GENEWS

THE OFFICIAL UEGCL NEWSLETTER ISSUE 6 | 2020

CSR: Simon KASYATE & Charity KIYEMBA, Heads of Corporate Social Responsibility at UEGCL & UBL respectively, jointly water a tree they planted at Karuma HPP on 8th February, 2020. Looking on; Alfred Okot OKIDI - Permanent Secretary, Ministry of Water & Environment (L) and Alvin MBUGUA - Managing Director, Uganda Breweries Limited

WORD FROM EDITORIAL

SIMON KASYATE
HEAD COMMUNICATION AND CORPORATE AFFAIRS

Never before, in the world's recent history, has one phenomenon had a cross-cutting effect on all polities, businesses and people as we have witnessed with the novel corona Virus COVID – 19.

The world, as we know it, stood still at one point, yet the wheels and cogs that move it struggled with the inertia that comes from an abrupt stop – as COVID 19 presented. Explains why, you are reading your number one electricity sector magazine, one quarter late. Even more, there will be more reading this edition online than hardcopy! That, dear reader, is the new normal. Your inner 'wheels and cogs' may be struggling with coping, but well, the new dawn is upon us and only we who adopt and adapt shall move to the next.

History is lined with many lessons from the past of how humanity has lived through tougher times, survived and thrived -take this example; A child born in 1900 was 14 years when World War I began and ended when they were 18, with a mortality of over 20 million. The next two years after the war, the world is then hit by the Spanish flu which claimed an estimated 50 million people, the same child survived and are twenty years. When they were 29, the world gets hit by the global economic crisis epitomized by the collapse of the New York Stock exchange spiraling into runaway inflation and famine. When the child, now an adult was 39, World War II started and ended when they were 45 claiming an estimated 60 million lives. Depending on where that 1900 child was born; if they were in the East they witnessed the Korean war at 52, and the Vietnam war when they clocked 64 years and ended when they were 75. If they were in Africa, they also witnessed the vagaries of colonialism first hand and faced the struggles for Independence and by 75, they were struggling with the York of bad governance, disease and more wars! That child is probably your grandfather or grandmother. They lived and survived through some of the worst human catastrophes of their time – so can we who, I believe live in better times facilitated by improved technology and innovation across all spheres of our lives. But let it be clear, only those who adapt and adopt will live long enough to tell the story.

In this Magazine, we seek to share what it is that we have done and continue to do at UEGCL to stay alive and tell our survival story to Generations to come. The innovative solutions to stemming this pandemic by how we work, when and where we work from – as you will see – go beyond the SoPs and directives of Government. For the noble but uphill task we have – to keep your lights on – to blink is to miss our target. In this read, we share first-hand accounts of our interventions when that national blackout occasioned by a floating island hit the country moments before a presidential National address; we narrate our efforts in stemming the exponential rise of the Lake Victoria water levels and how we mitigated the potential threat to electricity generation. No doubt, despite the disruptions of the last half year, UEGCL has registered great strides of achievement but we remain humble to learn from those like our sister agency KENGEN of Kenya on what they do to be and remain profitable – that's all in this magazine.

Enjoy it!

UEGCL
Generating for Generations

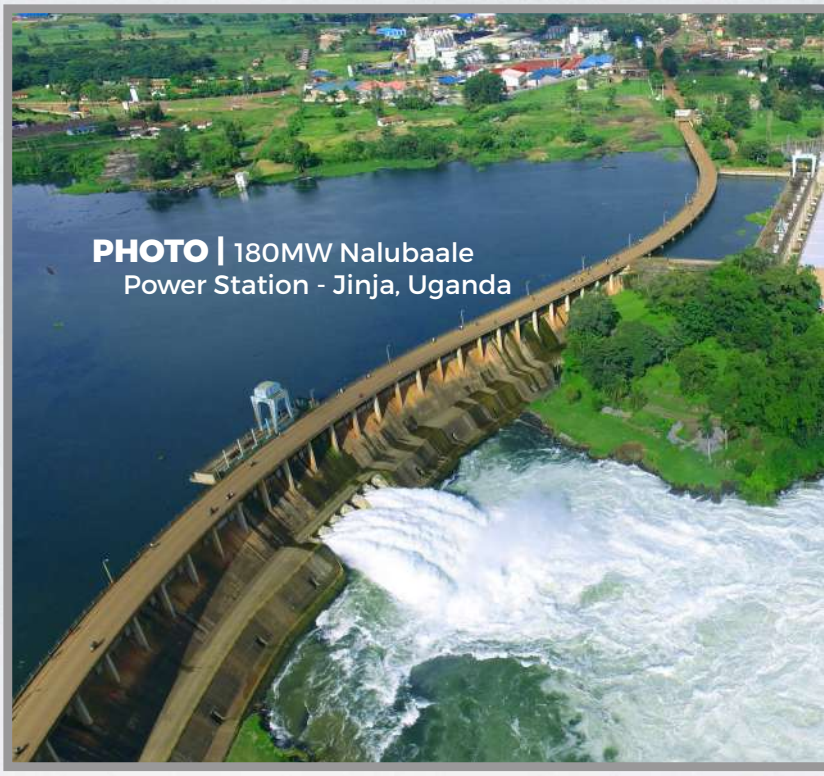
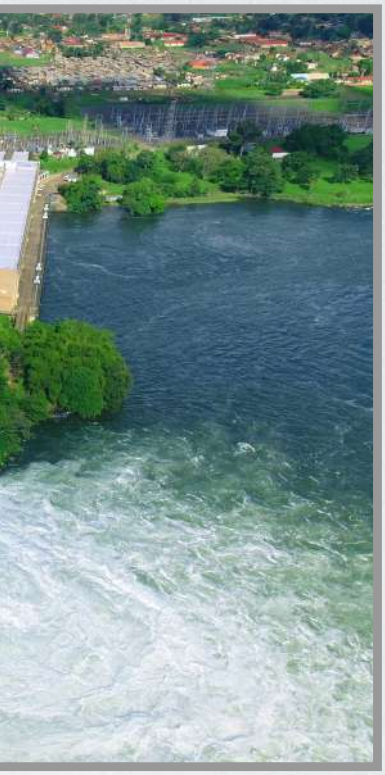


PHOTO | 180MW Nalubaale Power Station - Jinja, Uganda

CONTENT



Roadmap 1300

AT A **GLANCE**

Develop other small Hydropower Stations and renewable energy plants

Uganda Electricity Generation Company Limited ("UEGCL or the Company") was incorporated in 2001 initially with the main objective to take over as a going concern the generation activities of the now defunct Uganda Electricity Board (UEB) together with all or any part of the property, assets and liabilities associated with it as was transferred to the Company in accordance with the Public Enterprise Reform and Divestiture Act. These assets transferred to the Company from UEB were principally the 180 MW Nalubaale and 200 MW Kira Hydropower Stations located in Jinja.

The Objectives of UEGCL were then expanded to include project development of hydropower stations and other renewable energy projects. In this regard, the company was the implementing agency for the generation component of 183 MW Isimba Hydropower Station and 600MW Karuma Hydropower Project with the mandate to deliver the projects within the cost, time and specified scope/quality.

UEGCL is also developing other small Hydro Power stations and renewable energy plants and plans to do more in the future. The main objective of UEGCL is the development, efficient operation and maintenance of Power plants and the generation and sale of affordable electricity to consumers. This may be broken down into the following objectives;

Photo credit: Edward Soyinka Echwalu

TAKING SHAPE: The 600MW Karuma HPP underground transformer carvern.

UEGCL Hydropower Resource Centre (UHPRC)

a) To implement the Vision and National Development Plan of the Government with regard to the generation of electricity, provision of high quality management and consultancy services as well as training and capacity building of human resources in the Electricity Sector.

b) To carry on the business of electricity power generation and sale for industrial and domestic use; to both local (Uganda) and export (regional) consumers.

c) To engage in design, planning, development and operation of electricity Generation projects in accordance with prudent utility practice and international best practice.

d) To engage in the preparation of annual generation capacity planning in close consultation with relevant stakeholders locally, regionally and internationally.

e) To engage in the development, monitoring and operation of electricity generation projects whether publicly or privately owned by way of commercial agreement, where deemed necessary.

f) To engage in the provision of consultancy services in the electricity generation sector and related projects at agreed commercial terms.

g) To establish a UEGCL Hydropower Resource Centre (UHPRC) and provide training on terms and conditions to be approved by the Board of Directors from time to time and to lobby the relevant academic regulators locally, regionally or internationally for accreditation of its programmes.

h) To engage with the private sector, donors and relevant government ministries, departments and agencies for purposes of enhancing the technical capacity of the Company's human resources in delivering on the set targets.

CEO's Word

Dr. Eng. Harrison E. MUTIKANGA
Chief Executive Officer

I welcome you to yet another issue of UEGCL's biannual newsletter, GENEWS.

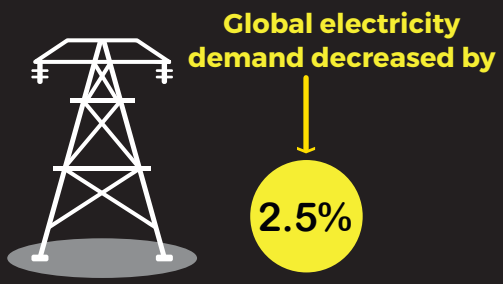
If the last six months have taught us anything, it is that in the face of crisis, the Government is fully capable of mobilizing the necessary resources (equipment and manpower) to quickly respond to emergencies. In that period, the country had to contend with the destructive locust invasion, the extreme hydrological events epitomized by increased precipitation and rising L. Victoria levels, the floating islands (Sudds), and most significantly, the outbreak of the COVID-19 pandemic.

The raging global pandemic that COVID-19 is, has had far-reaching impacts on life and business as we knew

> ***"The last six months have also seen UEGCL register a number of successes, top of which was marking one year of effectively running the 183 MW Isimba Hydropower Plant."***

it; Uganda's energy sector being no exception.

One such impact was the reduction in electricity demand in the commercial and industrial sectors as a result of the institution of the country-wide lockdown, in response to the pandemic. The International Energy Agency (IEA) also estimated



that global electricity demand decreased by 2.5% in the first quarter of 2020, and forecast a 5% contraction by the end of the year.

You will agree that access to affordable and reliable electricity is crucial, especially in the backdrop of emergencies and crises like the COVID-19 pandemic. Electricity access has been vital in addressing the pandemic and will also take centre-stage in fast-tracking the country's recovery from, especially, the economic effects of the pandemic. Reliable electricity supply has been essential for, among others, uninterrupted medical services and working remotely under the lockdown conditions. The energy sector is rightly referred to as the engine that drives the economy, and achieving the Sustainable Development Goal (SDG) 7 ("Ensure access to affordable, reliable, sustainable and modern energy for all") is essential to the achievement of the other SDGs.

To mitigate any disruption in operations and ensure that the country had an abundance of reliable electricity, UEGCL operationalised a number of measures, all embodied within the company's Business Continuity Plans, with the safety and wellbeing of its employees being the top priority.

Some of the measures include restricting travel and encouraging and supporting staff to work from home whenever possible; suspending public visits to the power plant and project sites; executing a work rotation plan in line with set work schedules; reinforcing dam-safety monitoring/inspection; fortifying security against cyber and physical attacks, and adhering to the guidelines set by the relevant authorities.

The last six months have also seen UEGCL register a number of successes, top of which was marking one year of effectively running the 183 MW Isimba Hydropower Plant. Furthermore, the progress of the flagship 600 MW Karuma Hydropower Project, under UEGCL implementation, hit the 97% mark, while construction works of the Nyagak III HPP resumed.

All challenges notwithstanding, UEGCL is well on course to meet her "Roadmap 1300" objective of delivering 1,300 MW by 2023 while supporting the third National Development Plan (NDPIII), particularly with respect to increasing access to stable, reliable and affordable energy.

SIX MONTHS ON THE JOB: INTERVIEW WITH HON. MARY GORETTI KIMONO KITUTU – MINISTER OF ENERGY AND MINERAL DEVELOPMENT

Q&A

By SIMON PETER KASYATE

Q

You have been six months on the job now; what can you share with us as insights into this assignment so far?

A

This sector stirs economic growth, because you know power is the engine for economic growth, especially the industrial parks and the models which government is developing to see that the country moves to middle income.

I have spent the last six months learning the sector and I believe that now I know the corners of this sector. I also found projects which were on-going, huge projects like the Isimba dam which was complete but the bridge (construction) was underway. I am confident that we shall be able to complete that project on time. We also have the Karuma dam which I am also confident will be delivered to Ugandans by November – December this year because most of the works are above 90%.

I have also read that in 2006 when the country was grappling with insufficient power supply, there was a lot of load shedding. But as we speak now, the generation side has picked greatly, we have more power than we can consume. Currently the power we are consuming is around 800MW but we have the capacity to produce up to about 1200MW. That's a surplus of 400MW and by the end of the year, when Karuma comes on board with 600MW we shall have 1000MW. That's before the likes of Ayago and many other small hydros are complete and connected on the grid. This therefore speaks to the fact that Load shedding shall remain, for a longtime in the future, a thing of the past.

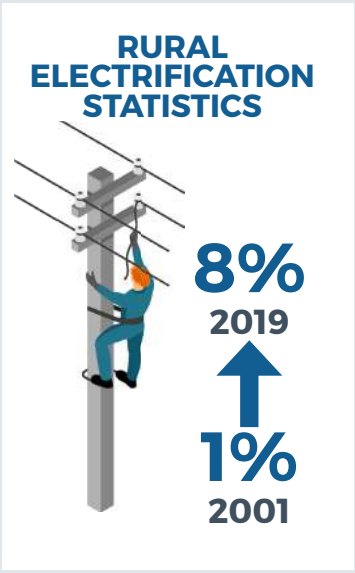
However, I have observed the weak links in the sector as Transmission and Distribution. When projects are planned, they are not planned in such a way that once you are generating, there should be another project ready to evacuate the power, and there should be another project ready to distribute the power to consumers. So you will hear the success story of Isimba commissioning but yet many sections of the country remain under darkness, because there was no syndicated plan to evacuate and deliver the power to more users than was initially available.

Distribution and Rural electrification are now on my immediate 'to do' list in the post COVID period
Another area of interest in this docket is the East African energy or power pool. In the energy pool, we all have power generation facilities from Ethiopia, Rwanda, Tanzania, to Kenya. All of us may be generating power but there those who may have higher demand and if Uganda has more

power which we are not using, we are able to sell it to parts of Kenya and Ethiopia where power is needed, so this is what we are also trying to concretize but because of this COVID, some of these plans have stalled a bit, but that is the bigger vision that we have. So as a country we now need to put transmission lines which match what all our neighbors are doing, they are moving to 500kV lines, while our highest capacity is the one for Karuma to Kawanda, Karuma to Olwiyo which is 400kV. With envisaged capacity sell to Kenya and South Sudan, we need to upgrade to 500kV. So this is the bigger picture that we want to see and as we generate this power we should be able to sell it and be able to benefit the country.

On the distribution side, we have some small models, this is at Rural Electrification level, we have some cooperatives which have also been distributing power like UMEME does. This model was brought in although it has not really taken root and in some of the areas where people operated, there were some problems, but the problems were man made, some errors from people who did not want to be transparent, actually I can say corruption in a straight way, but these are models whereby you can even have these cooperatives also supplying especially from the mini hydros and they are able to make power and make them generate income.
On the side of rural electrification, I must say that this is another area as a new Minister where I must leave a mark. I was looking at the statistics, in 2001 the rural electrification stood

at 1% and 18 years down the road we have only moved to 8% ! As a new Minister this is the area I am looking at stepping up.
There are also some loop holes in distribution networks, especially with some private service providers like UMEME;



these are areas we are trying to look at to renegotiate concessions, but we are also looking at strengthening our own government institutions like UEDCL (Uganda Electricity Distribution Company Limited) to take on some of the areas. Under REA (Rural Electrification Agency) we are trying to handle some of the bottlenecks which have been affecting this institution from performing, these include but are not limited to things like intrigue, corruption, people not being focused, having no targets. Can you imagine that after 17 years, their coverage is only 7%, Kenya is standing at 69%, Afghanistan which has been at war is at 99%, so we ought to make people accountable that when you lead an institution, leave a mark and that is why with the new instrument we are going to work stringently, you either deliver or you are out. We have been talking about this kisanja "Hakuna mchezo" ;corruption has to be fought by everybody, those getting the bribes and those issuing the bribes. So I believe once we put in that effort we shall be able to have this sector move forward.

Q

Let's talk about electricity demand; what do you have in your strategy at the ministry or government level to spur the consumption of electricity, beyond enhancement of distribution coverage?

A

Thank you for raising this. Take West Nile for example, it's a very productive area but with a challenge of power, they are still on generators. Extending the grid to that area is a priority and will lead to huge uptake of the available generation capacity and also contribute greatly to payment of these loans which we have borrowed to put the dams. Electricity presence will also spur citizen development through creation of cottage industries, small and medium industries. Our strategy is any investment in power should be able to deliver cheap power.

Among the parameters that determine a low or affordable tariff is availability of demand. If you are not demanding or consuming power in a bigger quantity then you will pay for it expensively, so the distribution and transmission networks if stepped up should be able to make the tariff go lower. There is also some work ongoing towards lowering the tariff, in consultation with the regulator. This includes and is not limited to re-negotiating the UMEME concession.

We are now more discerning with investments in the sector, to hedge the consumer from a prohibitively high tariff.

This is work that cannot be complete in a single day, we appeal for the population to bear with us.

Q

You talked tough on matters performance, for especially the leadership of the agencies in the sector. How are you going to enforce this, considering that most if not all agencies are self-accounting with almost autonomous Boards?

A

It is a decision of cabinet that we have collective responsibility and are not tolerating non-performance and corruption. For the Boards, yes it is true they are semi-autonomous but they also report to Ministers because we are the ones who appoint them and they are bound to see that those institutions perform. The Boards have to give us annual reports or quarterly reports which we review and then guide how the institution moves. But I must say that we are also looking at reforms and I must single out the REA Board, I must say that at the time when REA started it was necessary to have Permanent Secretaries (PS) to steer the institution but 17 years down the road, I think it is high time this is ammended. You see PS' are very busy people and we need people who can give time to this institution which deals with common Ugandans and 80% of the Ugandans are in the rural areas so it is an area where we are looking at and we have all agreed that there will be representation in Ministry of Finance and Energy but not at a level of PS such that a PS remains for policy guidance. If you are a non-performer please better pull up your socks. Make sure you meet the targets, things are done transparently, block all areas where there is hemorrhage of money and you are aware that this is being done, you should be able to close doors and make sure that services are given to Ugandans.

Q

In the most recent past, the sector has faced two major disruptions; COVID 19, the floating islands as a result of increasing Lake Victoria levels leading into the R. Nile where you have cascade of hydropower stations. Share your experience.

A

This time has also been a very big learning experience. Perhaps I could also add this was God sent to test our disaster preparedness and business continuity planning – if at all. Although it's been overtaken by COVID, Climate change is a huge existential threat to the sector operations. You had people under lock down and then you have rains which were above normal and because our own human activities, you get Islands floating toward the Nalubaale Dam.

Catastrophic as it could have been, we were able to see and test our emergency preparedness regime and I must commend ourselves using our own Engineers both from Eskom and UEGCL, Ministry of Energy and Water, Marines, UPDF who all put their heads together and were able to solve that problem. So Ugandans should commend government for the capacity which has been built over the years because all the equipment was from the government.
This has opened our eyes to prepare the dams

especially the two which are Kiira and Nalubaale to be able to cope incase another island comes as we are preparing to put a barrier up at the railway bridge. The presence of Kiira dam has also been such a relief, imagine it was not there as had been proposed by some people, effort to spill all this excess water from the lake would have been hampered.

Let me also say this, people have moved closer to the lake in the wrong places, catchments have been encroached on, trees have been cut, wetlands have been destroyed so more water is running into the lake without any hinderance. This is a big challenge. As government we have to be more mindful of what we should do in ensuring that together with the citizens we stem the causes of climate change and avert environmental degradation.

On that fateful day when we experienced a national blackout just before the Presidential address to the nation; we must commend the presence of other dams in the cascade for stepping in to restore generation and supply in less than an hour. It could have been worse, but given the capacity the country has built over the

PHOTO | Main Power House of the 600MW Karuma HPP. Overall progress currently at 97%.

years, we were able to do a sterling job in this regard. Gladly we also have other backups, solar, thermal and there more areas, geothermal all these have to be developed on the grid as others work as back up and security incase anything happens.

Q

We know Nuclear will give a huge wattage, what are the plans in the pipeline so far?

A

Nuclear is expected in Uganda in 2030 and of course by that time I believe the demand of power consumption should have grown and I am sure it will feed in, but as it is now you can see we are not even consuming all the hydro but the department is on demand, we have trained our physicians, they are ready and we have all the resources, the Uranium is here.

Q

The final question is very specific person what would you love to see as a minister if say for example you are exiting after 5 years, what would you want us to remember you for?

A

To see to it that distribution & transmission network has been beefed up & more Ugandans are accessing power.

SUSTAINABLE DEVELOPMENT GOALS

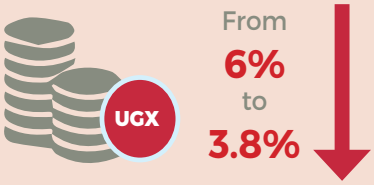
IN COVID-19 RECOVERY AGENDA

Nicholas Agaba RUGABA (R. Eng. MUIPE)
Project Manager, Nyagak III (6.6MW) HPP

With the Covid19 pandemic ravaging lives and economies across the world, the Sustainable Development Goals (SDGs) agenda has taken a back seat. The SDGs are set of 17 goals that are geared towards a future in 2030 that would be rid of poverty and hunger, and safe from the worst effects of climate change. It's an ambitious plan and with ambitious targets. Owing to the Covid19 pandemic, Uganda has revised down its GDP growth to 3.8% for the financial year 2019/2020 from the pre-pandemic figure of 6%, according to the Ministry of Finance's Performance of the Economy Report for March 2020. This comes on the back-drop of lock-downs, curfews, travel restrictions and closed borders (except for trade cargo and merchandise).

