



Hydro Power Association of Uganda Limited

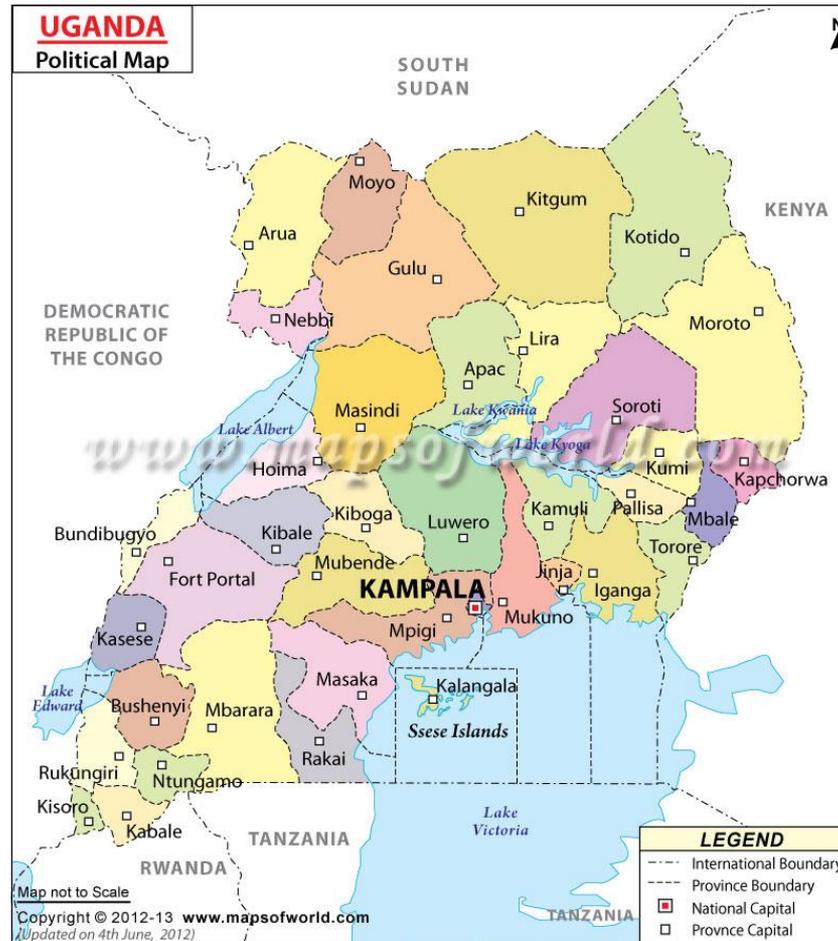
Regional Context: Hydropower Potential,
Relevant Actors, Ongoing Initiatives

RENEXPO INTERHYDRO, Salzburg, 28th November 2019

Locating Uganda



Uganda – Political Map



About Uganda



H.E. Yoweri Kaguta Museveni
1986 To-date



About Uganda



- **Location:** Land-locked East African Country, but slowly edging towards industrialization
- **Year of Independence:** 1962, from Britain (Anglophone)
- **Total Area:** 241,551 sq km (93,263 sq ml)
 - Land – 200,523 sq km (77,422 sq ml)
 - Water – 41,028 sq km (15,841 sq ml)
- **Elevation:** 1,223 m above sea level
- **Capital:** Kampala



