DECEMBER 2016
ISSUE 2

SGR Reliable Connectivity

Standard Gauge Railway

Driving Uganda to middle income status

- One Train to carry up to 4,000 tonnes
- Opportunity for upto 40% local content involvement
- Double-decker passenger coaches, double stack containers

WHO WE ARE

The Standard Gauge Railway (SGR) Project is a Government project established by Cabinet Minute 107 (CT 2015) to develop a modern, integrated, and efficient railway transport system to address both the freight and passenger transportation needs of the country.

In 2014, Uganda together with her Northern Corridor Partner States of Kenya, Rwanda and later South Sudan signed a regional SGR Protocol to develop a seamless transport system interconnecting their cities as well as connecting them to the coast of Mombasa. Todate the DR Congo has also expressed interest in joining the initiative.

Uganda ratified the Protocol through Cabinet Minute 62 (CT 2015). The Project is therefore expected to discharge its mandate in the most cost effective and business-like manner and in accordance with modern management practices.

Purpose
To build an efficient railway system that will stimulate industrialization, reduce unemployment and transform Uganda.

Mission Statement
"To develop in a cost effective manner the SGR network in line with the regional SGR Protocol and the Greater Kampala Light Rail Mass Transit (LRT) system ."

Vision
"Modern and efficient railway transport system in Uganda by 2025"

Aerial view of the demarcated corridor in Tororo District. The project has already started demarcating the corridor in areas where land has already been acquired and people have voluntarily vacated the land as part of pre-construction activities.

Welcome aboard SGR

Yet another exciting edition of *The Standard Gauge Railway* (SGR) newsletter, yet another opportunity to keep our stakeholders updated on the key developments and progress of the Project.

A lot of questions have been asked around this project, specifically on how different the SGR will be from the current existent railway and most commonly, how our people can tap into the benefits and opportunities the Project brings along.

In this issue of the Project newsletter therefore, we simply take you on a journey of what to expect when the SGR is up and running – right from the type of trains to some key highlights on operations and the ongoing efforts to ensure Ugandans benefit as much.

On an even more exciting note, the Project continues to make good progress on many fronts; Pre-construction activities remain in high gear. On land acquisition, our bulldozers continue to demarcate the railway corridor in areas where land has already been acquired in preparation for construction while the rest of the compensation and vacation processes continue. On operations, the Government of Uganda has signed a significant bilateral agreement with the Government of Kenya for seamless operations of the SGR between the two countries, especially at Malaba border post. The Bilateral signing is a significant development especially as the project enters some crucial stages. We continue to thank the public and our key stakeholders who have embraced and supported this project this far as we build for God and our Country.

Uganda's Minister of Works and Transport Hon. Monica Azuba Ntege signs a Bilateral Agreement alongside her Kenyan counterpart Dr. James Macharia, Minister for Transport Infrastructure, Housing and Urban development for the seamless operation of the SGR between the two states.

Uganda- Kenya sign key railway agreement

Uganda and Kenya have signed a bilateral agreement for the seamless operation of the Standard Gauge Railway (SGR) between the two states.

The agreement signed on November 2, 2016 in Nairobi Kenya is a major milestone in the project's schedule because it stipulates how the two countries will develop, operate and harmonize operations to ensure that the infrastructure seamlessly interconnect.

Specifically, the bilateral agreement spells out how the two states will exchange locomotives at the Malaba border. It also provides for seamless transition by the diesel traction system operated by Kenya to the Ugandan electric system. Kenya has however made provisions to later upgrade to electric traction.

The bilateral agreement also provides for the tariffs to be charged between the two states and the establishment of a one-stop-border post at Malaba station in Kenya.

Dr James Macharia, Kenya's Cabinet Secretary for Transport Infrastructure and Housing acknowledged that the railway project is not complete until all the four countries that have signed the Northern Corridor Integration Project (NCIP) Protocol have completed their sections of the railway. The four states under the NCIP are Uganda, Kenya, Rwanda and South Sudan.

According to Dr Macharia: "The economic viability of the railway project was assessed at a regional level. Kenya is commencing works on the most difficult section of the project with 5km in a tunnel which indicates Kenya's commitment."

On October 19th, Kenya launched phase 2A of the Nairobi- Naivasha leg which will take the Kenya SGR line through the rift valley. Dr Macharia has asked Uganda to remain firm because projects of this scope will always have challenges.

The civil works of Mombasa- Nairobi SGR section is substantially completed and this

segment of the railway is due for commissioning in June 2017.

Earlier in November, Uganda's Transport Minister Monica Azuba Ntege and the SGR Uganda team toured sections of the nearly completed Mombasa- Nairobi railway line. Hon. Azuba observed that the enormous progress made by Kenya spurs Uganda to move on firmly.

"The SGR is a priority for Uganda, the signing of this agreement will demonstrate to financers that we are serious."

Azuba reiterated that the land acquisition process in Uganda is moving steadily and nearing completion.