According to the Public Debt Report, March 2020 as released

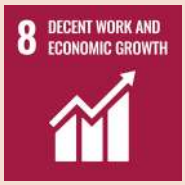
UGANDA'S GDP



FY 2019/2020

Source: *Ministry of Finance & Economic Development, Performance of the Economy Report, March 2020.*

by the Ministry of Finance, Planning and Economic Development (MoFPED), the timely implementation of public infrastructure would support growth in the medium term. Economic growth over the medium term will be driven mainly by public infrastructure investment and increased private sector investments. However, the Covid19 pandemic and the resultant slowdown in the economy shall affect the country as it implements infrastructure projects in the energy and transport sector that are crucial for SDG7 (Affordable and Clean Energy) and SDG9 (Industry, Innovation and Infrastructure).



In the next Financial Year (FY 2020/2021), it shall be evident the extent and scale of impact of Covid19 pandemic on renewable energy projects in Uganda that are largely financed by private capital (commercial loans), bilateral cooperation and multilateral cooperation frameworks. There are potential delays on attaining financial closure for some of these energy projects and also potential project risks associated with extensions of time and additional costs. This is bound to affect the attainment of targets under the SDG7 (Affordable and Clean Energy) in Uganda in the short and medium-term. Some of the key targets to be achieved by 2030 under SDG7 (Affordable and Clean Energy) include ensuring universal access to affordable, reliable and modern energy services and also increasing substantially the share of renewable energy in the global energy mix.

> ***It is indeed important that Uganda's COVID-19 recovery plan focuses on expanding infrastructure and upgrade the technology***

The other targets include the need to enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology. It is indeed important that Uganda's Covid19 recovery plan focuses on expanding infrastructure and upgrade the technology for supplying modern and sustainable energy infrastructure in the medium and long-term. Uganda's drive towards local content and local industrialization for import substitution shall require a reliable supply of electricity at affordable tariffs to drive industrialization and job creation.

In March 2020, President Museveni commissioned four factories that will be producing different products at Mbale Industrial

SDG 7

ENSURE ACCESS TO AFFORDABLE, RELIABLE, SUSTAINABLE AND MORDERN ENERGY FOR ALL

87% OF THE **840**

MILLION PEOPLE

WITHOUT ELECTRICITY

LIVE IN RURAL AREAS

3 BILLION

PEOPLE LACK

CLEAN COOKING FUEL AND TECHNOLOGY

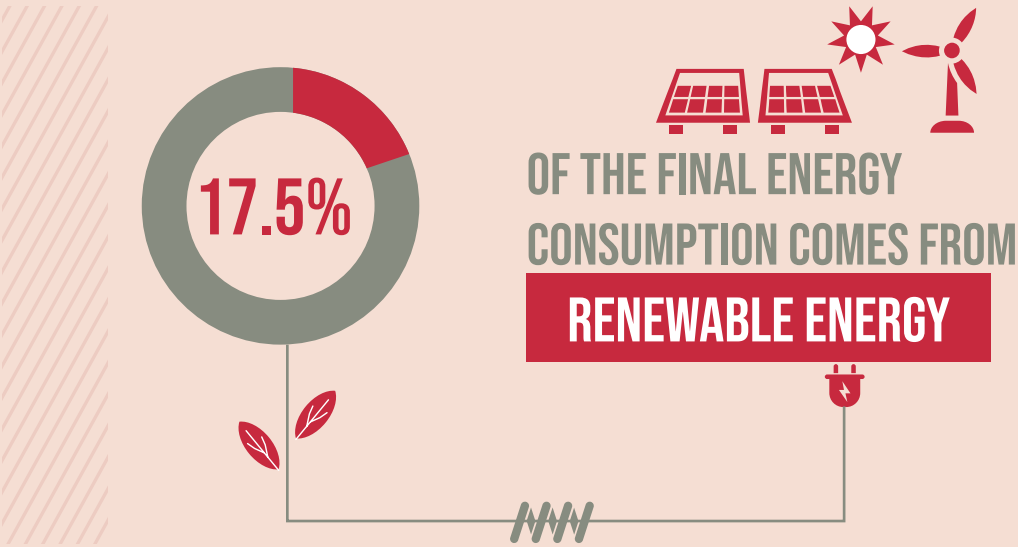
Park in Mbale District. The Daily Monitor (March 20, 2020) reported that among the factories that were commissioned include; Pearlight Technology, which manufactures bulbs, and Ubon Technology, which produces powder. Others are; Victoria Cable Limited manufacturing cables and Kyoga Capital Textile Limited, which is producing stockings. The Park, with a total investment of more than $600M (Shs2.2 trillion), is expected to house more than 50 factories. This feeds into the target under SDG7 (Industry, Innovation and Infrastructure) which focuses on achieving supporting domestic technology development, research and innovation in developing countries, including ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities.

These industrial parks are critical load centers or energy consumers for the energy infrastructure/ power plants like Karuma (600MW) HPP and Isimba (183MW) HPP that have been constructed with public funding and debt financing from bilateral arrangements with China. The infrastructure should be resilient against the climate change challenges that have also manifested in the recent past. The hydropower dams have had to deal with increased water levels on Lake Victoria, floods and heavy rains that not only pose risks to the dam structures but also the reservoir banks and slopes. Climate change risks have also manifested across the globe.

According to the BBC World Service, 10,000 residents have been evacuated in the US state of Michigan after two dams breached following days of heavy rain, officials say. The National Weather Service issued a flash flood emergency for areas near

the Tittabawassee River after the Edenville and Sanford dams failed. This brings to light the need to develop and implement robust Dam Safety Management Plans at a National and organizational level. It is commendable that Uganda's Cabinet has since constituted a National Task Force to monitor and manage the rising water levels of Lake Victoria and the associated dam safety aspects.

The State-Owned Enterprises (SOEs) like the Uganda Electricity Generation Company Limited (UEGCL) and Uganda National Roads Authority (UNRA) that are in charge of hydropower dams and water transport vessels(ferries), bridges etc. respectively need to be supported to develop and implement robust emergency response plans if climate change risks materialize. This will help us achieve the targets under SDG9 (Industry, Innovation and Infrastructure) which include the developing of quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a



focus on affordable and equitable access for all. The SOEs should also be supported to build and upgrade the infrastructure to make them sustainable and resilient in the face of these climate change risk. The refurbishment of the Owen Falls Complex to manage higher water flows and lake levels will go a long way in securing the power plant and other energy infrastructure downstream namely Bujagali (250MW) HPP and Isimba (183MW) HPP.

We must keep the SDGs at the center of the economic recovery programs and stimulus packages to help us out of the pandemic and its associated economic shocks both locally and globally. The targets under the two sustainable goals SDG7 (Affordable and Clean Energy) and SDG9 (Industry, Innovation and Infrastructure) offer us a great opportunity towards building out of the pandemic and also ensuring social-economic transformation in the medium and long term.

ENERGY POWER PURCHASE AGREEMENTS WERE NECESSARY TO RID UGANDA OF POWER SHORTAGE

DAUDI MIGEREKO
FORMER MINISTER OF ENERGY
& MINERAL DEVELOPMENT

> ***"As a country, we take too long to decide let alone to implement projects which are of critical strategic importance to our economy."***

Lately there has been concern about the Power Purchase Agreements (PPAs) which were signed when Uganda was experiencing severe and economically debilitating load shedding. It has been asserted by some officials that government signed bad PPAs. I wish to clarify on the matter and put the record straight having been one of the critical stakeholders during the PPAs' negotiations.

His Excellency the President had given us a clear strategic policy direction that "Never again should Uganda be short of electricity supply to meet demand; the country should always be ahead of demand." This strategic policy direction is akin to that of President Kwame Nkrumah of Ghana who had demonstrated similar foresight in the early 1960s when he constructed and commissioned the 1200 MW Akasombo HPP. Many western countries termed

it a " ***white elephant*** " Nkrumah justified the Akasombo; as the basis for industrialization in Ghana. Both President Nkrumah and Museveni were right because there is no way you can industrialize or run a modern economy without enough power supply.

This strategic policy direction would never have been realized without the right appropriate incentive policy instructions/ instruments like Take or Pay, Feed- In-Tariff and The Energy Fund.

It has been argued that Government spends a considerable amount of money on electricity Ugandans actually do not consume due to contractual clauses that require to pay the energy sellers even for unconsumed energy. In order to understand why these "take or pay" clauses are part of those power purchase agreements, it is important to understand the prevailing economic environment that preceded the issuing of these PPAs.

When the NRM Government came to power in 1986, the economy had virtually collapsed. Government was deeply involved in all sectors of the economy including banking, manufacturing, energy, marketing of coffee, cotton and produce amongst others. Basic essential commodities like sugar and soap were rationed because of limited supply. The Owen Falls Hydro Power Project (HPP) which had been built in 1954 to generate 150MW was producing only 60MW in 1986. Key decisions had to be taken in order to revamp the economy. Assets which had been seized by Idi Amin from Asians under his economic war were returned to their original owners. It was also decided to privatize many elements of the economy and the Public Enterprises Reform and Divestiture (PERD) Act was put in place to allow for implementation of these reforms in the entire economy.

The **Electricity Act 1999** was enacted to allow for private sector investments in the power sub-sector. Equipped with this policy and legal framework, Government could attract private sector investments in Uganda's power sub-sector. Uganda was viewed as an uncompetitive investment destination at that time. Indeed, as people may appreciate any investor will always evaluate the risk and assess whether to invest in Uganda or elsewhere in the World. If he sees a likelihood of making a loss, the investment will be terminated. Power infrastructure investments require large capital which at that time wasn't available in Uganda. Multilateral concessional lenders, including the World Bank, had stopped lending di-rectly to Governments for purposes of hydro power development. As such, the idea of private sector "Independent Power Producers" (IPPs) came up to develop these projects.

As a country we take too long to decide let alone to implement projects which are of critical strategic importance to our economy. Our first attempt to develop the 250 MW Bujagali HPP with the AES Nile IPP, faced this problem. Although, good democratic discussions and decisions had taken place about the project and a good PPA and tariff secured, this happened rather late. By this time, the world's leading IPPs, including AES and Enron, were facing serious economic problems and were forced to pull out of these projects. In a number of countries the projects were ready for commissioning by the time the world energy sector was

hit by this crisis. Governments took over some of these projects and made arrangements to deliver electricity to the consumers. In our case we repossessed the site and intellectual properties; we had spent a lot of time discussing and listening to everybody but not starting on construction of the power station. The country had to suffer load shedding, use of expensive diesel generated power and high tariffs. Fresh arrangements to develop Bujagali HPP along competitive terms were put in place and pursued. Mainly, non-concessionary credit was available. Plus the usual long gestation period for such big projects, costs were escalating; the 250 MW was only commissioned in 2012.

Utilization of NSSF funds which would have been cheaper and quicker to advance Bujagali had been resoundingly rejected. Obviously, this decision was not well informed. It denied NSSF/workers of an opportunity to participate in a potentially lucrative project. Today, NSSF is investing in some energy projects and realizing good returns.

Meantime, other solutions to rid the country of power shortage had to be pursued. The first grid connected private sector power plant was the Kakira/ Madhvani co-generation project which took several years to negotiate. In the early 2000s, it was finally concluded with support from the first phase of the Energy for Rural Transformation (ERT 1). An energy deal was signed off.

In practically all cases, a power plant investor is asking the question "What will happen if the produced energy is not being bought? Who will bear that risk?" If the Government is not in a position to assure the investor about the uptake of

> ***"What will happen if the produced energy is not being bought? Who will bear that risk?"***

the generated energy, marketing such urgently needed infrastructure projects becomes incredibly difficult. This was the situation the Ugandan Government was in at the time and building the power plants on its own was not an option due to budgetary constraints. Therefore, the risk for the investor associated with low demand had to be shared with

PHOTO | The 33kV Nalubaale Sub-station

Government, hence the necessity of the "take or pay" provisions in the PPAs of that time. Not to mention that these clauses are typical standard provisions in most PPAs all over the developing world.

Government had to share some of the risks with the investors, as a way of clearing the impasse, short of which the PPAs would not be concluded and the power shortage would be compounded. This contractual framework unlocked significant private sector investments and spurred broad economic effects such as job creation, increase of tax revenues or the extension of social services to the project communities to mention a few. Another reason for applying the "take or pay" provisions was the time pressure the Government was under at the beginning of this century. As the demand for power outstripped supply, the consequence was the heavy load shedding Uganda experienced between 2000 and 2012. To react quickly and to permit faster development of small HPPs, a team of well trained and experienced professionals was given the task of producing standardized PPAs. These were introduced to eliminate the tedious and lengthy period of negotiation of PPAs. Consequently, over 20 small HPPs could be built in a short period of time.

This put together with the strategic decision to establish The Energy Fund, made it easy for the Government of Uganda to fully participate in the development and construction of both Isimba and Karuma HPPs, at reduced resultant tariff. This has enabled Uganda to take the giant step from being a country with power shortage to one with surplus capacity. This makes it easy to attract investment in the big mining, industrial, manufac-turing and tourism projects in the country.

Concern has also often been raised in regard to, the PPAs concluded with Heavy Fuel Oil (HFO) IPPs, mainly due to the tariff pegged to the cost of imported fuel. The agreements however, clearly catered for a fall in tariff once cheaper or local oil sources were accessed. Mainly, because of cli-mate change, which has led to drought and drying up of water sources leading to a fall in hydro power generation, it has always been prudent to have an energy power supply mix that provides for a fall back arrangement, should the country be faced with drought or any unforeseen developments . It is under this

PHOTO | 200MW Kiira Power Station located in Jinja, Uganda commissioned in 2003

arrangement that Arua is currently being supplied with power. In the early 2000s, when Uganda had a severe drought, HFO IPPs were introduced. The Southern African countries, today are ex-periencing unprecedented loading shedding due to drought and are being supplied by HFO IPPs, as a supplementary arrangement.

Solar power, which is considered to be clean energy and environmentally friendly, is steadily emerging in the power supply mix arrangement in many Sub-Saharan African countries. This has been made possible due to improved technology albeit at reduced cost per unit. A few PPAs were signed with IPPs. Consequently, a few decentralized grid areas in Uganda, are supplied or are targeted to be supplied from solar power sources. The surplus being available for connection to the national grid.

It has been argued that the PPA clauses are costly to the Ugandan tax payers because a substantial amount of power generated is not consumed due to low demand and limited access to electricity. These challenges will not be solved by rewriting existing PPAs, per se. Similarly, increasing market entry barriers for private sector investments is not the solution. Just like apportioning blame will not give the sector the desired solutions.

Rather, attention needs to be paid to the following: Quality power supply is currently one of the major problems, to which we must urgently find a solution. As such investment in upgrading and extension of transmission and distribution networks plus substations and transformers needs to be prioritized. Secondly, the structure of demand and utilization of our power requires some policy direction to ensure enhanced consumption of whatever is generated, at any one time. Thirdly, a number of potential demand centers, such as industrial park sites, agro-processing centers, mining areas, tourism sites, the Standard Gauge Railway (SGR) and oil pipeline are yet to be connected. These will certainly wipe out this perceived surplus.

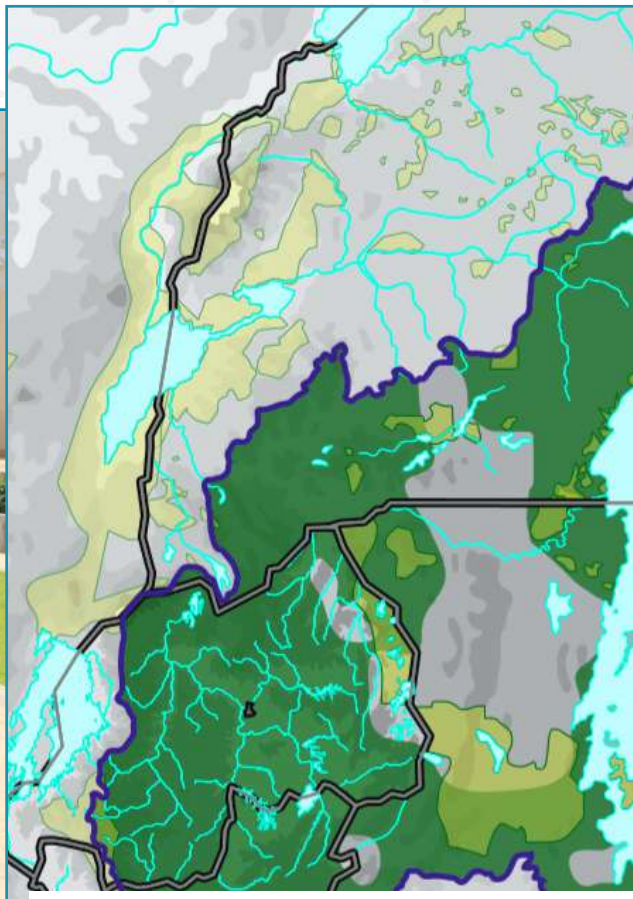
Next to satisfying all local demand, present and future, efforts are underway to create energy uptake through export, for instance to Eastern DRC, to the South Sudan and the rest of Africa through an integrated regional grid. These markets do require that we scale up investment in transmission and the surplus will be sold off.

I therefore wish to argue that the aforementioned policies put in place to revamp the energy sector and economy were right policies, at that time and have contributed immensely to Uganda's electricity self-sufficiency. Nevertheless, a review of developments in the sector to capture and cater for new realities is always necessary. Policy instruments to provide long term credit for energy projects, mining, production, manufacturing, tourism and to address over dependence on imports and foreign firms are needed. Indeed, additional stimulus to spur and propel growth to the middle income status is required. Uganda should however, take the liberty to learn from the experience of other more prosperous countries, to be able to move along a more sustainable trajectory. This put together with the interventions outlined above will increase power consumption and lead to a fall in the tariff.

WATER SEEKS ITS **OWN LEVEL.**

The Lake Victoria Perspective.

Edgar KANSIIME
Public & Media Relations Officer.

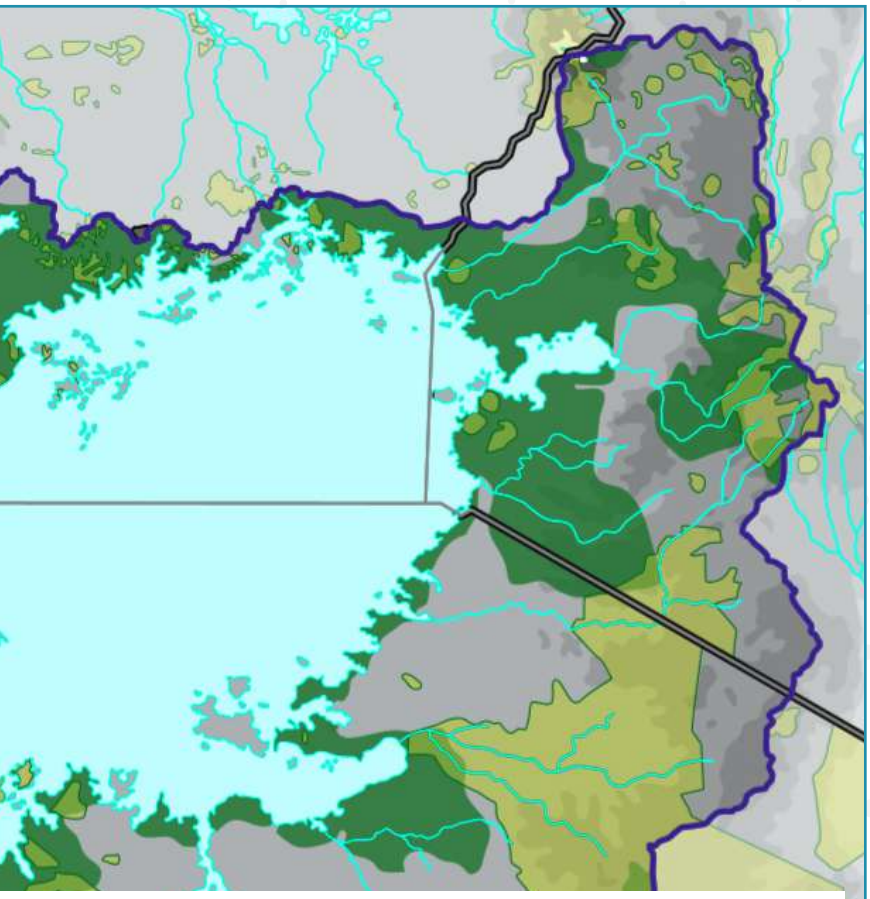


Draining an area of 194,200 km², Lake Victoria provides the headwaters of the White Nile but Africa Community. The Lake itself is shallow the world, after Lake Superior in North America.

This year, Uganda and the rest of the world have faced enormous problems emanating from Mother Nature. Uganda has been grappling with a cocktail of Locusts, the Covid-19 Pandemic and the increased water levels in L. Victoria. The latter is the prime focus in this article.

The morning of 9/5/2020 saw the water levels hit an all new record high of 13.42m. This surpasses the previous record of 13.41m recorded on 12/5/1964.

Most parts of the East African region have continued to receive



Basin is one of East Africa's most prominent landmarks. It not only is also central to the development and regional integration of the East but in terms of surface area it is the second largest freshwater lake in Lake Victoria covers 68,800 km²

heavy rains from the Horn of Africa, Central Africa, Rwanda to DR Congo and Tanzania causing flooding in many areas. The biggest impact is however being felt, especially around Lake Victoria which is shared by Uganda, Kenya and Tanzania.

On Sunday 26th April, 2020, President Museveni, in his 12th address on updates about Covid-19, asked people who have built or been cultivating along the Lake Victoria shores to vacate peacefully before the National Environment Management Authority (NEMA) forces them out. Dr. Callist Tindimugaya, the Commissioner for water resources planning and regulation at the Ministry of Water and Environment, advises those around the lakes to listen to President Museveni's advice and relocate because with more rainfall, the shoreline flooding may get worse. "The level is going up. We cannot stop the water. We can only manage it at Jinja. Move to other areas if you are near the shores. Because even Lakes Kyoga, Albert and River Nile, the water levels are also increasing as we release the water from Jinja," Dr. Tindimugaya said. Lake Kyoga is projected to exceed the highest historical water level of 13.2m and as such shorelines, swamps and flood plains will experience high water levels.