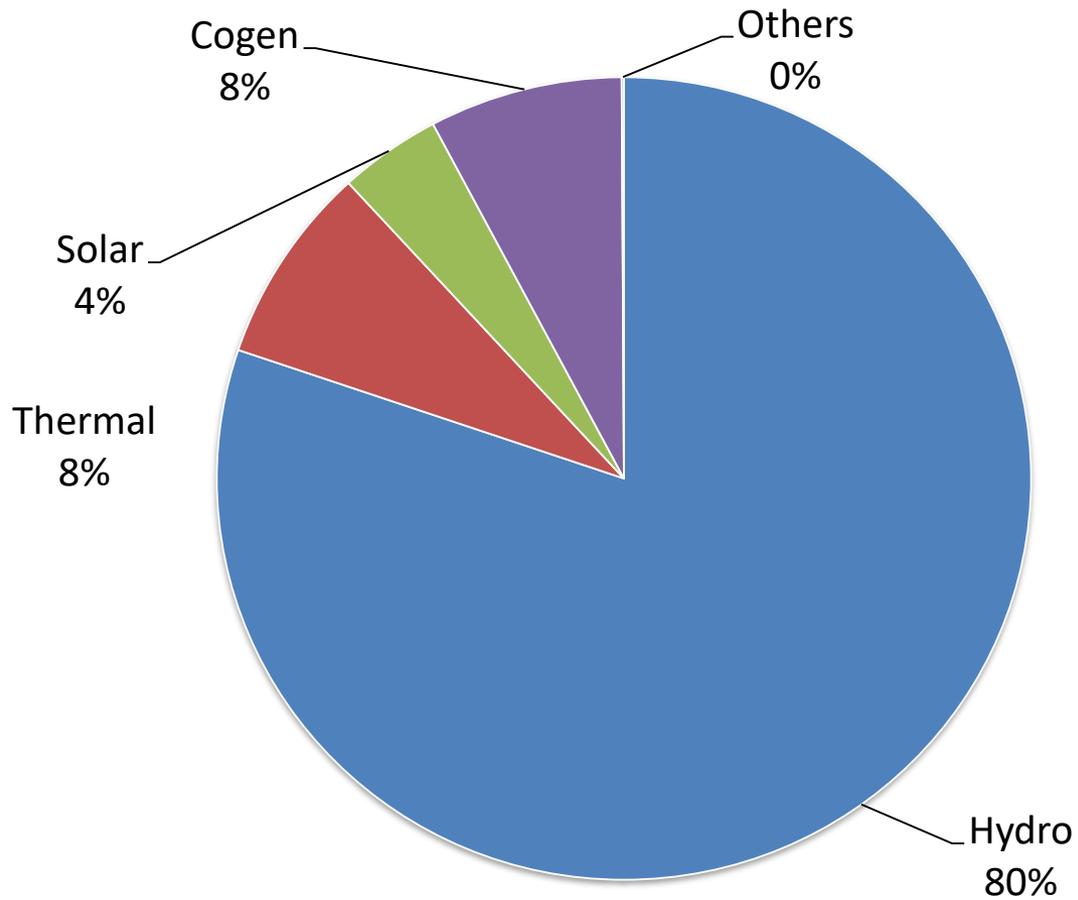
About Uganda (cont'd)



- **Population:** 42.86 million (UBOS, 2017)
- **GDP:** USD 95.89 billion
- **Per Capita Income:** USD 506
- **Natural Resources:** Oil, copper, cobalt, hydro power, limestone, salt, gold, arable land
- **Cash Crops:** Coffee, cotton, tea, sesame, soy beans



Generation Mix (2018)



Source: MEMD



Power Supply Situation



- Installed Generation – 1,252.4MW
- Domestic Peak Demand – 629.46MW
- System Peak Demand – 723.76MW (2019)
- Average Annual Growth Rate (2018/19):
12%
- Per capita energy consumption – 78.5kWh
- National Electrification Rate – 50% (Target
by 2040 – 60%):
- Urban – 78%; Rural – 38%

Source: UBOS – ERT III



Relevant Actors



- **Central Government:** Min. of Energy and Mineral Development (MEMD)
 - Policy making arm of government
- **Regulator:** Electricity Regulatory Authority (ERA)
 - Generation, Transmission, Distribution, Sale and import; fixing tariffs and issuing licenses
- **Gov't Agency:** Rural Electrification Agency (REA)



Relevant Actors



- **Gov't Agencies:**

- Directorate of Water Resource Management (DWRM)
- National Environment Management Authority (NEMA)
- National Forestry Authority (NFA)
- Uganda Investment Authority (UIA)
- Uganda Energy Credit Capitalisation Co (UECCC)



Ongoing Initiatives



- **Gov't Programs:**

- Electricity Connection Policy (ECP), approved by cabinet on 29th January 2018, operationalized 1st November 2018; for 2018 – 2027.
- **Policy goal** : Achieve a 60% level of access to electricity for Uganda by 2027: [*the number of premises connected to electricity*']



Ongoing Initiatives



- **Gov't Programs:**

- Global Energy Transfer - Feed-in-Trariff Program (GET FiT): - assist East African nations in pursuing a climate resilient low-carbon development path resulting in growth, poverty reduction and climate change mitigation.
- Energy for Rural Transformation, Phase Three (ERT III): - to increase access to electricity in rural areas, through on grid and off-grid investments.



