

GERMANY



Name of Association: Deutscher Ausschuss für unterirdisches Bauen e. V. (DAUB, German Tunnelling Committee)

Type of Structure: Registered non-profit and restricted association (limited to 30 individual members)

Number of Members: 30 members and 129 young members and students)

ASSOCIATION ACTIVITIES DURING 2023 AND TO DATE

Activities

- STUVA Conference 2023, separate segments on “Tunnelling” and “Tunnel Operation”, attended by more than 4300 participants and 192 exhibitors, 8th – 10th November 2023, Munich
- DACH-meeting (German, Austrian, Swiss Tunnelling Committees) in Switzerland (technical seminar and site visit)
- Meetings of the European Underground and Tunnel Forum (EUTF, consisting of Austria, Belgium, France, Germany, Italy, Netherlands, Portugal, Spain and Switzerland)
- Regular Meetings of Tunnel Committee and Working Groups
- Several Meetings with Workshops of Young Engineering Professionals “STUVA-YEP”
- Workshop “Injections in civil engineering 2.0”

Working Groups

- Life-cycle costs calculation
- Face support pressure calculations for shield tunnelling in soft ground
- Design, production and installation of segmental rings
- External communication of DAUB
- Digitalization and Building Information Modelling (BIM) in tunnelling
- Standardization needs for the design of underground structures
- Emergency management for accident, fire and special risks
- Measures to reduce hazardous substances in the air
- Working in compressed air

- Risk management in tunnelling
- Recycling/disposal of excavated material
- Sustainability in Tunnelling

Publications (recently finished)

- Recommendation BIM in Tunnelling, Model requirements Part 3 “Ground model”
- Recommendation BIM in Tunnelling, Model requirements Part 5 “Allowance of tolerances and superelevation”
- Mission Statement: Sustainability in Underground Construction; Basics, Boundary Conditions and Objectives
- Recommendations for the determination of life cycle costs for tunnels

Publications of DAUB can be found in/on

- Journal “tunnel” (www.tunnel-online.info)
- German Handbook of Tunnelling (“Taschenbuch Tunnelbau”, published annually)
- Recommendations are available for download from website (www.daub-ita.de, www.stuva.de); the majority is bi-lingual (German/English)

Future Activities

- Regular meetings with Austrian, Swiss and EUTF colleagues
- Munich Tunnel Symposium, 5th July 2024
- InnoTrans, Tunnel Forum, 24th – 27th September 2024, Leading international trade fair for transport technology
- Sealing of buildings by injections; Information on after-sealing of concrete structures, geotechnical

sealing injections, 6th – 7th November 2024

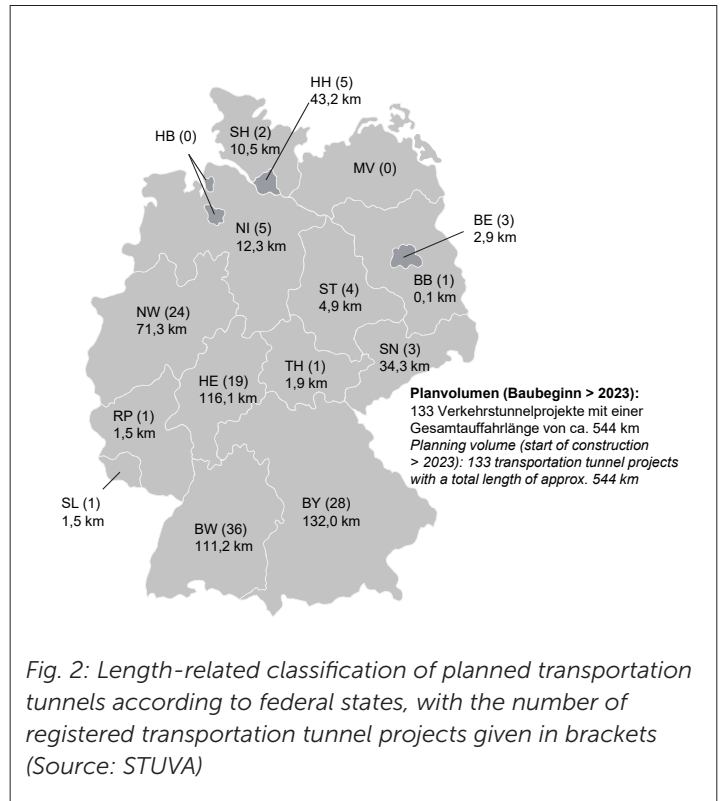
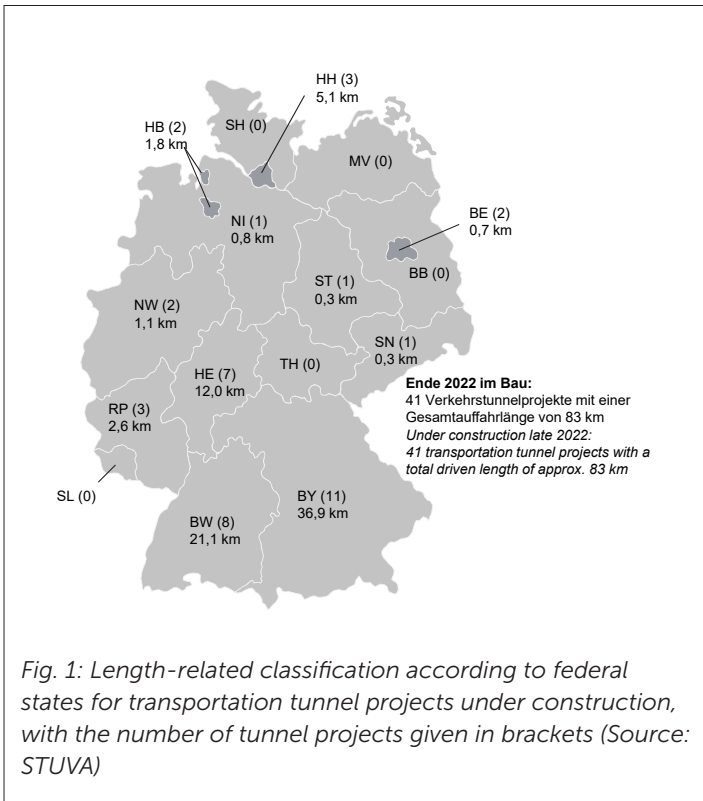
- STUVA-Conference 2025, Separate Segments on “Tunnelling” and “Tunnel Operation”, 25th – 27th November 2025, Hamburg