According to Tindimugaya, people have built all around the lake because the level had gone down previously. Some communities encroached on the protection zone which is 300m around the lake. The water seems to be reclaiming its position. However, not everyone buys into this narrative. Another school of thought blames the rising lake levels on the anger of the lake deity Nalubaale, more of Spiritual retribution.

Musa Lule, a fisherman at the one of the landing sites in Mpigi District, says the calamities at the landing site were a punishment from the spirit Nalubaale for the fisher communities' misdeeds. 'The gods must be angry with us. Initially, the army displaced our families over illegal fishing and now the rising waters of Lake Victoria are sweeping away our homes," he said

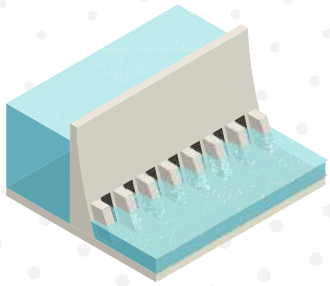
"It is estimated that about 17% of Mombasa will be submerged with a sea-level rise of only 0.3m. At the same time,

13.42m
Highest water level since 1964

large areas may be rendered uninhabitable as a result of flooding or water logging, or will be agriculturally unsuitable due to salt stress," a WWF Kenya report says.
A statement issued by the Ugandan Cabinet Minister of Water and Environment – Mr. Sam Cheptoris, on the International Labor Day, confirmed the rising water levels and the eventual impacts. The Minister reminded Ugandans of the years 1961-1964 and 1996-1998. During this time, Uganda experienced similar intense rainfall that resulted in rise in the levels of rivers and Lakes below which no developments and settlements should be made.
The current rise in Lake Victoria water level started on 1st October 2019 and has consistently gone up from 12.00 meters to the current level of 13.32 meters as of 30th April 2020. This is a rise of 1.32 meters attained in only 6 months.

For more than four decades, environmentalists have been worried that water levels in the lake would decrease due to the construction of many hydropower dams such as Isimba on the River Nile downstream.
However, the reverse has happened, with torrential rains increasing the water levels and submerging many settlements and commercial settings along the shores which have had to adapt or relocate.
Among the impacts stated in the ministry's statement, these tend to stand out; The increased water level is causing dislodgement of papyrus mats from encroached shorelines resulting into huge mass of floating Islands which are dangerous to hydropower infrastructure. A case in point was observed on 14th April, 2020 when the mass docked at Owen Falls Dam choking turbines and resulting into a temporary National power blackout. This cost government a lot of money to remove.

WATER DISCHARGE at Nalubaale PS



Another impact has been the halting of construction of bridges.

Among the immediate measures the government has instituted to quickly get more water out of Lake Victoria through increased release at Jinja. This has been done by increasing Nalubaale HPS discharge to a rate of 2400m^3/s , up from a rate of 1000 m^3/s in October 2019.

THE ROLE OF HYDROPOWER PLANTS.

Following the directive from Directorate of Water Resources Management to increase discharges from L. Victoria to counter the rising lake levels, the releases have more than doubled the maximum normal discharge. In such a period, the dam experiences unusual loading due to higher water levels & discharges. In Isimba HPP, Charles Mwase, Civil Engineer Dam Safety, has been at the front of implementing increased discharge protocols at the plant. "With a spillway capacity of 5250 m^3/s , it has been possible to handle the high discharges of up to 2200 m^3/s as of May"., Charles says. "A reservoir operation procedure was implemented that minimizes surges in the reservoir and downstream water levels, combined with daily visual inspections of the dam and spillways."

ARE THE DAMS SAFE DURING THIS TIME?

It is important to note that that Isimba is safely managing a 1 in 50-year flood but at the same time flexible enough to deal with a scientifically predicted maximum flood that may occur once in 10,000 years.

"Since these dams harbor in-built specialized instruments, the variety of data being collected is analyzed to identify deviation and qualitatively appraise the deviation levels.

At Isimba, the current analysis shows a minimal acceptable deviations confirming that the clay core which is the heart of the dam is performing its intended purpose. The visual inspections have revealed no damp or wet surface on the downstream face of the dam thus no signs of abnormality." Says Mr. Manirakiza, Dam Safety Engineer for Isimba HPP. However, this magnitude of release poses public safety risks to the downstream water users. This has prompted activation of the Emergency Preparedness Plan ranging from training of emergency management committees, use of siren before a mega release and constantly keeping our downstream stakeholders informed in case of any deviation in plant discharge. Suffice it to say, all this is mainly focused on protecting the dam integrity, the lives & property of downstream people.

Current projections predict normalcy after May,2020. It remains to be seen whether the governments learn from this situation and empower their environmental watchdogs to crack the wipe on aquatic systems degradation.

For God and My Country

LAMENTATIONS: THE FAVOURITE BIBLE BOOK OF A UGANDAN ENGINEER

Godrey RWAKAFUJJO
Civil Engineer

How Much Longer can we keep lamenting????

Growing up in a predominantly Christian family has had a toll on me, I began reading a Bible at an early age and sometimes I would be dragged to church on Sundays, even though this was done with good intentions. It was also meant to limit "my free movements" my mother thought to herself. My childhood memories are stories of another day: but anyway, back to business "Not Generating Mega Watts" Like my Generation Manager's constant reminder but the woos of a Ugandan engineer.
Engineering Registration Board (ERB) organises The Engineers' Forum each year to bring together all practicing engineers, policymakers, alongside industrialists, business partners, bankers and every brain that cares to follow or participate in the infrastructure industry.
I have had a privilege of attending four forums that is 2016 to 2019 but in each of the four forums, one contentious question always resonates ***"Where are the Ugandan Engineers in major infrastructure projects"*** this is generally followed by a lengthy debate of the cause, analysis and of course the lamentations of what is not being done right.

> ***"Why exaggerate laying of a water pipe from Katosi to Kampala, entailing that a Ugandan engineer can't do that job?"***

Let's face it; Why exaggerate laying of a water pipe from Katosi to Kampala, entailing that a Ugandan engineer can't do that job? Should we just tell whoever wants to hear this that it's a Ugandan technician fixing the coupler and welding the joints?

Why exaggerate a step by step mechanism of building a dam into a kind of "Fiscal Policy" to make it impossible for a common man to understand, yet it is merely a series of

procedures executed one after another, divert water, excavate, tie reinforcement (*'mitayimbwa'*) cast concrete, fix the turbine, connect the earthing wire, place concrete block onto another, paint and commission – Huh.
Does that sound like a fiscal policy or nanotechnology?
Is it about money? Hell Nooooooo... It's the Ugandan government paying the loans with accumulated interest.

Who says a one Kwagalakwe Yosia Mbalalukedde from Buddu, ku saza lya Kabaka whose great grandfather skilled in backcloth making and served Kabaka Mwanga II in 1880s before the invasion cannot spin 4 Kaplan Turbines, evacuate raw power onto the grid, open the spillway gates & play around with SCADA. This is the 21st century and his great-grandson rolls in the country- Isn't that beautiful! Even by just reading it?

In the awe of rising nationalism coupled with bits of individualism partially agitated by Mr Trump and his policies, only an insane person can decide to rest, think and assume their country will take a stride or a quantum leap by a miracle trajectory.

We can lament on the influx of foreigners, an award of all contracts to foreigners, importation of already existing technology, read a verse from our favourite book every Sunday Lam 4:19 *"**Our pursuers were swifter than the vultures in the heavens; they chased us on the mountains, they lay in wait for us in the wilderness**"* , probably we can complement it with a reading by our favourite youth Pastor Lam 5:2 *"**Our inheritance has been turned over to strangers, our homes to aliens**"* for those who attend Mid-week services on Wednesdays.

We can do the above until a highway is built on Jupiter or we can pick up the tools of resilience and resistance, invoke the spirit of Ndebele and demand for what belongs to us. Its high time we adopted a Management Consulting System in cases where we might need specialised skills that are scarce in Africa. Managing Consulting system premises on providing support and consultation by trained and qualified people objectively and independently to a particular organisation. This way is better and cheaper than importing a whole company that imports even casual labourers and truck drivers. The Europe, US and Asia were built by Europeans, Americans and Asians respectively, Africans can and should build Africa.

This is a wakeup call, we can build, own, and operate our country. Let's drop the Lamentations after all Moses didn't reach the promised land partly due to his lamentation habits in the wilderness, we could choose to start reading Psalms, Isaiah and maybe Song of Songs.

I intend to be objective rather than subjective. I believe we can manage our affairs, provide uninterrupted electricity 24/7, access to clean water to 90% of the population, reduce poverty, provide sustainable roads etc, and
"YES WE CAN"

FUTURE OF RENEWABLE ENERGY AMIDST 'PEAKING' HYDROCARBON DEMAND

Proscovia NANKYA
Shift Charge Engineer, Karuma HPP

By the year 2050, the global population is projected to be more than 9 billion which will undoubtedly exert enormous pressure on the ever-limited resources. Consequently, an increase in global population coupled with increased economic growths in the emerging and developed economies will translate to increased energy demands. It is noteworthy that the security of energy supply and demand is largely influenced by the prevailing economic environment which explains why the 'emerging' economies (i.e. China, India, Brazil, etc.) and the OECD (Organisation for Economic Co-operation and Development) countries have

consistently defined the trends in global energy consumption.

The overall decline in global energy demand and consumption registered during the global economic recession of 2007-2009 is yet more empirical evidence of a strong correlation between energy demand and economic growth. Thus, fossil fuel sources that meet more than 80% of the world's primary energy demand will arguably continue to play a crucial role in securing the global energy

World Population

9

Billion by 2050

future given the 'peaking' demand in hydrocarbon sources.

However, following the growing concerns over anthropogenic induced climate change effects from atmospheric CO_2 largely attributable to fossil fuel combustion, there has been a strong desire to transition into cleaner energy sources. Consequently, renewable energies e.g. solar, wind, hydro, geothermal, and other low carbon sources such as clean coal, nuclear power, must play a leading role in this process. Therefore, given the evolution of petroleum from conventional reserves, global energy anatomy is believed to be in a phase of fossil fuel and new energy coexistence.

Invariably, a fossil-free economy is still relatively far from being realized due to various impediments. These include inadequate efficiency (in the case of solar and wind), social acceptability (nuclear and biogas), high capital investment costs (for retrofits such as carbon capture and storage, nuclear), weather changes and seasonal variations, energy storage, and transmission losses associated with low carbon technologies. In contrast, unconventional hydrocarbon products have continued to present unrivalled advantages such as high energy density and efficiency, versatility, ease of transportation with minimal losses, and reliability in meeting the world's energy needs. Following technological breakthroughs e.g. 3D seismic technology, reservoir simulation, hydraulic fracturing, etc., there has been an emergence of unconventional hydrocarbon reserves whose production accounts for over 10% of global yield.

This also explains the rationale of encouraging the increased dependence on these reserves. Thus, it could be safe to argue that since the petroleum industry is just entering a 'new era' of unconventional reserves (which in a sense disproves the 'peak oil' theory), debates on transitioning into fossil-free energy sources could still be premature. Certainly, technologies that will aid the post-fossil fuel transition are likely to emerge in future; but for the present,

There is a seeming inevitability about the replacement of conventional energy resources with nonconventional (renewable) ones whose carbon footprints are believed to be of outstanding superiority

the current available low-carbon technologies are least likely to provide enough, reliable, and cheap energy while addressing the outstanding threats of climate change effects. Therefore, this raises an important question of what should be done to scale these technologies and make them competitive with fossil fuels? Immediate answers might include boosting investor confidence through appropriate policy formulations (e.g. EU's NER fund, and UK's electricity market reforms), and provision of funding avenues including investment in research and development. However, the never-ending debates around energy costs and security of supply vis-a-viz associated emissions in the developed countries who have higher burdens to reduce their emissions due to their historical contribution to greenhouse gases, are clear manifestations that scaling up low carbon technologies might not be as straight forward.

There is a seeming inevitability about the replacement of conventional energy resources with nonconventional (renewable) ones whose carbon footprints are believed to be of outstanding superiority and therefore lend themselves better to ensuring a 'cleaner' planet. However, there remain several practical challenges obstructing the development of these renewable resources at a global scale. In the current 'climate', the most pragmatic solution seems to be in refined hydrocarbon sources, whose negative environmental impacts are moderately balanced by the technical advantages over low-carbon sources; but there must be harmony in the development of both renewable resources on refined hydrocarbons to foster smooth transition into the era zero-carbon economy.

HELLO our new Board Members

Mrs. Hope **BIZIMANA**
Director

Human Resource specialist and Consultant with over 32 years of working experience in Human Resource Management, Human Resource Planning and Development and Organizational Development.

She holds a Master's Degree in Human Resource Management from Uganda Management Institute, a Bachelor's Degree in Political Science and Public Administration and Postgraduate Diploma in Human Resource from Makerere University and now a Human Resource Consultant with ABS Consulting Group.

She is 59 years of age and serves as an Independent Non-Executive Director in UEGCL since 13th November 2019. She is the Chairperson of the Human Resource, Planning and Compensation Committee and a member of the Governance, Risk and Compliance Committee.

Mr. Paul Patrick **MWANJA**
Director

Economist with over twenty-eight years of experience in Macroeconomics, Project Analysis and Public Investment Management.

Holds a Master of Arts Degree in Economic Policy Management from Makerere University, Bachelor of Science in Economics from Makerere University and is an ACCA Affiliate. Mr. Mwanja has served as a Senior Economist and head of the fiscal policy management section of the macroeconomic policy department, Principal Economist Projects Analysis and Public Investment Management Department and Assistant Commissioner Infrastructure and Social Services all at the Ministry of Finance, Planning and Economic Development.

He is 51 years of age and has served as a Non-Executive Director in UEGCL since 13th November 2019. He serves on the Finance and Audit Committee and the Technical Committee.

COVID-19
A BLESSING IN DISGUISE

Lucy Grace AKWII
Brand and Client Care Officer,
Karuma HPP

COVID 19 has been a blessing in disguise in its own way as it is said in times of war, there is an opportunity that usually an entrepreneur will see.

Let's look at backyard farming or agriculture which doesn't require only an entrepreneur to see, but be open-minded, have the willingness to learn, utilise minimum space and time to grow food at ones' home. The lockdown has seen many urban families turning to grow their own vegetables and or food to feed their families.

Backyard farming is when one practices farming in sacks and buckets as a way of utilising the small piece of land available according to an article published in the New Vision on 7th September 2016. This is not really a new thing as it goes as far back as 2014, articles in the newspapers, this topic has been widely written about i.e. the New Vision 7th September 2016: Background Farming, Daily Monitor Saturday 22nd September 2018: Background Farming, The Independent July 13th 2014: Background Agriculture.
Background agriculture can be an alternate source of food if one can still purchase some other foods from the open markets and supermarkets. This also helps to keep children at home engaged if the garden is a task given to them. It reduces on the probability of families having to buy certain foods especially vegetables which some parents are hesitant to buy due to the current GMO implications going

PREVENTION OF COVID-19

Wear a Face Mask

Social distancing

Stay Home

Wash hands or use sanitizer

around. Such backyard gardens also help children put theory to practice and also teaches them self-sustenance as was in the golden days when parents took their children to gardens with them to learn the gardening work which sustained them.

Given our heavy reliance on agriculture as a country, food security is an important aspect especially during the lockdown that came due to the COVID 19 Pandemic. This made everyone think of a way to survive despite the panic shopping, the hiked food prices and also the donations of food from individuals and Prime Ministers' Office. With Backyard farming, several vegetables, herbs and greens can be grown for example Sukuma Wiki (Colewort), cabbage, onions, tomatoes and carrots among others.

COVID 19 has really brought out what some families would have never imagined happening, there is creativity, broken routines, shown that change is constant and when handled well can breed good results. Recently, during a chat on my class WhatsApp group, colleagues were sharing how they are coping differently during this period and the contributions were inspiring and most of the responses were geared to how families were handling feeding and staying active.

A one Jessica A. (not real names), explained how she created a garden last year which has helped her save as she now barely spends on vegetables like tomatoes, onions, greens and others as she testifies. This period has actually taught her and the family that one can live a simple life and be happy, do more and better to achieve more yields. She started to read and scout for more and better ideas during this period.

This is just one of the testimonies as many of the ladies said that the idea of growing vegetables especially in sacks or containers really has helped them kill boredom and bond with their little ones who offer to help out as they were used to office.

UEGCL LOOKS TO 'BIG SISTER' **KENGEN FOR ASPIRATION.**

Simon Peter KASYATE
Head Communication & Corporate Affairs

With a comparable Energy Sector set up in Kenya with a Regulator and separate Companies for electricity Generation, Transmission and Distribution, and a dynamic growth trajectory in terms of installed capacity (2,895.6 MW) comprising a formidable energy mix of hydro, geothermal, wind, thermal solar and biomass Kenya, and finally posting a good financial bottom line, the Kenya Power Sector is undoubtedly and literally the power house in the East African region.

It is with this background that the newly appointed Minister of Energy and Mineral Development Hon. Dr. Mary Goretti Kitutu - on invitation of her Kenyan counterpart Hon. Charles Cheruiyot Keter, the Energy Cabinet Secretary; visited Kenya on a benchmarking visit in the first week of March 2020.

The overall purpose of the bench-marking visit was to understand the operational and Regulatory environment within which the Kenya Electricity Sector operates, and therefore learn best practices which could be replicated in the Uganda setting.

Minister Kitutu was accompanied by a delegation from the Ministry of Energy and Mineral Development, Uganda Electricity Generation Company Limited (UEGCL), Ministry of Finance Planning and Economic

Welcome madam Minister: KENGEN CEO Rebecca Miano welcomes Dr. Mary Goretti Kitutu to the Olkaria Geothermal Spa in Nairobi-Kenya.

> ***"According to the Uganda National Development Plan (NDP III) and Vision 2040, it is projected that power Generation should reach 3500 MW by 2025, and 41,000 MW by 2040."***

Development and the Parastatal Monitoring Unit among others.

"The hydroelectric power potential of Uganda is estimated at 4,000 MW, mainly along the Nile River. Other potential energy sources include; Geothermal 450 MW, Solar 1000 MW, and Nuclear 30,000 MW," said Dr. Kitutu reiterating the rationale of her visit, adding "And for us to harness this potential and meet the aspirations of the Uganda National Development Plan (NDP III) and Vision 2040, we are here to take lessons and forge strategic partnerships."

Currently, Uganda has an apparent excess in electricity supply. However, it is believed that this is short lived given the demand projections resulting from the country's projected economic growth. According to the Uganda National Development Plan (NDP III) and Vision 2040, it is projected that power Generation should reach 3500 MW by 2025, and 41,000 MW by 2040.

Preceding the formal bilateral discussions and presentations, the Ugandan delegation was treated to a site visit of KenGen's Olkaria Geothermal facilities in Hell's Gate National Park, some 120Km out of Nairobi, in Naivasha -In Kenya's Rift valley. KenGen is currently operating 5 Geothermal facilities, the latest being the 165.4MW Olkaria V power station and an on-going project, the 83.3MW Olkaria I Unit 6 Project. The delegation

also visited Olkaria Primary School part of a resettlement scheme financed by KenGen that draws pupils from the surrounding communities. The Community Resettlement program, a kin to Government of Uganda's Community Development Action Plan (CDAP) and Resettlement Action Plan (RAP) for the 600 MW Karuma and 183 Isimba hydro power projects, provides improved accommodation, water and sanitary facilities as well as health and education amenities.

"We feel very honored to host the Ugandan delegation led by the Minister for Energy and it is a great opportunity to share our knowledge and our expertise with the Uganda team. We have also learnt a lot from them and from this visit we believe that going forward we shall continue collaborating together," said Rebecca Miano, the Managing director and CEO of KenGen.

Of particular interest to the Ugandan delegation was KenGen's operational and governance model that has spurred it into profitability and self-sustenance. UEGCL, its Uganda equivalent, is still buoyed by the taxpayer's purse for project development and routine operation and maintenance of its facilities.

KenGen is listed on the Nairobi stock market with government still holding a controlling stake of 70%. Ms. Miano revealed that KenGen operates on a 'three-legged' strategy; a) Capacity increase -the quest to increase its installed capacity by 2,500MW by 2025 and remain a relevant market player/ leader b) Value creation – provide adequate return to shareholders c) Lower tariff – profitably supply cheaper renewable electricity to the nation.

"Our models of growth are hinged on operating existing and future generation plants efficiently through corporate finance, partnerships through public private partnerships, special purpose vehicles and joint ventures for project financing and expanding our business

"The KenGen model is one we aspire to emulate, to run as a profitable government agency... "

Eng. Dr. Harrison E. MUTIKANGA
CEO, UEGCL

revenue streams beyond the traditional sources," said Ms. Miano, KenGen CEO.

Some of the expanded revenue streams for KenGen include Green energy parks, manufacturing and bottling of water, consultancy and service contracting among others.
"The KenGen model is one we aspire to emulate, to run as a profitable government agency, hinging our practices and operations on the best international practices of governance and fiscal sustainability," said Eng. Dr. Harrison E. Mutikanga, UEGCL's CEO. Like KenGen, UEGCL aspires to get listed on the capital markets to attract such benefits as enhanced corporate governance, easy access to capital, lower corporate taxes, enhanced profile and brand visibility.

KenGen commands a 62% electricity generation market share in Kenya with 1803MW, 2500 employees and an annual turnover averaging about USD 450 billion (approximately 1.7 trillion UGX).

Key take home lessons for the Uganda delegation included issues related to; clear mandates of all players within the sector, streamline sector planning framework, supportive regulatory framework for the Government Agencies to operate sustainably, profitably, and diversify their business portfolio in a prudent manner.