The bilateral agreement further states that Kenya will construct and maintain the section of the bridge across River Malaba within the territory of Uganda.

The two states have also agreed to engage the same operator for the Mombasa- Kampala SGR for the joint and seamless operations of the SGR.

Locomotives and rolling stock belonging to Kenya will also be permitted access to the Ugandan railway track when Kenya switches over to electric traction.

During the same visit, SGR Uganda Project Coordinator Eng. Kasingye Kyamugambi assured Kenya that the acquired railway corrdior is already being demarcated.

.USD 2 bn
annually in transport costs.

.80%
of Uganda's goods pass through Mombasa

Uganda's ambassador to Kenya Angelina Wapakhabulo thanked Kenya for allowing the Ugandan team to continuously benchmark from the Kenyan experience.

It is expected that with a functional and efficient railway line, most of the cargo will shift to the railway network thus increasing the size of cargo and speed of delivery which will ultimately impact on the speed and efficiency of doing business.

Part of the SGR Uganda team during an earlier tour of the ongoing construction works of the Kenyan SGR

Uganda will be the centre of railway innovation, Research & Development

In this section, the Project Coordinator responds to some of the frequently asked questions to enable you appreciate the factual details of the SGR Project

Kenya is building a diesel line while you are building an electric one, how will you harmonise?
Uganda agreed to start with an electric traction system while Kenya is doing diesel electric traction system. We will have a locomotive exchange at Malaba station in Kenya. It is important to note that Kenya in future will upgrade to an electric system by 2020 because what they are building is reserved for electrification. Both will be SGR-1.435m so it does not limit the seamless system.

What are you doing around building local capacity to enhance railway engineering?
We have a capacity building plan which includes training and exposing our engineers to China and other countries. We also plan to build a railway training school where local skills will be developed. Also during construction, key skills will be imparted, one key thing you learn from Kenya is that railway engineering is nearly 95% civil engineering, so if you have people trained in civil engineering, they can cope. A research and Development center is also in plan and by 2040 we should be an innovator in this railway system.

Give us an update of the land acquisition progress?
We started the land acquisition process in February 2016. So far we have completed the marking of the right of way from Malaba to Kampala. We have also completed the Resettlement Action Plan (assessment and valuation) in all 11 districts along the Eastern Route from Malaba to Kampala. We have so far compensated affected persons in Tororo (95%), Butaleja (fully), Namutumba (fully), Luuka (fully) and nearly 50% in Iganga where payments are still ongoing. The process towards compensation is ongoing in the other districts.

How will the railway be operated, will it be outsourced or managed by Government?
To avoid the challenges encountered by several railway systems in Africa that we have benchmarked, the NCIP Heads of State directed that whoever builds the railway must maintain and operate it as countries build their local capacity. This adds more credence for the contractor to build what meets the standards. At the same time the bilateral signed between Uganda and Kenya denotes the need to have one railway operator from Mombasa to Kampala. The ownership and

maintenance of the railway infrastructure will remain the mandate of Government.

How will you ensure quality and avoid the challenges seen in some of the big infrastructure projects in the country?

We have benchmarked from Ethiopia and Kenya and have taken keen interest on the challenges faced on Isimba and Karuma. As such, we have designed a robust quality system that will mitigate the challenges. This will incude strict control of materials from source to sites, including ensuring the tests done in manufacturing and delivery at sites are mandatory and reports submitted to the client. Two is establishing a well equipped employer's (SGR) laboratory, strengthening testing, routine testing by UNBS and carrying out preshipment inspections. We are working with UNBS and URA to ensure that rejected materials are not allowed in the country and are taken off the site immediately. We will work with the contractor to put in place stiff penalties for suppliers who deliver materials that do not meet our specifications. We will work with Ministry of Internal Affairs and Engineers Registration Board to allow only engineers and technicians who meet the qualifications to enter into the country to work on this Project. We will ensure that the contractors workers are paid reasonably such that they are motivated to produce quality work.

And the team you are leading here?

I have an able and competent team. They are the engine of this Project. I thank them because we are working for God and our country.

Hon. Minister of State for Works Aggrey Bagiire tries out a bulldozer during demarcation of the acquired railway corridor in Nagongera, Tororo District in November

What the private sector say

Mr. Lalani Sikander- Roofings Group Chairman

"Our discussions are very healthy, the SGR team is very open to us. Other than giving us audience, they are also trying to guide us and how we can build our capacity to participate in the project as the steel industry in Uganda. When we get ready to supply this project it qualifies us for future projects in Uganda, East Africa and the rest of Africa. Overall we are happy with the dialogue, where 100% is available, let us source it locally.

"The Project is very good. It is going to change a lot of dynamics on how we are doing business. It will bring a lot of demand. It will also bring a lot of challenges which will create opportunities, skills and services. I would compare this to the oil and gas industry which is going to change the way we are doing things in East Africa and Africa. This Project will also stimulate production and consume the power that we will produce in Karuma. This means we are creating our own demand and supply.

