

**APPROACHES TO UTILITY
RESILIENCE: CREATING
AN ENERGY SECTOR
THAT IS PREPARED FOR
THE UNEXPECTED**



UEGCL
Generating for Generations

JUNE 2020



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UGANDA



Located in East Africa

Approx. 242,872 Sq. Km



GDP Per Capita FY2018/19 – USD 878

34.63 Million people (2014 census)

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2 **UGANDA's ENERGY SECTOR**



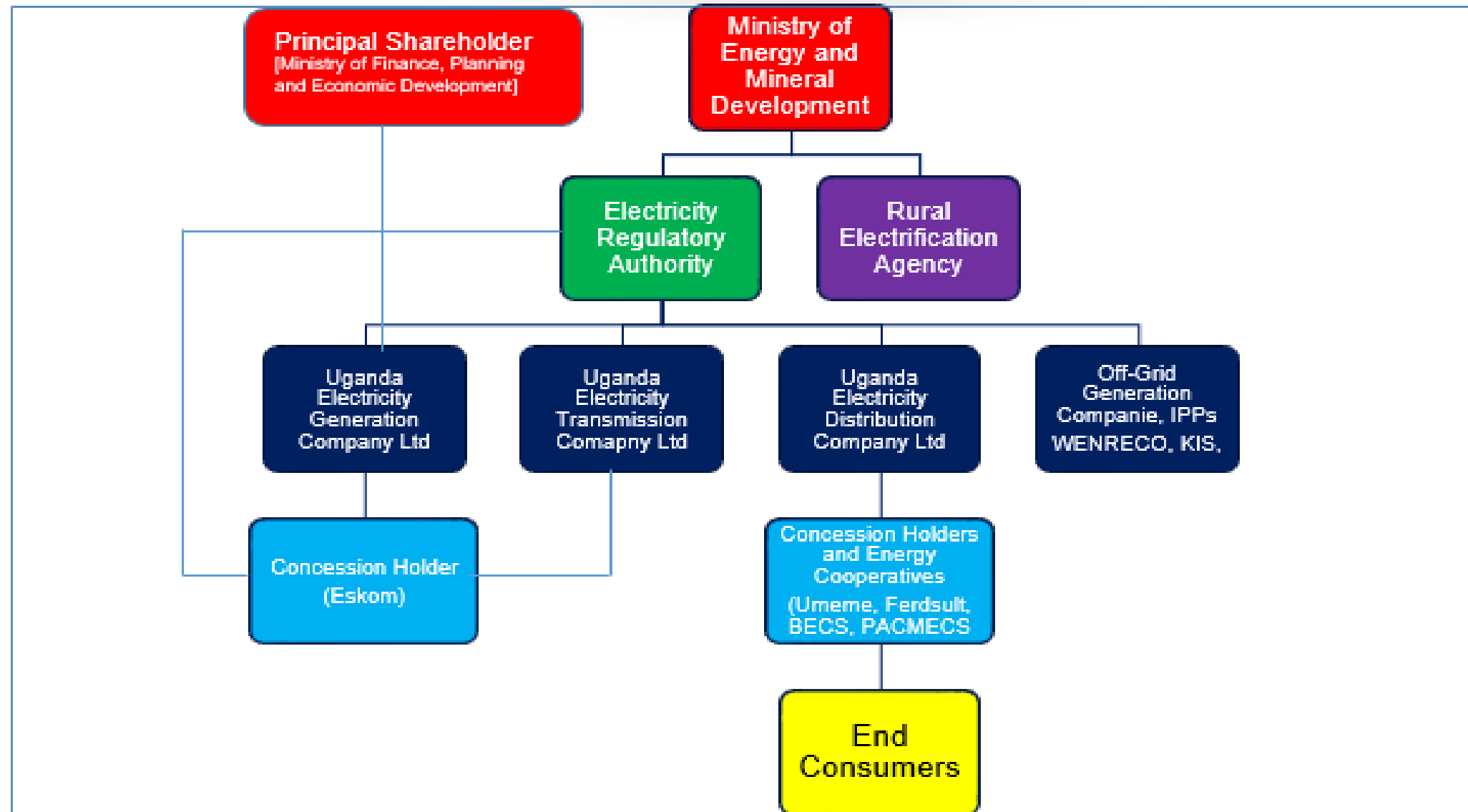
