africa, ranks among the most active African nations for the recent and current construction of water infrastructure and hydropower plants, and is therefore the ideal host country for **AFRICA 2023**, which will take place from Monday 10 to Wednesday 12 July 2023.

The international conference and exhibition will take place at the luxurious **Speke Resort Munyonyo** where numerous high-level meetings have taken place, such as the G77 Summit. The resort, with its large modern conference centre, and accommodation in various categories, is located on the shore of **Lake Victoria**, the largest lake in Africa, and second largest freshwater lake in the world. The lake is the source of the mighty Nile river, and the basis for existing and future major hydro schemes in Uganda, and other countries within the river basin.

The conference is being organized and hosted by Aqua~Media International, in partnership with the International Commission on Large Dams. The local partner is UEGCL, with its Steering Committee headed by Dr M Kayondo. Other international supporting organizations include ICID, IEA and CHINCOLD.

Warm welcome from the Government of Uganda

During a visit to Kampala in February 2019, a delegation from Aqua-Media attended a number of planning meetings.
The programme and study tours were discussed and have subsequently been planned in collaboration with the UEGCL Steering Committee.

In 2019, together with UEGCL's CEO Dr Harrison Mutikanga, and Chairperson, Eng Proscovia Njuki, Alison Bartle was welcomed to a meeting at the Ministry of Energy, where strong support was expressed for the conference.

President Museveni had recently called for more conferences on water and energy, during the AfWA Congress in Kampala. It was agreed that rural development, small hydro, capacity building and environmental aspects would feature on the conference agenda.

At subsequent meetings, strong support for **AFRICA 2023** was also expressed by the Permanent Secretary for Water; the Commissioner for Water and President of UCOLD, and the Managing Director of the National Water and Sewerage Corporation.

Uganda will have plenty of input to the programme from experts within the power and water sectors.

Uganda's hydropower

Hydropower currently supplies nearly 90 per cent of electricity in Uganda. The country has always had a strong commitment to developing its substantial potential. Five large hydro plants are in operation: Nalubaale (180 MW); Kiira (200 MW); Bujagali (250 MW); Isimba (183 MW); and, Achwa (42 MW). Now, construction of the 600 MW Karuma scheme is reaching completion, and several small schemes are under construction. UEGCL is also implementing the 44.7 MW Muzizi scheme.

Large schemes, at the feasibility study stage, planned on the Nile, include Agayo (840 MW), Oriang (450 MW) and Kiba (390 MW).

An agreement has been signed for a 14 MW cross-border scheme with Tanzania, and a 1.75 MW mini hydro scheme is going ahead on the border with Kenya, as part of the Angologo multipurpose scheme.

The small hydro potential of the country is thought to exceed 400 GWh/year.

Uganda's planners, developers and engineers therefore have plenty of experience to share with their counterparts from all around the world, on dam construction, hydropower development, O&M, powerplant refurbishment, and environmental protection.

PRE-EVENTS

SMALL HYDRO WORKSHOP

Many factors are considered in the design and construction of the optimum hydropower project. All parts of a scheme are interrelated and interdependent. Change one component and all others will be affected.

This workshop, following successful ones held in Vientiane, Montreux, Marrakech, Seville, Danang, Gdansk, Namibia, Porto, and Strasbourg, is aimed at people who are, or will be, involved in hydropower development as part of rural electrification programmes. It will cover run-of-river projects in the 'pico' to 'mini' range (1 kW to 1 MW capacity).

As this is a diverse form of energy production, there are always areas which are unfamiliar to people, despite many individual specialisms. This workshop aims to fill in the gaps, and help people to gain a good basic grounding in the topic. The Workshop is led by Prof D. Williams and G. Black, of Learning Hydro, UK.

All relevant aspects will be covered, from rainfall to energy evaluation, including:

- Analysis of scheme location and definition of potential catchments
- Turning rainfall into an available flow range from a catchment and development of a flow duration curve
- Power and energy generated calculation

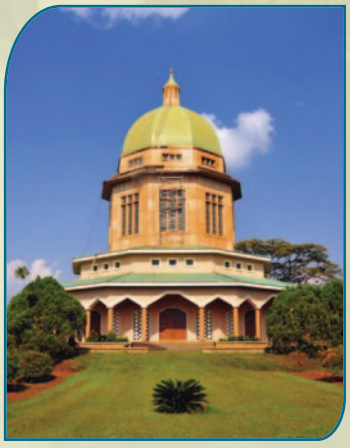
- Intake structures, channel and/or pipeline routes and sizing
- Powerhouse design and equipment
- Turbine selection
- Generator, controls and switchgear options
- Grids, national and local

This will be a 'hands-on' workshop, which will involve the participants, working in groups, to develop an actual hydropower project during the day. After presentations on the individual scheme aspects, the groups will put together the components of the project. This will follow through to the completed design.

HALF DAY EXCURSION

After registration on the morning of Sunday 9 July, a half-day local excursion will offer a chance to see the Kabaka palace and lake in Kampala, and learn about the Baganda history and culture. The lake was created in 1880 as an 'escape corridor' but is now a conservation area hosting many species of birds.

After lunch together, there will be a visit to the Baha'i Mother Temple of Africa . The group will then continue to the Uganda Museum to view exhibits of traditional culture, archaeology and history. The last visit will be to a local market of traditional crafts made by, and supporting, disadvantaged members of the local community, particularly widows, youth and the disabled.



AMI HYDROPOWER FOUNDATION

This is an independent charitable foundation, governed by an international board of trustees, set up in 2007 with the principal aim of facilitating participation at the annual HYDRO conferences of delegates from less developed and developing countries, and others, including young engineers and students, with current economic restraints.

Further details of the application process for funding can be found at: ***www.hydropower-dams.com/foundation/***

Fully completed applications, with supporting references, must be received by the organizers at least 5 weeks prior to the date of the conference, to allow sufficient time for processing by the trustees.

Successful applicants will normally be granted assistance to cover the conference registration fees, and in some cases accommodation. Travel expenses will generally not be covered, although, in some exceptional cases, contributions towards travel costs may begranted.