The Kenya excursion brought new insights to the Uganda delegation. "There is no reason why we shall be looking further than you our neighbors for partnerships and collaborations on all fronts," Said Dr. Kitutu, adding, "You have proven your worth and earned our confidence."
"It was a good interaction, we learn from one another and there is a need for us to synergize our operations...You have a lot of hydros and the western part of Kenya takes power from Uganda and we can get more, if we invest on the transmission line," concluded Cabinet Secretary Hon. Charles Keter.

For immediate action, KenGen envisages training for Geothermal exploration, plant operation and maintenance collaboration and exchange programme. "We have done some work in Ethiopia and Djibouti, we are excited to even expand to Uganda and offer our expertise in all the various areas of the energy Development," said Ms Miano, KenGen CEO.

The benchmarking visit to Kenya, by the Uganda Energy Minister was revealing on how much the energy sector in Uganda should reform, adopt and execute, if it must sustainably deliver tangible value to the country's overall development goals and objectives.

French fashion designer and businesswoman Gabrielle Bonheur, fondly known as Coco Chanel is quoted to have said, "If you were born without wings, do nothing to prevent them from growing".

ENDS

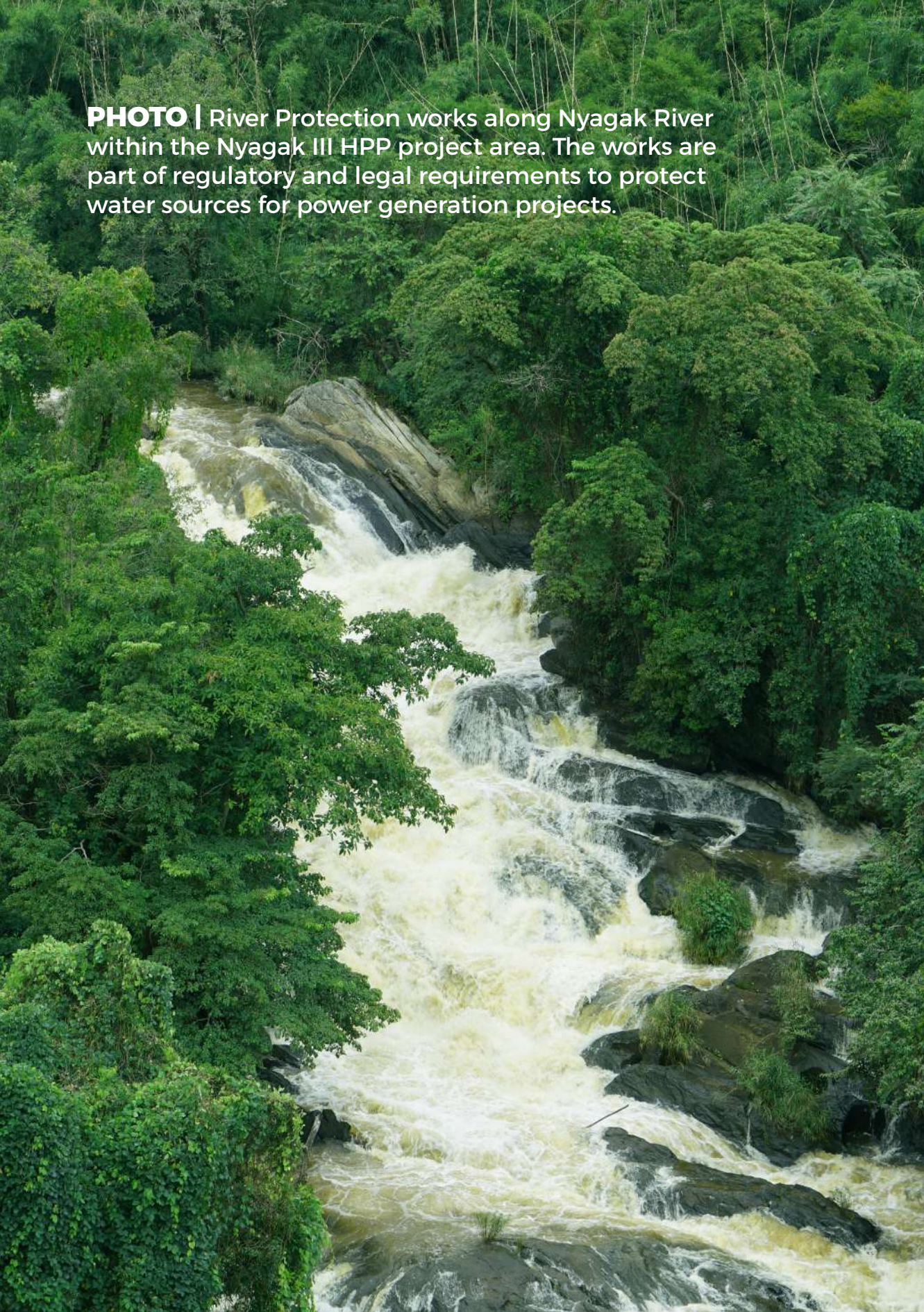


PHOTO | River Protection works along Nyagak River within the Nyagak III HPP project area. The works are part of regulatory and legal requirements to protect water sources for power generation projects.

KNOCK KNOCK! IT'S THE FLOATING ISLAND AT NALUBAALE DAM

Muhammad LUBOGO
Public & Media Relations Officer

In COVID-19 times, when the biggest population is at home, a presidential address is now a must-watch for many Ugandans more than ever. It was the end of the first 14 days of lockdown and the million-dollar question was, what next? To add or not to add more days of lockdown – that was the big issue of the day. The nation waited, with batted breath, for the Presidential address. H.E Yoweri Kaguta Museveni, President of Republic of Uganda, was set to address the nation on 14th April, 2020 at 1:00pm.

time, a nationwide blackout. In such incidents, UMEME is the first suspect and Ugandans took to Twitter to give them a piece of their mind. Nalubaale Power Station, Kira Power Station and Bujagali Power Station, all were off and so was the cascade of other electricity generation facilities from heavy fuel generators like Jacobsen in Namamnve to cogeneration plants like Kakira Sugar works

A large "island" of hyacinth and papyrus that had arrived at the intake of the Nalubaale Power station overnight had chocked/clogged intake screens thus affecting the cooling systems of generation machines and the eventual forced shutdown of some units at Nalubaale hydro power station. "Only three machines could run at Kiira HPP due to the same problems. Nalubaale-Kiira Dams could only output 145 MW. On the other hand, Bujagali HPP could only produce 50 MW out of a possible 250 MW since they had shut 4 of the 5 machines to clean their cooling systems as well," this was according to UEGCL's Chief Operations Officer Eng. George T. Mutetweka. The explanation of that day's blackout, simply put, is that. The finer details, technical as they come, will sound like Spanish on this page. I will spare you the agony of a crash Spanish lesson and simply share how I got involved and spent my next seven days in the thick of an operation to save us from yet another blackout.

Only three machines could run at Kiira HPS due to same problems. Nalubaale-Kiira Dams could only output 145 MW.

Few minutes to the presidential address, everyone tuned into their favourite radio and TV station and boom, a blackout. Not just the usual areas of Najjera, Kiwatule, Kira, Kisaasi, Kyanja but this

14th April, 2020

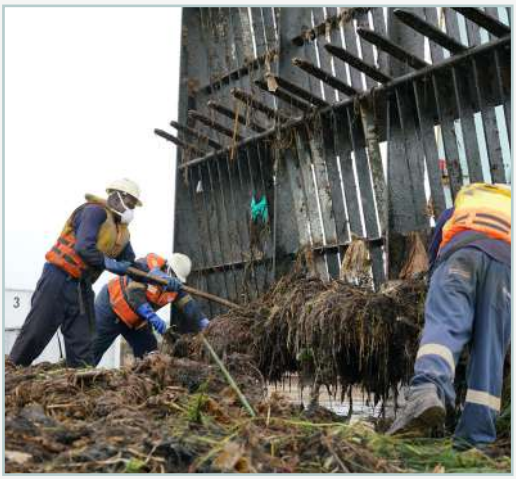
Floating Island docks at Nalubaale Power Station

19th April, 2020

H.E Gen. Yoweri Kaguta MUSEVENI inspects ongoing works to clear the floating island that docked at Nalubaale Power Station

15th April, 2020 - 23rd April, 2020

Works to clear the floating island and other floating islands spotted along Lake Victoria



The **Result!**

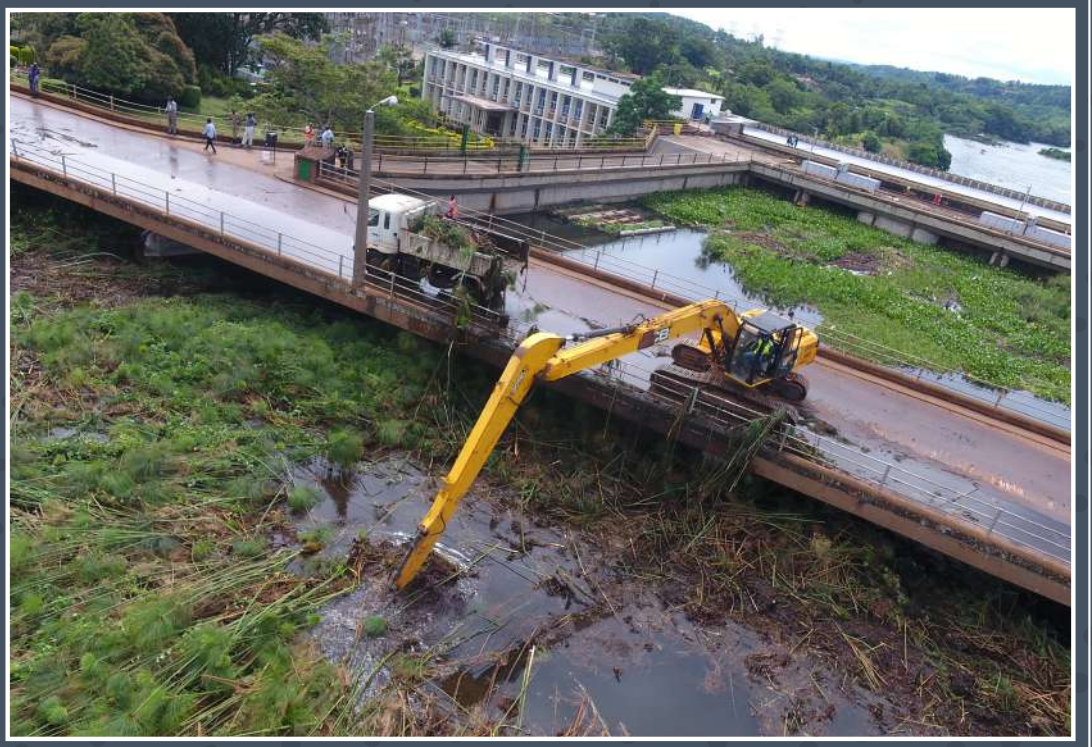


PHOTO | An excavator loads debris onto a truck during the exercise to remove the floating island at Nalubaale Power Station

For starters, as said earlier, when the 'power went'; the country too went to Twitter to vent! We in the electricity sector also went to twitter to explain and give assurance.

"We regret the national power blackout occasioned by a huge floating water weed island that stormed Nalubaale hydropower station this morning. All stakeholders under the coordination of @UETCL are working round to stabilize the grid and reinstate generation in a short while," Tweeted UEGCL CEO Dr. Eng. Harrison Mutikanga within minutes of the blackout. Full nationwide power supply was restored in less than 60 minutes; but that was only the beginning of an operation to avoid the same.

What we had earlier thought to be an unprecedented sized 'island' was soon to be dwarfed by the others that we saw on their way. Now that the nation is powered, the biggest monkey lies in how to get the floating island cleared. The Uganda People's Defense Forces took lead in the operation to clear the debris. Uganda National Roads Authority, National Environmental Management Authority, Ministry of Works & Transport, Uganda Electricity Generation Company Limited, Ministry of Agriculture, Animal Industry and Fisheries came on board and gathered manpower, equipment and draw strategy.

For 6 days, sounds of excavators and trucks carrying debris became the new normal at the Jinja old bridge. On the 7th day, with the debris cleared, all that was left was to clean the screens of the Nalubaale Power Station intake to bring the turbines back into business.

But as the bulldozers on floaters and land together with dumper truckers went about their cleaning act, a multidisciplinary surveillance team was hovering the waters of the lake to be sure there was not another floating island. The findings? Interestingly bizarre, there were two larger islands temporary docked on the shores of Lake Victoria near Kirinya prison Jinja. Overnight, a sizeable piece had broken off and was on sail towards Nalubaale! Forewarned is forearmed, they say. This was met with the tenacity and ferocious handling that only the team comprising of UNRA, UPDF, Ministry of Works etc could.
Drone pictures, which is why I was on that team, showed a picturesque spectacle of vegetation calmly swaying on the lake whose levels are fast rising due to increased rains in the Lake Victoria basin and beyond. But make no mistake, the picturesque spectacle presented doom, if it made its way to the Nalubaale dam intake.

There was banter on social media platforms as expected. Some people called this witchcraft. They couldn't believe a chunk of land floating on its own, carrying crops and whatnot. Floating islands are common on lakes where water levels vary seasonally. At low tides, plants at the shore anchor onto loose organic soil, knitting their roots around the soil to create a firm mat. As water levels rise, the plants pull much of the soil material, hence giving rise to a floating mass complete with soil and vegetation hence the situation on River Nile in Jinja was no different.

Floating islands on lakes are not a new thing. In 2015, there was a story of a mysterious floating island nicknamed 'Jaja Magezi' on Lake Victoria migrated from one site to another, mainly between Ggaba landing site, Port Bell - Luzira and Miami Beach. Other man-made islands have been made to float on lakes for different purposes. For example, on Lake Titicaca in Peru, there are about 70 floating islands. The science of freshwater restoration has also seen the invention of floating treatment wetlands or eco islands, which come in many forms.

By the time President Museveni came visiting to see, first hand, the progress that had been made in protecting the dam from floating islands and cleaning the initial mess, the team had expanded its horizon of island monitoring to as far off places as Port Bell and Ggaba.
Floating islands aside, the rising water levels should worry us. Beach front mansions and other installations have a new menacing visitor; water and all that it carries with it.

For us, both hands are on deck to avert any other national blackout occasioned by a floating island!

UEGCL
Generating for Generations

PURPOSE STATEMENT:

To sustainably generate reliable, quality, and affordable electricity for socio-economic transformation

STRATEGIC THEMES

- Operational Excellence
- Stakeholder & Reputational Management
- Sustainable Growth
- Engaged Work-force

CORE VALUES

Integrity
We embrace honesty in everything we do & we are determined to adhere to ethical business principles and good corporate governance at all times.

Innovation
We continuously develop and apply creative solutions towardsimproved service delivery.

Accountability
We are committed to a performance-based culture & teamwork where all of us are accountable for our actions and results

Safety
We collectively embrace a safety culture in all our projects & operations

Sustainability
We commit to generate electricity that meets the needs of the present without compro-mising the future.This also caters for the concerns of the environment.

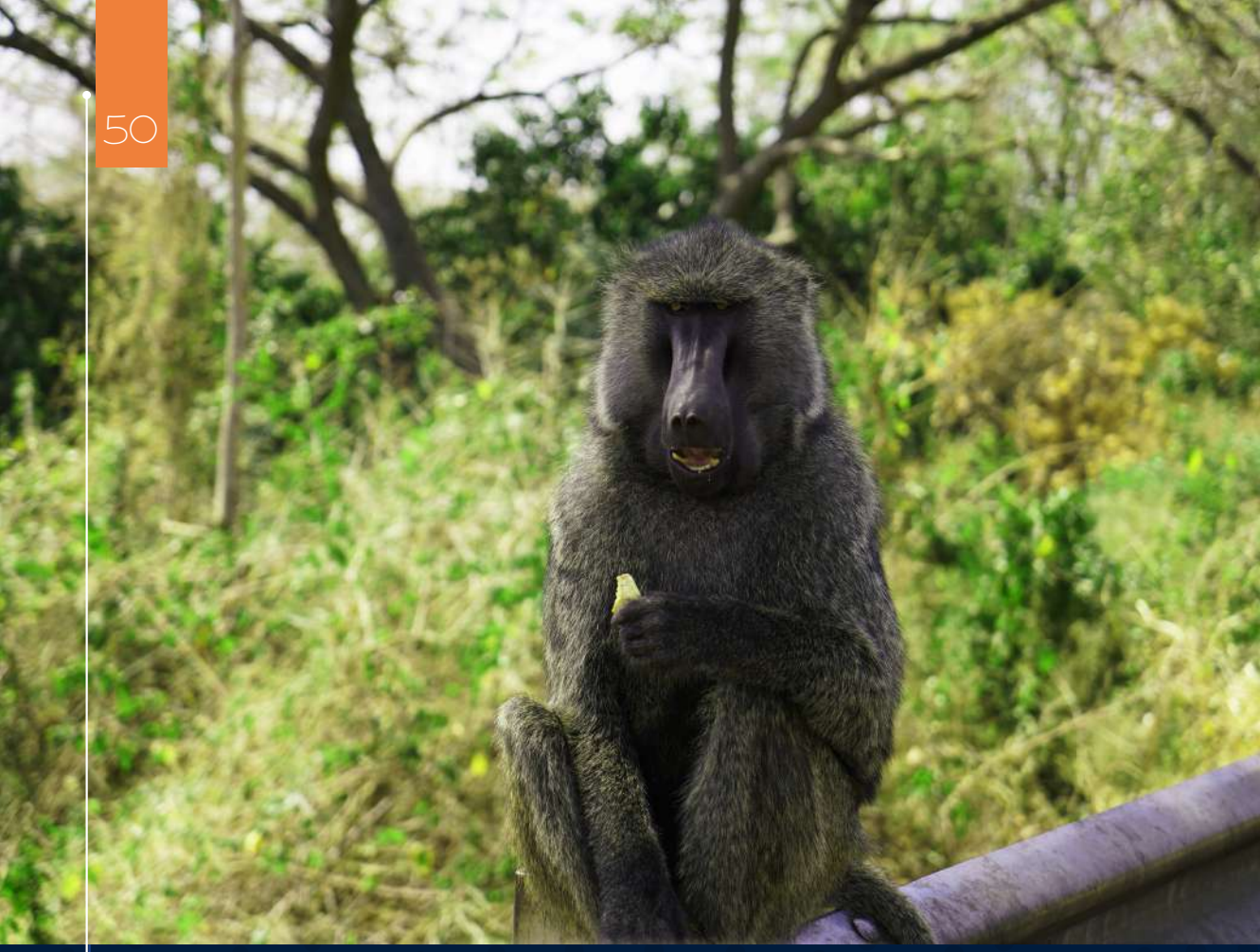
KEY ENTERPRISE LEVEL INITIATIVES

- Stakeholder Relationship building
- Resourcing Strategy
- Business Sustainability Business Process Re-engineering
- Asset Care
- Human Capital Focus

Roadmap 1300

Long Term Strategic Goals 2023

* 80% Stakeholder Satisfaction
* 1300 MW Installed Capacity
* 97% Plant Availability
* 99% Plant Reliability
* Achieve Profitability
* ISO 55000 & ISO 45001 Certification
* Engaged Staff



CONSERVATION CLEANUP: DECOMMISSIONING OF TEMPORARY SUPPORT INFRASTRUCTURE AT KARUMA WILDLIFE RESERVE.

Alan Denis OROMA
Sociologist

Richard KEPO
Environment Officer

The Ministry of Energy and Mineral Development (MEMD) together with Uganda Electricity Generation Company Limited (UEGCL) are constructing the 600MW Karuma Hydro Power Plant (KHPP) located on the River Nile and The Contractor, Sinohydro Corporation Limited is undertaking the project construction works. The works started in 2013. Some project sites are located within the Karuma Wildlife Reserve in the Murchison falls conservation area to the South of the River Nile in Kiryandongo District and are accessible through road infrastructure that was created to support the construction of the power plant. The Karuma Wildlife Reserve is under the jurisdiction of the Uganda Wildlife Authority as a protected area which means it is not inhabited by the human population.

Karl Marx and his associate Fredrick Engels argue that nature and society cannot be seen as utterly opposed but should co-develop with one another as natural history and human history become different aspects of the same thing and thus a balanced humanization of nature by man to usher in sustainable development. The 600MW KHPP is being constructed against the backdrop of sustainably generating reliable, quality, and affordable electricity for socio-economic development. Therefore, sustainability in this aspect involves using KWR and returning it to its natural state through decommissioning, a process of physical removal, disposal, and modification for beneficial usage of existing project infrastructure at the end of their working life (World Bank, 2009). Decommissioning for support infrastructure commenced at KWR in July-2019 following conditions as set in the NEMA EIA approval certificate 5113 of July 2014), which required dismantling of the temporary facilities. The decommissioning activities were implemented with a collaborative approach involving MEMD, UEGCL, UWA, and Sinohydro Corporation. UEGCL took the supervisory role.

The decommissioning has ensured that burrow pits are restored, slabs were broken, construction debris, and contaminated materials are removed. Adequate protection and mitigation of topsoil coverage and planting of lost vegetation has been enforced. In the context of KWR, decommissioning activities also involved removing products with a long half-life and residual effect on the environment such as petroleum products and in the short time span of the clean-up, it has been observed that various species of wild animals and vegetation have sprouted up in these areas marking their

The decommissioning has ensured that burrow pits are restored, slabs were broken, construction debris, and contaminated materials are removed.

territorial conquest.

In the biological environment, Karuma Wildlife Reserve (KWR) has terrestrial flora and floristics; a total of 258 plant species belonging to 61 families are within the project area (ESIA, Karuma Hydropower Project 2012). Similarly, there are two major plant communities common in KWR namely the wooded grassland and riverine vegetation. The dominant wooded grassland has sub-communities of various plant species namely the thick woody vegetation sub-community common along the access route. Conversely, the riverine vegetation plays a very important role in the stabilization of river banks and the prevention of soil erosion. It is also important in the protection of the river from siltation and sedimentation. In terms of the conservation value, riverine vegetation is the richest with microhabitats.