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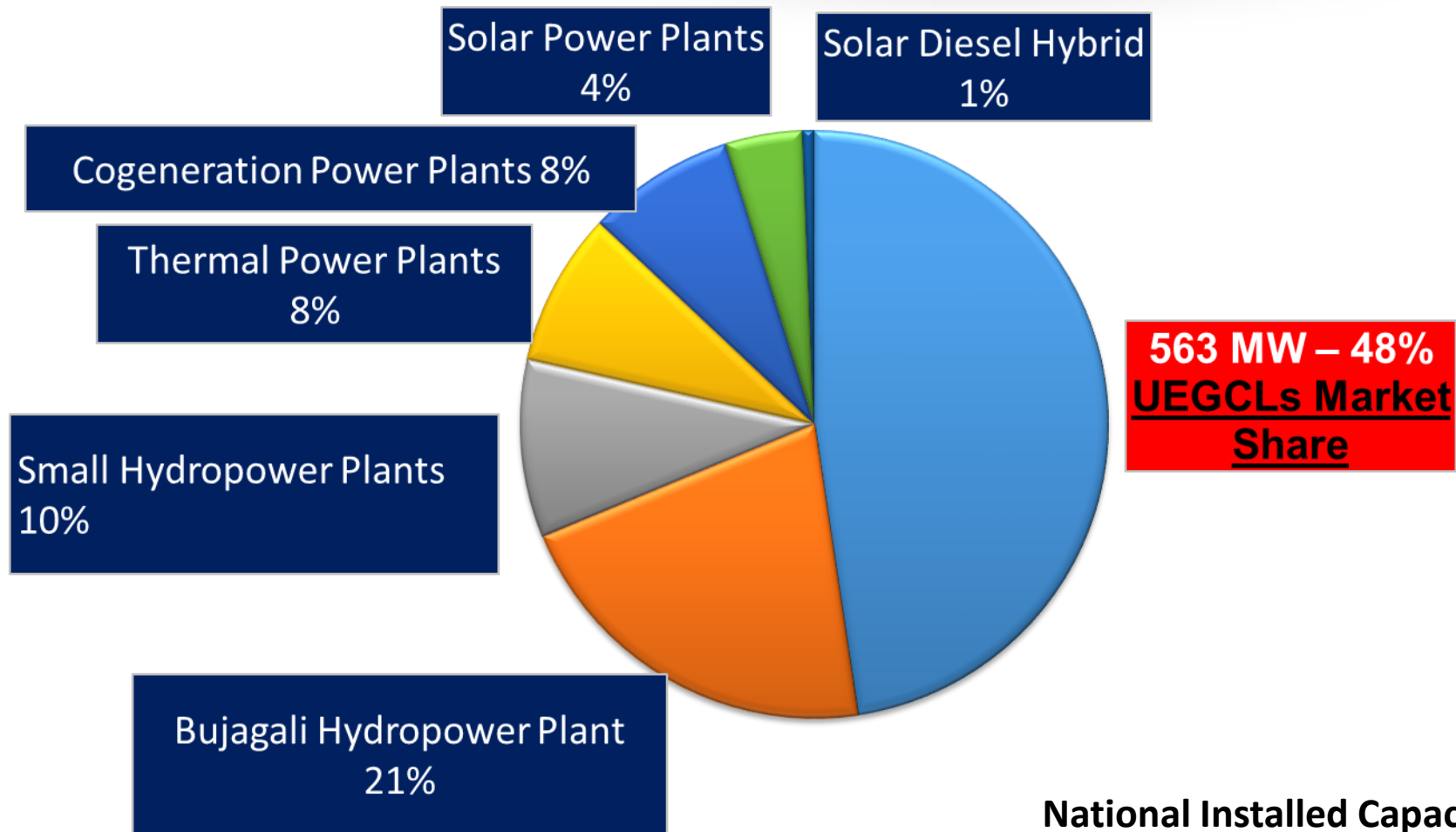
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ENERGY SUB-SECTOR INSTITUTIONAL SET UP



NATIONAL ELECTRICITY GENERATION STATUS



Total number of Hydropower Dams in Uganda is 43

- Large Dams(>20MW) -10
- Small Dams(<20MW)- 34

National Installed Capacity: 1,182MW

■ Nalubaale& Kiira (UEGCL)	■ Bujagali Hydropower Plant	■ Small Hydropower Plants	■ Thermal Power Plants
■ Cogeneration Power Plants	■ Solar Power Plants	■ Solar Diesel Hybrid	