CURRENT TUNNELLING ACTIVITIES

About 88km of traffic tunnels were under construction in Germany in 2023.

- This year, tunnelling activities relating to inner-urban rail tunnelling roughly remained at the previous year’s level of 38km. The main activities once again are taking place in Munich, where some 27km of light rail and metro tunnels were under construction at the turn of 2022/23. It should be noted that preparatory construction work is still in progress on the Second Core S-Bahn line and that the main tunnelling work was yet to begin at the time of the survey. This is followed by Stuttgart (3km) and Hamburg (2.6km). Further tunnel projects, each less than 2.5km long, are under construction in Nuremberg, Frankfurt and Düsseldorf. The length-related proportion of trenchless construction methods with regard to inner-urban rail tunnelling amounted to 28.8km at the end of 2022, accounting for about 76% of the total national construction volume for inner-urban rail tunnelling. Of this total, a good 11% was accounted for by shotcreting methods and roughly 65% by shield driving.
- Construction activity relating to main-line rail tunnels is limited to a few ongoing construction sites (a total of just under 15km of tunnelling) in the federal state of Baden-Württemberg. Of the total 56km of tunnels in the major project “Stuttgart 21 rail hub”, a good 5km were still under construction at the time of the survey. A further 8km of main-line tunnels are currently under construction as part of the Karlsruhe–Basel main-line. Currently, 23% of the main-line tunnels are being built using the classic shotcrete construction method, while TBMs are being used for 52% of the excavation volume.
- The drive-up length in road tunnel construction in 2022/23 was approx. 31km throughout Germany. 85% of the road tunnel construction volume takes place in three of





16 federal states: Bavaria, Baden-Württemberg and Hesse. About 71% of all road tunnels are built by trenchless methods. The shotcrete method predominates in the majority of those tunnelling projects.

FUTURE TUNNELLING ACTIVITIES

About 544km of traffic tunnels were projected but not yet started in 2023.

- A slight decrease in the planning volume compared to the previous year can be observed for metro, light rail and rapid transit tunnels due to contract award effects. Among the listed projects, Hamburg takes the lead with a good 38km of planned tunnelling, ahead of Munich with about 24km. Leipzig is engaged in pre-planning 7km and Frankfurt is planning around 6km of tunnels for regional transport. Further tunnelling activities involving less than 3km are foreseen in the cities of Cologne, Berlin, Dortmund and Stuttgart.
- The planned volume of main-line rail tunnels increases significantly in comparison to the previous year. The planned tunnel drives with a total length of just over 316km (previous year: about 209km) relate to a total of 14 new and upgraded main-line routes. Around 55km (18%) of the planning volume is accounted for by the newly planned routes ABS 36 ("Brenner Tunnel northern junction")



Munich's 2nd Core S-Bahn – Excavation work on level –2 at the Central Main Station construction site (Source: DB InfraGo AG/panterra.tv)

and ABS/NBS Fulda–Gerstungen. The ABS/NBS Hanover–Bielefeld and the NBS Frankfurt–Mannheim, each with around 45km of planned drives, each account for around 14% of the total planning volume.

- Compared to the previous year, the planned volume of projected road tunnels (145km) has increased significantly – on account of the German state's revamped planning requirements, the scheduled volume had already dipped considerably in previous years.

STATISTICS

See sections above, for detailed analysis, figures and tunnel lists visit: <https://www.stuva.de?statistik>

EDUCATION ON TUNNELLING IN THE COUNTRY

Many Universities and Universities of Applied Sciences offer numerous courses on tunnel related topics and provide extensive possibilities for interested persons (see e.g. MSc "Geotechnics and Tunneling", four Semester Mastercourse in English language at the Ruhr University Bochum, BSc Civil Engineering required).