The terrestrial fauna, mammals (the larger species) represent a group of animals which together with birds quickly draws the attention of Wildlife Reserves and Park Managers as well as the wider community. They are easily spotted in the right habitats, for which reason they support tourism and other impacts from them like poaching, crop-raiding, and cause injuries to people representing significant issues. Similarly, small mammals present a very useful taxon for measuring impacts on habitats to biodiversity. Their population turnover is faster than that of larger mammals. Their shorter life span impacts on mammalian fauna can easily be measured based on them. At least 15 species of small mammals including rodents, insectivores, and bats have KWR as their habitat. The large mammals have over 15 species of medium to large-sized mammals (ESIA, 2012). Of these, only Buffalo seemed to occur in fairly large concentrations. Hippopotamus tracks are so common which indicate their presence in large numbers.

During construction time within the wildlife reserve, the most common mammals observed within the project areas included primates (black and white colobus, vervet monkey, olive baboons), elephants, buffalos, bushbuck, and hippopotamus.

Other species did not appear to be in high densities in the area of impact. During construction time within the wildlife reserve, the most common mammals observed within the project areas

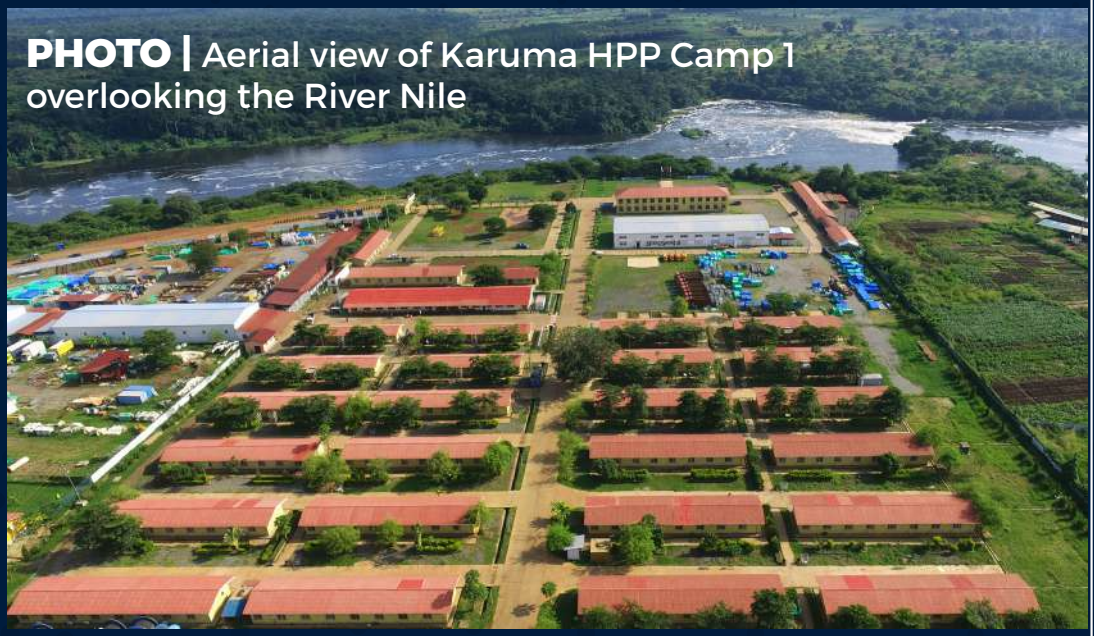


PHOTO | Aerial view of Karuma HPP Camp 1 overlooking the River Nile

included primates (black and white colobus, vervet monkey, olive baboons), elephants, buffalos, bushbuck, and hippopotamus. Species with a preference for some level of forest cover dominated in addition to few water birds.
The decommissioning focused on the following main areas; Access diversion into tunnels (Adit) 8 construction area, Adit 9 construction area, concrete batching plant, aggregate processing area, oil depot, steel/rebar yard (materials storage), generator station and the transmission.

The decommissioning procedures were based on the infrastructure that was put in place within the fragile eco-system-KWR, it is observed that a good proportion of decommissioning structures were designed for re-use; specifically, those made of steel, other reusable materials not limited to steel sections, used tyres, wood pallets.
The decommissioning was phased to cater to last bits of the construction works in particular concrete batching plant, transmission lines, and generator station which were the last facilities to be decommissioned.
Key decommissioning activities included; disassembly of steel structures, collection of roofing metal, steel beams, fencing, excavation of concrete foundations, and rock transportation of temporary/ prefabricated offices. Disassembly of posters and signboards, removal and carriage of fuel tanks and fuel contaminated material, dismantling sediment tanks, ground clearance at infrastructure sites location, and preparation of the areas for revegetation.
Decommissioned material such as rubber and tyres were recycled, steel including steel rods were dismantled and recycled into scrap, oil/ fuels were handled by De-Waste, a company

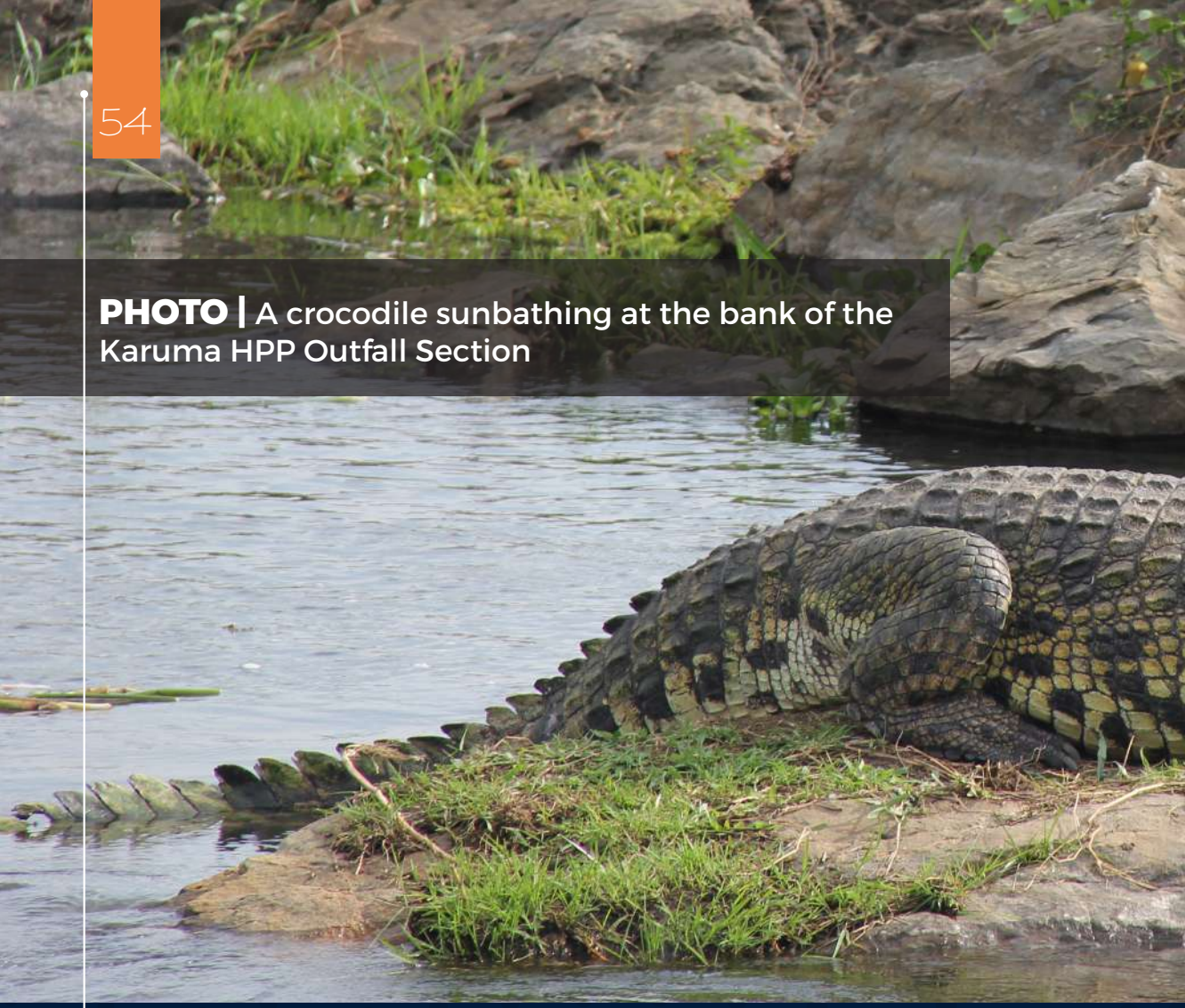
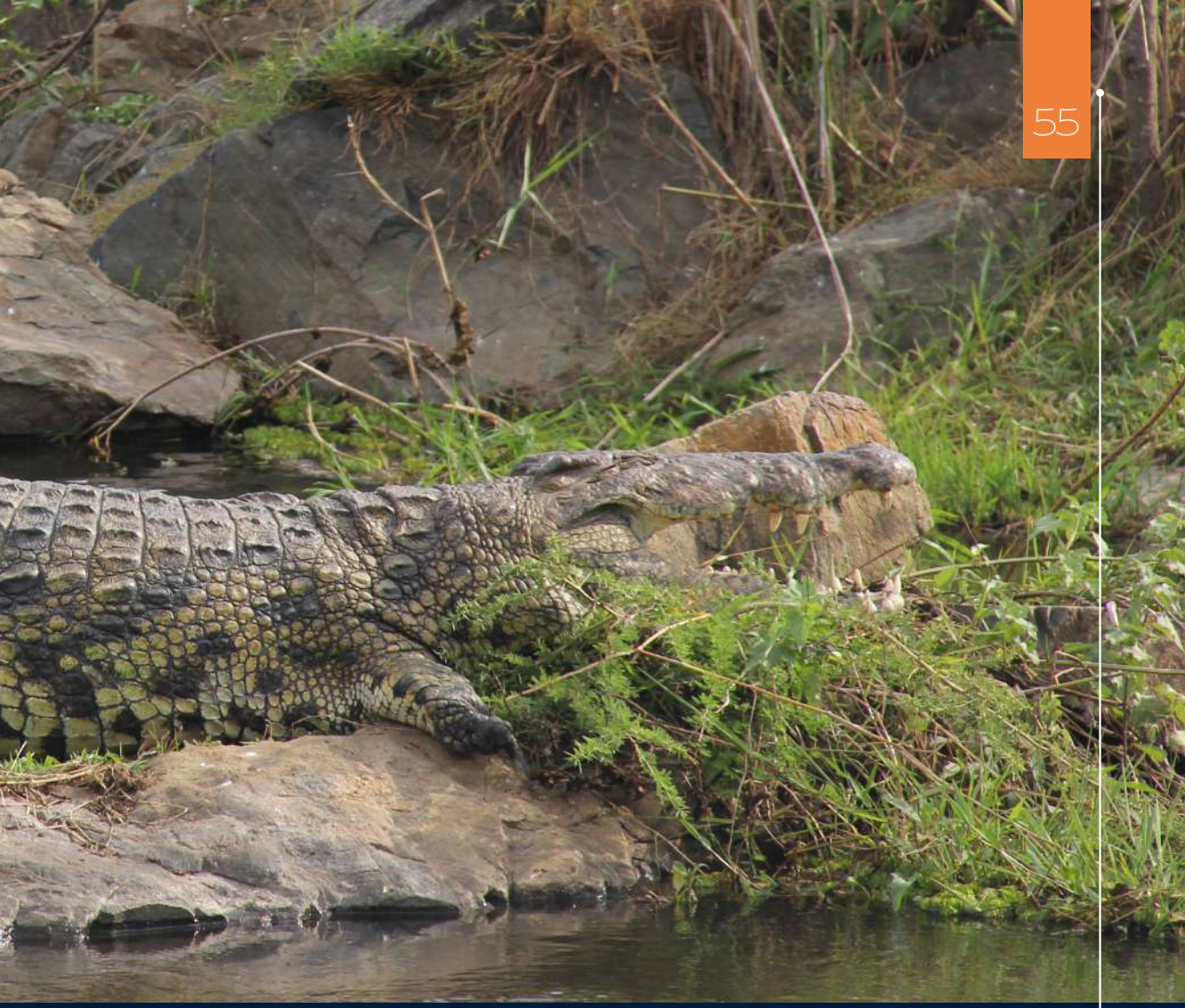


PHOTO | A crocodile sunbathing at the bank of the Karuma HPP Outfall Section

licensed by NEMA to handle hazardous waste. Concrete foundation/ rubble was excavated and transported to authorized dumping areas, in addition, excavated rocks were removed and used in backfilling at Access Ducts in Tunnels (ADITs).

Generated wastes were categorized into nonhazardous and hazardous. Non-hazardous wastes include pallets, paper, cardboard, and plastic were segregated and collected for recycling. These are currently being disposed of by De-Waste. The non-hazardous waste was stacked at the designated waste collection site for disposal. This included scrap metal, wood pallets, paper, empty plastic containers, and rubber tyres. Waste documentation is implemented on-site in accordance with the environmental management plan for KHPP and waste management regulations for Uganda. The hazardous wastes in the decommissioning process at KHPP consisted of oils and sanitary wastes. The collected oil wastes are inorganic and were transported for recycling and destruction in Luwero Industries, Nakasongola after which certificate



of destruction is issued as mandated by the KHPP EIA conditions for managing wastes. The decommissioned toilets for TRT-KWR had 5 water-born toilets and 10 mobile toilets demobilized. The toilets were emptied using cesspool emptier, transported and, disposed of at approved sewerage treatment facility. During the process, adequate protective gear was used and licensed operatives were deployed. Conclusion, since 2013, Karuma Hydropower project has been in the construction phase with components of support infrastructure situated in Karuma Wildlife Reserve which is home to wildlife, now that the work at this site is nearly completed, restoring this conservation area is paramount if the benefits of the investments are to be sustainably realized. Cognizant of these needs, the decommissioning of auxiliary facilities was undertaken that involved a cleanup process and repair of the fragile eco-system so that the wildlife continues to co-exist alongside development. The results have had immediate success, evident in plant and animal colonization of some sites.

PHOTO | Panelists at the Thought Leaders Forum 2019 pose for a group picture. L-R: Dr. Rose KAGGWA, Dr. Eng. Harrison MUTIKANGA, Ms. Lucy MALU, Mr. Tony GLENCROSS, Mr. Johnson OMOLLO, Mr. Mohammed DEWJI, Mr. David BIRUNGI & Mr. Patrick AYOTA


ONITOR
2019

COVID-19 AND ITS FISCAL IMPLICATIONS FOR STATE OWNED ENTERPRISES (SOES): REFLECTIONS FOR THE ENERGY SECTOR IN UGANDA

R.Eng. Nicholas Agaba RUGABA
Project Manager, Nyagak III (6.6MW) HPP.

Peace Ingabire
Risk Officer

The COVID-19 pandemic needs no further introduction. It has affected every facet of our lives and livelihoods at national and global level. Besides the fatalities arising from the viral infection, the pandemic has affected education for children (who can't easily access schools anymore), led to loss of jobs and incomes in both the formal and informal sectors, and has created potential fiscal risks for countries like Uganda that are implementing strategic plans/ programs to transform to a middle income economy under Vision 2040. As we emerge out of the lock-downs and other restrictions that were instituted to control the spread of the Covid19 virus, we need to look at the potential implications of the pandemic on the broader fiscal position of our government and subsequently the State Owned Enterprises (SoEs) like UEGCL in the short and medium term.

According to the International Monetary Fund (IMF) World Economic Outlook for 2020, as a result of the pandemic, the global economy is projected to contract sharply by –3 percent in 2020, much worse than during the 2008–09 financial crisis. This implies that the value of goods and services produced globally in 2020 shall be only 97% of what was produced in the year 2019. The IMF further indicates that in case the pandemic fades in in the next 6 months and the restrictions/ lock-downs are relaxed, the global economy shall grow by 5.8% in 2021 as economic activity normalizes, helped by policy support. If the pandemic does not fade away, then we are headed for more gloom, uncertainty and economic slow-down. At the time of writing, South Korea had just re-implemented lockdown restrictions after seeing its biggest spike in

coronavirus cases in more than 50 days. Uganda is still under partial lock-down with daily curfew running from 1900 Hours to 0600 Hours.

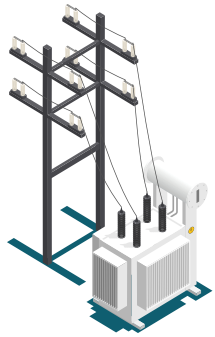
The Ministry of Finance, Planning and Economic Development (MoFPED) in the Performance of the Economy Report (April 2020) noted that preliminary estimates indicated that Uganda's economic growth will slow to 3.9 percent during FY2019/20 down from a pre-pandemic projection of 6.0 percent. MoFPED further noted that lower economic growth will hamper domestic revenue mobilization efforts and limit household income. The report further adds that government operations during April 2020 resulted in an overall fiscal deficit of Shs 1,037.14 billion which was higher than the programed deficit of Shs 712.04 billion due to shortfalls in domestic revenues and grants.

It may be prudent for SoEs like UEGCL to identify and assess the potential fiscal risks that may arise from their mandate in the short and medium term as we build out of the Covid19 pandemic. There is ample empirical evidence, that SoEs have been a source of substantial risks for their government owners, and that such risks have materialize in many cases with sizeable costs for national budgets. (Teresa 2017). According to a study by IMF Staff (Bova and others, 2016) State-owned enterprises (SOEs) are a potentially significant and common source of fiscal risks, with government bailouts of troubled SOEs costing 3 percent of GDP on average and 15 percent of GDP in the most extreme cases. Other sources of fiscal risks include macro-economic shock (sharp declines in nominal GDP growth), natural disasters and Public Private Partnerships (PPPs).

Total Installed Capacity

1,206.3MW
(2019)

984MW
(2018)



Energy purchased and sold by UETCL

4,252GWh
(2018/2019)

4,097GWh
(2017/2018)

By end of 2019, the Uganda's total installed capacity was 1,206.3 MW on the backdrop of UEGCL commissioning Isimba (183MW) HPP in April 2019. The Total Installed Capacity was 984MW the previous year 2018. The energy purchased and sold by UETCL in the Financial Year 2018/2019 was 4,252 GWh and 4,097 GWh respectively. Large Hydros plants namely Isimba HPP, Nalubaale/ Owen Falls Complex and Bugajai

HPP accounted for 79% of the Sources of the Energy Purchases. Other sources include small hydros under the GetFit Program, Thermal and Bagasse co-generation etc. This implies is that large hydro plants were the source of 3,359 GWh of energy in the financial year 2018/2019. For perspective and context, Isimba (183MW) HPP has an estimated average annual energy production of 1,039 GWh. At that production level, Isimba HPP would have at least 30% market share of the electricity generation production under large hydro. The economic slowdown due to the Covid19 pandemic may not only affect the energy consumption but also business operations of SoEs.

Many SoEs in the electricity sector are not immune to the macro economic shocks affecting foreign exchange rates, economic growth rate and interest rates. According to the Performance of Economy Report, in April 2020, the Ugandan Shilling depreciated by 0.3% against the US Dollar to an average midrate of Shs 3,785.7/US$ from Shs 3,772.9/US$ in March 2020. The depreciation of Uganda Shilling has potential impacts on the financial books of the SoEs that collect revenues in

PHOTO | Hon. Eng. Simon D'UJANGA - State Minister, Energy poses for a group photo with UEGCL staff and Kaal Paidha Umua Elders after a site meeting at Nyagak III Hydropower Project.

local currency but service debt and incur operational and maintenance costs in foreign currency, mainly the US Dollar. What happens when SoEs make losses or are short on revenue? They may need extra budget transfers and or bail-outs from the central government thus higher fiscal burdens.

Additionally, entities like UEGCL and UNRA have had to deal with climate change

issues related with rising water levels and floods. The management and mitigation of climate change risks and natural disasters affecting infrastructure like dams, bridges and hydro power plants also places and presses a burden on the fiscal position of national governments. UEGCL is also further involved in public infrastructure projects and private partnership projects (PPPs) that are a source of contingent liabilities for national governments. Contingent liabilities are obligations triggered by a discrete but uncertain event. (Polackova Brixi and Allen Schick) Contingent liabilities are also obligations whose timing and magnitude depend on the occurrence of some uncertain future event outside the control of the government (Aliona Cebotari). Examples of contingent liabilities include, guarantees for borrowing and obligations of sub-national governments and SOEs., guarantees for trade and exchange rate risks, guarantees for private investments (PPPs), national/state insurance schemes (deposit insurance, private pension funds, crop insurance, flood insurance, war risk insurance), unexpected compensation in legal cases related to disparate claims.

The COVID-19 pandemic continues to paint a gloomy picture on the Ugandan economy. Like a typical black swan event, the future is unpredictable with potential extreme consequences for economies in Low Income Countries like Uganda. An IMF Working Paper in January 2016 noted that the materialization of contingent liabilities, together with exchange rate depreciations, have been found to be behind major unexpected increases in the debt-to GDP ratio over the last 10 to 15 years (IMF, 2003; Cebotari and others, 2009; and Jaramillo and Mulas-Granados, 2015), and the associated fiscal costs (in terms of fiscal outlays) can be very high. State Owned Enterprises like UEGCL may have to look beyond the horizon to get a fuller picture and understanding of the fiscal costs and macro-economic vulnerabilities that the energy sector poses on the Ugandan economy. It may be a herculean task that requires multi-sectoral engagements but it is worth every effort.

COPING AMIDIST A CRISIS; AN HR PERSPECTIVE

(CASE OF THE COVID 19 PANDEMINC)

Jackline Bahizi KAMBABAZI
Human Resource Manager

KEY DATES

11th March, 2020

COVID-19 declared a global pandemic

22nd March, 2020

Uganda confirms first COVID-19 case

On 11th March 2020, the World Health Organization declared the novel coronavirus (COVID 19) a global pandemic; this was after cases in China where the virus originated had increased three-fold as well as cases in other countries and further increases were expected. Countries were therefore called upon to take action to control the spread of the virus.

