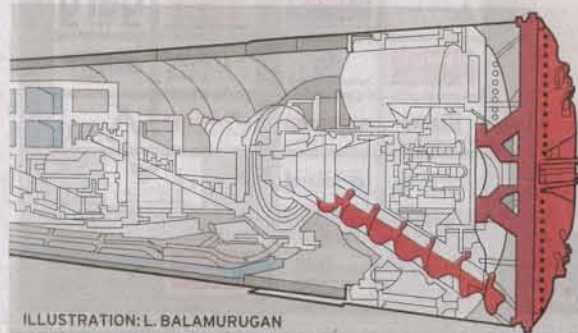


First look at Chennai Metro Rail's underbelly



WHAT IS A TBM?

Tunnel boring machine (TBM) can drill through hard surfaces and is used to tunnel passages connecting underground stations

Weight 850 tonnes	Length 85-90 metres	Assembling of TBM takes 2-6 months
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No. of TBMs engaged in Metro work

12

TIME TAKEN TO DRILL

Nehru Park **One-and-a-half years** Egmore

ILLUSTRATION: L. BALAMURUGAN



Two tunnel boring machines from China were employed to drill from Nehru Park to Egmore and it took nearly 18 months for the machines to tunnel a distance of about 950 metres — PHOTOS: S.R. RAGHUNATHAN

Sunitha Sekar takes a walk through the new corridors being unearthed below a bustling Chennai and brings you exclusive glimpses. Presenting, the making of an engineering marvel in the city: underground tunnel for Chennai Metro Rail

For the very first time since Metro Rail crawled through the earth below the city, *The Hindu* is the only media organisation allowed to go underground.

At quarter to six in the evening, sunlight has waned, but bright floodlights are switched on. There is a flurry of activity at Nehru Park for the construction of an underground station — where the first tunnel boring machine (TBM) from China was launched in July 2012.

Two TBMs from China were employed at this station to drill from Nehru Park to Egmore and it took nearly 18 months for the machines to tunnel a distance of about 950 metres.

Washed by surprise morning showers on Mon-

EXCLUSIVE

day, the station area is damp and slippery. In a corner, a caged staircase takes you 50 feet below the ground — where few years hence, passengers will enter and exit the train.

The construction of an underground station with two levels, the concourse and platform, is afoot at Nehru Park. Soon after this station becomes operational, the four entry/exit points of this station (near Kilpauk traffic police station, Sangam theatre complex, Sports Development Authority of Tamil Nadu and Arya Vaidya Sala) will serve as subways even for non-Metro users, says an official.

As you hop on to the other side of the road and take a



narrow steel staircase to go 50 metres underground, two neat, whitish-grey tunnels with a stunning diameter and an inviting length welcome you.

It took one and half years, 150 Indian and 70 Chinese workers, and two TBMs to build these tunnels underneath 100 buildings, to con-

nect Kilpauk with Egmore.

Hu Ha Bin, a tunnelling expert from Shanghai, brings with him 15 years of experience. "I have worked in Singapore and Hong Kong earlier; the soil conditions in Chennai are as difficult as they were in the other two cities. Initially, it was very challenging to carry out the work here," he said.

During a long walk through the tunnel, you realise it's a little warm. Apparently, temperatures range between 24 and 25 degrees Celsius this season.

While the construction of the tunnel is complete, it may take a few more months to lay the track as some civil works await completion, says an official of Chennai Metro Rail Limited.

Meanwhile, creation of cross-passageways has just begun inside the tunnel. To handle emergencies, the tunnels will have a walkway

running along their length and for every 250 metres, there will be a cross-passageway connecting the two tunnels. This may help passengers walk along the tunnel, use the cross-passageway and move to the adjacent tunnel during an emergency.

At the end of this tunnel, on reaching Egmore, around 7.30 p.m., a giant 850-tonne TBM is ready to be dismantled as tunnelling work at this site is complete.

The other TBM used at this site was dismantled weeks ago, re-assembled and has already begun drilling to create a tunnel from Pachaiyappa's College to Nehru Park.

Mohammed Faiz Karim, from Makhdumpur in Bihar, superintendent of tunnels at Nehru Park, who has earlier worked in Delhi, Dubai and Singapore, says, "It has been a wonderful experience working here so far. The best thing about this place is people have been very co-operative."

I have worked in Singapore and Hong Kong earlier; the soil conditions in Chennai are as difficult as they were in the other two cities. Initially, it was very challenging to carry out the work here

— HU HA BIN, TUNNELLING EXPERT FROM SHANGHAI

Inside the Chennai Metro Rail tunnel: for more photos tne.ws/1JQvDs