

**ASSOCIATION INTERNATIONALE DES TUNNELS
ET DE L'ESPACE SOUTERRAIN
INTERNATIONAL TUNNELLING AND
UNDERGROUND SPACE ASSOCIATION**

**Compte-rendu de la 42^{ème} Assemblée Générale
SAN FRANCISCO
24 – 27 Avril 2016**

**Minutes of the 42nd General Assembly
SAN FRANCISCO
24 – 27 April 2016**

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The 42nd meeting of the General Assembly of the Member Nations of ITA was held in San Francisco (USA) on 24 and 27 April 2016 under the Presidency of Mr. Søren Degn Eskesen (Denmark), assisted by the Executive Council Members (see encl. 0) and the Executive Director.

VOTING REPRESENTATIVES

South Africa	B: C. Viljoen
Algeria	--
Germany	Roland Leucker
Saudi Arabia	Hathloul Hussain Al-Hath lool
Argentina	Ezequiel A. Zielonka
Australia	Ed Taylor
Austria	Robert Galler
Azerbaijan	<i>(by correspondence)</i>
Belarus	Valery Chekanav
Belgium	Willy De Lathauwer
Bhutan	Dorji P. Phuntshok
Bolivia	A. Carover Vargas
Bosnia-Herzegovina	<i>Represented by Croatia</i>
Brazil	Jairo Pascoal Junior
Bulgaria	--
Cambodia	--
Canada	Erik Eberhardt
Chile	Giorgio Piaggio
China	Hong Kairong
Colombia	Andrés Marulanda Escobar
Republic of Korea	Hangseok Choi
Costa Rica	Marco Tapia
Croatia	Davorin Kolic
Denmark	Michael Tonnesen
Egypt	--
United Arab Emirates	Rayed Al Arashi
Ecuador	Piergiorgio Grasso
Spain	Miguel Fernández-Bollo
USA	Randall J. Essex
Finland	Ari Laitinen
France	Michel Deffayet
Greece	Ioannis Fikiris
Guatemala	Fridolin Birk
Hungary	Tibor Horváth
India	R.K. Khali (On Sunday)
	Mangu Singh (On Wednesday)

Indonesia	--
Iran	Jamal Rostami
Iceland	<i>Represented by Norway</i>
Israel	Arik Glazer
Italy	Andre Pigorini
Japan	Takeo Nakamura
Kazakhstan	--
Laos	--
Lesotho	--
Macedonia FYROM	<i>(vote by correspondence)</i>
Malaysia	Ooi Teik Aun
Morocco	--
Mexico	Roberto Gonzalez Izquierdo
Montenegro	Zvonko Tomanovic
Myanmar	<i>Represented by Thailand</i>
Nepal	--
Norway	Frode Nilsen
Panama	--
Netherlands	Johan Bosch
Peru	--
Poland	Monika Mitew-Czajewska
Portugal	João Bilé Serra
Qatar	Hassan Ahmed Al-Marwani
Romania	Sorin Calinescu
United Kingdom	Damian McGirr
Russia	Mikhail Belenkiy
Serbia	<i>Represented by Canada</i>
Singapore	Kulaindran Ariaratnam
Slovakia	Robert Zwillint
Slovenia	Angelo Zigon
Sweden	Robert Sturk
Switzerland	Luzi R. Gruber
Czech Republic	Ivan Hrdina
Thailand	Aphichat Sramoon
Turkey	Hamdi Aydin
Ukraine	--
Venezuela	--
Vietnam	<i>Represented by Italy</i>

AGENDA

Sunday morning 24 April 2016 from 9.00 am to 1.00 pm

1. Opening speech
2. Approval of the agenda
3. Approval of the minutes of the General Assembly 2015
4. Report of Activity of the Executive Council - Comments from the Assembly
5. Approval of new members
6. Report from the Internal Auditor - Comments from the Assembly
7. Report of Activity of the Member Nations - Comments from the Assembly
8. Report of activity of the ITACET Foundation
9. Communication from the Sister International Associations
10. Financial report for 2015 - Comments and approval of the Accounts
11. Preparation of the election of Executive Members
12. Preparation of the other decisions of the General Assembly on Wednesday 27 April 2016
 - 12.1 Modification of the article 1.6.b of the By Laws
 - 12.2 Presentation of the candidatures for the 2019 General Assembly