If you or your company would like to make a donation to the Foundation, you will have the opportunity to do so at the time of registration. The Foundation can be contacted at: ***AMIHF@hydropower-dams.com***

CONFERENCE SESSIONS

MONDAY 10 JULY - MORNING

Opening plenary session

- Welcome messages from: Aqua-Media International, ICOLD and UEGCL
- Addresses from Power and Water Sectors of Uganda; IEA; World Bank; African Union.
- Overviews of development potential from various African countries

MONDAY 10 JULY - AFTERNOON

Session 1: Planning of hydro and water resources development schemes

Chair: to be announced

- Opportunities for power and water along the Nile: Open-mindedness for supporting the economic development - *F. Lempérière, HydroCoop, France; L. Deroo and A. Chapuis, ISL, France*
- Mini pumped-storage plant in Martinique Island, Caribbean Sea - *B. Peltié and L. Deroo, ISL Ingénierie, France; A. Balcells, BCN Hydro, Spain; D. Payre, Nature and People First; J-P. Maurand, Méridiam, France*
- Santiago pumped-storage project in Cape Verde: Design for energy arbitrage and the provision of grid services - *A.J.A. Pereira da Silva and J.C. Morais, COBA, Portugal; P. Manso, MHyd, Switzerland; M. Vera Cruz, LuxDev, Luxembourg; N. Sauviat, Artelia, France; R. Evora, Ministry of Industry, Trade and Energy, Cape Verde*
- The benefits of high voltage direct current transmission in the Cameroonian energy supply system - *C. Kenfack Mouafo, N. Wehbring and J. Saat, RWTG Aachen University, Germany/Cameroon*
- Vertical accuracy assessment of SRTM and ALOS-PALSAR digital elevation models over the middle section of the Shire river in Malawi - *R.S. Barrera, Multi Consult, UK*
- A GIS tool for hydro project developers ideal for identifying sites for rural electrification - *S. Viennet, Hydreole, France*
- GIS and RS-based identification of hydropower potential site: A case study of the Okhunwan sub-basin in Benin-Owena River basin, Nigeria - *O.A. Fasipe, Energy Commission of Nigeria; O.C. Izinyon, University of Benin, Nigeria*
- The Sendje hydro project in Equatorial Guinea: Future plans and benefits - *J. De Lorenzo, N. Rydland Fjoesne and V. De Genot de Nieukerken, AFRY, Switzerland; E.M. Oyono Abang, GE Proyectos, Equatorial Guinea*
- Hydropower dynamics in Burkina Faso: Recent progress in dams, reservoirs and hydropower development - *N.S. Yaoliré, Ministry of Water and Sanitation; M. Kaboré, IFEC Consulting Firm; A. Nombré, President of Burkina Faso Committee on Dams*

Session 2: Civil works - Design and construction

Chair: M. Rogers, Stantec, USA

- Challenges, innovations and lessons learnt from construction and monitoring of the first water filling of the Karuma hydropower project tailrace tunnels - *H.K. Mukasa, C. Kyalisima, G. Akuhe and S. Agaba, Uganda Electricity Generation Company Ltd, Uganda*
- Geotechnical characterization of conglomerate formation for Koysha dam - *G. Pittalis, A. Delisio, C. Roassini and V. Millesi, Studio Ing. G. Pietrangeli Srl, Italy*
- Influence of cofferdam on scour potential at Kariba dam - *E.F.R. Bollaert, AquaVision Engineering Sàrl; S.Z. Mhlanga, Zambezi River Authority, Zambia*
- Heightening of Cambambe arch dam in Angola: Focus on the rock foundation treatment and dam stability conditions - *A. Wohnlich and M.L. Ribeiro, Gruner Stucky SA; T. Bussard, Norbert SA, Switzerland*
- Construction of powerplant II at Cambambe: Performance of the intake tunnels - *S. Ferreira, A. Pereira da Silva and R. Pistone, COBA Engineering and Environmental Consultants, Portugal; R. Costa, COBA Angola Ltd; A. Carlos, GAMEK, Angola*
- Construction of the Thiba dam in Kenya, allowing for two annual rice harvests - *H-C. Claassen, Strabag, Germany*

Session 3: HYPOSO project developments in Uganda and Cameroon

Co-chairs: B. Pelikan, Consultant, Austria, and D. Malone, HPAU, Uganda

- Hydropower solutions for developing and emerging countries: The HYPOSO Project - *I. Ball, Wirtschaft und Infrastruktur GmbH & Co Planungs KG, Germany*
- The analysis of small hydropower framework conditions with facilitation proposals in Uganda - *D. Malone, Hydropower Association of Uganda*
- The analysis of small hydropower framework conditions with facilitation proposals in Cameroon - *J. Kenfack, Solar HydroWatt, Sarl, Cameroon*
- The HYPOSO Map: Identification of potential small hydropower sites in Uganda and Cameroon - *P. Punys, Vytauto Didziojo Universitetas, Lithuania*
- Pilot projects in Uganda and Cameroon (six case studies): Justification for selection and challenges - *B. Baratti, Frosio Next Srl, Italy*
- Capacity building and needs: Experiences from Africa and South America - *M. Marence, IHE – Delft Institute for Water Education, Netherlands*
- Financial models of SHP project developments in African countries - *M. Buiting, 1T03 Capital BV, Netherlands*
- Promotion opportunities for the European small hydropower industry in Africa - *D. Hendricks, European Renewable Energies Federation (EREF), Belgium*

Session 4: Finance, project structuring and legal issues

Chair: to be announced

- Addressing risk and project financing - *A. Rousselin, EDF, France*
- Restructuring public private partnerships (PPPs) for small hydro projects: A case study of Nyagak III (6.6 MW) hydro plant in Uganda - *N.A. Rugaba, I. Arinaitwe, H. Mutikanga and M. Mwogeza, UEGCL, Uganda*
- Selection of a strategic partner for the Mphanda Nkuwa hydro project and the development of tecnhnical issues - *M. Fabiano de Moraes and G. dos Santos Rocha, Worley Engenharia Ltda, Brazil; S. Elísio, GMNK, Mozambique; and V. Gupta, Synergy, USA*
- The relationship between the employer (owner/ operator) and the contractor: Lessons learnt from several large-scale hydr /dam projects during the project execution phase - *B. Geisseler, Geisseler Law, Germany*
- Financial sustainability of public utilities in the electricity supply industry in Uganda: A case study of Uganda Electricity Generation Company Limited - *P. Otto and P. Ingabire, Uganda Electricity Generation Company, Uganda*
- Development of a water infrastructure investment framework under the Kenya Water Security and Climate Resilience Project (KWSCRP) - *T. Kendall Egis, France; A. Soulignac, Independent Economist, France,*
- Innovative financing and contractual issues at all project stages - *A. Amanyire, Armpass Technical Services Ltd, Uganda*
- Assessing the fiscal risks of hydro power projects in Uganda: The case of Nyagak III - *N.A. Rugaba, S. Mubiro and A.K. Ssozi, Uganda Electricity Generation Company Ltd, Uganda*