At the time of filing this article, the Africa Centre for Disease Control (CDC) reported a total of 5,308,641 COVID-19 cases and 342,151 (CFR: 6.5%) related deaths reported worldwide with a total of 215 countries and territories having reported COVID-19 cases.
In Africa, a total of 142,510 COVID-19 cases and 3,471 (CFR: 3%) deaths have been reported in 54 African countries, this is about 2% of all cases reported globally.
On 22nd March 2020, Uganda confirmed her first case of COVID 19; 413 cases have since been recorded. To contain the spread of COVID 19 in Uganda, the Head of State, President Yoweri Kaguta Museveni put in place several measures that include among others putting the country under lockdown, closure of boarders, stopping the use of public and private transport, closure of shops, schools and offices among others. These measures have brought about changes that one would not anticipate and have generated far reaching effects.
We have had cases of job loss in some sectors while those who are still lucky to have jobs are expected to work from home, meet deadlines, balance between work and home needs. Parents have since taken on homeschooling and have come to appreciate the role of teachers. While working from home, one has to supervise online classes, tests for the children since schools were closed. Domestic violence has hit levels that we had never experienced before as families try to fit within limited budgets and space.
People are no longer able to socialize or meet up with other members of their families which is creating a lot of anxiety and distress.
These far reaching effects leave one wondering how they should cope! Here are a few tips from an HR perspective that will enable you glide through the season with less stress and anxiety.

IN LEADERSHIP SITUATIONS, THEY CAN LEAD THROUGH:

- Calmness and humility (everyone is generally not aware of what next and should not be alarmed)

- Confidence and agility (focus on current needs, build commitment, lead by example)
- Transparent communication (clear, void of rumors – one could make use of statements like 'Here is what we know', 'Here is what we don't know, 'Here is what we are trying to find out' – this will go a long way in building confidence in you)
- Collaboration and engagement.
- Community and culture. Reinforce the organization sense of community and culture –by making daily contact with staff to uphold the family or organization culture)
- Compassion and care.
- Commitment to profitability (the organization needs money to survive and for this to come in, it all depends on the employees being led)

Pick lessons to Lead beyond today. Have you considered making flexible working hours a productive reality which can motivate staff and support the nation deal with the traffic congestion? Human Resource Managers have had a big role to play in ensuring employees adapt to the new normal. The Human Resource (HR) department happens to be one that employees look to for the provision of solutions especially amidst what is considered 'not normal'. The following are my experiences and some tips that HR Managers can advance to ensure employees cope with new changes, these include:

PHOTO | Onsite meeting at the 183MW Isimba Power Station observing guidelines from Ministry of Health

> ***Since UEGCL staff are 'essential employees'... work had to continue during the lockdown and as thus some employees were required to be at the Power stations 24/7.***

- Being a part of and communicating the new measures that will ensure business continuity, for example, communicating work schedules and expectations.

- Regular check-ins with staff to get feedback on how staff are coping. During such a check-in, the staff mentioned how to find a space to work, he had to make use of a laundry basket as a table to support the laptop! Another mentioned how she had to get a comfortable place in the corridor of her house to work. These are some of the sacrifices that staff endure to ensure business continuity.

- Provision of psychosocial support to deal with the mental health of staff for example at UEGCL we have engaged counsellors and encouraged staff to make appointments. We have also gone ahead to identify those that may need support and directly linked them to the counsellors

- Ensuring availability of safety equipment for employees for example during this COVID 19 Pandemic, at UEGCL, staff have had a constant supply of sanitizers and masks. The HR team has to also ensure that employees know how to use equipment given, for example, the temperature guns, without the skills, there may be wrong results given.

- Provision of resources to enable employees to continue with work for example at UEGCL, with support from the ICT department staff were provided with Modems and internet data. Since UEGCL staff are 'essential employees' given that they deal in the generation of electricity, work had to continue during the lockdown and as thus some employees were required to be at the Power stations 24/7. They were given resources to ensure at least comfortable stay at the site. Those that were required in office would be picked from home and dropped back at the end of each day.

- Employees are encouraged to find comfortable places in their homes to enable them work but more so to also participate in the work at home where need be such that support at home is also guaranteed as they work.

- Plans for return to work have to be properly managed, communicated and have buy-ins from relevant stakeholders. I had to make plans with different unit heads and then present to the Top Management to secure buy-in and guidance.

- HR Managers and other supervisors need to understand the different generations they supervise and how this will affect their return to work and their working from home. Point to note is that most Baby Boomers (1946-1964) are eager to go back to an office setting, this is what they are accustomed to plus they will soon be retiring and will have more time at home, Generation X (1965-1979) are focusing on work-life balance and therefore would not mind having to work from home or remotely some days and having a few days at the office, Millennials (1980-1994) quickly adapt, are fast with gadgets, and have shown great results working out of office, Generation Z (1995-2012) are accustomed to gadgets and are aware that they can accomplish their work anywhere.

KEY LEARNINGS DURING THIS PANDEMIC:

- It is important for one to learn a new skill during this time, one may not know when this will come in handy. I, for example, saw several people posting and sharing about their newfound baking skills; this can turn out to be a source of income in future.

- One needs to set realistic targets with their supervisors; there is no need to accept to deliver an assignment during the same time frame as it used to happen when one was still working in a proper office setting.

- The internet is now a necessity; this has been evidenced by a number of online sessions that have supported people during the stay at home. We have seen many zoom meetings, WebEx, Google meet, skype etc. People have been hopping from one zoom meeting to another.

- In times of a crisis, it is important to show compassion and empathy for those in need. This was evidenced by many individuals and companies that came out to support the vulnerable with food and other necessities during this COVID 19 Pandemic.

In conclusion, the COVID 19 Pandemic has taught us that there is more to life and it has been one way of reminding us that we are all human after all.

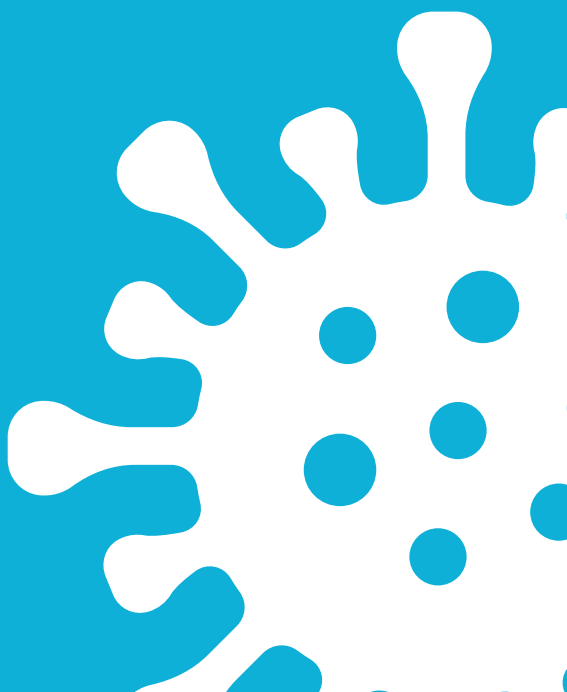


PHOTO | Rebar fixing for outgoing line yard surface drains at Karuma HPP

In the shoes of the Operations Manager

Eng. Ivan **ZIMBE**
Control & Instrumentation Engineer

I was greeted on my first morning as Acting Operations Manager with stiff, fairly confused smiles from my close group of work friends and piercing stares from the rest of my colleagues, who seemed to ask the question, "Where did you put our manager?" This was not the debut I had hoped for on the commencement of my duties. At the start of my term in office (October, 2019 - December, 2019), only 1 of the 4 units was running smoothly, with 3 other units in need of an urgent magical touch!
An appropriately embellished letter

written on company headed paper was handed to me. It was signed by the Chief Human Resource Officer and copied to the Chief Executive Officer and Chief Operations Officer and it gave me the go-ahead to start my trial run in the Operations department. Thereafter, with a few encouraging emails and words of support I began to implement my strategy. Well, what strategy did I have up my sleeves?

> ***"How could we efficiently handover from one shift to another without loss of important information?"***

GETTING THE TEAM ON MY SIDE

As much as this goal was a steep mountain to climb, it didn't change the fact that it was crucial in achieving success in my mission. This involved the difficult task of assuring the Shift Charge Engineers that we were a team, and that, in spite of my shiny new title, was still the same old Control & Instrumentation Engineer.

IMPLEMENTING SYSTEMS

Key on my agenda was implementing systems. How could we efficiently handover from one shift to another without loss of important information? The answer was quite obvious, get a notice board with important highlights and have it updated regularly. With the support of the Generation Manager, a board was availed within no time. This board showed the permits to work in force, isolations in force and critical plant issues.

These two actions were not enough to get the team on my side. I had to work harder than that.

TRACKING OF PERMITS TO WORK AND ACTIVE ISOLATIONS.

I encountered some level of resistance in my attempts to implement this, including clashing with officials with duties in this work chain, but this was not enough to derail my determination. On the contrary, it made me more determined to leave a positive mark.

Together with the team, we came up with a tracking mechanism, ensured that all works that had been finalized had permits closed and that issuance of new permits was done by only designated UEGCL staff. All works had to be supervised diligently and at the day's end, we would review which permits were still open and why.

WORKING ON ISOLATION PROCEDURES

For all isolations, I sat down with the shift charge and assistant on duty and we came up with step by step procedures. We printed these out and had isolations done with a responsible person present who would sign off on every step to ensure that it was completed. Our team managed to develop over 25 isolation and de-isolation procedures in this time. This was a major milestone for the team and it made me proud. The team currently does not do any isolations or

de-isolations without the procedures we developed.

THE CO_2 INCIDENT

There was an alarm of carbon dioxide present at 1037.5 mal (meters above sea level) which caused panic at the plant. It was a major safety concern and handling this incident was a preparation test in leadership. It got me asking myself questions;
Did we have the capacity to deal with a carbondioxide leakage at the power plant? How were we meant to deescalate the emergency?
These questions meant we needed to have the necessary protective gear to handle an emergency. The Health, Safety and Environment Officer (HSE) moved mountains to have the Fire Brigade come to the power plant, avail breathing apparatus and train the available teams on how to address this challenge. Moving forward, the incident ensured an expedited procurement process for breathing apparatus and basic first aid training as a pre-requisite to handle related emergencies.

THE EVER-FLOWING SECONDARY SHAFT SEAL FILTER

The shaft seal system is important in lubrication of the area between the seal and the shaft. It also keeps pressurized water in the draft tube from entering into the inner head cover by applying

PHOTO | Generator floor of Unit 3 at the 183MW Isimba Hydropower Station

water at a higher pressure. This system has self-cleaning secondary filters that use changes in differential pressure. The self-cleaning mechanism which we call backwash) happens approximately once every 3 hours but this was not the case as it was happening every 5 minutes and releasing water onto the floor. This water was flowing towards the dry-type excitation transformer and was posing a serious risk. The dedicated mechanical team (*Read Makanikas)* put in extra hours of work to avert this situation by replacing the filters and re-directing the water to the powerhouse drainage pit. For executing this task, I applaud the maintenance team for their focus in solving problems and ensuring unit availability.

ENERGIZING THE UNITS

Pre-starting conditions for the unit are numerous and many times having them all fulfilled can be a challenge. The Operations and Maintenance team was up for the challenge. Technically, many times during a unit start up, we had to have drawings at hand and ready to trouble shoot any failures. It could be that the brakes were not dis-engaging, or the Governor Oil Pressure Unit (OPU) was not building the required pressure. I was able to manage these challenges to a certain extent.

FLOOD SAVIOR

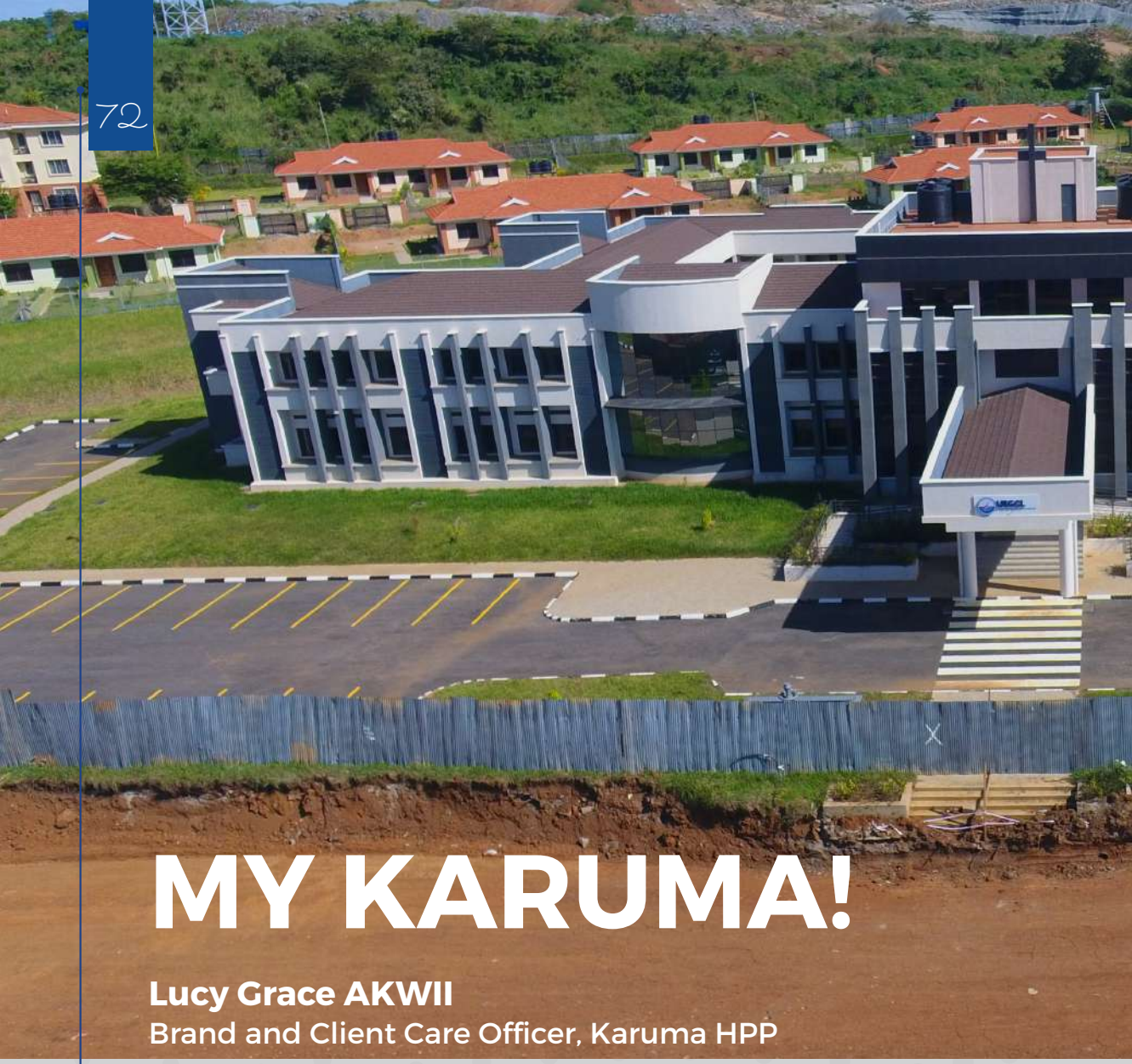
Isimba Hydropower dam is extremely difficult to access largely due to an uneven muddy road punctured with gaping holes and streams. In the following scenario, it had been raining cats and dogs for four days in a row. There was a diversion to allow for priming part of the road under construction. A vehicle carrying ten staff members got stuck in a seasonal stream. In short, the vehicle could not move and its air filter took in some of the flood water.
My newly acquired authority enabled me to request two new vehicles to take the staff to Kampala. The former vehicle was only removed late in the night with the help of a mobile crane.
This is an important attribute of leaders, the ability to solve problems and never abandon your team when they need you.

RUNNING ALL 4 UNITS

Restoration of the last unit in order to have 4 units running was the best way to sign out. Availability and reliability had been key deliverables on my scorecard and having all four units available and all risks of tripping averted ticked both boxes.

As I handed over, a few questions lingered in my mind. Who is a leader without a team? How can a team be consistently motivated? How do you get your team to buy into your vision and ideology?

And with these observations, I conclude by thanking my incredible team for the efficient work they put in and without whom I would not have been to achieve my goals as Acting Operations Manager.



MY KARUMA!

Lucy Grace AKWII
Brand and Client Care Officer, Karuma HPP

Born, bred, and raised in the bustling city of Kampala doesn't make one ready for the upcountry life I must say. So what is the beauty of upcountry that we are missing? Let's talk about the Karuma town where the Karuma Hydropower Project is located. Karuma is quite a small town with a few retail shops, small bars, roadside vendors, food vendors, mechanics just like any other typical highway town.

Being a small town along the highway, one will wonder about the type of life, the environment, the typical conversations around the town, the do's and don'ts, myths, and so on. It is interesting actually. When you first drive down the slope (coming from Kampala) as you arrive towards the Karuma town, your eyes are caught by the big billboards ahead, the storied building, and the more populated

highway street. It is a known bus stop for all those plying the northern route up to the West Nile. So depending on the time of arrival, you would be met with different buses parked with passengers boarding or alighting on either side of the road. It is a growing town with vendors running up and down to the different buses to make a sale with their hot plantain, maize, chicken, and then those selling 'soda, Water' like the usual bus stops along highways. There are also different types of vendors selling local breed cocks and hens which are so much sought after especially when travelling back to Kampala.

At a distance, one can start to see the olive baboons lurking around picking this and that as long as its edible. These dare to cross the road to the busy side where vendors are hoping to grab themselves a cob of maize or just about anything

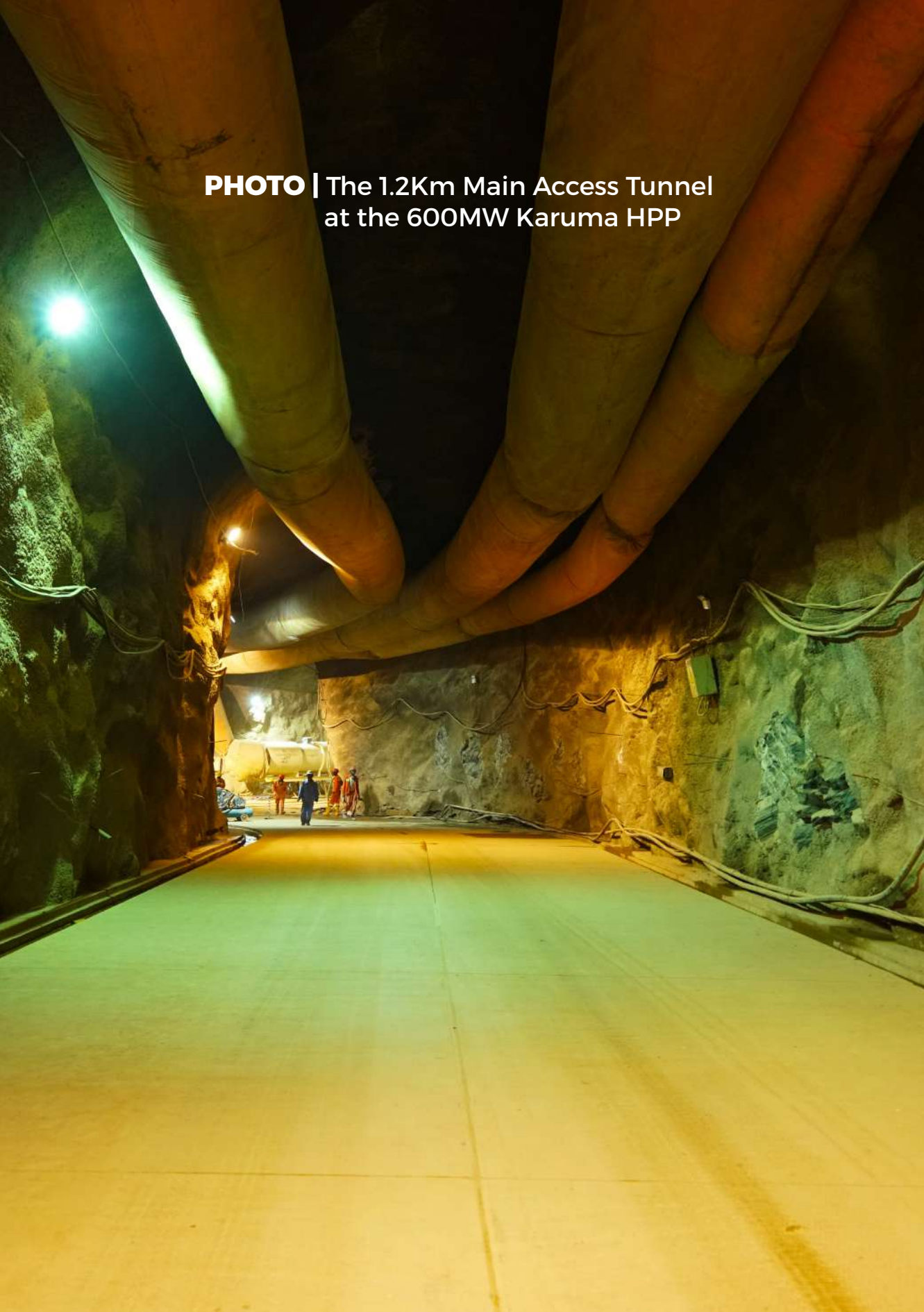


PHOTO | The 1.2Km Main Access Tunnel at the 600MW Karuma HPP

that they can eat. These are part and parcel of the community as everyone in the area is familiar to them and their tricks as sometimes they rest on top of parked cars. It's no surprise that the baboons enjoy the liberty to walk, play and fight each other along the road as the town is just meters from the Murchison Falls National Park.

The area is endowed with beautiful wildlife including vervet monkeys, colobus monkeys, different coloured monitor lizards which you may frequently see as compared to the other animals that you chance to come across either early in the morning, evenings or nights, that is, the elephants, Hippos, Bushbucks among others and a variety of bird species. Away from the fauna, make way for the flora, Karuma has a lot of virgin lands (land that has never been cultivated) meaning, there are the original self-grown W type of tress and all types of vegetation. Some parts have the wooded vegetation and others have the green forested vegetation. Plantations that caught my attention are the very big Fig trees and also the famous and endangered species as I came to learn, the Red Pokka Tree.

