

special report

FUNDING

Grant

Japan granted Uganda Shs230b to build a new bridge on River Nile in Jinja. It will replace the bridge at the Nalubaale Dam, formerly known as the Owen Falls Dam, which is in danger of collapsing. The old bridge was commissioned in 1954.

Jinja bridge to be completed by June

Process. Construction of the Jinja suspended cable bridge will reach the final milestone next year, around May, when the final segment connecting the bridge deck from both sides of Jinja and Njeru side is expected to be inserted. Work on this section known as the 'centre span closer' is one of the hardest bits and might take a little more than a month to complete, writes **Frederic Musisi**

If you have been to Jinja lately and attempted to look south, you obviously must have been struck by sight of the new cable-stayed bridge. Its deck, being positioned on both sides, that is about to connect or the Y-inverted pylons with suspended cables cannot be missed.

Officials say by end of May, the deck will have been brought together.

That aside, the bridge contractors—the Japanese/South Korean Zenitaka/Hyundai—will early next month start work on another iconic structure; the Michi-no-Eki, which will likely be striking, going by its designs, when it's completed by June next year.

Michi-no-Eki is a Japanese phrase for "roadside station." Most highways in Japan have such designated roadside stations which are aimed at promoting local tourism and trade.

The proposed station on the Jinja side will host among other facilities, a restaurant, public toilet, supermarket, and exhibition area. The Jinja station will also accommodate a chamber for bridge maintenance, security and to cater for emergencies.

Work on the proposed site is expected to commence early next month and be completed by June, according to the bridge project clerk, Mr Morris Odrua.

"It is these non-bridge attachments that will delay us for some time but the bridge work itself is progressing very well, now at 73 per cent completion," Mr Odrua told *Sunday Monitor*.

Mr Odrua said work on the entire bridge substructure, mainly the four foundations is nearly complete, except for the deck—superstructure—that is being concurrently positioned from both the Jinja and Njeru sides. The final deck will be about 290 metres.

The deck is being erected/suspended using scaffold like bridge



Mega project. Zenitaka Corporation of Japan and Hyundai Engineering and Construction Company from South Korea are constructing the New Jinja Nile Bridge across the Nile river. PHOTOS BY ABUBAKER LUDOWA

building machines called form travellers. These act as movable concrete moulds, operating in a similar way to the movable scaffold system (MSS), which is building the elevated deck.

They were assembled from the foundation on both sides and are moved forward simultaneously during construction. Construction teams then cast a pier table—a rectangular shaped platform—around the bridge pylon before preparing to start work on the mainbridge deck.

"The form travellers are moved in segments on both sides and each segment takes about 10 days to complete," Mr Odrua said.

"But we hope they will have connected by May. Then we shall start work on the centre span closer, which will take us some time because being the centre point we have to be very precise with the measurements and on spot with the works," he added.

For the part of the deck already completed, suspension of the cables is already ongoing and can be seen from a far. The deck will be suspended in the air by the said cables.

The total length of the cable is about 3,100 km, which is equivalent to three times the driving distance between Kampala and Mombasa or twice the distance between Kampala and Dar-es-Salaam via Nairobi. In fact, the cable length can go around Lake Victoria.

The cables, that suspend the deck, will reinforce the weight to the high



Support structure. One of the pylons of the New Nile Bridge

raised pylons, which will compress the weight into the ground.

The bridge has foundations, Abutment structure One (A1) and Pylon (P1) located on the Jinja side. P1 is specifically fitted into the River Nile, 22 metres into the ground to the riverbed. The distance between A1 and P1 is about 195 metres.

The other two foundations, Abutment structure Two (A2) and Pylon Two (P2) are located on the Njeru side. The distance between these two is estimated to be about 100 metres.

The four foundation bases are made of different compositions, which define their classifications as A1, A2 and P1, and P2 respectively. P1 and P2 will reinforce the high raised suspended cables which will support the bridge in the air.

Work on foundations on both sides, according to Mr Odrua is "100 per cent complete". This includes raising of the 60m high Y-inverted pylons at P1 and P2. The Y-pylons support the pylon tops through which the cables lifting the deck are suspended.

The new bridge will be the second cable-stayed bridge in East Africa after Tanzania's Kigamboni bridge which was commissioned last year in April.

The entire Jinja bridge is approximately 525 metres long, and has a design life span of 120 years. It will also be fitted with, among other accompaniments, lighting facilities, a digital health monitoring system that



Progress. "It is these non-bridge attachments that will delay us for some time but the bridge work itself is progressing very well, now at 73 per cent completion." MORRIS ODHIAI, BRIDGE PROJECT CLERK



Almost done. Construction of the bridge commenced in 2014.

will monitor the load of traffic, and stresses and strains in the cables.

