

# Boring a tunnel in the maw of the earth

**BANGALORE:** An attempt to take a peek into what the 330-tonne Slurry Tunnel Boring Machine (TBM), developed by Japan-based Hitachi Zosen is like, revealed that the system is aided by a 48-tonne cutter head complimented by 41 rock cutters and a number of soil cutters with a capability of boring 4.5 metre a minute (maximum).

The TBM is capable of inserting about 12 pre-fabricated concrete rings, each of 1.5 mt width, a day.

Engineers told *Deccan Herald* that the machine will work round-the-clock for 26 days a month, drilling about 20 metres of tunnel daily, while the other four days are reserved for overhauling and maintenance.

Tunnel boring continues round-the-clock with the crew working in two shifts of 12 hours. In all, there will be about 520 personnel working for the tunnelling project and at a time about 25 people each will work for each TBM.

The personnel, including Japanese (supervising personnel of Continental Engineering Corporation), Taiwanese, British, Canadians, Filipinos and Indians, will work in two shifts with four days of weekly off per month.

The machines will dig twin tunnels for Namma Metro's underground section between Chinnaswamy Stadium and Majestic (a distance of about 4.5 km). The contract has been awarded to the Continental Engineering Corporation-Soma-CEC International Corporation India Joint Venture.



**The new Slurry Tunnel Boring Machine.** DH PHOTO

The TBMs are powered by a 3,000-KW diesel generator installed inside the TBM Shaft at the Kempe Gowda Bus Station of the KSRTC here.

Explaining that the slurry TBM is being used for the first time in the country, they said these excavate tunnels with a circular cross section through a variety of soil and rock strata and have the advantage of reducing vibration to the surrounding ground while ensuring a smooth tunnel wall.

The outer diameter of the TBM is 6.44 mts, the inside diameter of the tunnel is 5.6 mts.

Engineers said mud generated during boring will be diluted with water to make it slurry, which will be transported to the slurry treatment plant at Majestic where the

muck is separated from water before being transported to filling yards.

The water, however, will be reused to produce slurry again.

All the controls are set up at the main station in Majestic where the entire operation is controlled.

But the TBMs have to be dismantled and re-assembled at every underground station site (Central College, Vidhana Soudha, Chinnaswamy Stadium and City Railway Station).

## Commercial run

Having missed several deadlines for commercial operations of Namma Metro Reach I, Chief Minister B S Yeddyurappa was noncommittal on setting a fresh deadline.

**DH News Service**