TUESDAY 11 JULY - MORNING

Session 5: Transboundary projects

Chair: to be announced

- Rusumo Falls 80 MW Hydropower project: Updates on the transboundary scheme - *T. Vincent, Artelia, France; D.G. Protulipac, RRFHP-NELSAP; N. Karitanyi, RPCL., Rwanda; D. Panayotidis, AECOM, Canada*
- Towards effective data sharing on the Zambezi river basin: The case of the cascade hydropower dam operators in Mozambique, Zambia and Zimbabwe - *R.J. Guale, Hydropower of Cahora Bassa, Mozambique; C. Chisense, Zambezi River Authority, Zambia; P. Van der Zaag, IHE Delft, Netherlands*

(Additional presentations to be announced)

Session 6: Operation and maintenance

Chair: L. Mouvet, Hydro Operation International SA, Switzerland

- Operation and maintenance of hydro equipment - *J. Gummer, Hydro Consult Pty Ltd., Australia*
- Best maintenance practice in an African context - *M. Adigeh, Voith Hydro East Africa Consultancy PLC, Ethiopia; M. Claessen, Voith Hydro, Germany*
- Operating hydropower plants in Southern Africa: Lessons learned for the African context - *C. Burger, L. Verwey and H. Hattingh, Serengeti Energy, South Africa*
- Cost-effective methods of controlling water-borne debris - *C. Rogers, Bolina Booms Ltd, UK*
- Computerized maintenance management software for hydropower units - *E. Ngue, EN Solutions Inc, Canada*

(Additional papers to be announced)

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Session 7: Materials for dams

Chair: to be announced

- Calibrated finite element modelling of the low stress relaxation creep behaviour of an RCC arch-gravity dam - *Q.H.W. Shaw, ARQ Consulting Engineers, Mauritius; R.O. Cassells, ARQ Dams, South Africa*
- Asphalt sealing elements for reservoirs, embankment and tailing dams: A highly flexible and durable sealing system - *M. Smesnik, AFRY Austria GmbH, Austria*
- Geomembrane systems to build safe dams reducing costs, and a case history in Africa - *G. Vaschetti, V. Verdel, F. Tronel and A. Scuero, Carpi Tech, Switzerland*
- RCC mix and application of a single 63 mm layer at the Kafue Gorge Lower dam in Zambia - *Shuncai Ning, Zhaoxun Deng, Shichao Geng, Mingchang Qing, Yuanguang Liu, Qingguo Zhou and Junjie Jin PowerChina Bureau No.11 Co Ltd, China*
- Numerical simulation of temperature control measures for mass concrete of the Karuma underground powerhouse in Uganda - *Xu Wenqiang and Qiang Sheng, Hohai University; Hu Zhengkai, PowerChina Hiuadong Engineering Corporation Ltd; and Bie Yajing, North China University of Water Resources and Electric Power, China*

Session 8: Hydropower equipment and powerplant safety

Chair: D. Paschini, EDF, Peru (to be confirmed)

- MyHPPSimulator, a didactic tool for transient phenomena in hydroelectric powerplant - *S. Alligné, C. Landry, A. Beguin and C. Nicolet, Power Vision Engineering Sàrl; Switzerland; A. Zebre and D.G.M. Kouame, Compagnie Ivoirienne d'Electricité, Ivory Coast*
- An engineering solution for adjusting the pre-stress forces of a distributor - *O. Mousseeff, P-H. Letellier and Y-L. Beck, EDF Hydro, France*
- Kariba north bank power plant, implementation of SWGS: Safe way guiding systems - *R. Enersen, Exit Solutions AS, Norway*
- Research on a firefighting system to meet NFPA standards for the Karuma powerplant in Uganda - *Chen Dingli, Xu Zheng, Luo Yuzhen and Wu Haifeng, PowerChina Huadong Engineering Corporation Limited, China*
- Kashimbila multipurpose dam: Design, transportation and installation challenges for the hydro-mechanical components for a remote project - *M.W. Ellis, Profection Design and Drafting, South Africa; B. Rochecouste Collet, Zutari, South Africa; M. Schilling, Andritz Compact Hydro, Germany*
- Main transformer design modification to include a fast depressurization system at the Karuma hydropower project, Uganda - *O. Aryanyijuka and S. Ssekatawa, Uganda Electricity Generation Company Limited, Uganda*

Session 9: Work of IEA's Technical Collaboration Programme

Chair: to be announced

The session will feature talks by some of those leading various tasks within the Technical Collaboration programme of IEA-Hydro. Details will be announced shortly.

Session 10: Dam safety

Chair: M. Lino, President, ICOLD

- Improved constractual strategies to improve the safety of dams - *M. Lino, ISL, France; L. Canale, Scatec, Norway; S. Giraud, Plan J. Consulting, France; and B. Geisseler, Geisseler Law, Germany*
- Dam safety concepts, principles and framework - *M. Abebe, ENTRO, Ethiopia, L. Hattingh, Hattingh Anderson Associates, South Africa; D. Hartford, BC Hydro, Canada; R. Charlwood, Consultant, USA; A. Zielinski, Consultant, Canada; and Zeping Xu, IWHR, China*
- The risks caused by rising Lake Victoria levels and COVID 19 to dam safety: Case study of the River Nile cascade, Uganda - *K.G. Opolot, East African Power (EAP); O. Geatano, Structural-X Ltd, Uganda; N. Andrew, PAC SpA, Uganda; A. Jiménez, Sedicon Latinoamérica SA, Costa Rica*
- Nachtigal 420 MW hydropower project: Risk analysis and safety plan - *G. Dautois and T. Vincent, Artelia, France; J. Ntsama, NHPC, India*
- Comprehensive dam safety review of the Nalubaale and Kiira power stations in Uganda - *C.R. Donnelly, Hatch, Canada; A. Nankaja Gitta and K. Otim, Eskom, Uganda*
- Deformation monitoring of large gravity dams using multitemporal sentinel-1SAR interferometry - *S. Salumu Zahera and M. Fuamba, Polytechnique Montréal, Canada*
- A self-calibrating neural network for forecasting the water level of Lake Victoria I aimed at sluice gate control - *A. Kasedde, M. Kayondo, M. Mukulu and M. Akurut, UEGCL, Uganda; P. Van der Zaag, IHE Delft, Netherlands*