The beautiful Karuma Falls every time you cross the bridge holds a sense of peace. Oh what beauty from nature that we sometimes miss. Imagine waking up to fresh unpolluted air and a cold morning breeze, that can clear your skin, birds chirping away, and the clear blue sky. This may sound cliché, but nothing beats watching a beautiful sunset without thinking of driving through the city traffic to get home just to sit down to catch up on your favourite Telemundo soap, or watch your favourite team playing that evening. Working upcountry sometimes feels like you went on holiday from 5 pm once you leave the office. (Speaking for where I work).

The beautiful Karuma Falls every time you cross the bridge holds a sense of peace.

Karuma is a peaceful place to work and being a project, you interface with different people in terms of nationality, race, and even simply dialect, though it is an interesting, rewarding and fulfilling place to be depending on how you look at it.

The next time, opportunity strikes, why not ditch the hustle and bustle of the city, and try out the countryside, see the other side of life, who knows, you may enjoy the nature and feel of fresh air as long as a monkey or baboon doesn't steal your food...

Take the chance and go for new cheese.

A SUDDEN TWIST OF EVENTS

Rita BECHO
Brand and Client Care Officer

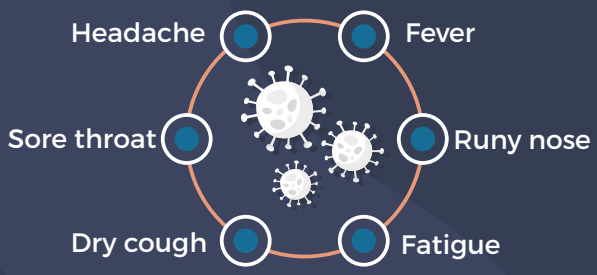
The year 2020 started on a high note just like most of the world had anticipated. Oblivious to us was the fact that we were yet to be treated to an extra ordinary year. It was in the month of February that the entire world realized a new virus referred to as the CORONA virus which would later be known as COVID-19. In Uganda to be exact, we didn't think it was so serious a virus to worry about because as a nation, we hadn't yet registered a single case of COVID-19. The government of Uganda put in place measures like closure of school, ban on public transport, among others to combat the spread of the virus. The emergence of this virus sent a massive wave of panic around the entire nation and hence forth the government placed the entire nation under lock down with stringent regulations and procedures be followed.

In addition to the above, several institutions including UEGCL laid forth measures in a strong bid to have their workers safe from COVID-19 but still have work moving. This being the first time such measures that have been implemented, has surely been an experience to behold.

I'd never have imagined staying home and having nowhere to go let alone working from home. This is a situation that I have been in for about a month now. In a way, I miss the conventional way of working being surrounded by my fellow workmates. It is indeed true that social distancing is one of the most effective means of combating the virus. I therefore have adjusted and embraced to the new system of work.

We at UEGCL employed one of the tactics several institutions adopted which is working in shifts. This tactic I must admit is a brilliant one owing to the fact that it maintains the social distancing rule because we are few in the office therefore chances of coming into close proximity with one another are lowered. I have actually felt much safer with this tactic because I am certain I am surrounded with a minimal number of people.

COVID-19 SYMPTOMS



It is imperative to note that I have been able to rejuvenate now and then owing to the fact that I have two weeks within which I am home before I can resume work for a week as well. This has increased my efficiency and productivity levels because I have been properly rested and stress free.
It is my strong opinion that this very measure could come in handy if at any one point either of us contracted the virus. The fourteen day gap is enough for one to completely establish if they are positive or not. This would therefore protect his/her colleagues from contracting the virus had they all showed up to work.

The experience of working from home has been so alien to me but it has however strengthened my concentration levels. With home comes a number of uncontrollable distractions that one has to be determined to fend off. The relaxed atmosphere at home has also enabled me to avoid the pressures that the office environment sometimes dons on me. Work generally has been hectic although completely manageable. Some of the tasks I have had to battle with include; budget rationalization. This particular one hasn't been easy because it desires astute concentration in seeing which sector takes what percentage and carefully seeing to it that it is appropriately distributed. It is something that required a team effort to accomplish at the end of the day.

Furthermore, I also had the duty of preparing my appraisals, editing several articles and administration of the department.
One of the most fascinating things during this quarantine has been holding meetings through the internet in our different locations contrary to the traditional method where we all had to physically be present. In truth, I feel it is as effective as the simple way and actually helps to maintain the social distancing rule and in so doing we keep safe.

This period has really highlighted the grave importance and dire need to embrace the internet because irrespective of the fact that we are not all physically in office, we are able to communicate with one another and have work accomplished as if we were physically present.

In conclusion, it is an experience that I begun to accept and live with until we are all safe and free from the pandemic which has befallen us. My dedication to my work hasn't dwindled any bit irrespective of the numerous changes that have come in place.

ELECTRICITY GENERATION MEETS CULTURE

ALUR PAIDHA UMUA CHIEFDOM SPIRITS & THE DEVELOPMENT OF THE 6.6 MW NYAGAK III HPP IN ZOMBO DISTRICT.

Nicholas Agaba RUGABA | Alan Denis OROMA | Moses OTIM, Allan KAJIK and Muhammad LUBOGO

INTRODUCTION

The 6.6 MW Nyagak III HPP project is located across the Nyagak River in Paidha Sub County, Okoro County, Zombo District, down a streak of the existing Nyagak I Power station. The area natives where the project is under construction are the Paidha Umua people, a clan among the Alur people. British Anthropologist Aidan W Southhall in his book and seminal work, Alur Society: A study in Process and Types of Domination (1956) described the Alur as Luo speaking Nilo-Hamitic people. Southhall pointed out the rain making powers of Alur Chiefs. He reveals that the first chief of Alur society was Rwoth Umier Dhiang, Magwar, Dhiang's eldest son became the first Chief of Paidha. Southhall acknowledges the spirit and worship practice a common feature of Alur traditional. He noted that the Alur do not like wars and always conquered their enemies through peaceful means. Recent ethnographic studies conducted among Nyagak river communities

documented the presence of a few pot shards in Uruku village. These pot shards bore the roulette decoration style indicating human settlements around the start of the late stone age (1400 A.D), the time of the Luo migration in the area. Community respondents revealed to researchers that river Nyagak has a cultural site with a mother spirit called Bungmbu which is revered and viewed as sacred to the Paidha Umua people of Zombo district. The cultural site has a waterfall with a rock outcrop nearby. Paidha Umua chiefdom conducts ceremonies at the water, rock outcrop and associated sites on the river, (Nyagak III Hydropower Project, Cultural Heritage Baseline Study, 2017).

SPIRITUAL PLACES OF ABODE ON NYAGAK RIVER

Along the river Nyagak III HPP area, 3 spiritual dwelling places were identified; according to the traditional spirit medium (Peter), the dam area is where the smallest spirit lives, the first child of Bungmbu, (Bungmbu in the Paidha Umua clan is the mother spirit). It has rocks and tree species known in Alur dialect as ober, kaka, tido (Mahogany), akelwak, akando, bush, thorns and scrub. The shades formed by the trees are considered resting place of the spirit (son) of Bungmbu. The Paidha Umua people believe that this spirit rests on the rocks that are to be excavated for the dam construction. According to their spirit medium (Priest), this son of Bungmbu moves on the water extending towards the left river bank. They believe the entire dam area is the home of this spirit.

HOME OF BUNGMBU

The second dwelling is the home of Bungmbu, the area harbors a tree which was home to a bee colony. According to explanations by the cultural priest, this place had not been visited in the last four years. "We have come to show you the respective places, if we do not appease these spirits, they will not be happy." The area extends to a temporary bridge constructed by DOTT services. The area had forests in which it is believed spirits dwelt and worked about it. The spiritual priest indicated that the area had buffaloes in early times and was known for the mysterious occurrence of events. The Paidha Umua people recount stories of spiritual snakes and leopards in this place, which are only seen to them and not visitors. As we continue with our guided tour by the cultural priest (Peter), we approach a place with a flat rock, he halts the team and indicates that is the place called Bungmbu, pointing with a closed finger (indirectly pointing) saying their spiritual norms do not allow for direct pointing. He and his son start to remove their shoes. "We stop here and remove our shoes, we approach this place, 4-5 people." He shows a tree named opok in Alur, under which the biggest spirit named Bungmbu stays and it is where the offerings are taken, these included chicken and peke-taken from millet flour used to make the brew. "Here is where we make vows, if the chicken offered fails to come back, then there is a problem that needs

> *"There is a rock, which the spirit medium indicated, it is where incantations are made, just under the rock while kneeling down. My wife does not touch the materials used in the sacrifices."*

to be fixed with the spirit. If the chicken comes back when flapping its feathers, then the signs are good and it means that the spirit is happy." The area had dada (tree point), with a creeping plant. The area in engineering terms is called WC14. To them, the area does not burn during the dry season.

THIRD SPIRIT, CHILD OF BUNGMBU

Situated near the project site at location CH10 in engineering terms, there is a rock, which the spirit medium indicated that charms are made. Just under the rock while kneeling down, "My wife does not touch the materials used in the sacrifices. The Spirit appoints people who will be mediums, the position is not inherited." Peter revealed that his brother tried to appease the spirits earlier without authority from the chief when the project started but he fell sick and died because Bungmbu was not happy. Peter indicated that since 2006, no spiritual offerings have been made to Bungmbu because it required a bumper harvest which he has not been able to realize. The fourth spirit, is outside the project area, in latenyi, overlooking the hills (Oruku)

LINEAGE OF THE SPIRIT MEDIUM HOUSEHOLD OF BUNGMBU

The home of Bungmbu is considered to be where Kitembero sprung up from naturally. When Kitembero was sleeping under this tree (the area had dada or tree point, with creeping plant), Bungmbu placed a flute on his faithful, this flute is still used on up to date, it has been passed on from his generation. Thus Bungmbu gave rise to Kitimberi who started

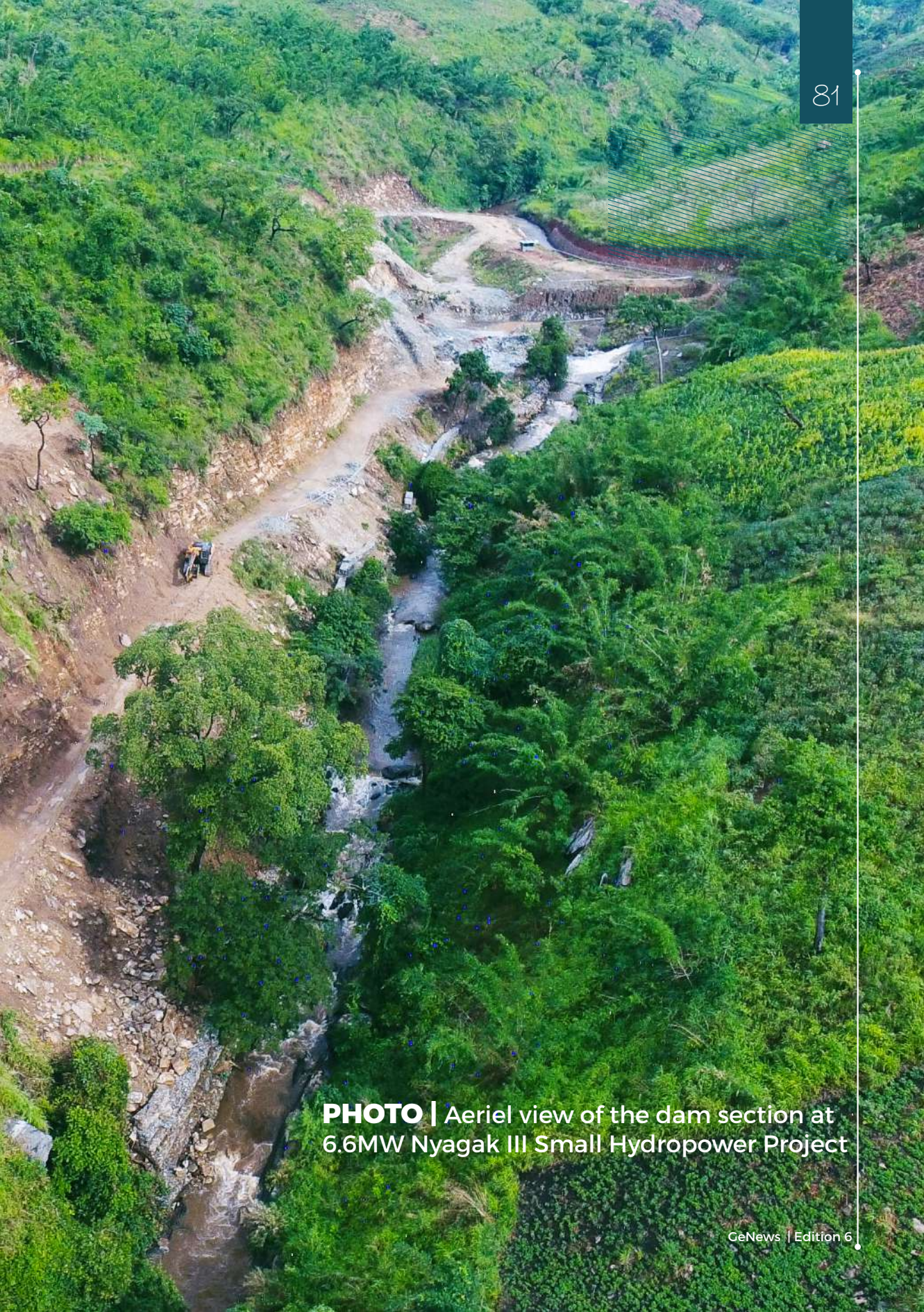


PHOTO | Aeriel view of the dam section at 6.6MW Nyagak III Small Hydropower Project

PHOTO | Meeting between UEGCL and Kaal Paidha Umua officials

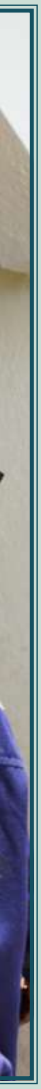
the sacrifice, Jal –Ayiri son of Kitimberi-Starting generation, Keta son of Jal-Ayiri, Gojo son of Keta, Olul son of Gojo, Medito son of Olul, Joseph son of Medito, Peter son of Joseph-Current Generation.

MATERIALS USED IN THE SACRIFICES

Olwedo tree leaves are used for blessings, Kwendo-Oyoo which was also used in the blessing has been cut, oywelo tree is also used in spiritual activities and related blessings. Opobo tree is plucked and its tied around the wrist and arms after performing the sacrifice. When you go back home, other food items like roasted maize, sim-sim, millet are offered to the spirits.

BURIAL SITES OF CHIEFS

Four Chiefs (Kings) have been buried across the



river in Avar. The burial place for these chiefs is also a cultural site. The Avar people are the children of their sister (Paidha Umua people) and do not have a chief. The Kingdoms of Paidha and Alur were started by brothers, however, the Alur kingdom oversees the cultural site. Paidha Umua chief is responsible for rituals in the Bungmbu area. The current generation of spirit mediums is led by Peter supported by his son Komakech Olul.

RELATIONSHIP BETWEEN PAIDHA AND ALUR KINGDOM

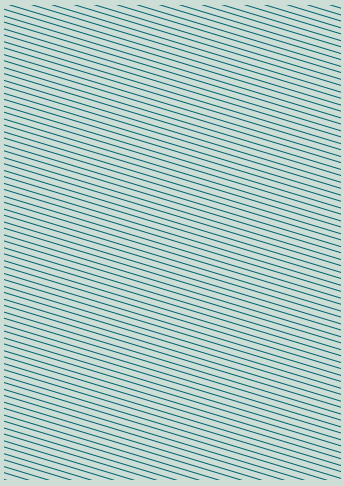
Kal Atyak are Alur Kingdom Headquarters. Kal Atyak and Paidha were brothers. When Omye dyang was still alive, he renounced the kingdom to his son before his death. Maguar is the grandfather of the current chief. *"We as the Chiefdom of Paidha Umua, our chief is fully in charge of his area. We are aware that we are under the umbrella of the kingdom, we are the ones who think and decide on what to give to the overall mother kingdom. They have nothing to say on this site."* said one of the elders.

IMPLICATIONS OF THE CULTURAL SITES

Workers engaged around the dam area have recounted stories of siting a leopard on the site and coming across extremely big snakes. When they try to drill under rocky areas around the dam area, they land on very big snakes. Some workers have revealed that in some sections, they feel extremely cold when they approach certain sections of the dam area even during hot seasons, thus the potential of fear in approaching these areas. The sites mentioned on the river Nyagak are linked to one another and are used in cultural activities by the Paidha Umua people, the sites are linked to bushes, trees and materials around the area. The site thus, constitutes intangible aspects of culture (non-material culture) and embodies the emotions and spirituality of the Paidha Umua people. For the project to move forward, there will be a need for negotiations with the owners of the spirits to pave way for spiritual appeasement and subsequent relocation.

CONCLUSION

Earlier Anthropologists who studied the Albert Nile people recommended that engagement of the Alur people should factor in their traditional spiritual life, because spirits greatly inform their social belonging, personhood and liminality. Critical discussions and negotiations with Paidha Umua people with a view of appeasing the spirits to allow dam construction works to be prioritized and their eventual relocation will be the gateway to fast tracking the 6.6 Nyagak III HPP works.



SAFETY IS KEY AT UEGCL: A VISIT TO THE 600MW KARUMA HPP

Cissy **APISO** | Secretary Rotaract club of Kampala Central /Journalist.

Safety! Safety! Safety, is the song of the day at the 600MW Karuma Hydropower Project. On Thursday 9th Jan, 2020, the Rotaract Club of Kampala Central led a team of Rotaractors to the 600MW Karuma Hydropower plant. The 600MW Karuma HPP is located on the Nile River in Kiryandongo District in mid-northern Uganda, 110km downstream of Lake Kyoga, and 270km from Kampala the Capital of Uganda. The main components of the Karuma plant include a dam, powerhouse, a surge chamber, pressure shafts, a cable shaft and tailrace tunnels.

Construction of the project commenced in December 2013. The Karuma Hydro Power Project facility is being implemented by Uganda Electricity Generation Company Limited (UEGCL) under the supervision of the Ministry of Energy and Mineral Development of the Government of Uganda with an estimated investment of $1.7bn.

Just before you enter the site, there is a face to face interaction and guide by the team. Right from the start to the end of the tour we were always reminded to keep safe in the PPE (Personal Protective Equipment) that they provided to us. From visiting the underground tunnel, the dam, to the forest we were always reminded to maintain safety. "You have to get your headgear(helmet) on, reflector jackets on, safety boots or closed shoes, avoid touching materials on the site without permission, avoid stepping on water, watch out for falling debris, watch out for wild animals, watch out for

falling trucks or lifters." Those with health complications were asked to remain behind because of the too much dust that could cause complications. After a series of all that, I swear, I was super excited of what I could find in there.

What mesmerized me was the way power is made. The whole process seemed diplomatic and complicated but when they narrowed it down, it became just like a bird in hand. It's a couple of weeks ever since we visited the Karuma falls but every time I recall we were at the underground powerhouse, I gaze and I cannot stop to explain to the people around me. Like seriously it was amazing!!!! leave alone those things you guys see in the movies, this was for real, right here in Uganda. Enos Kalyesubula of the Uganda Electricity Generation Company Limited, was our guide for the tour and he did us justice, he kept reminding us to keep safe as he effortlessly explained everything as he brilliantly answered our questions.
What people say; Francis Matovu, the President of the Rotaract club of Nkumba Stewards

Karuma hydropower project is a sophisticated project designed with a lot of art to generate power. The project is designed to generate 600MW power which will be a great addition to the country's growth.

While I was there, a great team led by Enos Kalyesubula took us around while describing what each section does. It is really amazing how all that is developed to the final stage. We usually enjoy using the power in lighting, cooking and doing a lot of activities but it is rare when we think of how this power is generated. When you visit Karuma hydropower project you get to know what it really takes, a lot of thinking, hard work, collaboration with a lot of financing. I loved the way health and safety are handled, especially the use of PPE (Personal Protective Equipment), as a medic, I say health is a priority. The connecting experience, it is a connecting year in Rotary.

"I was more enlightened and amazed at the processes they have to go through to make the dam. I also liked the facilitator that ably answered our questions in an easy and relatable way."

Mary NAMUWAYA
Member - Rotaract club of Naguru

"My tour at the Karuma Hydropower project was one of a kind, I only wish every Ugandan can visit it and get a feel of this achitectural engieering because it is one of its one of a kind."

Fatumah SEMUJJU
President - Rotaract club of Kampala Central

PHOTO | UEGCL staff during a community engagement in Okweece village, Karuma.

SOCIAL ENTERPRISE IN HYDROPOWER DEVELOPMENT

The foot print of UEGCL's community investments at Karuma Hydropower Project

Alan Denis **OROMA** | Moses **MUHUMUZA** | Timothy Noah **MUBBALA**

Uganda Electricity Generation Company Ltd (UEGCL) is developing the 600 MW Karuma Hydropower project along the River Nile to increase electricity generation at affordable costs to support the country's social and economic transformation. UEGCL is currently implementing the **Community Development Action Plan (CDAP)** for Karuma Hydropower Project which is meant to mitigate increased pressure on local social infrastructure, social services, livelihoods, and natural resources, expected to arise from the implementation of the projects in Kiryandongo, Oyam, and Nwoya Districts. During project implementation, rapid population influx at Karuma Town Council was noted and fueled by large numbers seeking employment opportunities at the power project, business opportunities offering services to meet the rapid urbanization needs of Karuma, high demand for accommodation, health hygiene and sanitation, and education services. Increased urban-rural interactions as people migrated to the rural side and others to the central business of Karuma. This state of social change created a need for additional social services.

