



ASSOCIATION
INTERNATIONALE DES TUNNELS
ET DE L'ESPACE SOUTERRAIN

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INTERNATIONAL TUNNELLING
AND UNDERGROUND SPACE
ASSOCIATION



CTES

COMITÉ DE TÚNELES Y
ESPACIOS SUBTERRÁNEOS
DE CHILE

CHILE

ACTIVITY REPORT 2015



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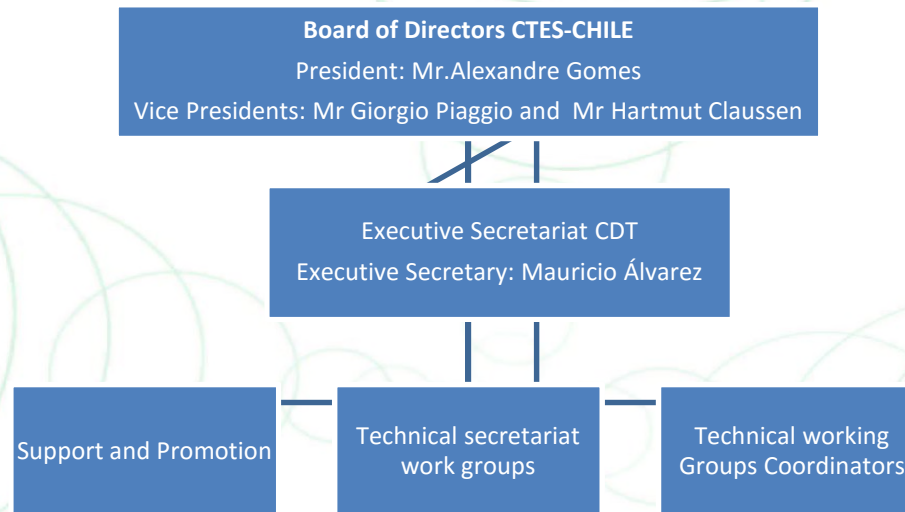
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- NAME: Chilean Committee for Tunnelling and Underground Space (of the CDT of the Chilean Construction Chamber)
- TYPE OF STRUCTURE:



- NUMBER OF MEMBERS: **84 Members**

Corporate Members: 8 Category Premium, 32 Category Gold, 29 Category Associated and 15 Individual members.



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Main Activities 2015

1. Seminars and Conferences

- Second version Latin American Congress of Tunnels and Underground Space.
- second version of the seminar "Materials and Products for Tunnels"
- Seminar "Generating Innovation in Tunnels"
- Seminar "Productivity in Major Construction Projects Miners"
- International Seminar "Practices and contractual aspects in Underground Works"
- Forum with Universities "Tunnels and Underground Space"
- Seminar: Engineering Challenges in Tunnelling and Underground Space



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Main Activities

2. Technical Lectures

- Efficient lighting in tunnels, Company Schreder.
- Underground Mining in Chile - Company Atlas Copco
- Evolution of Construction Methods Tunnels and subway stations of Santiago - Company Metro de Santiago
- Fundamentals of Geological Engineering for the Design of Underground Works in rock masses - Giorgio Piaggio
- Fire protection in tunnels - Company Promat
- Solutions for precise positioning in tunnels -Company Geocom



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Main Activities

3. Others

- Architecture Contest for the use of the underground space
- Technological Mission: Norway / Sweden / Denmark

Training

- International Course on TBM, ITACET.
- Antofagasta Regional Technical Conference



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Work Groups

- Four work groups in operation
- Average attendance of 15 people per group.
- Design, Planning, Construction and Risk Prevention, Materials and Products

Publications

- 3rd version "Guide for materials and products for tunnelling"
- Directory with Companies members of CTES-CHILE.
- Document translation of ITA-AITES "Code of practice for risk management in the construction of tunnels".
- New Tunnelling Projects Catalog
- Survey of Tunnels and Underground Spaces in Chile
- Mining Construction Magazin (Revista "Construcción Minera")



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Project Pipeline:

N°	Sector	Project	Status Oct 2015
1	Infraestructure	New lines 3 and 6 of the Metro Santiago (about 37 km of underground works, with 28 underground stations)	Under construction
2	Infraestructure	Américo Vespucio Oriente Highway (14 km of 3-lanes tunnels. Sections with 2/3 of the length with C&C double deck solution and 1/3 of the length with double tube mined tunnels.	2 lots under construction. 1 remainder lot to be tendered in 2016
3	Infraestructure	Urban Tunnel Kennedy. 4 lanes, (1,3km)	Under construction
4	Infraestructure	Trans-andean Tunnel Agua Negra (14 km of double road tunnels)	Binational committee established. Call for bidders expected in 2016
5	Infraestructure	Bi-ocean Corridor Aconcagua (52 km of double tube railway tunnels).	Binational committee established. Call for bidders possible in the upcoming years
6	Infraestructure	Trans-andean Tunnel Las Leñas (12 km)	Binational committee established. Tender design could start in 2016
7	Infraestructure	Second Tube Melon Tunnel (2,7km)	Bid for concession ongoing