GOVERNMENT ELECTRICITY SUB-SECTOR TARGETS

Development indicator	Baseline Performance as at 2020 NDP II	NDPIII Target 2025	Vision 2040
Per capita electricity consumption (kWh)	272	578	3,668
% of population with access to electricity	22%	60%	80%
Installed capacity (MW)	1252 (563 UEGCL)	3,500	41,738
Estimated Uganda's Population [Million]	40.24	46.8	71

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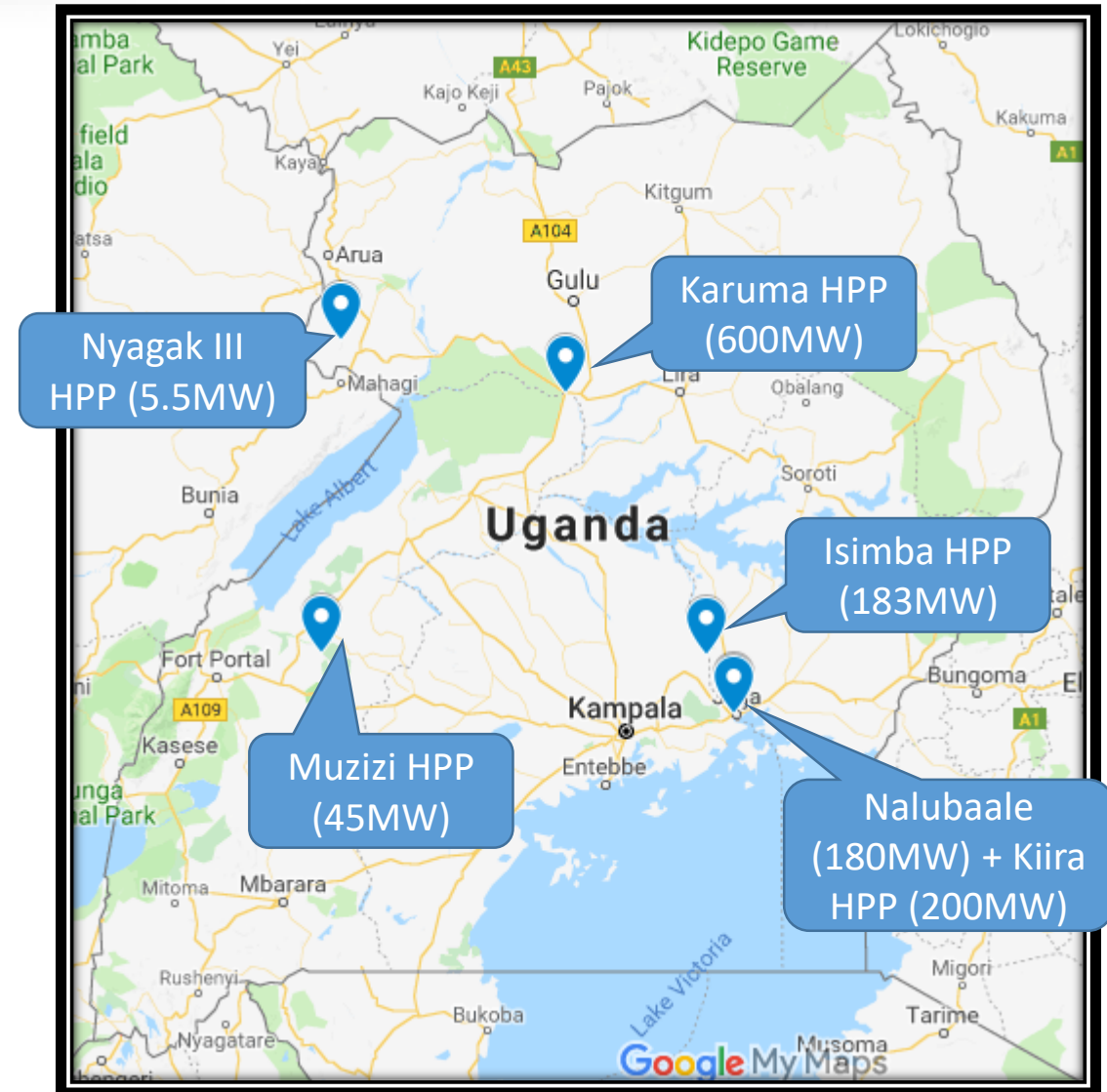