Wednesday afternoon 24 April 2016 from 1.30 pm to 4.30 pm

13. Election of the ITA Executive Council Members
14. 13.1 Election of the President
15. 13.2 Election of the Vice-Presidents
16. 13.3 Election of the other Council members
17. 13.4 Nomination of the Treasurer
18. Report on the Open Session held on Tuesday 26 April 2016
19. Working Groups and Committees: Reports and projects of activity – Approval
20. Appointment of the Auditor of the conformity of the actions of the Executive Council
21. Preparation of the General Assemblies 2017 and 2018
22. Appointment of the third Member of the Surveillance Council (Statutes – Section X)
23. Modification of the article 1.6.b of the By Laws
24. Approbation of the Budget for 2016
25. Draft budget 2017
26. Choice of the place for the General Assembly 2019
27. Other business
28. Closing address

A – ASSEMBLY ON SUNDAY 24 MAY APRIL 2016

1 – OPENING SPEECH

The President Søren Degn Eskesen welcomed the delegates of the Member Nations, ITA members to the 42nd ITA General Assembly in San Francisco, California, USA.

He declared the 42nd ITA General Assembly to be opened. (See opening speech in [encl. 1](#))

2 – APPROVAL OF THE AGENDA

This year the notice, the agenda and the files were sent on February 24, 2016, to all 73 Member Nations.

The President presented the agenda; it was approved without amendments.

3 – APPROVAL OF THE MINUTES OF THE GENERAL ASSEMBLY 2015

The minutes of the General Assembly 2015 were sent on July 25, 2015 (English) and August 27, 2015 (French); they were approved without any comment.

4 – REPORT OF ACTIVITY OF THE EXECUTIVE COUNCIL

The President reminded that the report of activity was sent to the Member Nations on February 24, 2016, and asked for the comments from the Assembly. ([Encl. 2](#))

The President highlighted the main items of the report, which were:

4.1 Functioning:

The Executive Council took actions to strengthen the relations with the new Member Nations, to develop the relationship with Sister Associations and to establish new relationship, to encourage the work of the Committees and to develop membership notably towards the industry through new Prime Sponsors and Supporters.

Distribution of Roles among Executive Council Members:

a) A. Elioff (VP) and E. Leca:	General Affairs
b) T. Celestino (VP) and A. Gomes	Development of the WGs
c) D. Peila (VP), N. Kazilis & D. Kolic	Development of the Committees
d) R. Lovat (VP), R. Haug and J. Yan	Industry relations / Sponsorship
e) S. Eskesen	NM dev. and consolidation in all countries
f) S. Eskesen and E. Leca	NM dev. and consolidation in the Middle East
g) T. Celestino and A. Gomes	NM dev. and consolidation in Latin America
h) J. Yan	NM dev. and consolidation in China
i) Timo Laitinen	Representative of Prime Sponsors Industry relations / Sponsorship
j) M. Belenkiy (expert)	NM dev. and consolidation in CIS countries
k) Z. Z. Aye (expert)	NM dev. and consolidation in South East Asia
l) H. Wagner (expert)	Relations with the World Bank

Timo Laitinen (Sandvik) is the representative of the PS inside ExCo for 3 years (2015-2018)

4.2 Strategy

The strategy was presented to and accepted by the Member Nations at the GA in 2014, and contained 7 strategic goals with actions and an implementation plan.

The ExCo has reviewed the actions at each ExCo meeting and after two years the progress has been scrutinized.

The main actions since last GA are shown hereafter and the full updated document is appended to this report.