Mr Odrua said "fitting of these non-bridge structures will be completed by June" when the bridge is expected to be completed. A commissioning date shall be communicated thereafter.

Meanwhile, on both the Njeru and Jinja sides, earthworks have commenced on the access roads to the bridge.

On the Njeru side, a roundabout is planned opposite the Nile Breweries factory—with feeder sections from the Mukono-Kyetume-Katosi/Kisoga-Nyenga road, the proposed Kampala-

Jinja Expressway (KJE), and the old Kampala-Jinja road.

On the Jinja side, the contractors will tarmac two kilometres access to Jinja Town with three at-grade junctions to allow interchange of traffic where the new road meets the old road.

If all goes according to plan, chances are that by November 2018, motorists will be driving on the new bridge across the Nile to Jinja.

If all goes well, still as planned by Unra with the 77km four-lane KJE (which is set to be tendered as a Public-Private Partnership (PPP) which will connect to the new bridge)



Long. The total length of the cable on the bridge is about 3,100 km.

the drive from the city will be much smoother.

With works on the new Nile bridge on course it can only be hoped that the KJE materialises soon for the two projects to synchronise.

The Kampala-Jinja route or the Northern Corridor enroute to Mombasa port is the most used route, and according to statistics, the corridor has daily transit traffic of 2.2 million tonnes a day.

The need for a new bridge was envisaged as far back as 1995 when periodical studies on the old Nalubaale-Owen Falls bridge showed it was waning and discussions started on constructing a new one.

A pre-feasibility study for the project was completed in March 2006, and the government approached the Japanese government through JICA for possible funding. Still, in 2006 a pre-investment study by consulting firm Mott McDonald considered several different bridge designs.

The design of the bridge went through several hands but was mainly

THE BRIDGE

Major link: The bridge is a major link between the Northern Corridor Route and Uganda's landlocked East African neighbours such as Rwanda and Burundi.

Cost: The project costs Shs390b

Type: A cable-stayed bridge consists of one or more columns, normally referred to as pylons, with cables supporting the bridge deck

design which confirmed the bridge complies with "the highest standards of the design and that in addition to local design standards, Japanese standards, British standards and Eurocode traffic load models were employed".

The old bridge

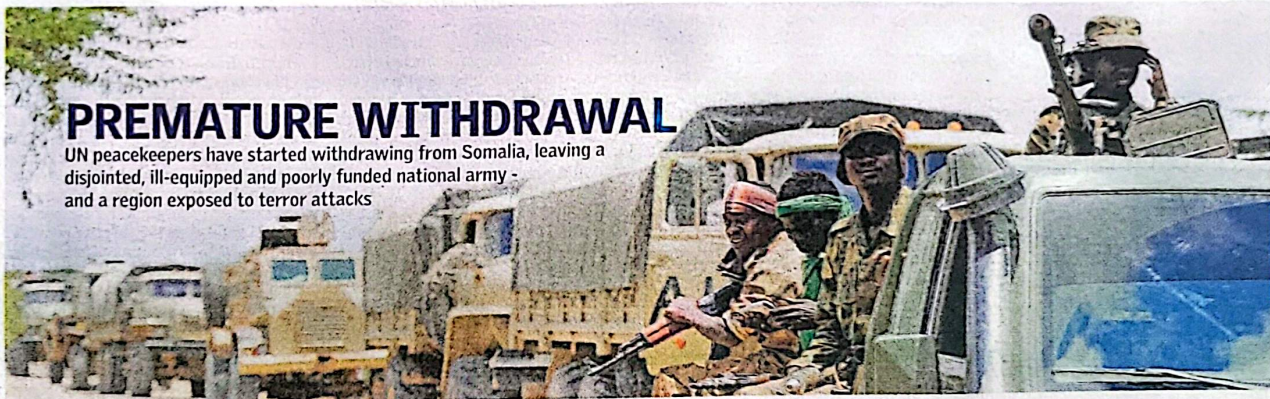
When the Nalubaale Bridge was commissioned in 1954, it soon became an engineering wonder over the years that followed until the mid-1990s when periodical reviews indicated that the infrastructure was actually weakening—but still strong enough to serve the current purpose.

The old bridge besides being a crossing over the River Nile, also serves Nalubaale/Owens falls dam which was constructed below and also commissioned 63 years ago.

It comprises three sections: Section 1: main dam west of the forebay; Section 2: the bridge on the top; and Section 3: main dam east of the forebay. Officials say the old bridge will be left standing as a historical monument.

handled by Japanese-based consultants, Oriental Consultant, supported by Eight Japan Engineering Consultant and PyungHwa Engineering Consultants.

The UK-based structural engineering company Arup UK also carried out independent design checks simultaneously with the release of the final



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