Ongoing Initiatives



- Need to expand transmission infrastructure to evacuate generated power;
 - New PPP investment up to USD 3.5b
- To increase access from 23% to 60% by 2040
- Need to grow demand, through industrial parks, power rebate framework, free electricity connection policy (300 ppl for 10 yrs)



Uganda Hydropower Status



Installed Generation Capacity:

- 1,252MW, with a firm capacity of around 900MW.
- Hydropower contributes 1,004.2MW of installed capacity; 149.2MW (15%) of which are Small Hydro Power projects.



Large Hydro Power Projects



Medium term:

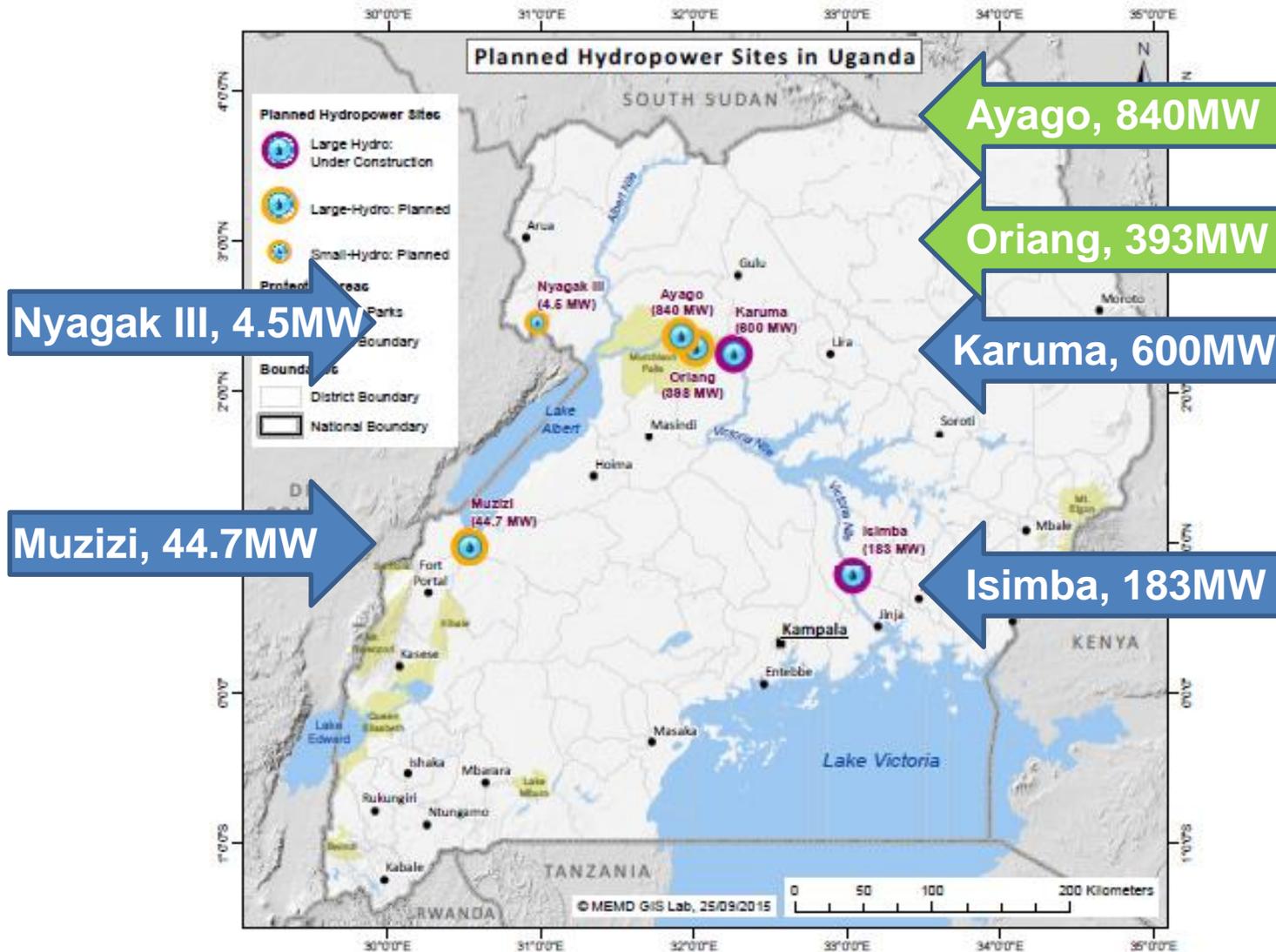
- ❖ Karuma HPP (600MW) – Construction ongoing; planned commissioning date – late 2019;
- ❖ Isimba HPP (183MW) – Commissioned 2019.