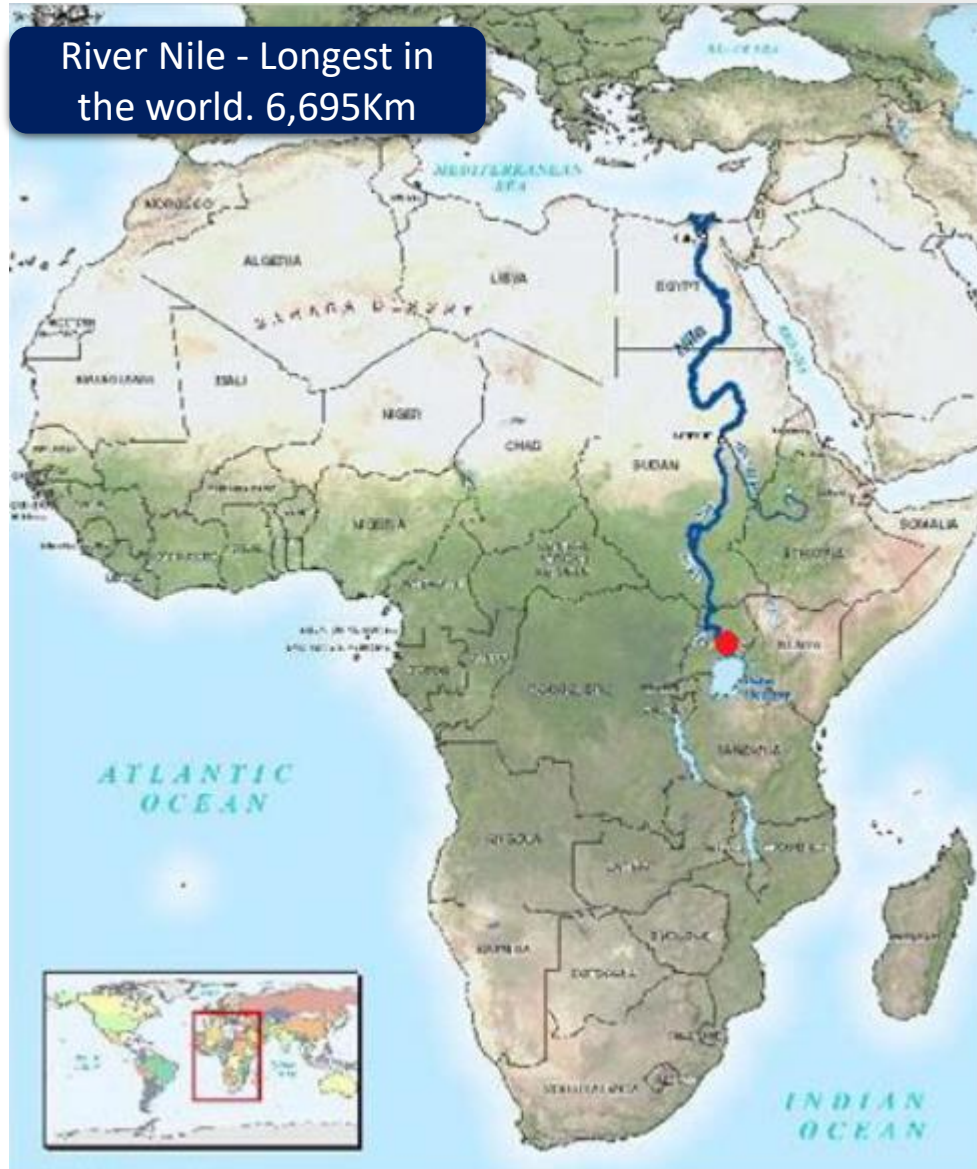


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UEGCL ASSET PROFILE - LOCATION



ENERGY DIVERSIFICATION EXPLOITS

❖ Solar

- Country Potential estimated at 1000 MW
- Exploring Solar/Hydro Hybrid Potential of 50MW plant in Hoima

❖ Geothermal

- Potential of about 450 MW
- Well testing has begun under the Ministry of Energy.