Session 11: Reservoir operation and hydrology

Chair: to be announced

- Lake Victoria and timing of extreme lake levels - *P. Mason, Damsolve Ltd, UK*
- Challenges of downstream reservoir management in an ungauged cascade: The case of the Isimba hydro plant - G. *Rwakafunjo, C. Mwase, W. Manirakiza and M. Akurut, Uganda Electricity Generation Company Ltd, Uganda*
- Suggested modifications to operation and safety of Sudanese dams after the Grand Ethiopian Renaissance Dam - *H.A.M.A. Omer and M. Osman, Ministry of Irrigation and Water Resources, Sudan*
- Flood control experiences at Isimba caused by increased discharges from Lake Victoria - *C. Mwase, M. Akurut and W. Manirakiza, UEGCL, Uganda*
- Reliable probabilistic inflow forecasting: The operational system of the Cahora Bassa reservoir - *J.P. Matos, University of Lisbon, Portugal; F. Zeimetz and M. Leite Ribeiro, Gruner SA, Switzerland; M. Mahunguana and R. Guale, Hidroeléctrica de Cahora Bassa SA, Mozambique*
- Modelling of inflow conditions and hydropower generation at the Akagera river, East Africa - *H. Kling, AFRY Austria GmbH, Austria*
- Risk and uncertainty analysis of hydrological models for hydropower development: Case study of the River Aswa basin in northern Uganda - *O. Genason, Riompa Engineering, Uganda; O. Geatano, E&E Consultancy, Uganda; K.G. Opolot, East African Power (EAP), Uganda; K. Enock, Busitema University, Uganda*
- Effect of temporal sampling mismatches between satellite rainfall estimates and rain gauge observations on modelling extreme rainfall in the Upper Awash basin, Ethiopia - *K. Mekonnen and T.A. Woldesenbet, Addis Ababa University, Ethiopia; A.M. Melesse, Florida International University, USA*
- Rainfall variability and trend analysis in the Volta basin in Ghana and its impact on hydro generation - *P.T. Padi and A.N. Wabab, Volta River Authority, Ghana*

TUESDAY 11 JULY - AFTERNOON

Session 12: The Ruzizi III regional hydropower project

Chair: L. Canale, Scatec, Norway

The Ruzizi III Regional Hydropower Project is a unique public-private partnership (PPP) hydro project designed to feed the grids of Burundi, DRC, and Rwanda (Contracting States). It is being developed by the private sector and will be funded by the private sponsors and Contracting States, with six development banks, using blending private equity, concessional and non-concessional debts, and grants. It is the first regional project designed as a PPP, that will use a common regional water resource to generate power to be shared equally between three countries, benefiting nearly 30 million people living in the Great Lakes region. Ruzizi III Energy Ltd (REL) is the special purpose vehicle that has been established to develop and implement Ruzizi III, and is owned by the two sponsors, IPS Kenya and SN Power (owned by Scatec ASA). Since signing of the project agreements in 2019, the project has been substantially optimized leading to the final 206 MW configuration. The project has reached an unprecedented maturity level with all technical and E&Sstudies finalized and the ongoing EPC procurement process which has finally pushed the Ruzizi III project into the financing framing phase, crowding in a pool of lenders who have already committed funding to cover the investment cost. The session will be moderated by REL's Project Director, Luciano Canale, and will have contributions from various experts from REL, its sponsors and its consultants.

The technical discussion will focus on the physical definition of the new project, with particular emphasis on the site investigation campaign carried out during COVID-19 international restrictions and security threats.

The E&S discussion will be around the management of the biodiversity aspects and the land acquisition activities, which include extensive engagement of local communities.

The procurement and contractual part will present progress of procurement activities focusing on cross-border issues and the innovative approach of hybridizing the FIDIC EPC/Turnkey Contract (2017 Silver Book) with elements from the recent FIDIC Conditions of Contract for Underground Works (2019 Emerald book) to manage ground condition risks better and monitor evolution of the final electricity tariff. The description of the financing arrangements built up, by blending very diverse financing instruments, will show how the best trade-off is achieved and how the final electricity tariff can be minimized and kept at an affordable and very competitive level for the region. This project will generate clean and renewable power, reducing the region's

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reliance on expensive thermal generation and the local communities' dependence on wood fuel and charcoal, a major threat to forests and biodiversity. The availability of the renewable power will support efforts to extend electrification to the region.

Session 13: Dam safety in the Nile river basin

Chair: M. Abebe, ENTRO, Ethiopia

- Dam safety regulatory framework and institutional arrangements in the Nile basin - *L. Hattingh, Consultant, South Africa; K. Lyon, World Bank; M. Abebe,ENTRO, Ethiopia*
- Regulatory frameworks for dam safety: Assessment, findings and recommendations from a World Bank perspective - *K. Lyon, The World Bank, USA*
- Building dam safety management capacity in a transboundary context - *M. Abebe, Regional Dam Safety Coordinator, ENTRO, Ethiopia*
- Situation assessment of dam safety and development of dam safety risk management framework in the Nile basin - *A. Aman, Regional Dam Safety Coordinator, NELSAP, Rwanda*
- Risk-informed decision-making approach for dam safety assessment: Lessons learned from Eastern Nile countries - *F. Shiferaw, Yerer Engineering, Ethiopia*
- Dam incidents in the Equatorial Lakes region - *A. Aman, NELSAP, Rwanda*
- A review of seismic hazard for large storage in the Nile Basin, with emphasis on the seismic safety evaluation of the GERD, Ethiopia - *A. Aman, NELSAP, Rwanda; M. Wieland, Consultant, Switzerland; and T. Mammo, Addis Ababa University, Ethiopia*

Session 14: Climate change and resilience planning

Chair: Dr H. Kling, AFRY, Switzerland

- Engineering experience in hydrology to assess climate resilience: Example of a hydro project in Gabon - *T. Mathevet, A. Valery and D. Surla, EDF Hydro, France*
- CFD modelling of the Pongolapoort dam spillway upgrade to deal with extreme floods resulting from climate change - *K. Kiringu and G.R. Basson, Stellenbosch University; H.J. Wright, ARQ Dams, South Africa*
- Climate change resilience, adaptation, and mitigation communication strategy for water storage and hydropower development in Africa - *W. Okaka, Kyambogo University, Uganda*
- Climate change resilience in the rehabilitation of transboundary water storage infrastructure: The Kariba dam rehabilitation project - *C. Vengesa and M.C. Munodawafa, Zambezi River Authority, Zimbabwe*
- Future climate change and land use change impacts on the sediment yield at the proposed Crocodile river abstraction works - *K. Kiringu and G.R. Basson, Stellenbosch University, South Africa*

