

FOR IMMEDIATE RELEASE

*Date: July 23, 2018*

**Headline: Robbins Double Shield is conquering the Himalayas**

*Subhead: Nepal’s First TBM bores 1,000 Meters in One Month*

Nepal’s first tunnel boring machine, a 5.06 m (16.6 ft) diameter Robbins Double Shield, is living up to the nation’s high expectations. The TBM, supplied in summer 2017 for the Bheri Babai Diversion Multipurpose Project (BBDMP), recently bored over 1,000 m (3,280 ft) in one month and has been averaging an impressive 800 m (2,630 ft) per month. The project is owned by the Government of Nepal’s Department of Irrigation (DOI) and operated by contractor China Overseas Engineering Group Co. Ltd. Nepal Branch (COVEC Nepal).

The decision to use a TBM for the BBDMP project—designated by the government as one of Nepal’s 11 National Pride Projects—was a departure for a nation where drill & blast has long been the preferred tunneling method. Early studies done on the tunnel path predicted that drill & blast excavation of the 12.2 km (7.5 mi) tunnel would take close to 12 years to complete. The tunnel is located in the Siwalik Range, part of the Southern Himalayan Mountains, where geology consists of mainly sandstone, mudstone, and conglomerate.

Mr. Wang Wu Shui, General Manager for COVEC Nepal, cited several factors that have contributed to the good advance rates so far, “In China, there is a proverb about TBM construction: ‘geology is the premise, equipment is the foundation, and talents are the key’. The great advance rates achieved at present mainly lie in preliminary planning, process control, and professional construction personnel.” Shui added that technical training and guidance are provided for each position so that all personnel can fully understand their job and team responsibilities. If unforeseen circumstances arise and there is no operator for a certain position, others have enough training to fill the role.

To ensure the best TBM performance and to prevent downtime, machine maintenance occurs daily at a fixed time. Geological engineers are sent to analyze the ground conditions twice daily so that construction personnel can adjust the tunneling parameters and prepare for auxiliary measures if geological changes are predicted.

The ground conditions during the record-setting month consisted mainly of sandstone and mudstone, but that is set to change. At about the 5.8 km mark, the machine will encounter a major fault zone known as the Bheri Thrust. Clay and water ingress are expected throughout the fault, which is about 400 to 600 m wide.

COVEC Nepal are prepared for the conditions and have worked out efficient tunneling logistics to decrease downtime. “The two working procedures of tunneling and segment erection are carried out simultaneously under the double shield tunneling mode, and the time to erect a ring of segments is 15 minutes in general,” said Shui. “Under the single shield tunneling mode, segment erection comes after tunneling in a sequential process, but the segment erection time is still about 15 minutes.” To further reduce time, consolidation grouting is carried out in advance during daily maintenance to avoid the impact of downtime for grouting on the overall construction progress.

Once complete, the BBDMP will irrigate 60,000 hectares of land in the southern region of Nepal, and benefit an estimated 30,000 households. It will divert 40 cubic meters (1,400 cubic feet) of water per second from Bheri River to Babai River under a head of 150 m (490 ft) using a 15 m (49 ft) tall dam, providing year-round irrigation in the surrounding Banke and Bardia districts. The water will also be used for hydroelectricity, with a generating capacity of 48 MW benefiting the country with NPR 2 billion (20 million USD) annually. The initial success of the TBM operation has already inspired developers and contractors to opt for TBMs over conventional excavation methods on upcoming Nepalese tunnels.

Word count: 607

**The News in Brief:**

**--**A 5.06 m (16.6 ft) Robbins Double Shield TBM has bored over 1,000 m in one month at Nepal’s Bheri Babai Diversion Multipurpose Project (BBDMP).

-- The Robbins Double Shield—the first TBM ever to bore in Nepal—is also averaging 800 m (2,630 ft) per month, showing that TBM-driven tunnels can be successful in the Himalayan Mountains.

-- The 12.2 km (7.5 mi) BBDMP tunnel is located in geology consisting mainly of sandstone, mudstone and conglomerate, but the machine will soon hit a major fault zone known as the Bheri Thrust where clay and water ingress are expected.

--Contractor COVEC Nepal is prepared for the conditions and achieving good advance rates through site logistics, minimization of downtime, and crew training.

-- Once complete, the BBDMP will irrigate 60,000 hectares of land in the southern region of Nepal, and benefit an estimated 30,000 households.

Images Attached to Email. If you need a higher resolution image, please contact Desiree Willis.

Captions for Images:

**Image 1:** A 5.06 m (16.6 ft) Robbins Double Shield TBM has bored over 1,000 m (3,280 ft) in one month at Nepal’s Bheri Babai Diversion Multipurpose Project (BBDMP).

**Image 2:** The COVEC Nepal crew celebrate the record-setting month of over 1,000 m (3,280 ft) for the Robbins Double Shield TBM boring the BBDMP tunnel.

**Image 3:** An overhead view of the BBDMP jobsite, located in Bardia Wildlife Reserve, a sanctuary home to tigers, rhinos, elephants and many other types of vulnerable flora and fauna.

**Image 4:** Launched in summer 2017, the Robbins TBM is the first ever to operate in Nepal and has garnered much national attention for its successful operation.