Long term

- ❖ Ayago (600MW) - Feasibility Study completed, Sourcing for financing;
- ❖ Oriang (390MW)-Feasibility study ongoing;
- ❖ Kiba (290MW);
- ❖ Uhuru (650MW).



Planned Hydro Power Sites



Small Hydro Projects



Operational Small Hydro sites

Site	District	Installed Capacity
Bugoye	Kasese	13
Mobuku 3	Kasese	10
Mobuku 1	Kasese	5.4
Mpanga	Kamwenge	18
Ishasha	Kanungu	6.5
Museruka	Hoima	9
Nyagak	Nebbi	3.5



Small Hydro Projects (cont'd)



Operational Small Hydro sites

- 9.6 MW Nkusi Hydropower Plant
- 5.4 MW Lubilia Mini Hydropower Plant
- 9.2 MW Nyamwamba Hydropower Plant
- 2.7 MW Mahoma Hydropower Plant
- 4.8 MW Waki Hydropower Plant
- 5.3 MW Sindila Hydropower Plant



Small Hydro Coming Up



- Kikagati – 16MW
- Nyagak III – 4.0MW
- Nengo Bridge – 6.8MW
- Rwimi – 9.6MW
- Muzizi – 44MW
- Nyamagasani I&II -22MW
- Siti – 5.0MW
- Kakaka – 7.2MW
- Achwa Agago – 42MW
- Kisinga – 2.5MW

Approx 160MW



Available Opportunities



Large Hydros:

- Potential mainly along River Nile, estimated around 2,000 MW.
- Only 380 MW developed at Kiira and Nalubaale, 250 MW at Bujagali and 183MW at Isimba, unexploited potential is above 1200MW.