Roofings Group Chairman Lalani sikander

Mr. Alykhan Karmali, Managing Director- Mukwano Group of Companies

We shall expect to have cheaper freight cost than what we are paying currently when the SGR comes into service. We now move 100% of our Imports on road, which world over is considered to be very expensive. Freight is about 35% of our input cost and therefore any saving on this, is a saving on our production costs hence this will increase our competitiveness in the region.

We should also expect to save on transit time, which also translates into saving on inventory cost. We expect the SGR to BE very efficient and reliable and thus we shall reduce on our stock holding in Kampala and move to place orders for raw material for JUST IN TIME (JIT). This will reduce our Finance Burden on very expensive funds.

With all the savings from above, we expect to expand our manufacturing industries and hence have growth and have more jobs for our people and this will boost the Ugandan economy in the end. It's an integral part in the growth of the economy.

We as Mukwano Group have found the team working on the SGR Project very professional and understanding the Project they are handling. At all times even at short notice we have received their audience and all pain staking questions have always been answered satisfactorily. We only look forward to see the first rail being laid.

about the SGR project

Madhvani Group General Manager- Mr. Christian Vincke

The SGR line will reduce the transit time of Madhvani Group/Kakira's imported raw materials. The unit cost of transportation for exports and imports will reduce substantially. Direct and indirect employment of workers during and after construction of the railway. Increased demand for steel, cement, sand, aggregates, etc which will boost the local industry. Exports such as sugar, tea, packaging, etc will be more competitive in the destination market. Cost effective transport for ethanol, a renewable energy, to the neighboring countries. Efficient, fast and affordable movement of people between states. The SGR project staff have been extremely cooperative. They have been able to consult with us on the track, impact on our operations and compensation issues. The SGR staff are assisting us to develop capacity and capability to meet the SGR quality and quantity requirements. It is important that the local industry is given an opportunity to supply steel, etc for the construction of the SGR and to avoid out-sourching these locally available good quality materials. Madhvani Group is confident to supply steel products, particularly the QST Bars, to the SGR project. Multiple advantages accrue including creation of employment and expansion of Uganda's steel industry.

A Stakeholder's View about The SGR project

Mr. Apollo Jaramogi- Tororo District Chairman

I want to thank the Project Coordinator who has been very transparent. This is not like other projects that have stalled. People have appreciated and we hope they will take the appropriate jobs. We are looking forward to the real launch. We hope that one day you can connect the railway to Majanji to connect Tororo to Tanzania to open a new market

The bid for Local Content

Because of its magnitude, the Standard Gauge Railway project presents a huge opportunity for our local manufacturers and service providers. The Government on its part is determined to ensure that Ugandans benefit from the Project as much as possibleand that the multiplier effect is significant so that the locals participate, resources stay here and skills are transferred. So far the SGR Project has developed a local content strategy that will guide the process of enlisting local service providers both during construction and operation of the SGR.

Richard Sendi, the project's principal strategy and planning officer says a Projects like the SGR is one way Government can boost economy. "Such projects usually act as a springboard to transformation and enablers of change." notes Sendi.

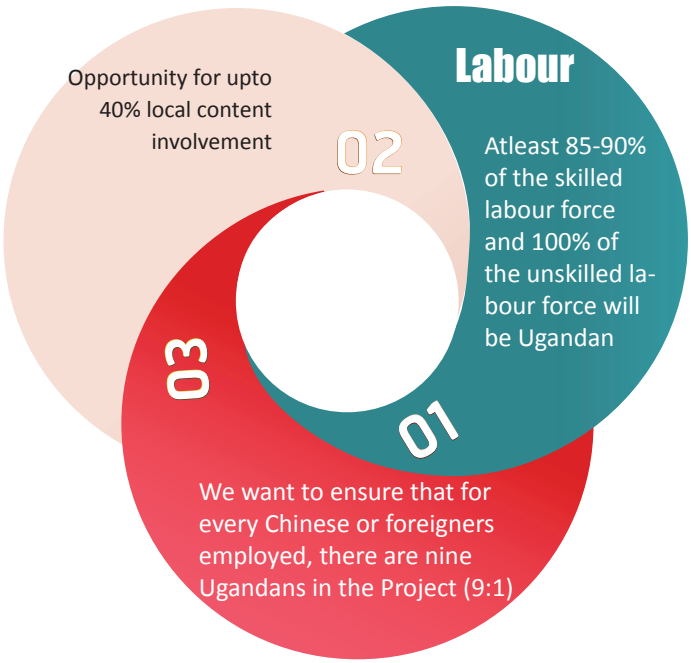
Indeed one of the provisions in the construction contract signed between the Government of Uganda and the contractor is that 40% of the materials to be used in construction should be sourced locally in Uganda as long as they meet the required quality, quantity and costs.

The SGR Project team has been in discussions with local service providers on the expected standards and what they can do to prepare to benefit.

