



## MINISTRY OF WORKS AND TRANSPORT

### FACTS ON THE UGANDA STANDARD GAUGE RAILWAY PROJECT

The Government of Uganda has continued to fast-track the implementation of the Standard Gauge Railway in line with the Regional SGR Protocol, signed by the four Northern Corridor Partner States of Uganda, Kenya, South Sudan and Rwanda.

The Committee on Physical and Infrastructure of Parliament recently released a report that contained information that does not provide the true picture of what the Ministry is doing. Some of the information is not accurate. It can easily harm the development of the SGR in Uganda. In the table below the Ministry is responding to key issues raised in the report.

ITEM	ISSUE RAISED IN REPORT	FACT/REMARKS
1.	<b>Class of SGR Network in Uganda</b> a) The claim that Uganda is constructing a class 2 railway system, not class 1 as stated by the Ministry	<p>1. <b>Uganda is constructing a China Class 1 railway system</b> as clearly defined in <i>The Code for design of railway line (National Standards of the People's Republic of China GB50090-2006)</i>. Under this standard, Railways are primarily classified based on their role, nature, and annual traffic volume (tonnage). This is an official document from the Ministry of Railways China that can be easily accessed for verification. The contract signed, feasibility done and all other technical documents even submitted to the financiers indicate that we are constructing Class 1 railway system</p> <p>2. The Northern Corridor Integration Projects (NCIP) partners of Uganda, Kenya, South Sudan and Rwanda all agreed to construct <b>China Class 1 railway</b> and signed a Protocol to this effect. It was further agreed that the SGR is developed and operated as a seamless transport system</p>

		<p>across the partner states. Ethiopia is not yet a member of NCIP SGR Protocol and opted to construct China class 2.</p> <p>It is important to note that <b>there is no universally agreed classification of railways in the world.</b> Each country has its own classification. The classification in America is different from that in Europe, or China or India. American classification, for example, is based on annual revenue it generates, while British classification is based on structure gauge i.e. height of the trains. China Class 1 is determined based on role of network, annual freight volume, speed, curvatures, among others.</p> <p>Any information contrary to the above facts, therefore, is misleading.</p>
U	<p>b) That Uganda's proposed SGR has the same specifications i.e. designs, operating speeds and is expected to serve the same purpose as Ethiopia and Kenya.</p> <div data-bbox="289 987 688 1218" data-label="Image"> </div>	<p><b>The assertion that the design and operating characteristics are the same is not true</b></p> <p>Because of the SGR Protocol, the specifications and design details of Uganda and Kenya are different from those of Ethiopia. Notably, the Class of the railway, the loading gauge, the trailing load, the annual traffic volume/capacity, gradients, radius of curvature, etc. Uganda and Kenya are developing Class 1.</p> <p>We should note the following:</p> <ol style="list-style-type: none"> <li>1. <b>Class:</b> Uganda and Kenya is China Class 1 while Ethiopia is China class 2.</li> <li>2. <b>Gradient/Slope:</b> Uganda maximum of 1.2%, Ethiopia maximum of 1.85% and 2.65%</li> <li>3. <b>Curvatures:</b> Uganda 1200m/800 meters, Ethiopia 800m/600m</li> <li>4. <b>Rails:</b> Uganda continuously welded rails while Ethiopia is long welded rails (Every 300 meters)</li> <li>5. <b>Loading Gauge:</b> Uganda double stack while Ethiopia is Single stack.</li> <li>6. <b>Signaling:</b> Uganda fully automatic system while Ethiopia is semi-automatic system</li> </ol> <p>This is just to mention but a few of the significant differences in the 2 systems. The Standards clearly show the superiority of China Class 1 railways over China Class 2.</p> <p>Citing the speed of passenger trains in not good indicator. The railways in Ethiopia, Kenya and Uganda are freight railways designed for freight trains that are heavier, longer and higher. Therefore passenger trains are lighter and shorter are able to navigate on freight railways at higher speeds.</p>





