

Germany



Name: 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

ASSOCIATION ACTIVITIES DURING 2020 AND TO DATE

Activities

- Due to the Covid-19-pandemics, the meetings were partly held via video conferences.
- Meetings of the European Underground and Tunnel Forum (EUTF, consisting of Austria, Belgium, France, Germany, Italy, Netherlands, Portugal, Spain and Switzerland)
- Regular Meetings of the Tunnel Committee and Working Groups
- Several Meetings with workshops by the Young Engineering Professionals "STUVA-YEP"
- Meeting of the DACH presidents (German, Austrian, Swiss Tunnelling Committees)

- Due to the Covid-19-pandemic, the following events (planned in 2020) were cancelled:
 - Sealing of buildings by injections
 - Munich Tunnel Symposium
 - InnoTrans, Tunnel Forum
- WG12 : Organisation of emergency services during underground works
- WG24 : Geological, hydrogeological and geotechnical investigations for tunnel design

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

- Digitization and Building Information Modelling (BIM) in tunnelling
- Selection of Tunnel Boring Machines (TBM)
- Planning and implementation of occupational health and safety concept on underground worksites
- Standardization needs for the design of underground structures
- Risk Management in tunnelling
- Recycling/disposal of excavated material

Publications (recently finished)

- Recommendations for contracts with low potential for conflicts
- Recommendation BIM in Tunnelling, Model requirements (Part 1)
- Recommendation for the Selection of Tunnel Boring Machines (TBM)

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 bilingual (German/English)

Future Activities

- Regular meetings with Austrian, Swiss and EUTF colleagues
- STUVA-Conference 2021, Separate Segments on “Tunnelling” and “Tunnel Operation”, 24–26 November 2021, Karlsruhe

CURRENT TUNNELLING ACTIVITIES

About 191km of traffic tunnels were in construction in Germany in 2020.

- This year, the main activities relating to inner-urban rail tunnelling are once again taking place in Munich, where some 13.8km of light rail and metro tunnels are under construction at the turn of the year 2019/20. It should be noted that preparatory construction work is still in progress on the Munich Second Trunk Light Rail Line and that the tunnelling work was yet to begin at the time of the survey. This is followed by Stuttgart (5.4km), Karlsruhe (4.7km) and Berlin with 3.5km of tunnelling. Further tunnelling projects, each less than 2km long, are under construction in Frankfurt am Main (1.9km) and Dortmund (0.8km).
- The main-line rail tunnels largely relate to the DB Netz AG (German Rail) tunnelling works in and around Stuttgart. Of the tunnelling projects currently being implemented (a total of 116km), almost 51km are accounted for by the “Stuttgart 21 rail hub” and some 5km by the new Wendlingen–Ulm rail route. A further 8km of main-line tunnels are being constructed in conjunction with the upgraded/new Karlsruhe–Basle section. Currently, 32% of the main-line tunnels are being built by the conventional method, whereas tunnel boring machines (TBMs) account for 61% of the driven volume.
- The drive-up length in road tunnel construction in 2020 was approx. 45km throughout Germany. About 50% of the driven length was accounted for by the two southern federal states of Baden-Württemberg and Bavaria. About two thirds of all road tunnels are built by underground methods. The shotcrete method predominates in the majority of those tunnelling projects.

FUTURE TUNNELLING ACTIVITIES

About 298km of traffic tunnels are projected but were yet to start in 2020.

- A doubling of the volume can be observed for light rail and metro tunnels. Among the projects listed, the high volume planned for the city of Munich, at just under 44km, continues to stand out. A good 39km of tunnels are being

planned for the Hamburg Metro (partly at the pre-planning stage). Leipzig is engaged in pre-planning 7km, and Frankfurt am Main is planning around 6km of tunnel for regional transport. Further tunnelling activities involving less than 3km are foreseen in the cities of Nuremberg, Berlin, Dortmund, Stuttgart and Düsseldorf.

- The planned volume of main-line rail tunnels (8km) has also almost doubled compared to the previous year. Approx. 32% of the volume is accounted for by the newly included new/upgraded Leipzig–Prague rail line (approx. 27km).

A further 23km is accounted for by tunnels already approved as part of the new/upgraded Karlsruhe–Basel rail line. Further tunnels are planned in the course of the new Rhine/Main–Rhine/Neckar line (18km), the Nuremberg–Fürth rail line (8km) and the new/upgraded line Nuremberg–Marktreditz (6km).

- The planned volume of projected road tunnels (111km) has increased moderately – on account of the German state’s revamped planning requirements, the scheduled volume had dipped considerably in previous years.

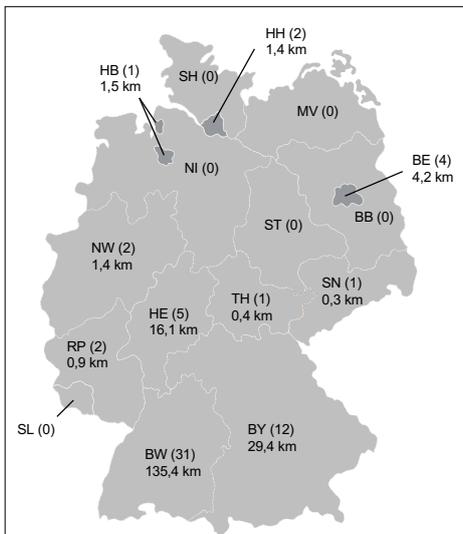


Fig. 1: Length-related classification according to federal states for transportation tunnel projects under construction, with the number of tunnel projects given in brackets

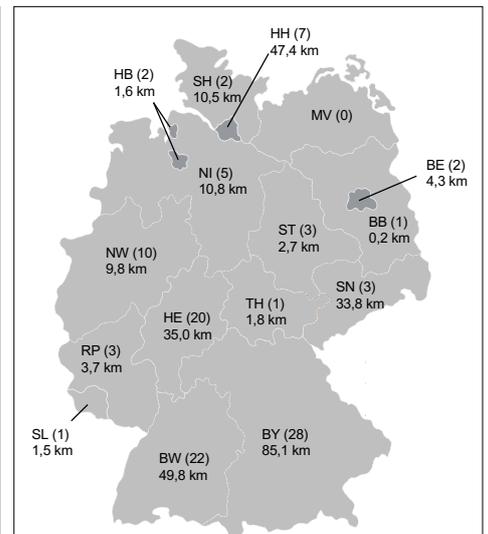


Fig. 2: Length-related classification of planned transportation tunnels according to federal states, with the number of registered transportation tunnel projects given in brackets



Fig. 3: Visualisation of the planned Fehmarnsund tunnel as a connection to the Fehmarnbelt crossing [Source: DB Netz AG]

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”, 4 Semester Mastercourse in German language at the Ruhr University Bochum, BSc Civil Engineering required)