Session 15: Dam monitoring

Chair: A. Chraibi, Morocco

- Safety monitoring process and analysis of dam behaviour - *E. Barros-Maurel, T. Guilloteau and A. Simon, EDF Hydro, France*
- Frequency of inspections and monitoring for hydraulic structures: Case study of gravity dams - *K.G. Opolot, East African Power (EAP); O. Geatano, Structural-X (U) Ltd, Uganda; D. Kimera, Busitema University; Uganda; and K. Otim, Eskom, Uganda*
- The development of alkali aggregate reaction (ARR) at the Kainji spillway structure after 50 years of operation - *S. Ehlers, AFRY Switzerland Ltd, Switzerland*
- A proactive approach to enhance inspection of hydropower structures: The Isimba hydro plant, Uganda - *D.E. Mukwanason, C. Mwase and A. Semagulu, Uganda Electricity Generation Company Limited, Uganda*
- Monitoring the hydromechanical behaviour of the Cahora Bassa dam foundation - *I.M. Tembe, Hidroeléctrica de Cahora Bassa, Mozambique*

Session 16: Hybrid renewable energy systems

Chair: L. Deroo, ISL, France

- Is hydro-solar THE tool for the energy transition in Africa? - *L. Deroo, F. Lempérière and C. Philibert, Hydrocoop, France*
- Hybrid hydropower and solar PV in Africa to reduce the cost of energy - *T. Pendrey and F. Tedla, AECOM, UK*
- A study of small hydro-solar PV hybrid power generation in Uganda - *I.P. Sedirimba and M. Mukulu, Uganda Electricity Generation Company Limited, Uganda*
- Exploring hybrid RE sources to mitigate energy needs in Nigeria - *L. Ekpo, Nigerian Hydropower Association, Nigeria; O. Fasipe, V. Eniola, I. Gbaja and C. Ogualili, Energy Commission of Nigeria; J. Aikhuele, Trinity Solar Inc., USA*
- Development and optimization of the Tain hydro-solar energy project, Ghana - *M. Heider, P. Schäfer and A. Wetzel, Fichtner GmbH & Co KG, Germany*

WEDNESDAY 12 JULY - MORNING

Session 17: Small hydropower- I

Chair: V. Denis, Myhlab, Switzerland

- Efficient management of e-flow in small hydro projects: Ugandan and Sri Lankan experience - *S. Banda, East African Power (EAP), Rwanda; K.G. Opolot, EAP, Uganda*
- Constructing a mini hydro plant to exploit the cooling water at a thermal plant: An example in Croatia - *S. Bojić, Energy institute Inc; D. Božičević, Power Generation Company as a member of HEP Group, Croatia*
- Small hydro success story in Uganda - *R. Batra, Voith Hydro Holding GmbH & Co KG, Germany; V. Goyal, Voith Hydro Pvt Ltd, India*
- Cascade of three small hydro plants on the Giciye river in Rwanda - *M. Schober, Gugler Water Turbines GmbH, Austria; J. Museminari, Rwanda Mountain Tea Ltd, Rwanda*
- A compact and smart micro hydro system - *M. Günthör, WWS Wasserkraft GmbH, Austria*

Session 18: Uprating and refurbishment - I

Chair: to be announced

- Modernization and uprating of Kainji, Nigeria, from 760 to almost 1000 MW - *A. Vetter, AFRY Ltd, Switzerland; L. Audu and J. Villegas, Mainstream Energy Solutions Ltd, Nigeria*
- Study for rehabilitation and optimization of the Nalubaale and Kiira hydro plants at the outflow of Lake Victoria in Uganda - *C. Meyer and C. Siemer, Tractebel Engineering, Germany; J.I. Sempewo, Uganda Electricity Generatng Company Ltd, Uganda*
- Refurbishment of Nalubaale dam in Uganda - *K. Otim and A.N. Gitta, Eskom, Uganda; L. van Vuuren and J. du Plessis, Gibb (Pty) Ltd, South Africa; T. Guillemot and M. Lino, ISL Ingénierie, France*
- Eleyele dam and intake waterworks - *O. Jullien and S. Gsell, Tractebel Engineering, France*

Session 19: Environmental and social aspects - I

Chair: Dr A. Emadak, World Bank, Côte d'Ivoire

- Traversing uncertainty by synergizng environmental, social and engineering work streams: A developer's perspective - *J-L. Janse van Vuuren, Renewable Energy Holdings, South Africa*
- Social impacts and rock excavation challenges within the community at regional Rusumo Falls hydropower project - *L.E. Uwantege, D.G. Protulipac and E.E. Nyabeeya, NELSAP; N. Karitanyi, Rusumo Power Company Ltd, Rwanda*
- Lessons learnt about major resettlement in West Africa: The case of Souapiti hydropower dam in Guinea - *N. Tomczak, Tractebel Engineering SA, France; I.S. Keita, PAHS, Guinea*
- Resettling ancestral spiritual heritage in the development of 6.6 MW Nyagak III hydro plant - *M. Otim, N.A. Rugaba and A.O. Oroma, UEGCL, Uganda*
- Geological mapping to assess social and environmental impact of possible slopes instabilities along the Karuma reservoir, Uganda - *S. Ceriani and V. de Genot de Nieukerken, AFRY Switzerland Ltd, Switzerland; I. Kifamulusi, AFRY, Uganda*
- The floating island incident at the Nalubaale and Kiira hydro plants - *K. Otim and L. Feni, Eskom Uganda Ltd, Uganda*
- Analysing the impact of floating islands and water weeds on hydropower dams: A case study of the White Nile cascade - *B. Nakwanyi, R.N. Lule and P. Tumwine, Uganda Electricity Generation Company Ltd, Uganda*

Session 20: Small hydropower- II

Chair: P. Duflon, Andritz Hydro, France

- A portfolio develpment of small, run-of-river hydropower in Uganda - *W. Mpumwire, Frontier Investment Management, UK; A. Noble, WSP, Australia*
- 'Comptact-ize' your powerplant; Benefits of multiple smaller units- *S. Fisel and M. Harbach and J. Schnapp, Andritz Hydro GmbH, Germany*
- Cost efficient small hydro development: A citizen-based technician - *J-L. Janse van Vuuren, Renewable Energy Holdings, South Africa*
- The Hydroshaft powerplant 2.0: Advantages and new possibilities of a modular turnkey solution - *B. Alapfy, TU Munich, Germany; T. Eder, Global Hydro Energy GmbH, Germany; F. Böttger, Gesellschaft für Planung, Maschinen- und Mühlenbau Erhard Muhr mbH, Germany; N. Rüther, Technical University of Munich, Germany*
- Lessons learnt in recovering a small hydro project damaged by severe floods during the COVID-19 pandemic - *R. Wadugodapitiya, D. Kanumale and I. Seneviratna, Saems Engineering Ltd, Uganda; C. Bale, responsAbility Renewable Energy Holdings, Kenya*