The development of the Project's local content stratergy is a positive step towards ensuring that Ugandan suppliersbenefit. Cement and steel dealers form the core of the local suppliers.

Projects like the SGR are mega infrastructure Projects which are usually above $1b. But it is not just about the cost, it is massive because it has much impact and getting it right is very important in time, schedule and specifications.

Knowing the uniqueness of this project and given that it is the first of its kind, the Ministry of Works and SGR undertook a needs assessment or gap analysis to establish what exactly is needed to ensure 40% local content. A mainstreaming study



Such projects are usually once in a lifetime and they act as a springboard for transformation and enablers of change

The project plans to have a local content forum with the private sector where information sharing on a larger scale will be done.

was undertaken, benchmarking other projects like Karuma, Northern ByPass, Nile Bridge and studies on SGR in Kenya and Ethiopia. From this study a number of areas of potential participation have been identified including supply of cement, steel, earth materials, sand, ballast, gravel. This is what formed the basis of the local content strategy.

It is important to note that issues of standards and quality remain paramount and therefore the Project is engaging the private sector to help them understand the required capacity. Through representative associations like Private Sector Foundation Uganda (PSFU), Uganda National Association of Building and Civil Engineering and Construction (UNABCEC), Uganda Association of Consulting Engineers among others, the project hopes to sensitize local suppliers and service providers as much as possible to help them prepare and benefit from the local content.

There is also provision to ensure that Ugandans take up the majority of the jobs that the project will create.

During construction, atleast 85-90% of the skilled labour force and 100% of the unskilled labour force will be Ugandan. Foreigners will be limited to not more than 10%. During operations, 90% of the locals will be local leaving not more than 10% to foreigners with advanced skills and competencces.

"We want to ensure that for every Chinese employed, there are nine Ugandans in the project," said Eng. Kasingye Kyamugambi, SGR Project Coordinator.

The project plans to have a local content forum with the private sector and the contractor where information sharing on a larger scale will be done. It has been agreed that all available opportunities will first be advertised in Uganda and only advertised outside if such opportunities are not available locally.

A meeting of SGR staff and key stakeholders from the Government and private sector discussing the local content startergy for the Project

Opportunities in Local Content

Local Content	Potential available opportunities
	a) Supply of major Construction materials e.g. Cement, timber, stone products steel bars etc.,
	b) Petroleum products,
	c) Subcontracting of Civil and Building works,
	d) Equipment hire and leasing
	e) Labour resources (skilled, semi-skilled and unskilled),
	f) Security services
	g) Financial services
	h) Communication services
	i) Legal services
	j) Vehicle hire services
	k) Tools, small equipment, instruments and spare parts,
	l) Tour Travel and services,
	m) Hospitality (Hotel/catering services, accommodation)
	n) Cleaning services,
	o) Vehicle services/repair,
	p) Clearing and forwarding services,
	q) Health/medical services,
	r) Events/PR/Entertainment,
	s) Training services,
	t) Environmental and Social
	sensitization services.
	u) Waste recycling services
	Translation services

Land Acquisition (Update on

The SGR Eastern line passes through 11 Districts
2016, the Project has been acquiring land in

TORORO CORRIDOR AND NAGONGERA STATION:

- No. of PAPs:1195:
- Valuation report approved by CGV.
- PAPs verified by 30th Oct:1172
- **No of PAPs paid by 24th Oct:994**
- ROW,assessment: completed.
- Most PAPs have vacated acquired corridor .Demarcation commenced in August and still ongoing.

TORORO STATION:

- No. of PAPs:438
- Valuation report approved by CGV (excluding Kasoli housing estate).
- PAPs verified by 30th Oct.301
- ROW, assessment: completed.
- Disclsure,verification and payment on going.

BUTALEJA DISTRICT:

- No. of PAPs:293
- Valuation report approved by CGV.
- PAPs verified by 30th Oct:275
- **No of PAPs paid by 24th Oct:275**
- ROW,assesment,disclosure and verification: completed
- Total effective land to be acquired:117.175Acres
- Size of land acquired by 24th Oct:111.321 acres.
- Vacation notices,relocation,demolition, post compensation monitoring ongoing.

NAMUTUMBA DISTRICT:

- **No. of PAPs:496**
valuation report approved by CGV.
- **PAPs verified by 30th Oct:473**
- **PAPs paid by 24th Oct:473**
- **ROW,assessment;completed**
- **Total effective land to be acquired:217.255Acres**
- **Size of land acquired by 24th Oct:209.84acres**
- **Vacation notices,relocation,demolition, post compensation monitoring ongoing.**

LUUKA DISTRICT:

- **No. of PAPs: 121**
- **Valuation report approved by CGV.**
- **PAPs verified by 30th Oct:119**
- **PAPs paid by 24th Oct: 107**
- **ROW assessment completed**
- **Total effective land to be acquired: 40.645 acres**
- **Vacation notices, demolition, relocation and post compensation montioring ongoing**
PAPs voluntarily vacating

progress in each district)

from Malaba to Kampala. Since February these districts for construction

IGANGA DISTRICT:

- **No of PAPs:1376**
- Valuation report approved by CGV
- PAPs verified by 30th Oct:1314
- PAPs paid by 24th Oct:519
- ROW,assessment of PAPs:complete
- Total effective land to be acquired:436.726 acres
- Size of land acquired by 24th Oct:136.31acres
- Vacation notices,demolition,relocation and post compensation monitoring ongoing.