	<p>c) That there is no class 1 standard constructed in Africa</p>	<ol style="list-style-type: none"> <li>1. As noted above, there is <b>no universally agreed classification of freight railways in the world</b>. Therefore saying there is no class 1 standard in Africa is ambiguous. One must state the specific standard they are referring to. The American standards vary from the British standards and the Chinese standards.</li> <li>2. The four NCIP countries agreed to develop China Class 1. Kenya's Mombasa-Nairobi route is already constructed to China Class 1. The political and technical officials have often visited this SGR section and can attest to this. This can be verified and confirmed with the relevant Ministry in Kenya.</li> <li>3. Kenya and Uganda are committed to the seamless connectivity and must therefore follow the details of Class 1 specifications. It is suffice to say that the issue for diesel or electric doesn't compromise connectivity since the diesel and electric locomotives must still have the same power operating characteristics</li> </ol>
	<p>d) Describes class 1 trains as those with speeds above 300km/h</p> <div data-bbox="283 857 682 1084" data-label="Image"> </div>	<ol style="list-style-type: none"> <li>1. There is need to differentiate between railways designed purely for passengers - where the trains are short and lighter - and cargo/freight railways - where the trains are longer and heavier. Railways designed for freight can accommodate passenger trains while railways designed purely for passengers cannot accommodate freight trains.</li> <li>2. 300kph is for high speed metro trains that are on purely restricted passenger railways, not freight/cargo, as the SGR is planned.</li> <li>3. It is unimaginable to have a 4000tonne train moving at 300km/hr. In trains, the braking power requirements restrict the operating speed. For example a train moving at 80kph will require 3-5km to come to a total halt. That is why trains have a right of way on level crossings.</li> </ol>
Item	ISSUE RAISED IN	FACT/REMARKS
2.	<p><b>Cost</b></p> <p>a) That Uganda's overall</p>	<ol style="list-style-type: none"> <li>1. The USD12.8 billion presented to the public is a planning estimate for the entire 1,724KM SGR network in Uganda i.e. from the border point of Malaba to Nimule, Vurra, Mpondwe</li> </ol>

	<p>cost for the SGR network covering Eastern, Northern and Western routes is too high at USD12.8 billion.</p>	<p>and Mirama Hills. <b>It is not the construction price.</b> In engineering projects, the planning estimates are refined by feasibility studies culminating into feasibility estimates. The feasibility estimates are further refined during design/engineering leading to engineer's estimates. The Engineer's estimates will guide in the bidding process, but varies from the final contractor's price and therefore construction price.</p> <ol style="list-style-type: none"> <li>The only confirmed cost for the Uganda SGR is the USD 2.3bn for the Eastern route (Malaba-Kampala) where the feasibility and other related studies have been completed and a construction contract signed.</li> <li>It is, therefore, unfair to base a cost analysis on a planning estimate.</li> </ol>
	<p>b) That the cost of USD2.3bn for Uganda's Eastern Route covering route length of 273KM is not comparative to Kenya and Ethiopia's costs.</p> <div data-bbox="323 997 716 1230" data-label="Image"> <p>A rectangular blue stamp with a double border. The top text reads 'STANDARD GAUGE RAILWAY PROJECT'. In the center, there is a small emblem featuring a shield with a sun and a train. The bottom text reads 'FOR OFFICIAL USE ONLY'.</p> </div>	<ol style="list-style-type: none"> <li><b>Uganda's cost is not inflated and not exorbitant.</b> It is comparable to Kenya and Ethiopia SGR if the class, technical specifications, hydrological factors, geotechnical parameters, topography, logistical and macro-economic parameters are taken into consideration.</li> <li>The comparisons being discussed in the public domain have many glaring misleading facts.</li> <li>For example the costs for Ethiopia system do not include locomotives (trains) and rolling stock (wagons) while those for Uganda include both.</li> <li>In the comparison under discussion currently, for Ethiopia and Kenya, track length was used for comparison while for Uganda, route length was used. In railways, route length is the distance between point A to point B, while track length includes other lines between point A and point B that are constructed as passing loops and shunting lines at stations. <b>Comparing track length in Ethiopia and Kenya and route length for Uganda, makes the comparison inconsistent and misleading.</b> The track length of Uganda is 338KM.</li> <li>If the same parameters are used for comparison, the costs are comparable.</li> <li>The USD2.3bn for Uganda is for China Class 1 railway system while the reported cost for Ethiopia is for China Class 2 railway.</li> </ol>

