The International Tunnelling and Underground Space Association

ITA Tunnelling Awards

On November 11, 2016, the ITA Tunnelling Awards' winners finally revealed. The judges have revealed their choices and awarded 8 outstanding projects and also the Young Tunneller of the Year and someone's Life Time Achievement. After a detailed examination process the 100 candidacies were reduced to 30 finalists. The winners are:

The major project of 2016 (exceeding € 500m)

The New Guanjiao Tunnel On Qunghai Tibet Railway (China)

The New Guanjiao Tunnel is a key project of the second line of Xining-Golmud section of Qinghai-Tibet Railway with a total length of 32.690 km. The tunnel, a two-set single-track tunnel with an average elevation of 3,400 m, operates with freight and passenger electrified railway with a design speed of 160 km/h, and with overall consideration, borehole-blasting method has finally been chosen. The construction stage began on November 6, 2007 and the tunnel was opened up for operation on December 28, 2014.The total investment is RMB4.96 billion.

The tunnelling project of the year 2016 (from € 50m to € 500m)

Downtown Line Stage 3 Contract 937 Construction Of Fort Canning Station & Tunnels (Singapore)

As Singapore's underground space becomes more congested with various competing needs; such as underground basements, utilities tunnels and metro infrastructures, the construction of new underground metro lines has correspondingly become more challenging, complex and pushing the boundaries of engineering. This tunnelling project encountered many challenges such as cutter head interventions to remove foundations of buildings, close proximity to national monuments and in-service metro lines with only 1m separation. the tunnelling at such close proximity to the 'live' tunnels, which carry hundreds of thou- sands of commuters daily, poses exceptional high risk. This project has since been successfully completed with no disruption to any community partners.

The outstanding tunnelling project of the year (up to € 50m)

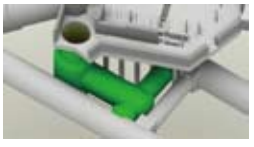
Chongqing Hongqihegou Metro Station (China)

Chongqing Hongqihegou metro station is a transmitting one for line 3 and line 6 in Chongqing, china. The station is located in busting area of Chongqing, and under the main road to airport, where there are many buildings around. It is built in moderately weathered sandstone and moderately weathered sandymudstone.

The minimum cover thickness of the overburden strata of the project is 8.6 m, and the rate of overburden to span is 0.4. Its maximum excavation section is 760 m. The concept of the "inner rocks" and the "inner rocks supporting" tunneling method were put forward in the project. The whole tunnel section is divided into four drifts. Two are on the top and another two in the bottom to be excavated. In this way, four drifts can be driven simultaneously. By using the inherent bearing capacity of "inner rocks supporting", the horizontal and vertical temporary support of the tunnel is saved. Moreover, the "time-space" effect is controlled precisely for the safety of the force transmitting between primary support and final lining.

Renovation/upgrading project of the year

Vauxhall Station Upgrade Project (United Kingdom)



London underground's (LU) Vauxhall station upgrade will soon provide step free access for tube users, constructed by Bechtel Ltd. as the main contractor, designed by Gall Zeidler Consultants in a design-build contract, with tunnelling works carried out by joseph Gallagher Ltd. the project team changed the reference design to a complete SCL design to provide a more efficient construction program and reduce ground movements.

A more economical reinforced concrete collar was designed, rather than traditional steel lintel beams installed to support new openings in the existing platform tunnels with steel props. These eliminated health and safety risks associated with the installation of heavy steel framing and encroachment onto platform clearance. The project has successfully increased existing station capacity without fundamentally altering the operational station.

The technical innovation of the year

Large Diameter Shield Tunnelling In Pure Sands With Hybrid Epb Shield Technology (Brazil)

The shield-driven tunnel of metro line 4 in Rio de Janeiro (Brazil) has an approximate length of 5.2 km. the excavation was performed using a hybrid earth pressure balance shield with an excavation diameter of 11.51 m and passed through complex geology that included a long stretch of pure sand bounded by two stretches of hard, highly abrasive rock. Considerable reduction in materials, for conditioning consumables, and energy of power consumption were achieved with this hybrid EPB technology.