MAYUGE DISTRICT:

- **No. of PAPs:701**
- Valuation report approved by CGV.
- PAPs verified by 30th Oct:355
- ROW,Survey and valuation assessment complete.
- Effective land to be acquired:187.737Acres

Updates

Verification & disclosure of compensation values completed

JINJA DISTRICT:

- **No. of PAPs:Approx 626**
- Valuation report not yet submitted to CGV.
- ROW,survey and valuation assessment complete for 17km out of 19km.

MUKONO DISTRICT:

- Draft valuation report submitted to CGV.
- ROW , surveyand valuation completed
- Return of PAPs assessment forms ongoing
- Mop up assessments ongoing

WAKISO DISTRICT:

- **No of PAPs: Approx 292**
- Compilation of report ongoing
- ROW, Survey and valuation majorly complete.
- Three villages in Kira Municipality, route length - 3km

KAMPALA DISTRICT:

- Compilation of valuation report ongoing
- ROW, Survey and valuation completed.

Some key features

Train stations along the Eastern Route

Brace yourself for a ride in a double-decker passenger train. This is what the Standard Gauge Railway (SGR) system will bring to you.

The SGR trains will handle both cargo/ freight as well as provide international cross border passenger services. Each SGR is designed to take upto 4,000 tonnes compared to the current one which was designed to take only 880 tonnes.

The trains will be double stack for cargo meaning each container will carry an extra container above it enabling each wagon to carry four containers.

On the passenger side, the SGR double decker coaches will offer more comfortable passenger services.

The passenger deckers will be "low-floor vehicles" to cater for persons with limited abilities as well.

The SGR system will be electric, therefore different from the current diesel powered trains. The railway track will be aligned with overhead reliable power supply systems with traction substations every approximately 50 kilometers. Because the SGR is designed for faster and longer trains, the current railway reserve cannot be used. The SGR will construct new stations along the line. The Malaba-Kampala route "Eastern Route" will have eleven (11) stations. There will be two (2) District stations, one located in Tororo (Tororo station) and the other in Namanve (Kampala East Station). There will also be two (2) intermediate stations at Jinja and Kampala City and then seven (7) passing stations located at Nagongera in Tororo, Buwoola in Namutumba, Nakawa in Iganga, Magamaga in Mayuge, Bulamagi and Lugazi.

The train stations will be hubs of economic activity handling large volumes of cargo as well as an inter-change point of human traffic. This will further stimulate economic activity in the surrounding areas because of the opportunity to provide numerous services ranging from restaurants to accommodation facilities

of the SGR and train

among others. The speed of the train will be 120km per hour for passengers and 100kph for containerized freight while axle loading is 25 tonnes per axle. There will be no level crossings on any major road.

The railway line will be largely raised and about 22kms will be viaducts/ bridges. The longest bridge is over the Nile and will be over 1km long.

The routes will be robustly fenced off especially in high population centers for safety and control of unauthorized access and avoidance of encroachment into the acquired railway reserve.

Farmers picking coffee beans, a prime cash crop for Uganda. Coffee being a lead export commodity, will benefit from the railway through cheaper, faster and more reliable transport with bigger cargo capacity

Selected stations will have facilities of Inland Container Depots (ICDs) and storage silos to cater for Uganda's huge agricultural sector. By providing reliable, affordable transportation systems as well as storage facilities, the railway is expected to reduce the in-country transportation costs of agriculture produce, industrial materials and services by a margin of 30-40% per tonne. This will in turn boost efforts towards mechanization, value addition and export of high value processed agriculture products thereby saving the economy a further $570m annually.