To cushion these pressures on the community and maintain the social fabric, UEGCL developed the comprehensive social action community development program code named CDAP, the social magic bullet

UEGCL hand in hand with Sinohydro has invested into construction of Dicwinyi health centre IV and the Masindi Military Hospital that will offer communities modern medical services.

to maintain a state of stable equilibrium so that communities around Karuma are not overwhelmed with the rapid development. CDAP will reach out to the social needs of host communities in Kiryandongo, the district on the left bank of the river, with education infrastructure in Dima, Gwara, Comboni Primary Schools. Health infrastructure at Yabwengi, Dima and Karuma Health Centres II ranging from staff bedrooms, Out Patient Department blocks and VIP latrines and 5 stance VIP pit latrines at Karuma Trading Centre to mitigate arising toilet needs.

Oyam, the district on the right bank of the river, UEGCL ear-marked the development of school infrastructure at Amaji, Nora and Kamdini Primary Schools to meet the increasing enrolment of children with school staff bedroom houses, classroom blocks and VIP latrines. In health, UEGCL proposes developments at Kamdini Health, Aber Health Centre IIs with staff houses, Outpatient Department Blocks and VIP Latrines which is hoped to meet needs of the soaring number of patients and improve toilet management through construction of 5 stance lined VIP latrines at Kamdini trading centre.
Nwoya hosts migrant inhabitants of Karuma where UEGCL has targeted schools, namely Purongo and Li Primary School with classroom blocks, staff houses together with Purongo and Lii health Centres with staff houses, Out Patient Department Blocks and VIP Latrine. UEGCL implements these social programs in close collaboration with other agencies to avoid duplication and promote rationalization of services. Similar services that UEGCL implements with the same principle in the above three districts include water supply systems for Karuma, Kamdini and Purongo Town Councils, drilling of boreholes, an extension of rural electricity services to communities in Mutunda (Kiryandongo), Aber, Kamdini (Oyam) and Purongo (Oyam). UEGCL contributes to the cultural preservation of host communities through cultural and tourism centers that will host the tangible and material aspects of the people's culture before and after the dam construction. UEGCL will also promote environmental conservation through complimenting local forest reserves along the river Nile banks and community areas. In Agriculture and Fisheries, UEGCL benchmarked skills, tools, landing sites, fishing gears, and markets. UEGCL prioritizes extension support, small business development, youth skills training, capacity building of farmers groups, demonstration project sites, equipment, and technologies.

From a Corporate Social Responsibility lens, UEGCL has also partnered with Sinohydro to refurbish Amaji Primary School with classroom blocks, dormitories, staff houses and toilet services, evident in the magnificent

PHOTO | Dr. Eng. Harrison MUTIKANGA commissions a borehole in Kamuli District as part of CDAP.

structures at the school. UEGCL hand in hand with Sinohydro has invested into construction of Dicwinyi health centre IV and the Military Hospital in Masindi that will offer communities modern medical services.

Sinohydro extended education support services to two bright but needy girls from Oyam & Kirandongo. Sinohydro paid school fees for their entire ordinary level education cycle. To enable river bank communities, have access to clean and safe water, boreholes have been drilled in Nora, Akurudia (Oyam). Awoo, Bedmot in Kiryandongo. Schools have been supported in tree planting initiatives, with innovative environmental education for children and seedlings provided.
In conclusion, UEGCL invests in electricity generation for the socio-economic transformation of Uganda. UEGCL views social development and cultural preservation of project host communities as a very important social enterprise embedded in communities' social welfare. UEGCL aspires to promote community functionalism, continuity through a broad spectrum of social services in education, health, tourism promotion, Agriculture, fisheries and forest and enterprise promotion for social protection and a better community.

METAPHYSICAL SPHERES & HYDROPOWER DEVELOPMENT.

Edgar KANSIIME
Public & Media Relations Officer.

Geoffrey Kinidazi (real names withheld), 32, a resident of Nampanyi village - Kayunga district claims to have temporarily lost sight during his tenure as a mason at the Isimba HPP. "It happened suddenly." Geoffrey testifies. "We were working in a zone that was being contended by some local witch doctors as sacred soil. Our Chinese boss had neglected these claims and decided to deploy us in the morning. My peers advised me to seek help from the witchdoctors since the curse of blindness was upon me."

> ***On Sept. 13, 2001, Marc Lacey of the New York Times broke a story; Traditional Spirits Block a $500 Million Dam Plan in Uganda.***

Workers of Dott Contractors in Nyagak III HPP laid down their tools late last year claiming that many of their colleagues were getting day time hallucinations and sighting mythical creatures while working at the dam site. This particular dam site is being pointed to as a spiritual site by the Kaal Paidha Umua chiefdom. The contractor had produced a map of numerous trees and rocks that the local residents consider the homes of spirits. However, new zones have since been demarcated as spiritual sites by the chiefdom seeking compensation. These are not recent isolated cases. On Sept. 13, 2001, Marc Lacey of the New York Times broke a story; Traditional Spirits Block a $500 Million Dam Plan in Uganda. The story that later went viral shed a light into the spiritual saga at Bujagali Hydropower Project. This turned the project into one of the most controversial dam projects in Uganda in modern times. According to the article, Bujagali Falls, harbored innumerable spirits, the most powerful being the Budhagaali spirit. This deity was embodied in one particular healer, Jaja

Bujagali (RIP), who was perceived to be an 'archbishop' in the traditional religion. Later in March 2010, a story ran in the New Vision of how Spirits were haunting the Bujagali hydropower project. Workers fled from the site and threatened not to return to work until the spirits, who had been disturbing their work, had been resettled.

There have been numerous compensation claims arising from intangible cultural heritages in various project developments around the country with the most recent deadlock taking place in Nyagak III Hydropower project, where works on the Dam site and the site access roads have been halted on these grounds. The power of water is manifest in the waterfalls themselves, which are testimony to the river spirits living there. Throughout Uganda, water and in particular waterfalls are part of the cosmology of traditional, indigenous religions, which take many forms.

HEFTY COMPENSATION CLAIMS

In all the cited cases, the aggrieved traditional healers have been asking for colossal sums to aid them appease and transfer spirits from these project sites. In Nyagak III for example, the Kaal Paidha Umua chiefdom, through their legal representative, is seeking close to Ugx. 250m for the complete transfer of spirits from the contentious dam site. This price tag is a huge contrast from the preset appeasement claim of Ugx. 4m that had been earlier agreed upon.
At Isimba HPP, the 1st river diversion and reservoir filling were marred with resistance by traditional healers on the basis of unfulfilled spiritual compensation claims. Rituals had to also be performed during the construction of the 132Kv Transmission Line. During the impounding of the Isimba reservoir, a traditional healer in Kitambuza, Kayunga district claimed for Ugx. 200m to aid the transfer her spirits from the inundation zone. Another acclaimed healer, this time in Kamuli district, asked for Ugx. 170m to appease the spirits. All these sums were set besides the fact that all PAPs had been compensated according to the Valuation report approved by the Chief Government Valuer.

AUTHENTICITY OF CLAIMS

During the construction of Bujagali HPP, the Oracle of Bujagali falls disputed the construction of a hydropower dam at the falls, saying that the area is his spirits' habitat. Throughout the endless talks with the government, when asked who the owner of the falls was and the surrounding environment, he said the falls belonged to the spirits. The Government thus couldn't compensate him for the falls. Earlier, he tried showcasing his power and that of the spirits, when he mobilized for an event of sailing across the falls on a goatskin. On D-day, thousands thronged the area to awe at the rare spectacle as Budhagali smocked a tobacco pipe amidst frenzy drumming, but it didn't happen. The mammoth crowd later went away disappointed.

Most project implementers and contractors have over the years stated that the spiritual claims are dubious attempts by traditional healers and other cultural institutions to milk the proverbial cow. The hefty claims are usually fueled by Urban lawyers who exploit the lack of a proper compensation scheme for ICHs in the country. This is however disputed by locals and workers who claim to have suffered the wrath of the spirits when appeasement is not done.

WAY FORWARD

All cultural aspects fall under the Ministry of Gender Labor and Social development, MGLSD. Different teams from the Gender ministry have interfaced with numerous scenarios like these on various projects. The challenge cited by the Principal cultural officers in the ministry is a lack of a proper definitive compensation framework for intangible cultural Heritages (ICHs). This has led to a delay in project implementation arising from various disputed claims and court suits. During valuation for PAPs compensation, cultural sites are valued with tangible items like trees, shrines and crops. The invisible forces are not valued. In most cases, the contractors have allowed to facilitate the translocation of these invisible entities, but at much lower cost than that being claimed for by the owners.

ARTICLE 29 (C)

"Every person shall have the right to practise any religion and manifest..."

Article 29 (c) of the Ugandan constitution gives Ugandans the "freedom to practice any religion and manifest such practice, which shall include the right to belong to and participate in the practices of any religious body or organization in a manner consistent with this constitution". Furthermore, Objective XXIV of the Constitution states that cultural and customary values that are consistent with the fundamental human rights and freedoms, human dignity and democracy and with the Constitution of Uganda may be developed and incorporated in all aspects of Ugandan life.

Backed by this, the GoU through its relevant ministry, MGLSD, should set a detailed framework to guide the process of compensation of intangible cultural heritages.

Project contractors should bring this relevant ministry on board at the earlier stages of project development. This will reduce the costly method of fire fighting that has been witnessed on various projects. The GoU loses a lot of money when project activities are halted midway.

Through continuous stakeholder engagements, local communities can be sensitized on how they stand to benefit directly from the implementation of these projects. This can be through employment opportunities, CSR activities of the contractor targeting Health and Education, and the CDAP program by the government implementing agencies. When this is done thoroughly, those who seek to sabotage government projects and hinder development of their areas will be exposed.

Lastly, there is need to add an emotional attachment value during compensation of such PAPs. Its human nature to attach sentimental value to these spiritual sites.

ISIMBA, THE POWER GEM OF UGANDA DURING **THE NATIONAL LOCKDOWN**

Eng. Ivan **ZIMBE**
Control & Instrumentation Engineer

In fear of the unknown and what lies next, high amongst the government's priorities were to maintain the generation of power in the country. As you sat comfortably in the couch in your home, a dedicated team of Engineers ensured you do not miss any of the Presidential addresses. Let me indulge you in some of the highlights during the national lockdown as seen from Isimba Hydropower plant.

> ***Lake Victoria recently experienced its highest water levels since 1964 and this meant that Nalubaale and Kira Hydropower plants were forced to release larger volumes of water to the downstream power plants.***

FLOOD CONTROL

Floods have certainly wreaked havoc around the country, but particularly around the shores of Lake Victoria. Some companies have been sued for the rising water levels, but this shall be discussed on another day. Lake Victoria recently experienced its highest water levels since 1964 and this meant that Nalubaale and Kira Hydropower plants were forced to release larger volumes of water to the downstream power plants. The large volume of water was cascaded downstream to Isimba HPP. Flood control was top of the priority list before lockdown and during lockdown to mitigate the risk of the rising water levels along the Nile. The rising water levels, if not controlled, could pose a risk on dam break, an unwanted scenario on our newly commissioned plant.

STRATEGIES IMPLEMENTED TO CONTROL THE FLOODS

1. Operation of the spillway gates
Optimum operation of the spillway gates to release water downstream of Isimba without majorly disrupting downstream activities was critical. The accurate gate opening (in percentages) helped us ensure that we neither spill excessively nor let the water levels rise rapidly. This was controlled by the operations team working 24 hours, 7 days a week.

2. Maintenance of the Spillway Hydraulic system and emergency power supply
The automated hydraulic spillway system and emergency power supply (diesel generator) had preventive maintenance routines performed on them to improve reliability and system effectiveness. This system controls the opening and closing of the spillway gates.

3. Continuous monitoring of the water levels
Continuous monitoring of the upstream and downstream water levels was done every hour. An increase in the downstream water level could affect the net head of the generating units, and hence the efficiency. A rise in the upstream water levels posed a risk of overtopping the dam structure. Therefore, a continuous balance of the two water levels was critical to ensure efficient power plant operations.

GRID STABILITY

The two national blackouts during the lockdown brought a lot of concern and speculation, almost rivalling the COVID-19 relief beans. Many questions were asked on why the grid always loses stability (all generation plants going off simultaneously) when there is a fault. Others wondered how there could be a national blackout when Isimba HPP had just been recently commissioned.

183MW ISIMBA POWER STATION FACTS:

Turbine type:
4 Vertical Kaplan turbines

Installed Capacity
183.2MW

The commissioning of Isimba HPP plays an important role in the stability of the Ugandan grid. Isimba, generating units with a capacity of 45.8MW each contributes towards grid frequency stabilization. This is achieved through the hydraulic governor system that is sensitive to sudden changes in frequency when the units are connected to the grid. In scenarios of the grid under frequency (high electrical torque), the governor responds by opening the guide vanes to let in more water, hence increasing the mechanical torque and subsequently stabilizing the system frequency. In scenarios of over frequency (usually loss of load), the governor reduces the guide vane opening, subsequently reducing the mechanical torque and thus regulating the frequency. The response of the hydraulic governor to fluctuations in frequency was one of the important tests in commissioning of Isimba HPP and the units indeed responded as expected.

A parameter of importance other than the frequency that Isimba contributes towards is voltage stability along the grid by either absorbing or generating reactive power, as per the guidance of the grid system operator. Voltage and reactive power regulation are performed by the excitation system.
Automatic Generation Control along with Power system stability will, however, play a major role in improving the Ugandan grid stability as it expands with more generation and transmission line network in the foreseeable future.

FLOATING ISLANDS

Floating islands were another menace during the lockdown. Increased rains coupled with human settlement along the river banks caused large masses of soil and vegetation to break off the mainland and commence their journey towards the hydropower plants.

Floating vegetation clogs the screens at the intake of the generating units subsequently resulting in a head loss. Head loss implies a lack of the required water level to run the generating units efficiently. This causes the units to reject load beyond a certain threshold i.e. you have the generating units of a rated capacity but cannot utilize them to that capacity because the operating conditions are not met.

The floating islands at Isimba were removed using a trash rack machine. This machine came in handy to remove the large masses of weed from the intake and the trash well-disposed off. This had to be done regularly during the lockdown period particularly whenever it rained.

THE TEAM

The dedicated Isimba HPP team worked tirelessly to sustainably generate reliable, quality and affordable electricity to improve the social and economic conditions of Ugandans. We had a mission during this lockdown to keep generating, and we successfully did so. Isimba indeed stood out as a power gem during the national lockdown.

Generating for Generations

THE LOCKDOWN:
A DIAMOND IN THE ROUGH

Brenda NAKYAYI
Brand and Client Care Officer, Isimba

> ***"... this period has helped me appreciate my spouse more and value his love for me."***

When the travel ban and lockdown were first announced by the President, my heart sunk! I was so dismayed not because of anything but because my husband and I were to spend the next unknown days away from each other. Paul and I just got married in January 2020 and all through we have been creating time to see each other at least once a week since we are both stationed in distant workplaces. As newly-weds we obviously desire to spend more time with each other and the lockdown which would have been a perfect time for this desire turned out to be an "alone lockdown."

My first days of this lone lockdown were full of gloom, worry and I wished for a normal situation where we would at least meet over the weekend. It was challenging to cope up with the life at hand but when life gives you lemons, make lemonade. The mood has transformed over time to a bright and brilliant life as I have come to appreciate a lot of things and aspects at the plant hence my ***Lemonade for lemon.***

As a Christian woman, the lockdown has been a perfect time for me to grow deeper in the word of God and prayer. While I appreciate, it would have been better to do this as a family. Circumstances have allowed me to set myself apart. This has been the best thing ever to happen amidst the prevailing lockdown. It's amazing how I have been able to find Peace and Rest in God as I continue to Trust him for the safety and happiness for the life of my loved ones, praying that this situation comes to an end.

This period has also been perfect timing for me to cultivate healthier & good relationships with my fellow staff at the plant. Since we are confined in one area thus becoming one big family and more fun moments. Every weekend we have a BBQ and some drinks to sweep the loneliness and homesickness away. With modern technology, staff can video call and WhatsApp their families when they get a moment.

From a much personal point of view, this has been a great time for me to advance my skills in reading. I have enough time to offload some of the books that I desired to read. I have covered six books from well-known Christian authors. Yes, ***knowledge is power.***

This period has also come in handy for me to have full and vast knowledge of the operations of the plant. The Engineers on site came in handy sharing with me information regarding site operations.

Above all, as the saying goes, '*absence makes the heart grow fonder*'. Even when we are apart the bond is still alive infact this period has helped me appreciate my spouse more and value his love for me. We have never stopped making each other an essential part of our days and this has been a great period for both of us to reflect on our new journey. All I can say is that the lockdown has made our journey more interesting and exciting.

EDITORIAL COMMITTEE
1. Simon Peter KASYATE
2. Flavia ANYIKO
3. Muhammad LUBOGO
4. R.Eng. Nichola Agaba RUGABA
5. Dr. Muzafalu KAYONDO

PHOTOGRAPHY, DESIGN + LAYOUT
1. Muhammad LUBOGO
Public and Media Relations Officer

2. Edgar KANSIIME
Public and Media Relations Officer

3. Edward Soyinka ECHWALU
Freelance Photojournalist

CONTRIBUTORS:
Richard KEPO
Alan Denis OROMA
Rita BECHO
Edgar KANSIIME
Eng. Timothy Noah Mubbala
Eng. Ivan ZIMBE
Moses MUHUMUZA
Brenda NAKYAYI
Moses OTIM
Proscovia NANKYA
Jackline Bahizi KAMBABAZI
Denis OTYEKA
Muhammad LUBOGO
R.Eng. Nicholas Agaba RUGABA
Cissy APISO
Peace INGABIRE

PUBLISHED BY
Communication & Corporate Affairs
Uganda Electricity Generation Company Limited,
Block C, Victoria Office Park | Plot 6-9, Okot Kiwanuka Close,
Bukoto | P.O. Box 75831, Kampala, Uganda
Tel: +256 312 372 165 | Email: corporateaffairs@uegcl.go.ug

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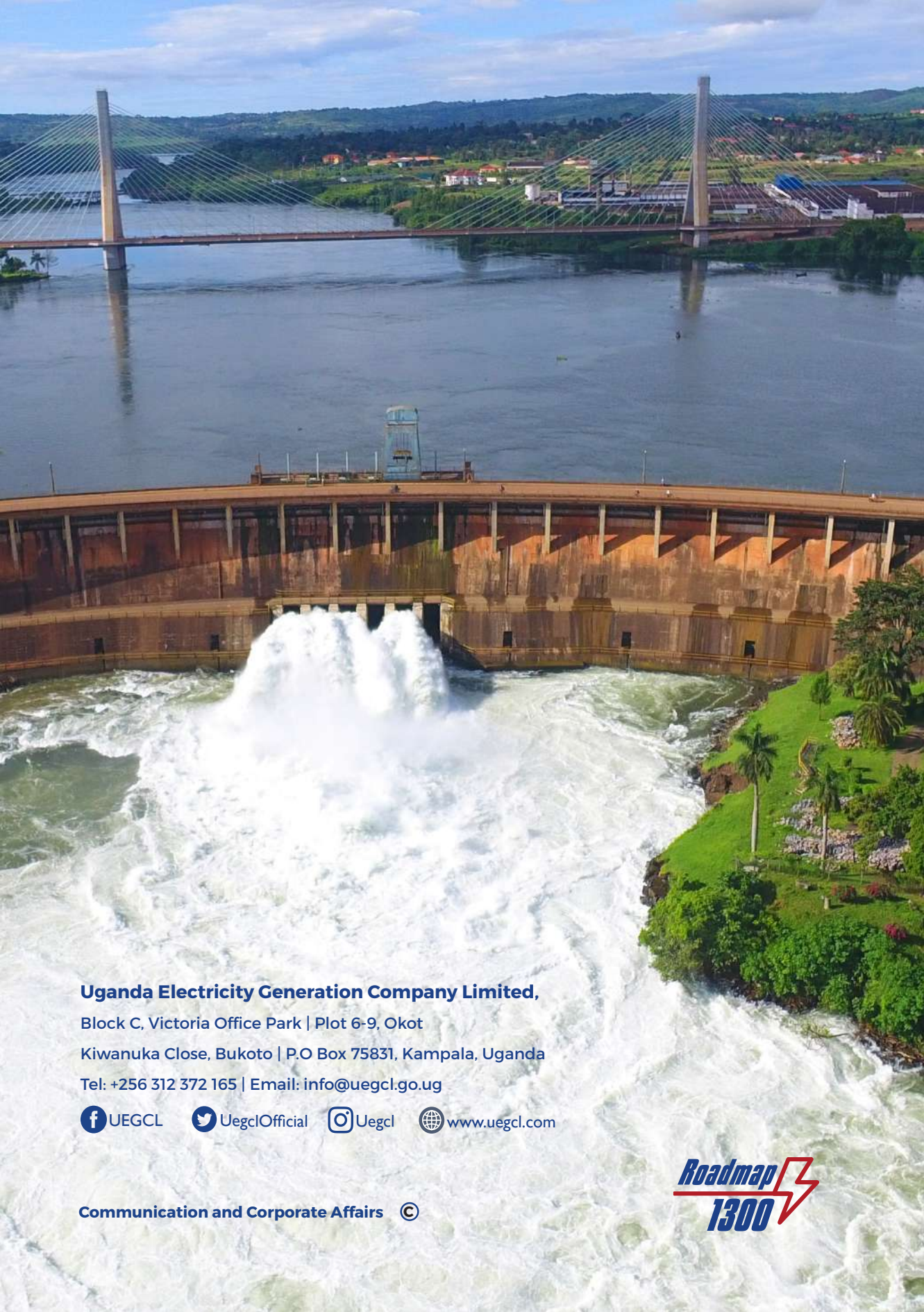

Uganda Electricity Generation Company Limited,
Block C, Victoria Office Park | Plot 6-9, Okot
Kiwanuka Close, Bukoto | P.O Box 75831, Kampala, Uganda
Tel: +256 312 372 165 | Email: info@uegcl.go.ug
UEGCL UegclOfficial Uegcl www.uegcl.com

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