The safety initiative of the year

Absis (Activity Based Safety Improvement System) (Singapore)

Cable Tunnel project involves the construction of the 35 km long tunnel, averaging 60m deep to house the 400kV and 230kV transmission cable. ABSIS is introduced in this project as a systematic approach to address safety issues in various critical tunnelling activities. It is a platform where work activities are captured in a video. By viewing the video footage of themselves carrying out the works, the workers, without any language barriers, are able to see for witness the safety lapses they subject themselves to, as well as the good practices they achieve, but also can adopt.

The environmental initiative of the year

The Emscher Project - Back To Nature! (Germany)

The Emschergenossenschaft in Essen is currently progressing one of the largest environmental projects in the world, namely, the restructuring of a whole river system. This system has been used as an open wastewater transport system for more than 100 years as a consequence of extensive coal mining activities. After 2020 the whole river Emscher, (total catchment 865 square-kilometers) will be transporting clean water again. To reach this target, it will be necessary to build a large 51 km long, underground sewer from Dortmund to Dinslaken, through a densely populated conurbation. This central Emscher sewer will have diameters varying between 1600 and 2800 mm at depths between 25 and 40 meters below the surface. Shafts will be constructed at up to 1200-meter intervals. In early 2012, the construction of the largest section of the Emscher interceptorwas awarded to Wayss & Freytag ingenieurbau. The contract requires the construction of about 47 km of sewer tunnels. In addition to the tunnels, more than 100 construction pits have to be excavated, from which the tunnels will be driven by pipe jacking. In October 2015, tunnelling was successfully completed ensuring that upon project completion, the whole river Emscher will be free of wastewater and can be returned to its natural state with ecologically redesigned rivers and new recreational areas.

Innovative use of underground space

Jurong Rock Caverns (Singapore)

Jurong rock caverns (JRC) are located on Jurong Island and is Southeast Asia's first commercial underground facility forthe storage of liquid hydrocarbons such as crude oil and condensate. JRC located 150 meters below the ground is able to optimize land use by saving up to 60ha of aboveground land, ensuring safety and security of the products in storage whilst reinforcing Singapore's position as a leading energy and chemicals hub. With its successful completion, JTC and Singapore is well positioned to explore more innovative solutions to further promote Singapore's economic growth.

The Young Tunneller of the Year:

Mr Derek Eng

Derek Eng studied civil engineering, professionally trained in the field of tunnelling, vocationally called to empower young engineers and tunnellers using his hard-gained experiences and knowledge. He currently works as an assistant manager in the tunnel department for MMC GAMUDA KVMRT (T) Sdn Bhd, a Malaysian based company and the main contractor for the underground stations and tunnel constructions for mass rapid transit project. Derek's journey in his career thus far, has grown and moved beyond just the technicalities of tunnelling, focusing a lot on providing professional training related to tunnelling and inspiring young school leavers to take up engineering as the career of choice.

Lifetime Achievement:

Dr Martin Herrenknecht

Martin Herrenknecht received the Lifetime Achievement Award for his remarkable contributions in tunnelling. After studies at the Konstanz University of Applied Sciences, from which he was graduatedin 1964, he founded his own company in 1975, specialized in Tunnel Boring Machines. In 2010, Herrenknecht AG, his company, was recognized for drilling the largest tunnel in the world. He also took part in the rewarded Eurasia Tunnel Project, elected Major Project of the Year 2015.

About ITA

The International Tunnelling and Underground Space Association (ITA) is a non-profit and non-governmental international organization, which promotes the use of underground space for a solution to sustainable development. Founded in 1974 and operating out of Lausanne, Switzerland, ITA currently associates 73 Member Nations, 300 affiliated members, 17 Prime Sponsors and 60 supporters, as well as individual members.