

Metro gets its tunnel vision

FIRST TUNNEL READY Fadnavis calls it historic step

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MUMBAI: In a major milestone in the construction of the city's first underground Metro corridor, the first tunnel of the 33.5-km Colaba-Bandra-Seepez (Metro-3 line) was completed on Monday.

Chiefminister (CM) Devendra Fadnavis termed the breakthrough as a "historic" and "momentous" occasion.

The 1.26-km tunnel between Pali ground in Marol, Andheri (East) and the International airport terminal T2 was completed in 259 days.

According to the Mumbai Metro Rail Corporation (MMRC), the Tunnel Boring Machine (TBM) started working on the tunnel from January 8 from Marol. It was completed with an average speed of 4.6m/day.

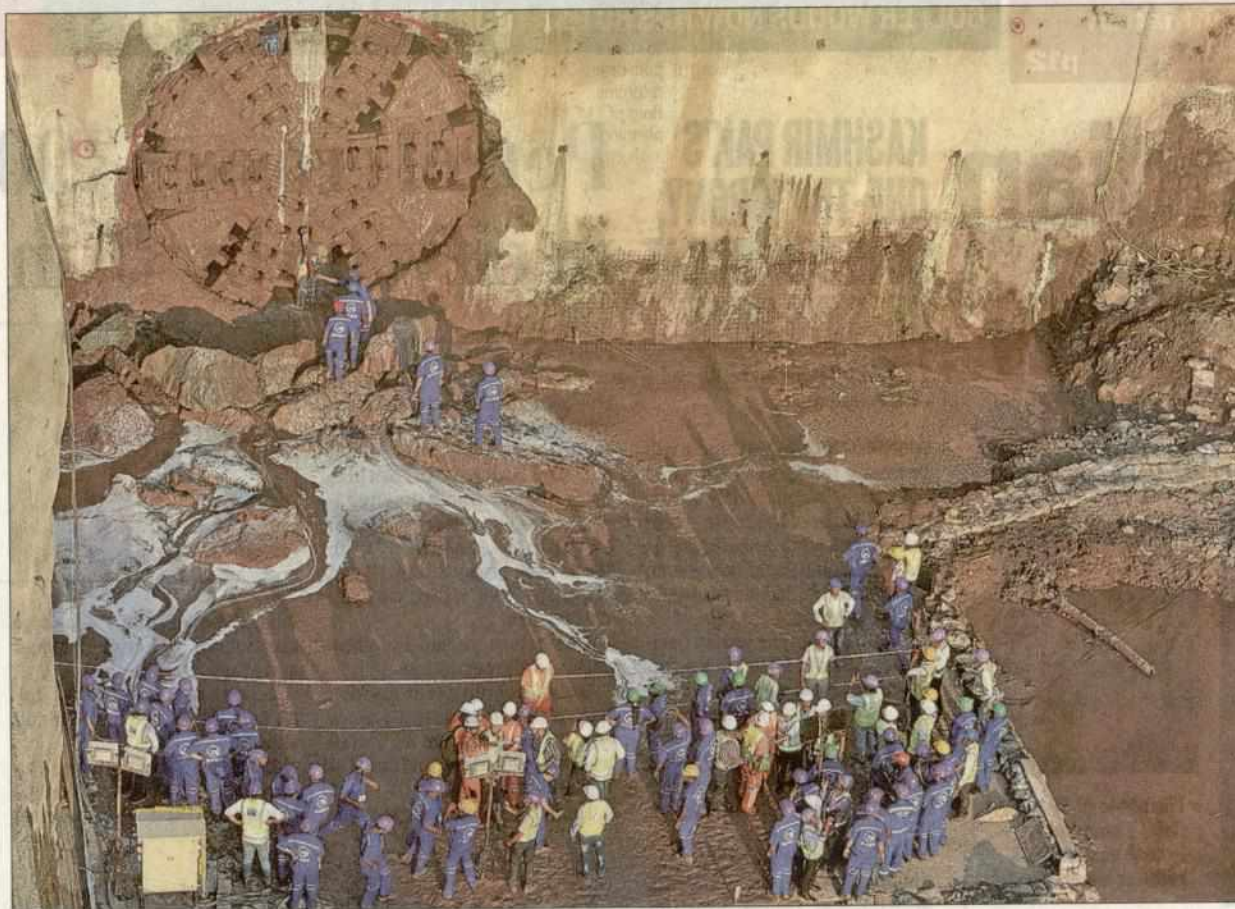
The CM said, "The underground Metro's integration with other elevated Metro lines will provide convenience to commuters. It is our plan to provide easy connectivity so commuters can travel across the Mumbai Metropolitan Region (MMR) within an hour."