CONFERENCE SESSIONS

Session 21: Uprating and refurbishment - II

Chair: to be announced

- Combining engineers and operators for audits and expertise: A wider approach for wider benefits - *F. Armand, G. Duc and P. Mosele, EDF Hydro Engineering, France*
- Determining the optimum capacities for the Maguga expansion and the lower Maguga hydropower projects - *E. Lillie, Knight Piésold Consulting, South Africa*
- Rehabilitation of Mwadingusha hydroelectric powe plant, in Democratic Republic of Congo - *T. Jacob, A. Meric, C. David and Y. Favrel, Gruner SA, Switzerland*
- Installation of a 500 t 'needle cofferdam' on the spillway gates of Kariba dam - *C. Bleton, Hydrokarst, France*

Session 22: Environmental and social aspects - II

Chair: J. Stave, Multiconsult, Norway

- Management of floating non-woody debris in equatorial climates - *P. Meeks, Worthington Products, Inc., USA*
- Establishing solutions for prawn passage at large African dams: A biological control for schistosomiasis - *A. Fryer, Fishtek Consulting, UK*
- Remote sensing for monitoring fish spawning sites of a large hydro reservoir in a lowland region - *L. Jurevicius and P. Punys, Vytautas Magnus University, Lithuania*
- Environmental assessment and daily monitoring of water quality for the Cahora Bassa reservoir and its tributaries, using satellite-based data analytics technologies - *E. Nhantumbo, R. Guale and B. Insa, Hidroeléctrica de Cahora Bassa (HCB), Mozambique; H. Bernert, P. Bauer and K. Schenk, EOMAP GmbH & Co KG, Germany*
- Assessing the effectiveness/sufficiency of computation of e-flows in Ugandan hydropower development - *B. Ampire, G.O. Kadapawo and E. Mugoda, East African Power, Uganda; M. Onzere, Makerere University, Uganda*

WEDNESDAY 12 JULY - AFTERNOON

Session 23: Capacity building

Chair: Dr Q. Shaw, ARQ Consulting Engineers, South Africa

- The future safety and sustainability of Africa's hydropower and dams lies in building its own capacity - *W. Manirakiza, Uganda Electricity Generation Company Ltd, Uganda; A.F. Chraibi, Dam Tech, Morocco; F. Sonuga, ICOLD Capacity Building Committee, Nigeria; A. Nombre, Burkina Faso Committee on Dams, Burkina Faso*
- A young graduate's place on a large hydropower project: A case of the 600 MW Karuma plant - *M.A. Otim, Uganda Electricity Generation Company Ltd, Uganda*
- An analysis of learning needs and technical training solutions for the hydropower business - *M. Noske, M. Kaufmann and S. Schröttle, Voith Hydro GmbH & Co. KG, Germany*

(Additional presentations to be announced)

Session 24: Spillway safety, operation and innovation

Chair: Dr P. Mason, Damsolve, UK

- Intelligent systems to improve spillway operation procedure and emergency preparedness: A case example at Bujagali hydropower dam - *A. Isabirye, Frontier Energy (U) Ltd.; B. Nakwanyi and P. Lutaaya, Uganda Electricity Generation Company Ltd, Uganda*
- Innovative duckbill spillway to boost water supply - *F. Denys, Zutari, South Africa*
- Overflow spillway for the Kikagati hydropower plant in Uganda/Tanzania - *A. Wetzel and I. Vučković, Fichtner GmbH & Co. KG, Germany*
- Reliability of spillways with mechanical gates - *F. Del Rey, Hydroplus, France; H. Kocahan, Hydroplus, USA*
- *Piano Key Weirs at the Jiji-Mulembwe hydropower project* - *O. Human and F. Denys, Zutari, South Africa*

Session 25: Sedimentation management

Chair: Prof A. Schleiss, EPFL, Switzerland

- Reservoirs, sedimentation, innovations? -*L. Deroo, ISL, France*
- An integrated approach for circular sediment management in reservoirs - *K.A. Meerse and J.T.M. Wijnands, Royal IHC, Netherlands; A. Omer and S. Giri, Deltares, Netherlands; H.H.M. Ekkelenkamp and E. Besseling, Netics BV, Netherlands*
- Sediment yield and mass balance determination of the Limpopo river for a proposed off-channel dam scheme in South Africa/Zimbabwe - *K. Kiringu and G.R. Basson, Stellenbosch University, South Africa*
- Sedimentation in reservoirs: Comparison between a mathematical Model (Rusle) and an empirical model (Bathymetry) - *A.Brasca, L. Tatti and A. Cagiano, Studio Ing. G. Pietrangeli, Italy*
- Selective application of ensembles of sediment yield models to improve catchment-scale sediment yield predictions - *E. Okiria and K. Noda, Gifu University, Japan*

Closing Plenary Session

- Outcomes of the conference presented by some session chairpersons
- Welcome to future Aqua-Media and ICOLD events
- Closing of AFRICA 2023 sessions

Poolside Farewell Gala Dinner at the Speke Resort

SOCIAL PROGRAMME

The Speke Resort Munyonyo offers a variety of splendid venues for social event. These will taken place as planned before the conference postponement.

Sunday 9 July

The Stables restaurant is the venue for the **Speakers' and Chairpersons' dinner**, before the conference begins. It has a large decked terrace, overlooking a lawn and scenic gardens with blossoming trees.

Monday 10 July

The **Welcome Reception** is planned to take place on a vast lawn, directly overlooking Lake Victoria; apéritifs will be followed by a buffet supper and musical entertainment.

Tuesday 11 July

On the second afternoon of the conference, the exhibition area will remain open into the early evening for a **Networking Party**, giving participants extra time to meet exhibitors and establish new business contacts. Drinks and light snacks will be served.

Wednesday 12 July

The **Farewell Gala Dinner** will provide a chance to discover another area of the resort. Apéritifs will be taken beside an olympic-sized swimming pool, before dinner, with entertainment, in a semi-outdoor venue surrounded by palm trees.

ACCOMPANYING PERSONS' TOURS

Working with knowledgeable local ground agents, we have planned a three-day package of tours for accompanying persons, combining cultural visits and traditions, flora and fauna against stunning landscapes, and an animal sanctuary reached by a boat ride across Lake Victoria. Lunches together will be included each day, and travel will be by luxury coach with an experience guide.