❖ Thermal

- UEGCL to take over 50 MW Namanve Thermal Plant in 2020.



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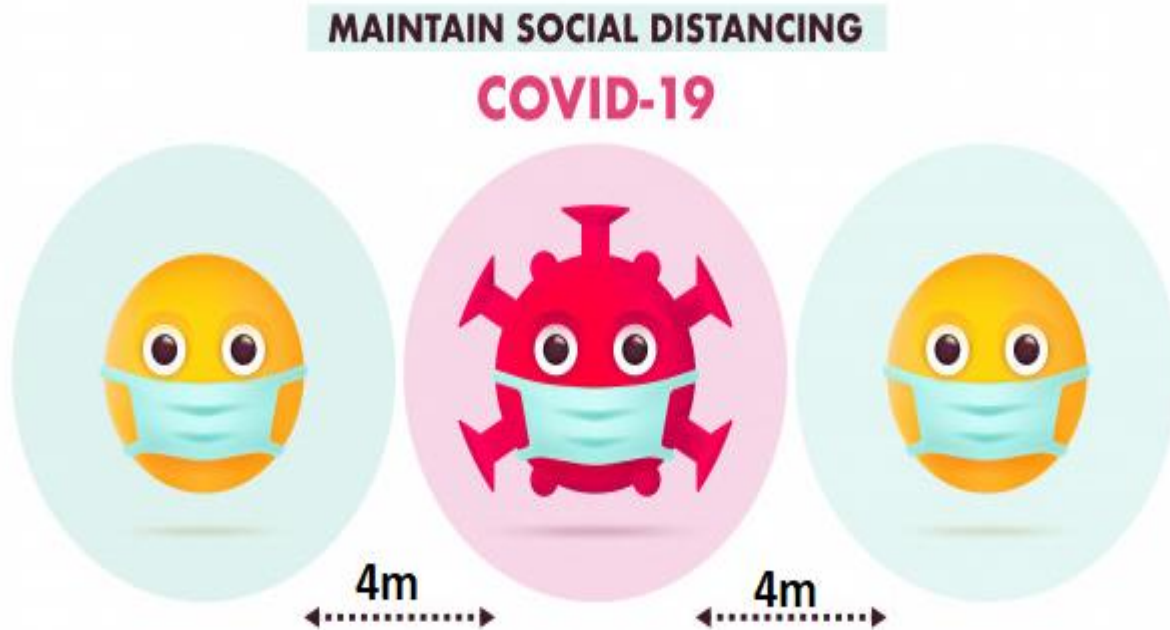


