SOUTH KOREA

Name of Association: Korean Tunnelling Underground Space Association

Type of Structure: Non-profit, open association.

ASSOCIATION ACTIVITIES DURING 2025 AND TO DATE

Established in 1992 as a non-profit incorporated association, KTA is the national organisation representing tunnelling and underground construction in Korea, aligned with the objectives of the ITA.

Most members are tunnel engineers, with increasing participation from related disciplines, including fire engineering, disaster prevention and tunnel ventilation.

Conferences

In 2025, KTA organised several major domestic and international conferences:

- 2025 KTA General Assembly and Annual Conference
  24–25 April 2025, Busan (approximately 350 participants)
- 2025 KTA Policy Forum and Technology Committee Presentation
  4 November 2025, Seoul (approximately 130 participants)
- 2025 International Conference on Tunnels and Underground Spaces (ICTUS25) 12–13 August 2025, Busan (approximately 100 international participants)

Workshops and seminars

KTA organised a number of domestic and international seminars, including:

- 2nd Joint Workshop of the Radioactive Waste Disposal Academic Societies Council
  5–6 August 2025, Taebaek
- 1st KTA Workshop for Young Engineers and Technologists
  20 August 2025, Seoul
- 2nd Pumped Storage Power Generation Construction Design Technology Seminar 28 August 2025, Gyeongju

In addition, 20 KTA working groups organised multiple seminars related to tunnelling and underground construction.

Training and working group activities

KTA delivered 13 continuing education and training courses during 2025. Annual working group outputs included 16 activity reports and 15 technical reports.

Publications

- Journal of Korean Tunnelling and Underground Space Association (6 issues, 43 papers published in 2025)
- Quarterly magazine Nature, Tunnel and Underground Space

CURRENT TUNNELLING ACTIVITIES

GTX-B Line (Yongsan–Sangbong section)

Construction began in January 2024, with completion scheduled for 2030. The project has a total length of 86.46km and includes four stations. Construction uses a combination of TBM and NATM methods.



GTX-C Line

Construction began in January 2024, with opening scheduled for 2028. The project has a total length of 19.95km and includes 14 stations. Construction uses a combination of TBM and NATM methods.



Poseung–Pyeongtaek railway

The project has a total length of 8.8km and includes three stations.

FUTURE TUNNELLING ACTIVITIES

Honam–Jeju subsea tunnel project

A proposed subsea tunnel connecting the Korean Peninsula with Jeju Island.

- Total length: 167km (including approximately 73km subsea section)
- Estimated cost: approximately USD 15 billion

Youngjong Island third connection project

A proposed third connection between Incheon International Airport and the Seoul metropolitan area, following two existing long-span marine bridges. The project considers transport resilience and safety under adverse weather conditions.

Namhae–Yeosu subsea tunnel project

A new four-lane highway tunnel connecting Shindeok-dong in Yeosu and Seomyeon in Namhae along the southern coast.

- Total length: 8.09km (including 5.76km subsea section)
- Estimated cost: approximately USD 530 million

STATISTICS

List of tunnels completed

- Yeongsan Tunnel
- Namhae–Yeosu subsea tunnel (construction stage referenced)
- Suseo–Dongtan section (GTX-A line)
- Unjeong–Seoul Station section (GTX-A line)
- Gimpo–Paju Second Seoul Outer Ring Road project

List of tunnels under construction

- GTX-B Line (Yongsan–Sangbong section)
- GTX-C Line
- Youngjong Island third connection project
- Poseung–Pyeongtaek railway

EDUCATION ON TUNNELLING IN THE COUNTRY

KTA organised a series of free technical lectures throughout 2025, delivered online, typically attracting 50–100 participants per session. Topics included:

- Deep underground road design standards
- BIM applications in railway infrastructure
- Tunnel ventilation and smoke extraction
- TBM expansion blasting
- Tunnel seismic design
- Groundwater analysis
- Tunnel monitoring and measurement technologies
- Grouting design and collapse mitigation
- High-level radioactive waste disposal systems
- Tunnel scanning and safety diagnostics
- Ground investigation technologies and smart maintenance systems