

Malaysia



Name: The Institution of Engineers, Malaysia

Type of Structure: Non-profit, learned society

Number of Members: Over 50,000 members inclusive of corporate members, graduates, associates, and students

ASSOCIATION ACTIVITIES DURING 2020 AND TO DATE

In 2021, five successful digital events were organised for IEM members as well as non-members. Along with the IEM Malaysia event, two members of our committee presented at the Digital Symposium for Young Tunnellers of Asia (SYTA) on 7th August 2021. Another event was organized on the occasion of 20th Anniversary of the IEM Tunnelling and Underground Space Technical Division (IEM TUSTD) and World Tunnel Day. The celebration was organised by TUSTD and managed by the IEM Academy Sdn. Bhd. The two day event was held on the GoTo Webinar platform on 3rd – 4th December 2020 with the main objective of bringing attention to the advanced technology in tunnelling works carried out by Malaysia in the global arena. There were a total of 80 participants despite the Covid 19 pandemic. Six Webinar presentations

were organized and attended by about 100 participants each.

CURRENT TUNNELLING ACTIVITIES

The current and future development and construction works looks less promising as the world is hit by the devastating effects of the Covid-19 pandemic. Malaysia has not been spared and is affected by a slowdown in business and tunnelling project development. Apart from some urban road/subway tunnels and underground construction works in the city areas, major tunnelling projects still on-going in Malaysia for the year 2020 are:

Klang Valley Mass Rapid Transit (Line 2), SSP Line

SSP Line is the second line (MRT2) of the Klang Valley Mass Rapid Transit which began construction in 2016. With a total length of 52.2km, consisting of 38.7km of elevated tracks and 13.5km of tunnels

the line connects 35 stations and will serve a corridor with a population of 2M people stretching from Sungai Buloh, to Serdang ending in Putrajaya. The first phase of the MRT Putrajaya Line stretches from Kwasa Damansara station to the Kampung Batu station for a total of 12 stations, with the former acting as the interchange between the Kajang Line and the Putrajaya Line. As of October, Phase One was 99.9% completed and it was announced that Phase One was expected to start service in the second quarter of 2022. The Putrajaya Line of the Klang Valley MRT project won the International Tunnelling and Underground Space on April 2021, the cabinet has given the go-ahead for the third MRT Line 3 which is also known as the Circle Line under the Budget for 2021. The minister also hopes that the project developer MRT Corp will kick-start the project in the second half of year 2021 with the plan to integrate several rail lines in the Klang Valley by 2025. The Circle Line will form a loop that encircles, but effectively by-passing Kuala Lumpur's central business district, while linking up most of the radial rail lines and serve the key major developments surrounding the Kuala Lumpur centre business district.

East Coast Rail Link (ECRL)

As part of its overall transport development plan for the East Coast Economic Region, the Malaysian

Government has proposed connecting the East Coast to Kuala Lumpur and later to Port Klang, with a new electrified standard gauge railway. The railway line would cater to both passenger and freight trains. The ERCL alignment is on the east coast and central mountainous area. The terminal sits in the transition region between the central mountain belt and the western coastal zone. The relaunch of the ECRL project in July 2019 has kick-started the construction of the longest rail tunnel along the 223km main line between Dungun in Terengganu and Temerloh in Pahang, which is also known as Section B while the other sections of the improved 640km stretch include Kota Bharu to Dungun (Section A) and Temerloh to Port Klang (Section C). The 2.8km Kuantan Tunnel, located in Jabor, is the longest among the three tunnels of the ECRL in Section B, which includes the 1.1km Paka Tunnel and 871m Dungun Tunnel, both in Terengganu. In total, the 640km route will have approximately 40 tunnels with the longest tunnel measuring 7km, which will be built in the Jelebu-Semenyih area. In Jan 2022, the alignment for the East Coast Rail (ECRL) project was finalised, including the route in Selangor involving Section C2 from Gombak to Port Klang.

On the Genting Tunnel project, which will be the longest rail tunnel in the country, excavation of the 16.39km twin-tunnel will begin in March this year after the installation of two tunnel excavators, which are specially designed for hard rock use over the next three years. The Genting Tunnel which crosses the Titiwangsa Range, with most of the 10km located in Pahang, is the first ECRL tunnel to be excavated using the TBM method compared to the drill and blast method used previously.

The LRT 3 - The Light Rail Transit Line 3 (LRT3)

This envisages the connection of two million people between Bandar Utama and Klang by 2024. Developed in line with the Greater Kuala Lumpur/Klang Valley (GKL/KV) Land Public Transport Masterplan, LRT3 will be a key feature in extending rail connectivity to the Western Corridor of GKL/KV with the 2km tunnelling works that were completed in December 2021.

FUTURE TUNNELLING ACTIVITIES

A new RM250M road project is planned to link Kampung Baru and the Duta-Ulu Kelang Expressway (DUKE) as well as the Ampang-Kuala Lumpur Elevated Highway (AKLEH). The project, known as DUKE 2A

Lingkaran Kampung Baru or LINK, would commence in stages beginning this year and is expected to be completed by 2024. This [redevelopment plan] alignment will make Kampung Baru more open to an efficient traffic network system as it is relatively isolated and connected by small roads only. This project would allow direct access to Kampung Baru from AKLEH and also to create a smoother traffic flow.

EDUCATION ON TUNNELLING IN THE COUNTRY

- MMC-GAMUDA Tunnel Training Academy in Kota Kemuning, Selangor & MMC-GAMUDA TBM Refurbishing plant in Ipoh, Perak
- Talks, Courses, Seminar, Workshop and Conferences Organised by IEM Tunnelling and Underground Space (TUSTD), IEM Academy.
- TUSTD managed to publish the February 2021 IEM Bulletin Special issue
- In the next 2 years, TUSTD will plan to organise a Southeast Asian Conference and Exhibition in Tunnelling and Underground Space seminar (SEACETUS 2024)

STATISTICS

1. Length or volume excavated - % mechanized / % conventional during 2020

Briefly reported above.

2. List of tunnels completed

SMART (2007), Interstate water transfer tunnel (2011), KVMRTSBK (2016)

3. List of tunnels under construction

MRT2 (Expected completion 2020), East Coast Rail Link (ECRL), Bandar Malaysia Underground City, LRT 3

4. Lists of tunnels under planning & Design:

Circle Line (MRT3) & DUKE 2A road tunnel

4. Lists of tunnels under planning & Design:

Circle Line (MRT3) & DUKE 2A road tunnel 5. The soon to be iconic Merdeka 118 Tower in Kuala Lumpur when completed in 2022 will be the second tallest building in the world. The ingress and egress approach tunnels are currently under construction to the numerous levels of underground parking facilities at the tower.