Stations along the Eastern Route

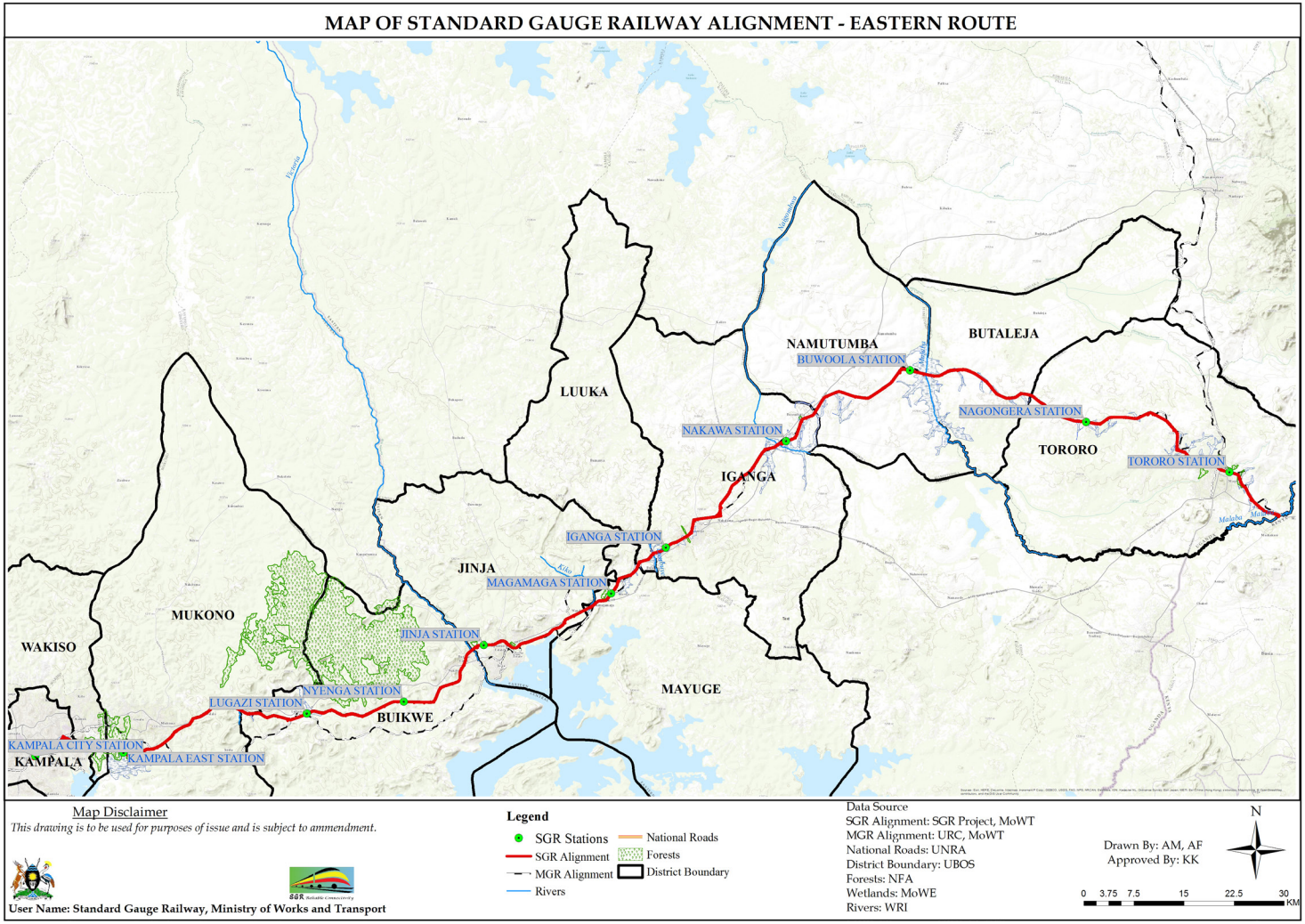


Illustration of the proposed train station

There will be a dedicated and reliable powerline for the railway

The SGR will be an electric train system. The electricity supply will be from the Uganda Electricity Transmission Power Substations and will be stepped down to appropriate railway utility voltage at the Railway traction substations. The Railway Traction substations will be connected to two circuits of independent and reliable power supply to ensure an acting hot standby supply for each circuit. The SGR project is working closely with the Uganda Electricity Transmission Company Limited (UETCL) and related stakeholders to address this.

The ongoing construction of Karuma dam from which part of the electricity to power the train will be drawn

Understanding the cost of building a railway

The giant concrete pillars like these above as seen in the SGR Kenya contribute to some of the high cost of the total construction

Early in November, a 750-km railway line linking Ethiopia's capital, Addis Ababa and the Red Sea state of Djibouti was formally inaugurated.

The new line will spark new manufacturing industries, improve transport and further open up landlocked Ethiopia and will cut the journey time to the coast to under 10 hours.

Why is the above development important?

It is significant because it is a strong indicator that the trans-African railway network is taking shape. East African states including Uganda have also commenced or are set to commence building similar lines and thus the dream of a fast, reliable and efficient railway network remains alive. For Uganda specifically, this is an important development because as we approach the construction phase, we need to remind the public that work around this project is ongoing and progressing quite well.

Being public projects, it is pertinent therefore to highlight some of the parallels that exist between the Ugandan and Ethiopian Standard Gauge Railway Projects.

Railway development is capital intensive and-involves large costs. It is dependent on extensive and expensive infrastructure. Railway construction costs are influenced by various factors.

Each country has its own peculiar conditions and needs that influence the costs depending on the many technical differences. If we use the example of cars, you can get a brand new Toyota land cruiser at sh230m and another one at sh340m.

All of them can be Toyota l

Land Cruisers but with variances in design and specifications thus the different prices. These variances may relate to issues like safety, comfort, size and interior details among others.