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DOUBLE CRISIS

COVID '19



1st Global Lockdown in recent history

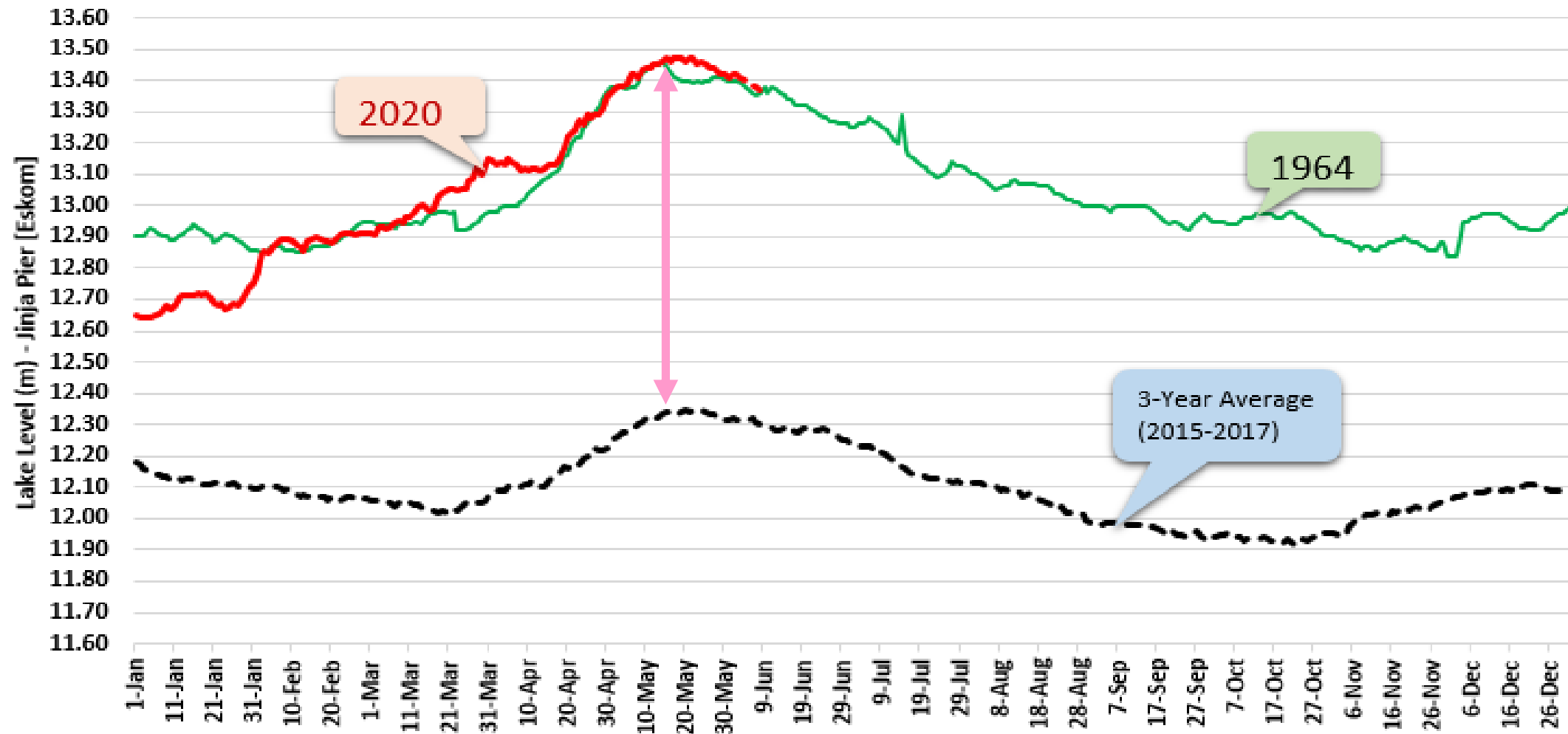
FLOODS



Highest Lake Victoria level since 1964 and
Flooding within East Africa

FLOOD PERSPECTIVE

Lake Victoria Level 1964 Versus 2020



Lake Victoria rose by about one meter

IMPACT OF RISING LAKE VICTORIA WATER LEVEL



Incident on 14th April 2020. 180MW Station switched off for about 10- 15 days due to severe clogging of trash racks



FILE PHOTO: An aerial view shows flood waters near the Sigiri bridge, after River Nzoia burst its banks and due to heavy rainfall and the backflow from Lake Victoria, in Budalangi within Busia County, Kenya May 3, 2020. REUTERS/Thomas Mukoya/File Photo

Floods are regional, however, impacts are largely localized in different parts of the affected countries

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COVID '19

COVID'19 has had more severe impact on business than the floods because of its global impact. Therefore, in order to increase resiliency, the actions that need to be implemented for COVID'19 are focused more on the business processes and not just the operation of the physical assets

IMPACT AND RESILIENCE – HUMAN RESOURCES

IMPACT

Categorization of staff into essential and non-essential -
- Mild worry about Job security , personal reflection on careers, low staff engagement, KPI's not met

Staff not prepared to work from home – coping new work routines -→"organically" built, a number of parameters on performance contracts will not be met

Quarantined staff at site – no suitable substitute for family social connections

Possible reduction on disposable income of staff over time → hike public transport fares, imported household goods, extended families responsibilities etc.. after lockdown

Extra effort and cost needed by management to keep staff morale who are working on sites.

RESILIENCE

Multi-Skilling of staff to increase flexibility within work teams

Lean / flatter Organization structures to enable quick decision making – Prioritizing of tasks

Review succession plans frequently

Encourage peer-to-peer collaborations for problem solving amongst staff.

Promote alternative working schedules

Build a strong staff coaching culture amongst managers to encourage self-initiative for staff to sustain productivity when working from home

IMPACT AND RESILIENCE - FINANCE

IMPACT

Low collection by Distribution companies

Increase in commercial losses – theft of power

Declining National Energy Demand (20% less) – short term

Forex Exchange losses on P&L due Panic by investors (we have a huge borrowing in US Dollars for our Projects)

RESILIENCE

Allow for annual contingency budgets to prepare for emergencies. However, impact may outstrip any contingency budgetary provision.