Development, which is a key focus area for the Bharatiya Janata Party (BJP)-led government was highlighted by Fadnavis. Hitting out at the Congress-Nationalist Congress Party (NCP) government which had planned to transform Mumbai into Shanghai, Fadnavis, who was visibly in a poll mood, said, "The projects that are planned are not merely on paper... We want to make Mumbai a world-class city, not Shanghai, like the previous government. We want people from Shanghai to come visit Mumbai. With projects like Mumbai Trans Harbour Link, coastal road, Versova-Bandra sea link, the Metro network, the face of Mumbai will change in the next three to four years."

The 4.15-km package section between Terminal T2 to Aarey, of which the 1.26-km tunnel is a part, is being constructed by engineering giants Larsen & Toubro and Shanghai-based STEC.

The tunnelling done by TBM 'Wainganga - 1' broke through rocky strata made of basalt, breccia and tuff near Terminal T2, where an underground station is proposed.

"It charted its course below an important infrastructure like Metro-1 and Sahar Elevated Road. The 92-m Wainganga shaped the tunnel with 901 RCC cement rings," a MMRC statement said.



■ The first Metro-3 tunnel of 1.26km, which starts from Marol, ends at terminal 2 of CSIA. Work was completed in 259 days. SATYABRATA TRIPATHY/HT

METRO DREAM BREAKS THROUGH

A look at the first tunnel that has been completed within 259 days and the whole tunnelling project for Metro-3

51km total distance of tunnelling to be carried out for this project

2.8 lakh tunnel segments to be erected

20-25m depth at which tunnelling will be done

5.8m the diameter of the twin tunnels between stations

9km of tunnelling completed till now across the city

19,40,254 cubic metres of muck generated and disposed by this tunnelling

2 years expected time by which tunnelling work will be over

WHAT IS A TBM?

The Tunnel Boring Machine (TBM) is divided into - front shield, middle shield, cutter head, erector, screw conveyor and tail-skin shield

6.5m the average excavation diameter of TBM

110m average length

The TBM types being used: Earth Pressure Balance TBMs, Hard Rock TBMs, Slurry TBMs and Dual Mode TBMs

FIRST TUNNEL BUILT

From Pali Ground in Marol to International airport terminal T2

1.26km length of tunnel

TBM name: Wainganga 1

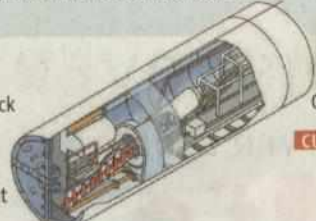
Jan 8, 2018 tunnelling started

Sept 24, 2018 tunnelling completed

250 number of engineers, technical and mechanical staff who worked on the tunnel

1.5 lakh cubic metre muck generated during the tunnelling

Tunnelling on the section, which was done by contractor Larsen&Toubro-STEC, was challenging as it encountered hard rock strata



Once a TBM starts boring, hundreds of tonnes of crushed rock and soil move through the machine's conveyor to muck buckets, that is then transported back out of the tunnel. The operators will spend their shifts, including lunch-hours, in an AC cubicle inside the machine from where the cutter head is operated. The TBM is self-sufficient, with a

toilet and sanitation system

700-800 tonnes weight of TBM

17 TBMS deployed for the project