- **Goal 1:** Consolidate/Activate Member Nations particular newly joined Member Nations
 - Consolidate New Member Nations by visiting them and assist in organising MN events. Status: Training in Myanmar, participation at ATC in UAE
 - Activate Member Nations by keeping close contact; nominate persons within ExCo to stay in close contact. Status: Participation of SDE, TC, AG, OV in Latin American forum meetings in Dubrovnik and Santiago.
 - Middle East – 2 new members – One in 2015, Status: Qatar in 2015; good contacts with Oman for a Membership in 2016
- **Goal 2:** Improve Communication and functioning of Working Groups and Committees
 - Follow up on Working Groups and Committees bi-annual report on status. Status: The WGs have sent 12 progress reports this year
 - Peer review process of all reports of Working Groups and Committees. Reduce response time in review and publication process – Status: The peer review process has been updated this year to make it clearer to all stakeholders.
 - Involve Working Groups in preparation and planning of ITA-CET courses. Status: Meeting in Hagerbach and San Francisco
- **Goal 3:** Expand Industry Relations
 - Visit all existing PS by President and/or VP with industry expert once every 3 years. Status: 4 PS have been visited this year. Present ITA activities and strategy and how ITA can support the PS
 - Tunnel market forecast statistics have been sent to all PS and will be updated every 3rd year. Status: The updated market survey will be available by the end of the year.
 - Source 4 new PS and 8 new supporters. Status: Since 2014, 3 new PS and 15 new supporters
- **Goal 4:** Encourage further Knowledge Sharing through Education and Training
 - Support Member Nations through training and workshops – Status: 8 training session held
 - Implement e-learning / webinars - ongoing
 - Communicate outside and inside on the ITA-CET activities – Status: newsletter implemented- 2 issues have been published this year
- **Goal 5:** Develop ITA Young Members Group
 - The Young Member Group has been established
 - Encourage young people to participate in WTC and ITA WGs at attractive rates.
 - Increase participation of younger members in regional Member Nation Events. Status: YMG has been invited to 2 conferences (UAE, UK)- Young member groups have been established in 4 MN

- **Goal 6:** Further enhancing tunnelling and underground space awareness of major stakeholders, including city governments
 - Building and maintaining the relationship with UNISDR – Status: ITACUS is member of the Urban Planning Advisory Group
 - Building and maintaining the relationship with UN Habitat
 - Building and maintaining the relationship with ISOCARP. Status: ITACUS participated in the ISOCARP congress- A common case studies book has been published – Think deep
- **Goal 7:** Improve Communication towards Member Nations, Industry and Public
 - Assign a communication press partner – contract signed with press agency Giesbert
 - ITA Press conference at annual WTC- Status: 2 Press conferences took place in Dubrovnik+ 1 specific to ITA COSUF – 135 articles and mentions
 - Improve Press relations through contract with JC Giesbert – Status: A Press conference has been organized at the occasion of the COP21 in Paris. 40 articles/mentions in Press.
 - 10 press releases have been sent out for the awards – more than 200 articles and references

4.3 Task Forces:

This year task forces worked on the following topics :

- i. Member Nations – How to facilitate and improve contacts.
- ii. Industry Relations
- iii. Communication
- iv. ITA Awards
- v. WTCs

i. Member Nations

Task force members: Ruth G. Haug, Amanda Elioff, Nikolaos Kazilis, Rick Lovat, Olivier Vion.

The task force is studying various actions to allow the Executive Council Members to be closer to the Member Nations, to facilitate actions and implementation of ITA mission in the different countries. Notably encouraging Regional forum.

ii. Industry relations

Task force members: Rick Lovat, Ruth G. Haug, Jenny Yan, Tom Melbye, Felix Amberg and Olivier Vion.

The task force was implemented to better take into account relationship between ITA and the industry at large but mainly the companies Affiliate, Supporters and Prime Sponsor. A tunnel market analysis has been prepared by the ITA secretariat and given to all Prime Sponsor. It will be updated every third year. Next market analysis will be available by the end of 2016. In order to maintain close relations to Prime Sponsors and have a good understanding of how best to cooperate, visits by the President, 1st Vice President and PS Expert have been made to 4 Prime Sponsors and in addition to potential Prime Sponsors. It is the aim of having a visit to each PS at least every three years, in total 14 of the 17 Prime Sponsor have been visited in the last three-year period. During each WTC a common meeting has been held with the Prime Sponsors and ExCo members.

iii. Communication

Task force members: Rick Lovat, Ruth G. Haug, Eric Leca, Olivier Vion.

The task force is studying means to improve the communication towards the general public and within the industry. Review of the work and meetings with the ITA Press Agency has been held. One of the means being investigated is incorporating social media. A joint work on this subject has been initiated with students from the Turku University.

iv. ITA Tunnelling Awards

Task force members: Eric Leca, Amanda Elioﬀ, Rick Lovat, Soren Eskesen , Tarcisio Celestino, Jinxiu (Jenny) Yan, Felix Amberg , Olivier Vion , Tom Melbye, Mark Charles (Blackswan).