For railway work, technical standards and specifications, the geology, topography and hydrology of the considered route, cost of materials, and distance from the coast form the core of the determinants of the costs. Others are related macroeconomic conditions like cost of finances, interest rates, inflation and construction-related issues such as insurance and tax laws.

It's important to note that Uganda being one of the partner countries under the Northern Corridor Integration Projects (NCIP), is guided by the standards and specifications that were agreed upon by the four countries of Uganda, Kenya, Rwanda and South Sudan under the NCIP. In some cases, the standards differ from the Ethiopian system.

Ethiopia has constructed Chinese class 2 railway system while Uganda is developing class 1 railway systems. The class depends on the role and nature of the railway, freight and passenger traffic design considerations. If you design for limited traffic, then argumentation of capacity will be done in few years from construction. The Uganda train system is designed to carry a trailing load of 4000 tonnes upgradable to 5000 tonnes whereas the Ethiopian system is designed for 3500 tonnes.

The terrain and gradients also vary significantly with the Ugandan gradients designed for a maximum of 1.2% while in Ethiopia the gradients vary with 0.9%, 1.85% and 2.65%. The Uganda system is designed for radius of curvatures for average 1200m while Ethiopia has 800m and 600m respectively. Uganda faces a more hilly terrain than Ethiopia.

From the cost perspective, if the gradients are kept lower, then more cutting and filling will be required increasing construction costs. The implication of having different gradients and curvatures means that you do more cutting of soils and filling of spaces which requires more labour and thus more money spent on the works. Of course the curvatures and gradients determine many of the operation and maintenance parameters including costs.

The Malaba-Kampala geology (earth's physical structure and substance) is also different from the Djibouti-Addis Ababa line. For example 53km of the 273km of the Malaba-Kampala line lies in the swamps which creates difficult geological conditions compared to desert conditions found in Ethiopia and Djibouti.

The swamps require deep piers and foundation for the bridges/ viaducts. The differences in the topography and geology account for the differences in soil cuts, fill, rock cut and masonry requirements which are all additional costs.

Comparison of key construction quantities show marked differences thus cost variations. The table shows variances in quantities

COMPARISON OF MAIN QUANTITIES

		ETHIOPIA	UGANDA	Variance
		000/ Km	000 / Km	%
Fill	m3	11.11	51.62	464%
Soil cut	m3	26.21	30.51	116%
Rock cut	m3	12.21	19.64	161%
Masonry	m3	1.961	3.634	185%
Geosynthetics	m2	2.050	19.803	966%

Furthermore the variation in price emanate from differences in material prices in Uganda and Ethiopia.

Table shows the variances in prices in some of the major materials

Local Construction Material Price

ITEM	UNIT	ETHIOPIA (USD)	UGANDA (USD)	%
Cement (32.5)	Ton	136.6	260	190%
Sand	m3	25.4	30	118%
Diesel Fuel	L	0.917	1.32	146%

During construction of the railway, some of the materials which are not produced locally not even in East Africa will be imported. The average distance from Mombasa to Malaba-Kampala is about 1,100 KM while the average distance from Djibouti to the Addis-Ababa is about 400KM. Some of the materials to be imported are extremely heavy like steel rails, post-tensioning cables, structural steel, pre-tensioning cables, locomotives and earth moving equipment. It is estimated that on average the cost will be like $0.3million per KM.

The Uganda SGR section will have viaducts (bridges over land) of about 20KM. This is in addition to the major bridges over the River Nile (about 937metres). There are also various swamps such as Mpologoma and Naigomba, among others, where bridges and viaducts will be built. The Ethiopian route has no swamps but short (width) seasonal rivers leading to deep galleries. In addition for Uganda, due to the design requirements of avoiding level crossing on major roads, the designs provide for over 64 bridges over roads. The bridges are usually an expensive component of the railway.

It is also important to understand what constitutes the overall project cost. For example cost of Malaba-Kampala SGR route includes the cost of locomotives and rolling stock, cost of development of a railway school and other provision sums. Some costs in other countries are presented without taxes or with taxes. Each country has its own peculiar conditions that influence the costs. A small issue like work permits costs may also push costs up. In Ethiopia some of these costs were waived. Furthermore in railway engineering, it is important not only to compare cost per route KM but cost per track KM. For example though the Malaba-Kampala section has a route length of 273KM, the track length is estimated at 338KM while Mombasa-Nairobi has a route length of 472KM but track length of 609KM. The variances in length vary depending on the design of stations and yards. The workshops and repair yards consideration also attract significant costs.

The issue of comparing infrastructure costs in various countries is usually a public concern. As much as it is important to ensure value for money, it is important that expert opinion is sought to deter non-technical comparisons that usually lead to uninformed conclusion and bias which usually cause anxiety and delay in commencement of these projects

Despite these cost differences, a complete and functional railway system will be a game changer and the accruing benefits will ultimately outweigh the construction costs. Important decisions regarding the project will be made in the next few days and weeks.

