

Colombia



Name: Colombian Tunnelling Committee

Type of Structure: Non-profit association

Number of Members: 7 members that represent more than 2000 engineers in the country

ASSOCIATION ACTIVITIES DURING 2019 AND TO DATE

- The Committee participated in the WTC 2019 held in Naples. The committee participated with members in Working Group 3 (Contractual practices in underground construction) and Working Group 2 (Research).
- Some members contributed to the joint Task Group (TG 10), between FIDIC and ITA, to develop the FIDIC Conditions of Contract for Underground Works, First Edition 2019.
- CCT representative joined the Executive Council
- The Committee worked hand in hand with the Colombian Society of Engineers as part of the review team of the Tunnelling Design Manual Developed by Invias (National Roads Institute).
- The committee carried out technical talks and activities with the following Working Groups:

WGs	Topic
WG3	Contractual practices in underground construction
WG6	Maintenance and repair of underground structures
WG12	Sprayed concrete use
WG15	Underground and environment
WG19	Conventional tunnelling
YM	ITA Young Members Group

CURRENT TUNNELLING ACTIVITIES

During 2019, in Colombia, several works were carried out in terms of tunnels and the use of underground space, including the completion of La Línea Main Tunnel across the Andes through unprecedented, complex geological conditions.

Completion of the La Línea Tunnel (2019)

La Línea tunnel (L = 8600m, d = 13.9m), along with 15 short tunnels (3225m total length), was part of a national roadway

project to cross the Andes' Central Mountains. Construction started in 2009 but was halted in 2016, as squeezing ground and creep phenomena occurred. The tunnel crossed graphite schist, mylonite and more than 7 geologic faults, including La Soledad, which induced severe squeezing (over 35% deformation). Completion works re-established and

stabilized the tunnel section, by changing the lining and support philosophy. La Línea was completed in 2019, becoming the largest roadway tunnel Colombia (in length and cross-section).

Other Underground works in Colombia

Other ongoing tunnels and underground works and studies include:

- Road tunnels:
- Oriente Tunnel I (L= 786m) and Oriente Tunnel II (L= 8200m).
- El Toyo (L= 9,840m), under construction.
- Ruta 40 national road: 4 short tunnels (2,077m total length)
- Ruta del sol I, 3 short tunnels, (3,500m total length)
- Tesalia, 2 tunnels (L= 3,500m each), under construction.



- Mulatos (L= 2,500m), under construction
- Irrá (L= 450m)
- Amagá (L=3,600m), under construction
- Pamplona – Cúcuta road, 5 tunnels (5,200m total length).
- Buenavista (4,500m), under construction
- Hydropower projects with underground works:
 - Hydroelectric Project El Buey, 190MW
 - Hydroelectric Project Chapasia, 385 MW
 - Hydroelectric Project Upia- Chapasia, 400MW
 - Hydroelectric Project Talasa: 150MW, to be constructed

FUTURE TUNNELLING ACTIVITIES

- The committee will organize the 2020 Tunnelling Symposium, in which all Working Groups will participate with

topics covered during the year.

- The committee will work on an academic article about tunnelling based on the local Working Groups research.
- The committee will organize more short talks with invited experts, which will be open to all interested members of the community.

EDUCATION ON TUNNELLING IN THE COUNTRY

1. Application of geology and geotechnics in the design of tunnels - EAFIT University
2. Certificated in soil and rock tunnels - Escuela Colombiana de Ingenieros University
3. Andean seminar of tunnels and underground works - Colombian Society of Engineers

STATISTICS

1. List of tunnels completed

- Occidente Tunnel
- Renacer Tunnel
- Sumapaz Tunnel
- Oriente Tunnel I and Oriente Tunnel II
- Ruta 40 national road: 4 short tunnels
- Ruta del sol I, 3 short tunnels
- Irrá
- Pamplona – Cúcuta road, 5 tunnels

2. List of tunnels under construction

- El Toyo
- Tesalia, 2 tunnels
- Mulatos
- Amagá
- Buenavista