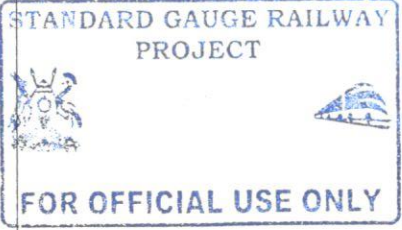



	<div data-bbox="317 971 716 1203" data-label="Image"> </div>	<p>7. Uganda SGR is fully electric while Kenya is diesel in the interim, with provision to upgrade to electric soon.</p> <p>8. The major factors that affect cost are dependent on:</p> <ul style="list-style-type: none"> <li>i. Hydrological conditions: rainfall runoff, rainfall amounts, return periods, etc. These lead to variances in the sizes and heights of drainage facilities, bridges, box culverts and slope drainage protection structures. Therefore, the variance in hydrological conditions along the routes of Kenya, Uganda and Ethiopia – under consideration – inevitably leads to variance in hydrological structures thus the costs cannot be the same. The Ethiopia route is along the semi-desert while Uganda route is along the lake Victoria basin with significant amounts of rainfall</li> <li>ii. Uganda's route under consideration traverses over River Nile, with a major bridge of approximately 1KM long in Jinja. In Ethiopia, the biggest bridge on the route under consideration is 155 meters.</li> <li>iii. Furthermore, the alignment from Malaba-Kampala is covered with 53.1 KM in wetlands/swamps. These wetland requires building of bridges but where bridges are not going to be built, there construction will require massive deep excavation to reach stable grounds and then massive rock fill to provide stable foundation for the embankment. This is very costly and unique for the route in Uganda compared to routes in Ethiopia and Kenya under consideration.</li> <li>iv. Geotechnical conditions: The geology along the route greatly determines the depth of the piles that are a foundation of the bridges/viaducts. The route under consideration in Ethiopia runs along the semi desert and therefore the rock is near the surface. The Ugandan Eastern Route, under consideration, lies in the Lake Victoria Basin where the rocks are significantly deeper. Our investigations show that in some areas, the piles will have to go up to 50 meters below the ground to attain the firmness required. Direct comparison assumes</li> </ul>
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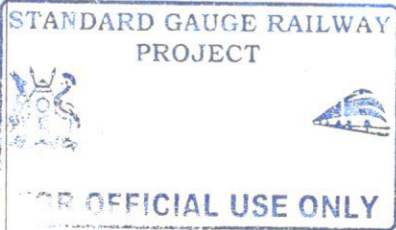
		<p>that it is possible to have the same foundation. This is impossible and therefore the costs cannot also be the same.</p> <p>v. Topography: The gradients for the railway in the two countries vary with Uganda limiting to 1.2% and Ethiopia to 1.85%, 2.65%. To get the railway line constructed to such gradients, within varying topography, requires bridges/viaducts. In Uganda, because the topography is undulating, it will require 22KM of bridges consisting of 64 bridges over swamps &amp; rivers, including a 2.6KM bridge over River Mpologoma, 1.5km bridge of Naigombwa, among others.</p> <p>vi. The cost of key materials in Uganda is relatively higher because of: Uganda's distance from the sea (for imported materials – cost of transport) and highly liberalized economy (market price for materials). The cost of steel is higher because of billets have to be imported and conversion cost is higher. The cost of cement is also higher than in both countries</p>
	<p>c) That reviewing Uganda's class to a class 2 would significantly reduce cost of the Project</p> 	<p>The change from class 1 to class 2 would warrant the following</p> <ul style="list-style-type: none"> <li>a) Uganda to opt out of the SGR regional protocol with Kenya, Rwanda and South Sudan</li> <li>b) Not to have a seamless connectivity with Kenya since Kenya has and is constructing class 1 railways system thus not achieve the objective of creating conducive environment for investment in the region and introducing non-tariff barriers</li> <li>c) Under planning of the SGR route and planning to improve their capacity in 5-10 years after construction. Currently Uganda imports about 8 million tonnes of goods per year</li> <li>d) Class 2 will reduce investment costs but significantly increase operation and maintenance costs. The traffic will be reduced thus longer payback period.</li> <li>e) The costs are mainly due to bridges / viaducts, higher embankments which are associated with topography and gradients. The route was optimized by Gauff Consultants who considered many options to agree on this route.</li> <li>f) All this will require to significantly delay the project for 3 to 4 years due to studies required and other procedures.</li> </ul>

	<p>d) That Addis Ababa soils are volcanic and inappropriate for construction compared to Kampala soils which are appropriate for construction.</p>	<ol style="list-style-type: none"> <li>1. In Engineering, it is important to differentiate between soils and geotechnical conditions. The geotechnical conditions especially the depth of the stable rock will determine the size, depth of the foundation. The Ethiopia route is along the semi-desert of Addis-Ababa-adama. Mieso-dawale-Djibouti where the rock is near the surface while Uganda route lies in the Lake Victoria basin where the stable rocks are deep. Most pile foundation in Ethiopia are 15-20m while in Uganda will be 35-50m. The soils are good for agriculture but challenging for construction of engineering structures.</li> <li>2. The depth of the firm bedrock in the 2 countries varies, with Uganda having depth up to 50 meters while Ethiopia is up to 20 meters.</li> </ol>
	<b>ISSUE RAISED IN REPORT</b>	<b>FACT/REMARKS</b>
3.	<p><b>Capacity Building</b></p> 	<ol style="list-style-type: none"> <li>1. The Government of Uganda has a plan for capacity building, including construction and equipping of a fully-fledged Railway engineering training school in Tororo.</li> <li>2. The issue of capacity building has been discussed at NCIP level and further embedded in the construction contract signed between the Government of Uganda and the contractor.</li> <li>3. Uganda cannot just copy and paste the Ethiopian model of capacity building because of different country dynamics and demographics e.g. Ethiopia plans for 6,000KM of rail for 102 million people with GDP of USD62bn. Uganda is planning for 1724KM or rail for 36 million people with a GDP of USD25 billion.</li> <li>4. Nevertheless, the Govt is already addressing this as per the needs of the country</li> </ol>
4.	National Railway Policy	<ol style="list-style-type: none"> <li>1. The NCIP Heads of State directed that one railway policy should be developed for the partner states. Being a regional network, it should be comprehensive enough and above country specifics. This means any individual country policies should be derived out of the</li> </ol>