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Project Pipeline:

Infrastructure	Tunnel Chamisero de Autopista Nor-Oriente: 1600m starting April/2016	Construction to start in 2016
Infraestructure	Tunnel La Dormida 2 x 3500m : starting 2017	Construction to start in 2017
Energy	Hydropower plant Alto Maipo (over 70 km of tunnels, shafts and caverns).	Under Construction
Energy	Hydropower Los Cóndores (150MW) (TBM tunnel)	Under Construction
Energy	HPP Valhalla, Pump Storage Power plant	Engineering stage
Energy	HPP Mediterraneo, 7,3k of tunnels:	Construction to start in 2016
Energy	Punilla Dam, Chillan: 2,3km deviation tunnel	Construction to start in 2016





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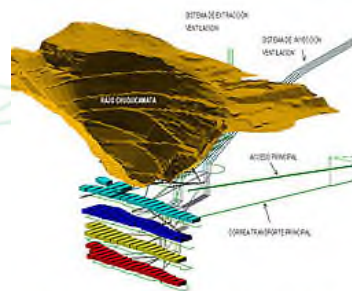
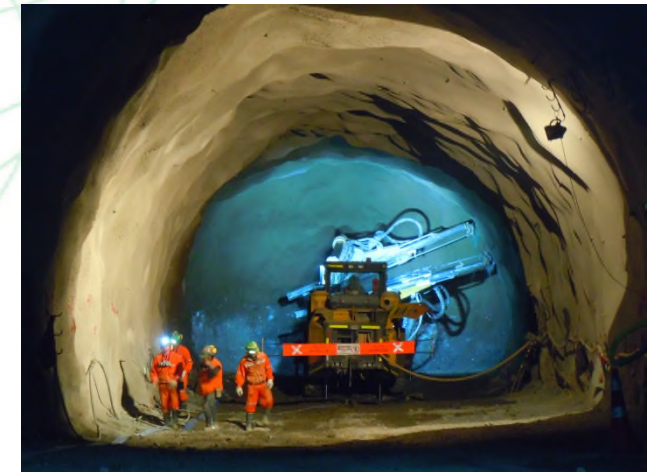


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Project Pipeline:

Energy	HPP Ñuble (136 MW)	Under construction
Energy	HPP Neltume (390MW) Tunnel 11 km, 6,3 m diameter	Exploratory gallery (1000m) under construction
Energy	HPP Cuervo (640 MW), tunnel 11km, discharge tunnel 5km	Environmental approval
Energy	HPP Nido de Aguila and Arandanos (500MW)	Engineering stage
Mining	New Mine Level - Access Tunnels (8,9km 2 tube tunnels), Inner facilities	Under Construction
Mining	Chuquicamata Underground Mine – Access Tunnels, Ventilation tunnels, Deep shafts and inner facilities	Under Construction
Mining	Andina 244 – Transfer Tunnel	Under construction



Disposición general infraestructura permanente





Project Pipeline 2016 - Comments:

- The last commodities boom period has pushed forward a large number of massive underground infra-structure projects for the mining sector, together with the development of new power plants, new expansions of Metro Santiago network and road tunnels. An important portion of Projects listed in the given project pipeline has been so far developed to a certain extend, however with the current economic slowdown experienced in the country, several projects have been cancelled, postponed and/or re-structured.
- Anyhow, it is expected that these large mining projects shall continue to be developed, even if at a slower pace. Additionally, the country has an increasing demand of energy, which cannot only be covered by the construction of new hydro-power plants. Public investment in infra-structure, mainly from the Railway Authority (EFE) and the Ministry of Public Works (MOP) are expected as anti-cyclic measures to counteract the economic depression generated by the end of the mining boom.



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Activities already scheduled for 2016:

- ITACET Course on Waterproofing, (March 2016).
- ITACET Workshop: "Risk Management in Tunnelling", (September 2016).
- Technological Mission: San Francisco, United States (WTC2016).
- Third version of the seminar "Materials and Products for Tunnels"
- National Congress of Tunnels and Underground Space
- Second version Forum with Universities "Tunnels and Underground Space"
- Technical talks (talks by Empresas CTES all year)



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¡Thank You!

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