Our country and region are on the verge of turning the page after decades of low competitiveness because of run down infrastructure. We therefore urge every Ugandan to support this project as we begin the journey of totally connecting Africa through the railway for the prosperity of our people.

Bull dozer demarcating the corridor in Tororo District where compensation is complete and Project Affected Persons (PAPs) have voluntarily vacated the land

SGR staff celebrate after participating in the recent Cancer Run as a way of giving back to society

(Left) A project affected home before compensation. (Right) A couple infront of their new house undergoing construction after compensation

The mayor of Nakawa Division addressing councillors during a sensitisation meeting in Nakawa on the SGR alignment and activity in Kampala

SGR team prepare for a meeting with the leadership and councillors in Buikwe

Aerial view of section of the 207 acres where the Tororo station will be located

THE EDITORIAL TEAM

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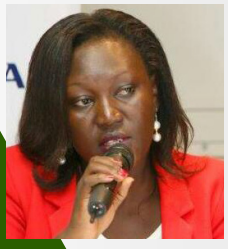
Head Public Relations & Corporate Affairs



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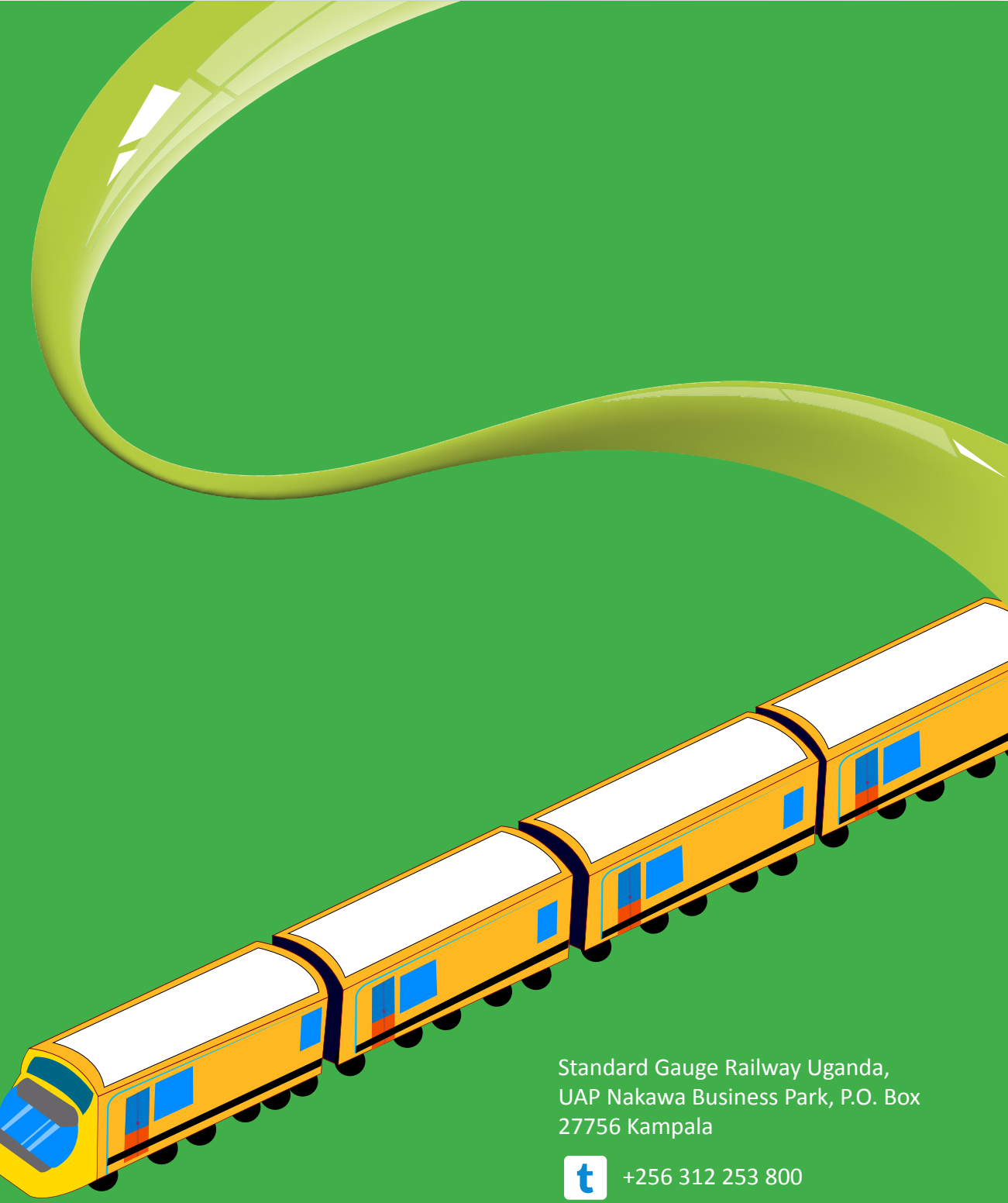

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