After four years of cooperating with the New Civil Engineer in the United Kingdom for the first time ITA organized its own awards on November 21st 2015. It has been quite a success both in terms of numbers and geographical representation as we had 110 entries for all categories coming from all around the world.

A full day conference have been organised where the finalists (24) had the opportunity to present their project and initiatives with a dinner during which the 11 winners were announced and received their award. A special trophy has been made for the ITA awards. It is a sculpture of a bust of I. Kingdom Brunel... A video from the Awards is available on Youtube - [ITA AWARDS AND EVENT DAY 2015 – YouTube](#).

For the conference and the dinner, 150 people participated from all over the world (Korea, China, Japan, Australia, USA, Canada, Qatar, and most of European Member Nations). The press impact of the awards has been huge with over 200 impacts in the press and social media. Based on the success the ExCo decided to go ahead with a second edition which has already been launched. The conference and the dinner will take place in Singapore on November 11th 2016. This year the event will be associated with a technical conference organized by TUCSS (Singapore MN) on the day before (November 10th).

v. Functioning of the WTCs

Task Force: Amanda Elioﬀ, Ruth G Haug, Jinxiu (Jenny) Yan, Anna Lewandowska, Tarcisio Celestino.

This task force has been implemented to better take into account the lessons learned from the different WTCs. During the year the task force collected the remarks given after the WTCs in the past 5 years. The goal is to prepare for the WTCs organizers a list of major topics to deal with and provide advice and requirements; the task force is also looking at tools that could be implemented by ITA and given to the WTCs organizers. It has been decided that a satisfaction survey will be sent out to all participants after each WTC.

4.4 Relations with Member Nations:

a) Visiting 20 Member Nations.

- Endorsing Conferences organised by Member Nations.
- Representing ITA at Regional and local conferences, seminars and workshops organised by Member Nations.
- Organising training courses through ITACET Foundation.

4.5 Development of Affiliates:

Eleven New Corporate Affiliates have joined.

4.6 Development of Prime Sponsors:

One new Prime Sponsor: PORR from Austria joined as new Prime Sponsor

4.7 Development of Supporters:

Three new Supporters:

ARCELORMITTAL (Luxembourg)

FORTA CORP (USA)

KORDSA GLOBAL (Turkey)

4.8 Relations with Sister Associations:

The traditional contacts were pursued with the international sister associations of a professional nature: IRF, ISRM, PIARC, IAEG, FIDIC, ISOCARP, ISSMGE, ITIG.

IRF: Developing the relationship with IRF, the International Road Federation, in order to promote a new cooperation with the IRF, The Foundation of IRF on Education and the ITACET Foundation.

PIARC: ITA is represented by Olivier Vion in the TC5 (Technical Committee on Road Tunnels). The cycle came to an end at the occasion of the World Road Congress in Seoul. A new cycle is to start. Olivier Vion participated in the launching seminar on March 9-10 in Paris. The new President of the Committee (now called TC-D5 – Road Tunnel Operations is Marc Tesson from CETu-France).

PIARC has also a New Secretary General. A meeting will be organized to look through the MoU and see if new cooperation are to be developed.

ACUUS: contacts are being followed to sign the MoU with them.

FIDIC : The common task force WG3 / Fidic is working on establishing a specific form of contracts for underground works. – First draft will be submitted to the WG3 during the meeting in San Francisco.

ISOCARP : In October, the ITACUS chair participated in a teleconference meeting of the UNISDR Urban Planning Advisory Group. He also attended the ISOCARP Congress in Rotterdam, the Netherlands and gave a short presentation at the ISOCARP General Assembly on the joint ISOCARP-ITACUS publication ‘Think Deep.

4.9 Relations with International Organisations:

UN Habitat, UN ISDR, European Union and World Bank

Development of contacts with UN-HABITAT and UN-ISDR are mainly conducted with itacus .

World Bank. No specific contacts this year.

European Union. No specific contacts this year.