		<p>above</p> <ol style="list-style-type: none"> <li>2. Kenya is spearheading the studies on the development of this NCIP railway policy and Uganda continues to make its input.</li> <li>3. These studies will help in developing and harmonising the policy, legal and institutional frameworks for the countries. This is crucial for seamless connectivity.</li> <li>4. Amendment of Uganda Railways Corporation Act and/or formulation of other institutions will be considered upon completion of the regional railway policy. We want to avoid mistakes of creating a legal regime for the sub-sector without a clear policy direction. It's the policy direction and its support to the national development agenda that will help the country not just Act.</li> <li>5. SGR is being developed as a seamless regional network under NCIP, which explains the directive to develop a regionally binding and guiding railway policy.</li> </ol>
7.	<p><b>Sources of Power for the SGR</b></p> <ul style="list-style-type: none"> <li>• That Uganda's planned SGR corridor and LRT corridor are not fully electrified. That discussions are underway to use power from Isimba and Nalubaale. However it is unlikely that power from these two dams would supply the entire SGR network across the country efficiently and effectively. There</li> </ul>	<p>The issue of power extension to the traction substations and the reliability thereof of the power supply has been fully discussed and agreed upon with Ministry of Energy and Mineral Development and UETCL. There is a written commitment from the Minister of Energy and Mineral Development that the required electricity will be provided and on time. UETCL is planning together with SGR team on this matter.</p> 



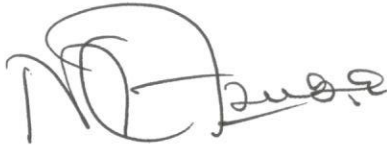
	are no contingency plans to provide for generator back up in the event of failure	
	<p><b>Right of Way</b></p> <ul style="list-style-type: none"> <li>That there is no clear requirement for relocation or management of the compensation received by PAPs.</li> </ul> 	<ol style="list-style-type: none"> <li>1. The issue of management of compensation received by the affected persons is not attainable in Uganda, given the Constitution, the Land Acquisition Act and the Land Act. The Project has educated the affected persons to rightly use the money but we have no right to force them to use the money for particular use.</li> <li>2. To date, the Project has compensated approximately 2500 affected persons in the districts of Tororo, Butaleja, Namutumba, Luuka and partly in Iganga, a distance of about 86KM.</li> <li>3. There is documented evidence on the ground that the compensated persons have rightly used their money for relocation. The acquired right of way is already being demarcated using a bulldozer.</li> <li>4. It is important to note that in villages, the affected land is usually part of the bigger chunk and therefore not all affected persons may have to relocate/shift.</li> <li>5. The proposal warrants change of the Constitution and the Land Laws.</li> </ol>

## CONCLUSION & POSITION OF SGR PROJECT

1. As directed by H.E. the President of Uganda, the Government, through the Ministry of Works of Transport, continues to fast track the development of the SGR.
2. The SGR is a transformational Project for Uganda that will not only stimulate industrialization, but provide the needed impetus to lift the country into a middle income country. Any delay will impact on the country significantly.
3. Uganda is following the SGR Protocol and is developing China Class 1 Railway system.

4. As ably demonstrated, the development of the Malaba-Kampala SGR is comparable to other costs in the region, taking into account the unique features along the route, especially the bridge over River Nile and the expansive swamps along the route.
5. Therefore, following the directive of H.E. the President of Uganda and the President of Kenya, the Ministers responsible for Finance and Works in both countries will undertake a joint mission to the Government of China soon to discuss the financing of the SGR projects. Any delay on this Project, will not only impact on Uganda's commitment to the agreement signed with Kenya but also the achievement of Uganda's middle income status and Vision 2040.
6. It is my humble request to all Ugandans, especially, the esteemed honorable Members of Parliament to support the successful development of the Standard Gauge Railway Project.

**For God and My Country**



Monica Azuba Ntege

**MINISTER OF WORKS AND TRANSPORT**

14 February 2017