A cost effective mechanism to hedging has to be found. Suitable for businesses operating commercially

Support the installation of Post paid systems and strengthen SCADA systems for power distribution to reduce on commercial losses

Shareholders loans to be converted into currency which has less sensitivity to Forex movements – in our case Shillings. Plus, convert Debt to Equity

Last resort, Government subsidy. Review of relevant laws and Government Policies to cater for such in the future.

IMPACT AND RESILIENCE – CAPITAL PROJECTS

IMPACT

Delay in completion of projects.

Absence of key supervisory staff may lead to shoddy works

Increased costs due to extension of time

Potential claims from Contractors due to delay in approvals

Potential impact on ability to repay loans + revenue collection due to project delays

Diversion of finance due to crisis funding needs

RESILIENCE

Improve Contingent planning by increasing contingencies in contracts for time and costs.

Making bridge financing arrangement to address crisis periods.

Improving design robustness to address crises

Developing multi skilled project management professionals

Improving adaption of procurement laws and guidelines within Crisis management

Allowing for more tail end risks in tariff modelling

IMPACT AND RESILIENCE – PLANT OPERATIONS

IMPACT

Reliability of Power Generation became an important KPI - -customers at home expect power due to work and children being at home

Increased spinning and grid system reserves due to decline in demand

Temporary accommodation of essential staff, all subcontractors and security at site due to lockdown and curfew.

Increase in O&M expenditure on Covid'19 PPE

Fully reliant on local capacity to operate, maintain and deal with emergencies on power plants

RESILIENCE

Conduct drills for such extreme events so as to develop practical mitigation measures for continued operations

Adoption of Remote Operations

Update of Emergency Preparedness Plans

There is need to have local capacity to supply cheap and easy to get materials to build quick, safe and decent temporary structures

Have a current record of the available redundant logistical and equipment capacities available from other Utilities or Government agencies to quickly build synergies during a crisis time

IMPACT AND RESILIENCE - ICT

IMPACT

Cyber security – due to increase in remote working and reliance on digital channels

Increased demand on the business to facilitate working from home – Airtime, data bundles

Embraced online meetings, collaboration and email use

Reduction in the use of printing paper

ICT has become a core business enabler and facilitator of business continuity

RESILIENCE

Embark on a future proof digital transformation and process automation journey

Embed Information Security across all business processes and accelerate staff sensitization on cyber security

Support Business Continuity processes, remote operations and set up disaster recovery options

Increase uptake of mobile device management (MDM) for enhanced security of mobile devices

Enhance data encryption for both data at rest and data in transit coupled with robust data backup regimes

IMPACT AND RESILIENCE - LEGAL

IMPACT

Force Majeure by Contractors and Concessionaire

Extension of project completion schedules → Variation orders →
Claims → dispute resolution, renegotiating of contracts for
expatriates

Increase in emergency actions taken by management which
increases the risk of litigation from staff and suppliers.

Review Insurance adequacy of Policies on business interruption if
site operations stop due Covid'19.
We anticipate insurers to review exclusions due to global
pandemics

Risk of increased in the number of Contract Variations as regular
O&M Contractors have to cater for Covid'19 PPE and increased
logistical costs of supplies

RESILIENCE

Risk analysis on insurance exclusions

Review and coordinate properly all the
Force Majeure events in the different
contracts such that there is no net
penalty onto the business due to one
or more contractor force majeure
occurring

Risk appetite review and adjust
mitigation

Optimize Employee contractual benefits
for staff working from home

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EMERGING OPPORTUNITIES

Due to economic downturn, there is Talent available on the Market → human capital reinforcement e.g from the tourism and hotel industry

Previous untested staff abilities have been demonstrated → enhanced team work, leadership

New areas of research of how businesses can cope with fast changing risks

An opportunity to make a global overhaul of the Traditional models of management to enhance organizations ability to cope with fast changing environment

Flattening of Organization structures to enable quick decision making

Embracing digital platforms and social media as main stream tools for work

Increased inter Organizational alliances

Environmental Benefit such as Reduction on printing paper and reduced carbon footprint with people working from home.



UEGCL
Generating for Generations

THANK YOU

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