Monday 10 July

Ngamba Island Chimpanzee Sanctuary and Botanical Gardens

Surrounded by the peaceful waters of Lake Victoria, the Ngamba Island Chimpanzee Sanctuary is home to 52 orphaned and rescued chimpanzees. The group will travel by coach to Entebbe, where they will take a boat across to the sanctuary which provides an exceptional opportunity to closely observe these fascinating great apes in a unique setting. You will spend time viewing the chimpanzees and learning about their rehabilitation and the work of the Chimpanzee Trust.

Lunch will served on the Island before the return trip by boat to Entebbe, where participants will then visit the expansive and tranquil Botanical Gardens. Walking through the gardens, there will be an opportunity to see plenty of wildlife, including black and white colobus monkeys, tree squirrels and some of the 115 species of birds (which include the famous shoebill bird, as well as colourful crowned cranes) Between the native trees, plants and flowers, there are also pockets of thick rainforest.

Tuesday 11 July

Ssezibwa Falls, Mabira Forest and the Source of the Nile

Heading East on the second day, participants will make a first stop at the spectacular Ssezibwa Falls. These waterfalls were created by the river flow being constrained by a narrow opening of rocks. The tour will then continue to the Mabira Forest, where there will be a chance see hundreds of butterfly and bird species, as well as a wide range of animals including primates.

The group will then continue to Jinja for lunch, before visiting the Source of the Nile Park with its great historical significance. There will be a boat trip on the lake to view the source itself.

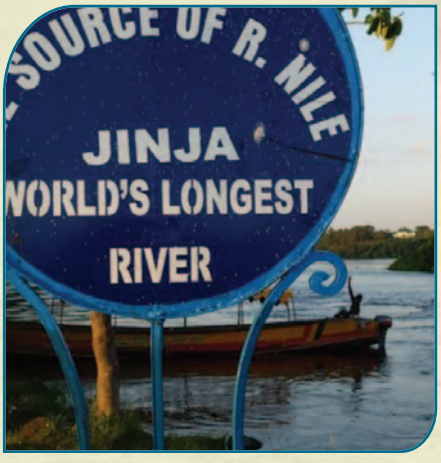
Wednesday 12 July

Traditional tea making and craft paper from banana leaves

On the final day, the group will be shown how to make a cup of traditional Ugandan sweet tea and enjoy taking part in the process of making craft paper from banana leaves. Following an early start, the group will be taken to a local farm outside Kampala where they will begin the day by milking cows! From here they will take part in the traditional process of brewing and tasting the sweet milk tea, which is a local speciality.

After an early lunch, participants will continue to Papercraft, an environmentally friendly local factory where they will have the opportunity to take part in the various stages of creating craft paper, from cutting down the banana leaves to forming a piece of craft paper. Having had an early start, the group will return to the Speke resort in good time to rest before the Farewell Dinner in the evening.

Accompanying persons are also invited to the evening social events, and can book for the cultural excursion in Kampala for all participants, on Monday 10 July.



EXHIBITION AND SPONSORSHIP

The modern and spacious Speke Ballroom will provide a magnificent setting for the exhibition, which will take place in parallel with the **AFRICA 2023** Conference.

Exhibition space is generally sold in units of 6 m^2 (with some areas reserved for larger pavilions). Each space reserved includes white panelling, a table, two chairs, spotlights and, a company name sign. The price for each stand unit (6 m^2) is US$3650.

Lunch and refreshments will be served each day in the exhibition hall, to ensure that international participants have plenty of time to visit the exhibitors.

Various opportunities are also still available to sponsor or co-sponsor social activities, such as apéritifs, lunches, and coffee breaks; or, items such as water coolers, bags and more. This is a memorable way of bringing your organization to the attention of the international participants.

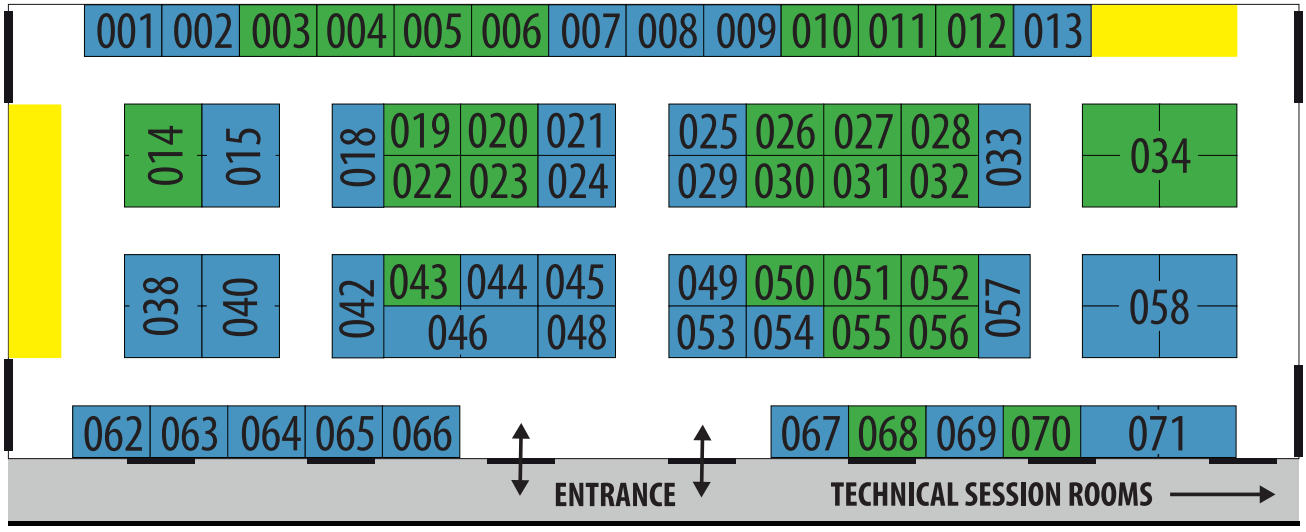
If your organization is actively involved in water resources or hydropower development in the African region, you should not miss this opportunity to be represented at this event, which will bring together high level delegations in a region of the world with the greatest potential for future development.

For more details of the exhibition or sponsorship opportunities, contact: **sales@hydropower-dams.com**

Stands are now selling very fast! We recommend booking as soon as possible to ensure your preferred position is available. We will be publishing regular updates of available spaces on our website, and in future email updates.

