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UPDATE ON THE ON-GOING KARIBA DAM REHABILITATION PROJECT (KDRP)

The Zambezi River Authority (Authority), a Bi–national organization mandated by the Governments of the Republics of Zambia and Zimbabwe to sustainably harness the hydropower potential offered by the waters of the Zambezi River for socio-economic and industrial development of the two countries, has from 2015 been working on a project aimed at enhancing the structural integrity of the Kariba Dam wall for efficient power generation for the benefit of the two Contracting States and the Southern African Region as a whole.

Project Scope - Plunge Pool Reshaping and Spillway Gates Refurbishment
The on-going KDRP works comprise two components, namely; Reshaping of the Plunge
Pool and Refurbishment of the Spillway Gates.

The reshaping of the Plunge Pool involves excavation of the rock in the pool in order to increase the pool volume and thereby minimising erosion which can undercut the dam foundations. The existing pool was created by spilling water immediately downstream of the dam wall. The works required to reshape the plunge pool are as follows:

- a) Construction of a downstream cofferdam to enable the blasting; and
- b) Excavation of an estimated 300,000 m³ of rock from the downstream end and north and south bank sides of the pool in the dry.

This will create a new pool profile that will dissipate the energy of the water jets from the flood gates to non-erosive levels as well as reducing turbulence by guiding the spilling water in the downstream direction and hence avoiding any backward erosion towards the dam foundations in the process.

The Plunge Pool Reshaping works commenced in May 2017 and are being carried out by Razel Bec, a French civil engineering construction company. The works are targeted for completion before the end of 2024. The project is on course and the works are 60% complete.

On the other hand, the Spillway Refurbishment works commenced in September 2019. The contract is being implemented by a Consortium of GE Hydro of France and Freyssinet International of France. The works are targeted to be completed in 2024.

The Spillway Refurbishment works are aimed at ensuring free movement of the gates used to shut the upstream opening of the flood gates during maintenance of the flood gates. An emergency gate together with a lifting crane will be fabricated and installed. The gate will be used in emergency situations like where a gate fails to close after spilling. The hoisting equipment for the spilling gates will also be *renewed*.

It is worth mentioning that the overall objective of the KDRP is NOT to seal cracks as has previously been speculated by some sections of the media, but rather to increase the lifespan of the dam wall. The project is on schedule while the contract implementation timeframe is 48 months from the commencement date. Consequently, the completion of the works will be accomplished in 2024.

Current works on site

The Spillway Refurbishment Contractor is currently working on the establishment of Construction Site facilities as well as the fabrication of the electro-mechanical equipment required for execution of the works through specialist sub-contractors.

The manufacturing progress details are two-fold. Firstly, the manufacturing of Stop Logs is being done in China by the Subcontractor Sinohydro Bureau 8. The works are progressing well and delivery of the first components is expected by mid-February 2021. Secondly, the manufacturing of the Needle Cofferdam which is required to isolate the works is being undertaken in Poland, by the Subcontractor APC Presmet.

Job and Business Opportunities

From inception to date, over 218 (Zambian and Zimbabwean nationals) have been employed at the KDRP Site. A total of 33 expatriates are currently working with the Zambian and Zimbabwean nationals employed at the KDRP site. In addition, the project has provided business opportunities to local companies and communities as follows:

- a) Sub-contracting of services and project work to local businesses,
- b) Supplying of construction materials such as cement and steel
- c) Absorption of significant numbers of community members as employees at the project site,
- d) Provision (leasing) of accommodation to project staff

It is noteworthy that arising from the stated business opportunities, the project has given rise to enhanced income streams and improved livelihoods in the local business environment.

Project security measures

Apart from the key project works, the Authority will be installing high-tech equipment before May 2021 as part of works relating to the dewatering of the plunge pool which exercise is expected to commence within the second quarter of 2021. The equipment will be used to monitor the execution of the works and the effect thereof, if any, on the nearby infrastructure including the dam wall itself.

Accidents recorded on site

By nature, the KDRP is a high-risk construction undertaking. However, due to robust health and safety interventions instituted on site, the Contractor has managed to keep accidents to the barest minimum. In that regard, no fatal accidents have occurred from project inception. However, one reportable Lost Time Injury (LTI) accident involving a diver was recorded among other minor incidents. The diver involved in the LTI accident was immediately evacuated to South Africa for specialist treatment under the respective insurance scheme and through the KDRP Emergency Response Plan.

COVID-19 effect on the project

While the project was minimally affected by the first wave of the COVID-19 pandemic, the second wave has not yet hindered work progress. The project team has continued to execute its duties with strict adherence to health guidelines instituted by the World Health Organisation and the health authorities in the two Contracting States. The project has a clinic on site where regular COVID-19 screening and testing is done. Daily screening is strictly done at all entrances to the project site by way of checking temperature among other symptoms. A mass testing exercise for all the 251 employees at the KDRP site was carried out on 4th and 5th January 2021. Two employees tested positive to COVID-19 whilst the rest were confirmed negative after the rapid diagnostic testing and screening exercise. Further, routine testing campaigns are envisaged so as to keep potential COVID-19 transmissivity under check.

Other COVID-19 controls in place include specific procedures such as the COVID-19 Workplace Management Procedures, training and awareness as well as continuous use of Personal Protective Equipment (PPE) including face masks, the use of hand sanitizer and regular washing of hands with soap.

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