

Karuma hydropower dam

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Discharge tunnel

A person travelling on the Gulu-Masindi highway will have no idea that 100 metres beneath them, water will be flowing back to the river through two parallel 8km-long tunnels.

The tunnels will discharge water that has been diverted to the powerhouse (turbines) back to the River Nile, ensuring a normal rate of flow of the river.

Inside the large tunnels, workers are spreading a layer of concrete onto columns of interlocking steel bars, to ensure that the rock base remains strong.

The extensive works on the dam are meant to guarantee that it will last for at least 100 years. Panic engulfed the project last year, when cracks were found in one section of the dam.

Qu. Juvet, the head of administration at Sinohydro, says the concern about cracks was exaggerated and that all the worries have been put to rest.

"Cracks can occur any time," Juvet says, adding that this may result from the temperature of the cement or gravel.

A special team appointed by President Yoweri Museveni and headed by former Electoral Commission chairperson Eng. Badru Kiggundu to inspect the construction work visits the site every month.

Nicolas Ruseu, the project manager of Energy Infrastructure PVT Ltd, the firm hired by the contractor to supervise works on the dam, says all the fears about the project have been addressed.

"We are confident about the quality of works and the project will be completed as scheduled," Ruseu, the Canadian expert, says.

Quality control
All the materials used at the hydropower station, including aggregate, cement and steel bars, are tested in a special laboratory at the site, even when the testing has been done at the manufacturer's plant.

In the laboratory, each of the materials used is tested for strength.

moisture and temperature in order to guarantee that they are durable.

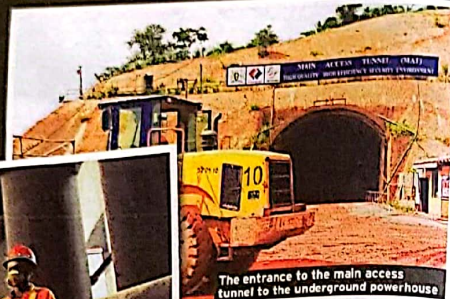
A standard approach to prevent cracks in concrete bases, workers here have to cool the newly built blocks by pouring water onto the surface for days on end, until it is strong enough.

The engineers have also built a complex system used to control the temperature of the building materials. Perched high up on giant structures, a group of workers oversees a mechanised system carrying out mixture of critical ingredients — cement and aggregate. Water is pumped from underground, frozen to form ice, which is chopped into small blocks which are then mixed with aggregate. The mixture is loaded onto waiting trucks.

One of the people who run the facility is 23-year-old Sharon Aitumangi, who controls the conveyors on a switchboard, along with a group of four women. She took up the job two years ago, after completing a certificate course in computer studies. While she says her earnings are modest, she has learnt how to operate the switchboard and hopes to use her savings to go back to school when the project concludes.



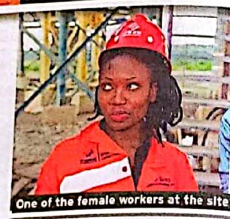
Concrete structures that will regulate the flow of water from Karuma Falls to the powerhouse inlet



The entrance to the main access tunnel to the underground powerhouse



Engineers take measurements for the turbine placement in the powerhouse



One of the female workers at the site



1.0 SAFETY INDUCTION FOR VISITORS

General lay out plan:

Water will be flowing back into the river through two parallel 8km-long tunnels

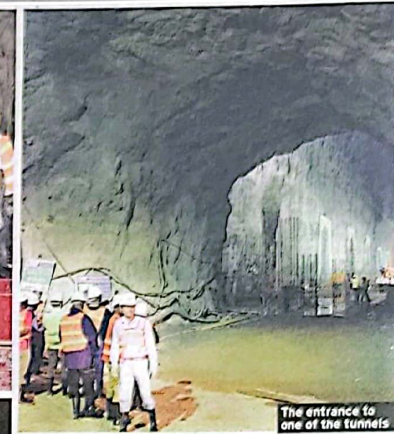


Trucks ferrying blasted rocks from the tunnels

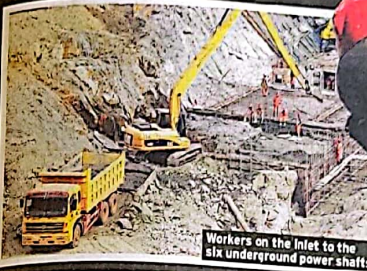
set to open next year



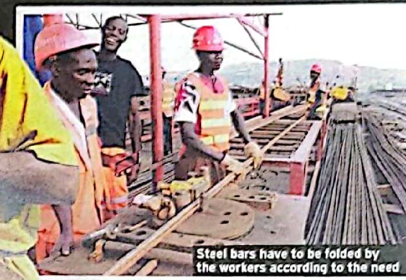
Workers in the pressure shaft of the underground powerhouse



The entrance to one of the tunnels



Workers on the inlet to the six underground power shafts



Steel bars have to be folded by the workers according to the need



The cement silo at the Karuma dam site



Controllers in the cement silo at the Karuma dam site



Welding giant steel structures is the norm at the site



A bird's eye view of the inlets to the power turbines underground