PLAN AND PRICING

Available - 3 x 2 m = $3650 = Reserved = Catering area Contact: sales@hydropower-dams.com



AFRY Switzerland Ltd
Artélia
Canadian Dam Association
Carpi Tech BV
CREA Hydro & Energy
Dolsar Engineering Inc. Co., Turkey
EDF, France
Freyssinet, Sogea Satom, Omexom, Hydroplus, France
Gilkes Hydro, UK
Global Hydro Energy GmbH
Gugler Water Turbines GmbH, Austria
Hydreole
Hydrokarst Group, France
Hydro Maintenance Service
Hydro Operation International Ltd
ICOLD (International Commission on Large Dams)
Ossberger GmbH + Co. KG
Macobate, Morocco
Muhr, Germany
Norwegian Energy Partners
Power Vision Engineering Sàrl and Mhylab
Sadafzar Co. Ltd, Iran
SAEMS, Uganda
Sisgeo S.r.l., Italy
Sogea Satom, Freyssinet, Hydroplus
Strabag International
Tractebel, France
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Worthington Products, Inc, USA
WWS Wasserkraft GmbH, Germany

Reserved stands (October 2022)

SPEKE RESORT MUNYONYO

SPEKE RESORT MUNYONYO

It seems appropriate for international experts to be discussing hydropower and water storage at a venue named after the explorer who discovered the source of the River Nile. The venue is also located on the shores of Lake Victoria, the largest lake in Africa. The location is close to Kampala, and to Entebbe international airport.

The meeting rooms to be used for the AFRICA 2023 sessions, workshops, exhibition and social events are within a luxurious 5* complex, spanning about 100 ha.

Two state-of-the-art congress centres have been designed to blend discreetly with lush tropical vegetation and blossoming trees, vast lawns, elegant restaurants, an equestrian centre, a marina, and of course a panoramic view of the 68 000 km^2 lake.

The venue provides all that is necessary for the smooth running of a major international event, and has plenty of experience of doing so. The resort is well accustomed to welcoming heads of state to Commonwealth meetings, and G77 Summits; the hospitality, security, efficient service and high quality cuisine reflect this well.

When not engaged in conference activities, or if staying on for a holiday, delegates can take advantage of an Olympic-sized swimming pool, nine restaurants and bars, fishing or bird-watching on the lake, riding at the equestrian centre, playing golf, or simply keeping fit in a conventional gym.

Bedrooms can be booked, as part of the registration process, in three categorie at the resort; all are tastefully designed and decorated, and well equipped, with free WiFi, facilities to make hot drinks, fridges, complimentary water, and large TVs.

Accommodationhas been blocked in some low-budget category rooms, and at alternative venues, including some offering apartments to be shared.

More details of accommodation options are given on the registration website.

NB: Beware of scam accommodation bureaux claiming to repesent this conference.

TECHNICAL STUDY TOURS

Two post-conference study tours are offered to participants, and we aim to keep details the same as previously announced. They will depart on the morning of 13 July..

Tour A – East: Owen Falls, Bujagali and Isimba (2.5 days)

On the first day, it is planned for the group to travel by coach from Kampala to **Owen Falls dam** on the White Nile, completed in 1954, and the location of Uganda's first major hydro plant. There are two powerplants today: **Kiira 200 MW**, and **Nalubaale 180 MW**.
In 2002, the Government, through UEGCL, awarded a concession to Eskom Uganda Ltd (a subsidiary of Eskom South Africa) for operation, management and maintenance of the plants. The dam has been affected by alkali silica reaction, and a refurbishment project is to take place soon. Another problem at Owen Falls is that of water hyacinths in the reservoirs, which require regular clearance.

The second technical visit will be to the **250 MW Bujagali scheme** on the Victoria Nile, completed in 2012. It was constructed as a public-private partnership project, with World Bank financing. It is about 8 km downstream of Owen Falls. Bujagali regulates the flows into the Victoria Nile from Lake Victoria and develops a gross head of approximately 22 m.

The project includes a 3300 m^3/s capacity main spillway with two radial gates and one flap gate, a 1200 m^3/s capacity emergency spillway, a 30 m-high clay core rockfill embankment type dam and a 30 m-high concrete gravity dam. It has a concrete powerhouse structure, with an integral intake, five double-regulated Kaplan turbines, and a 132 kV substation.

There will also be a chance to see the centre known as the 'Source of the Nile', and the monument to John Hanning Speke, the British explorer who was the first European to reach Lake Victoria, and made several expeditions to establish the source of the Nile.

The final technical visit will be to the **183 MW Isimba scheme**, about 44 km from Bujagali. It was commissioned in March 2019. This comprises a concrete gravity dam, a clay-core rockfill dam, and a powerhouse equipped with four vertical Kaplan units.

There will be two overnight stays in Jinja, with return to Kampala on the third morning.

Tour B – North: Karuma construction site (3 days)

This tour will involve a journey north by coach, with a lunch stop en route, which is provisionally planned to be at the town of Kabalega.

The technical highlight of the tour will be a visit to the site of the **600 MW Karuma dam**, reaching completion on the Victoria Nile.

Karuma dam is a 20 m-high RCC gravity structure, with a crest length of 312 m. The first 100 MW unit at the plant is scheduled to begin operation in October this year. When fully commissioned, it, together with some small schemes, will increase Uganda's installed capacity to nearly 2000 MW.

The dam is the largest of its type in East Africa, and it will impound a reservoir with an area of 2737 ha, and a length of 35 km.

Dinner and an overnight stay are planned to be at the **Chobe Safari Lodge**. A game drive is planned for the following morning at Chobe. The group will then travel on to Paara, for an overnight stay at the **Paara Safari Lodge**.

An evening or early morning game drive is planned at Paara, before the journey back to Kampala. En route, it may be possible to stop briefly at the site of the proposed future Murchison Falls hydro project.

Travel to the sites will be by luxury coach with the services of a tour guide.

UEGCL engineers will be available at the hydropower and dam sites to give a short briefing followed by tours around the facilities.

Picnics with boxed lunches may be enjoyed near the reservoirs on some days, and dinner will be served each night at the hotels.

BOOKING INFORMATION

The online AFRICA 2023 registration system has temporarily closed as a result of the conference postponement, and is currently being updated. It will re-open shortly and will be accessed via:

www.hydropower-dams.com

For any queries, please contact: (email) africa2023@hydropower-dams.com ~ Tel: +44 (0) 20 8773 7244

Accommodation details are available on the registration system. Rooms have been arranged in various price categories at the Speke resort, as well as some other nearby locations, including apartments.

A reduced registration fee is available for subscribers to *Hydropower & Dams*. See booking information form for details.

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CONTACT DETAILS

For enquiries concerning registration and accommodation, contact:

Africa 2023 Secretariat, Event Management Services (EMS) • email: africa2023@ems-ltd.org • Tel: +44 1225 258 013

For further details of the programme, please contact:
Mrs Margaret Bourke at: Hydropower & Dams, PO Box 285, Wallington, Surrey SM6 6AN, UK.

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