Available Opportunities

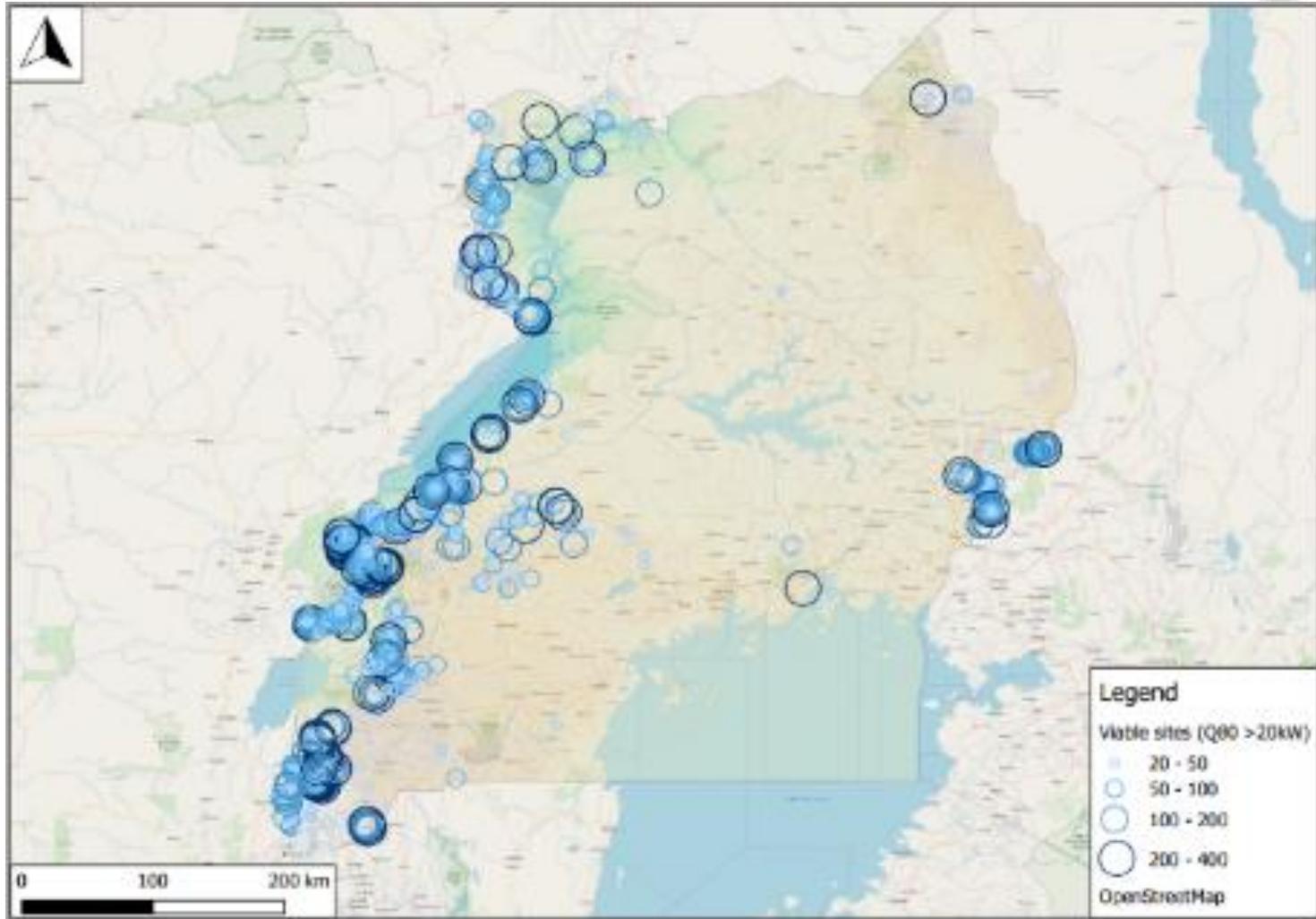


Small Hydros:

- Off the Nile, with over 200MW of unexploited resource potential of electricity for areas not covered by national grid.
- Cost per unit of electricity from isolated small hydropower plants may be higher than that from national grid, but energy could contribute to poverty reduction in households in isolated areas.



Available Opportunities



Criteria of Site Selection



- Over 1000 micro hydropower mini-grid sites identified using satellite earth observation technology developed and field-validated in Uganda.
- Includes “potential” rivers,
 - 2-5km from existing grid
 - 20 kw is available 24/7 365 days a year
 - 1km from load centre, good road,
 - Population >100 households within 1km ,
 - Not in a National Park.



About HPAU



- **Legal Status:** Formed, and duly incorporated in 2014 as a Company Limited by Guarantee
- **Vision:** Becoming a partner of choice for hydropower development in Uganda and globally.
- **Mission:** To contribute to the national, regional and global development and sound management of hydropower resources for sustainable access to energy for improved socio-economic progress



HPAU Strategic Objectives



- To promote the development of sustainable hydropower renewable energy;
- Enforce quality standards of service, practice and management of hydropower resources; and,
- To protect and conserve the environment in the hydropower development areas.



Achievements



- **Membership:** 23 corporate members
- **Key Activities:**
 - Symposium, Best Practice Standards in Social & Environ impacts of HP Devpt;
 - Participated in training in IHA's HP Sustainability Assessment Protocol;
 - Various international HP fora.



Investment Requirements



- **Legal:** Certificate of incorporation, directors, etc;
- **Technical, Environmental & Engineering:** company profile, technical partners, description & map of project, implementation plan, land required, EIA;
- **Financial:** Audited financial statements, bank statements, etc.



Conclusion



Uganda is –

- Politically peaceful;
- Environmentally conducive;
- Economically stable; and,
- Potentially viable.

In partnership with the Hydro Power Association of Uganda, let's invest in Hydro Power in Uganda!



River Nile Resource



Member Activities



Karuma HP Project Manager addressing members of Hydro Power Association



Sustainable Hydropower



The Presenter, Dan Marlone (centre front in checked shirt) with other HPAU members at the Hydropower Sustainability Assessment Protocol training by IHA at the Source of the Nile, 2015.





Asante! Danke! Thank You!

Dan Marlone Nabutsabi

Vice Chairman, Hydro Power Association of Uganda

Committee Member, Electrical Installations Permits, ERA

Committee Member, IHA HSAP Governing Council

Member, HYPOSO Steering Committee

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