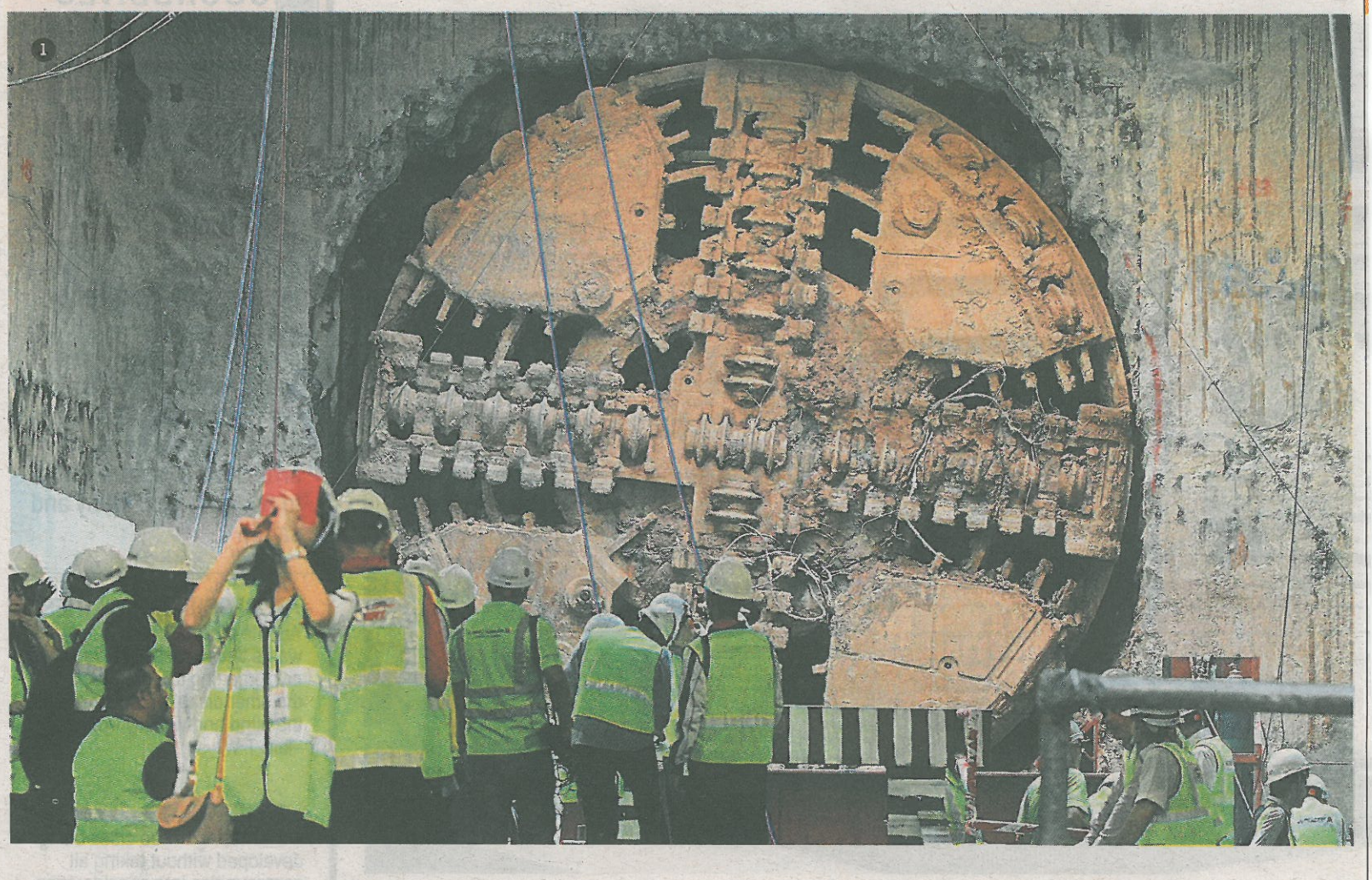

Tunnelling works done

7.5km stretch beneath Jalan Bukit Bintang now complete

BORING on the 7.5km twin MRT tunnels beneath Jalan Bukit Bintang is now complete.

MRT Corp project director Marcus Karakashian said tunnelling along this stretch was a very difficult task for the team because of the changing underground geology and narrow roads with underground cables.

"Successfully boring through the changing underground geology between limestone and Kenny Hill formation, which transitions near the Pavilion Kuala Lumpur area, is a major achievement for us.

"The narrow roads also forced us to bore the tunnels on two levels instead of side-by-side.

"The versatility of the two Variable Density-Tunnel Boring Machines (VD-TBM) was the key to significant reduction of sinkhole formation.

"We are able to convert the machines from the slurry shield mode suitable for boring through limestone formation, to the earth pressure balance mode when tunnelling through Kenny Hill formation.

"The lesson learnt from this was that with the right technology and people, even a difficult task can be done successfully," he said.

The Inai 1 TBM and Inai 2 TBM started boring on April 7 and April 16 beneath Jalan Bukit Bintang near Bangunan LTAT respectively after being launched from the Cochrane launch shaft on Jan 12 this year and Dec 14 last year.

The Inai 1 and Inai 2 were tunnelling 50m apart from each other.

MMC-Gamuda head of tunnelling, Ng Hau Wei compared the project with the excavation of the 9km Smart Tunnel through the same limestone formation.

"There were 41 incidents of sinkhole formations during the process. We have only two over 7.5km of similar tunnelling for the MRT Sungai Buloh-Kajang Line, which is a 95% reduction.

"Apart from the difficult geology, there were also instances when we had to deal with unexpected situations as they arose, such as when the utilities and ground anchors from previous constructions got in the way," he said.

MRT Corp strategic communications and public relations director Amir Mahmood Razak explained that the two sinkhole formations near Bangunan LTAT on April 23 and in front of the Audi showroom on May 6 were due to the complication that arose during the underground geology transition.

"The VD-TBM, the first of its kind in the world, was jointly designed by MMC-Gamuda and TBM manufacturer Herrenknecht AG of Germany.

"It has been shortlisted for the International Underground Space and Tunnel Awards 2014 under the Technical Innovation of the Year category.

"The winner will be announced during an award ceremony in London in December," he said.

"We have 10 VD-TBMs altogether. The first VD-TBM was launched on May 30 last year.

"Overall tunnelling progress is at 88%. We now have only two VD-TBMs mining from Pudu shaft toward Pasar Seni.

"The overall completion of underground works is at about 70%.

"All tunnelling works are expected to be complete by the first quarter of 2015. However, underground works will continue until December next year," he added.

1 The VD-TBM at the Pudu Shaft. Previously, it was used to complete tunnelling works along the 7.5km stretch beneath Jalan Bukit Bintang.

2 Karakashian (centre) flanked by MMC-Gamuda KVMRT (T) Sdn Bhd project director Satpal S. Bhogal (left) and Amir Mahmood.

– Photos by SHAARI CHEMAT