

CBT is a committee of the Brazilian Society for Soil Mechanics and Geotechnical Engineering (ABMS). It is an open society based on membership.

The most important actions of the Brazilian Tunnelling Committee (CBT) in 2012 were related to promoting underground construction in Brazil and the realization of the events 3 CBT (Congresso Brasileiro de Túneis - Brazilian Tunnelling Congress) and SAT (South American Tunnelling) 2012, counting with more than 730 participants, from 22 countries.

Two main points were addressed:

- (1) attempts to convincing decision makers to adopt correct contracting practices for underground construction,
- (2) convincing others about the advantages of underground works, i.e. *Why Go Underground*.

Activities of the Working Group Mirror Groups continued in 2012. There are seven active mirror groups at CBT: WG-03, WG-05, WG-06, WG-12, WG-15, WG-18 and WG-19. Other mirror groups have held meetings along the year. Full support was given to Tarcisio B. Celestino, CBT past president. It is also worth mentioning that CBT was one of the fund donators for the foundation of ITA.

Brazil is enjoying today one of its most promising phases, with international events such as the World Cup in 2014 and the Olympic Games in 2016, and the economic stable scenario. At the same time, the country is facing the need for massive investments in infrastructure, whether to ensure the growth of its economy, or to improve the degree of social development of the population, which is becoming more and more urban. In this scenario, the implementation of large projects arises, such as the Belo Monte hydropower plant, the high speed train linking Rio de Janeiro-Sao Paulo-Campinas (TAV), transposition of the Sao Francisco river, investments in Pre-Salt and urban mobility works, mainly in large cities.

The tunnelling industry was very busy in 2012 in Brazil, especially with respect to the construction of hydroelectric power plants, with underground hydraulic schemes. Most of those belong to private investors. It is also important to mention that Petrobras (The Brazilian Petroleum Company) has definitely moved towards tunnelling as a solution to underpass environmental protection areas. Underground mass transit systems have continued in major cities such as Brasilia, Rio de Janeiro and Sao Paulo. The Sao Paulo Metro Line 2 - Green extension is to be bid in 2013. The extension will add 13.5km to the 14.7km length of the Line. The extension of Sao Paulo Metro Line 4 - Yellow, currently in execution, is to be finished in 2014, when it will have all stations on its 12.8km length fully operational. The construction of the 15-km Line 5 has begun in 2012, and it's scheduled to be finished in 2015. Construction of Sao Paulo Metro Line 6 - Orange is expected to be bid in 2013 probably by PPP (Public-Private Partnership), with the execution to be started in 2014.

The City of Sao Paulo has begun the construction works of the Roberto Marinho urban highway tunnel in the end of 2012, underneath a 3-km long urban park to be created as part of the actions for urban rehabilitation of an area in the Southern part of the City, coupled with real estate investments. The work will consist of two parallel, 3-lane, 2.7 km long tunnels. The bid concession of the 520-km long Campinas – Sao Paulo – Rio de Janeiro high speed rail line is scheduled for September 2013, with the construction bid yet to be scheduled. The total underground length of the line will be in the range of 110km to be constructed by TBM and conventional tunnelling. The Rio de Janeiro subway begun its expansion works, with part of Line 3 to be operational by 2014, and line 4 to be operational by 2016. The project Porto Maravilha, which consists on the local restructuration of part of Rio de Janeiro port area, will count with total length of 4km of tunnels, along with many other reurbanization and construction works. The modernization works for BR-040 highway, with cross Petropolis hills, had begun, counting with a 5km long tunnel, to be operational by the end of 2013. Inauguration of the Fortaleza subway system, covering a 24.1 km distance with 18 station. Studies are being made for four more lines at the city. Other important cities are preparing underground mass transit systems to start their bidding processes in 2013, like Curitiba, Belo Horizonte and Porto Alegre.

Brazilian High Speed Rail

The bid for the concession of a 520-km long high speed rail line between Sao Paulo and Rio de Janeiro is scheduled for September 2013, with the construction bid yet to be scheduled. The length of underground section is about 110 km.

Santos-Guaruja Immersed Tunnel

Santos and Guaruja are two major cities on the State of Sao Paulo coast, separated by the 500-m wide entrance to the busiest port in the country and Latin America. The connection between the cities is currently operated by a ferry boat service used by more than 7 million vehicles per year in each direction. During the last four years, many events and public hearings gathering engineers, politicians and other decision makers have taken place in both cities about the construction of a tunnel or a bridge. CBT President Hugo Cássio Rocha and CBT Past President Tarcisio Celestino have been invited to participate in all of them, where they have defended the alternative of an immersed tunnel. The State Government has decided to construct a 90-m high bridge with 2-km long approaches, but reactions have been strong and discussions are still going on. Media coverage about CBT actions has also been intense. Then, on August 2011, the State Government decided to change the solution and construct an immersed tunnel. Concepts of Why Go Underground has been extensively used. The project is scheduled to begin in the second semester of 2013, ending by first semester of 2016.

Sao Paulo Ring Road Northern Link

The Sao Paulo Ring Road Northern Link (the last one to be constructed) will run along the Cantareira mountain range. One of the last natural forest areas in the outskirts of Sao Paulo is on the Cantareira scarps. The underground solution (two 8-km long, 4-lane tunnels) seems to be the most appropriate solution from the environmental standpoint, but the Highway Department favors a surface solution because of construction costs.