

The activities of the Committee are classified in five groups:

- Institutional actions for promoting underground works in Brazil
- Technical activities
- Interviews
- Reprinting the book Tunnelling in Brazil
- Institutional Actions for Promoting Underground Works in Brazil

CBT has been heavily involved in promoting sustainable solutions of underground works when other types of disadvantageous solutions have been proposed. In some other situations, where underground solutions have already been selected, CBT has acted by suggesting improvements to the contracting process. A step backwards about this matter seems to have been taken in the country as new contracting parties (both public agencies and private entrepreneurs), with little or no previous knowledge about underground construction, have tended to decrease the demand for engineering design and to transfer all the budget risk and responsibility to the contractor or prospective concessionaire. In some cases, actions taken by CBT have reached the media including the most important newspapers in the country.

Brazilian High Speed Rail: The bid for the construction and concession of a 520-km long high speed rail line between Sao Paulo and Rio de Janeiro is scheduled for April 2011. The length of underground section is about 110 km. CBT has been trying to suggest improvements for the bidding process. CBT discussed the role of Brazilian companies on the High Speed Rail Project on a debate held in Sao Paulo on September 9, 2010, at the Sao Paulo State Engineers Union (SEESP).

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. 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 three 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 Tarcisio Celestino has been invited to participate in all of them, where he has 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.

Sao Paulo Monorail System: The Sao Paulo Metro Company (CMSP) has decided to adopt monorail elevated solutions, instead of underground, for some of its future lines and connections. CBT President Tarcisio Celestino has shown the advantages of underground solutions in a recent lecture by computing additional cost due to longer extension and other reason. Concepts of Why Go Underground have been extensively used.

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. CBT prepared a document and images of a digital virtual flight above the alignment to be taken to the Highway Department officials showing other costs in addition to construction in disadvantage of the surface solution.

Technical Activities

The following events were organized or sponsored by CBT:

- St. Gotthard Tunnel, lecture given by Roland Baggenstos (Alp Transit, Gotthard AG) in Sao Paulo on March 12, 2010.
- Underground excavation construction methods and their impacts on the environment, lecture given by Marco Aurelio Abreu Peixoto da Silva (METRO/SP) at University of Campinas on June 22, 2010.
- Concrete for tunnels, lecture given by Paulo Fernando (Concremat), in Sao Paulo on June 24, 2010.
- Risk Oriented Design and Construction of Tunnels, lecture given by Wulf Schubert (Graz University of Technology, Austria) in Sao Paulo on August 23, 2010.
- Underground Fire Safety - Prevention and Risks, lecture given by Arnoud Breunese (Efectis), held in Sao Paulo on September 14, 2010.
- Solutions for Megacities, event organized to celebrate CBT's 20th anniversary, with the participation of In-Mo Lee (president of ITA), Han Admiraal (chairman of ITACUS), Miguel Bucalem (City of Sao Paulo Secretary for Urban Development), Luiz Antonio Cortez Ferreira (from the State of Sao Paulo Secretary for Metropolitan Transportation) and Tarcisio Barreto Celestino, (president of CBT), held in Sao Paulo on October 26, 2010.

Interviews

Interviews too numerous to be listed were given throughout the year mostly related to institutional actions for promoting underground works in Brazil.

Reprinting the book Tunnelling in Brazil

The first edition of the book Tunnelling in Brazil is sold out. To meet the many requests for the book that keep coming, another printing was made and is now available.

The tunneling industry was very busy in 2010 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. The first rock TBM tunnel in Brazil in 2010 (a 5 km long shaft-tunnel solution, , to underpass the

Serra do Mar rain forest in Sao Paulo State). Underground mass transit systems have continued in major cities such as Brasilia, Rio de Janeiro and Sao Paulo. The construction for the 14-km long all-underground Sao Paulo Metro Line 4 is at the final stage and partial operation began in May 2010. The 6-km long extension of Line 2 began operation in the middle of 2010. The bid for the construction of the 15-km long Line 5 is expected to be launched in 2011. Design of Line 6 is also expected to be bid in 2011/2012. The City of Sao Paulo is about to launch the bid for construction of the Roberto Marinho urban highway tunnel, 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 for construction and concession of the 520-km long Campinas - Sao Paulo - Rio de Janeiro high speed rail line is scheduled for April 2011. The total underground length of the line will be in the range of 110km to be constructed by TBM and conventional tunneling.