4.10 Working Groups:

- All the working groups will meet in San Francisco on Sunday 24 and Monday 25 April under the chairmanship of their Animators or their Vice Animators. Further a meeting between the WG Animators, Vice Animators and ExCo will take place on Saturday the 23 April.
- Activity of the working groups continues throughout the year. For 5 years now WG Animators are asked to fill up a progress report twice a year. This report enable the ExCo to follow what is going on and to better answer to request for the WGs. Progress Reports are required twice a year and it has proven to be a useful tool for both the WG and the Exco to get an overview of the activities and to coordinate the actions.
- 3 WG reports published this year:
 - WG 2 – “Twenty years of FRC tunnel segments practice: lessons learnt and proposed design principles”
 - WG 11 - “Owners Guide to Immersed Tunnels –V3”
 - WG 14 / 19 – “Recommendations on the development of underground projects with respect to the tunnelling methods”

Committees: All four committees have been very active during the year.

➤ ITA COSUF

Mission Statement

ITA COSUF aims at being the Centre of Excellence for world-wide exchange of information and know-how regarding safety and security of underground facilities.

Development since ITA GA 2015 (Dubrovnik)

- Workshop for Tunnel Safety Officers (TSO) organised by ITA COSUF and under patronage of PIARC & European Commission “4th European Road Tunnel Safety Officers Forum” with special focus on “Operating.
- Tunnels Safely during Refurbishment” and “Commissioning and Testing of New and Refurbished Tunnels”; workshop with site visit to Maas
- Tunnel, 9–10 March 2016, Rotterdam, NL
- Workshop organised by ITA COSUF “Operational Safety in Hamburg’s Tunnels”, presentation on existing and planned tunnels, demonstration on tunnel ventilation in Elbe road tunnel, visit of the metro operating centre, 28–29 October 2015, Hamburg, DE.
- Workshop organised by ITA COSUF as part of the ITA-AITES World Tunnel Congress 2015 on “Aging Tunnels – Safety in Operation and During Refurbishment”, Dubrovnik, 26 May 2015
- 31st Meeting of the ITA COSUF Steering Board and AG Leaders, Meeting of COSUF Activity Groups, 8 March 2016 in Rotterdam, NL
- 30th Meeting of the ITA COSUF Steering Board and AG Leaders, 3 February 2016, Cologne, DE
- 29th Meeting of the ITA COSUF Steering Board and AG Leaders, Meeting of COSUF Activity Groups, 28 October 2015 in Hamburg, DE

Information on ITA COSUF

- 28th Meeting of the ITA COSUF Steering Board and AG Leaders, Meeting of COSUF Activity Groups (25 May 2015) and COSUF General Assembly 26 May 2015, as part of the ITA-AITES World Tunnel Congress 2015, Dubrovnik, CR
- Setup of a new and user friendly website with general information on COSUF, latest developments, planned activities, presentations from workshops, etc.: www.ita-cosuf.org (first opened to the public during WTC 2015, Dubrovnik, CR)
- Finalization of Survey of Existing Regulations and Recognised Recommendations on Operation and Safety of Road Tunnels (available for download from COSUF website)
- Offering the ITA COSUF Award, yearly since 2009, Winner of the 2015 Award has been Karl Fridolf (Sweden), he was honoured for his thesis on evacuation in rail tunnels; the 2016 Award will be handed over during the workshop in autumn 2016
- Endorsement of conferences which follow the goals of ITA COSUF (e. g. ISTSS 2016, Montreal)
- Application of a “Marie Curie”-proposal within Horizon2020 (with a core group out of Activity Group 3)
- Workshop on “Tunnel Operation in the City of Helsinki “, 25–26 October 2016, Helsinki, FI (planned)
- Workshop by ITA COSUF and under patronage of PIARC & European Commission “5th European Road Tunnel Safety Officers Forum on Operational Safety”; 2018, London, UK (planned)

Status

Approx. 80 Members (approx. 90 % from Europe)

Activity Groups

AG 1 Interaction with European and International Initiatives

- Identify relevant initiatives outside ITA COSUF and liaise to attract ITA COSUF members
- External communication
- Coordination of information exchange within ITA COSUF
- Influence initiatives outside ITA COSUF related to operational safety
- Assistance in the preparation of ITA COSUF events
- Steering Board support in the development of ITA COSUF, e.g. (ITA COSUF Award)
- Communication via ITA COSUF newsletters (distributed by e-mail and available on the ITA COSUF website)
- Maintenance and update of website

AG 2 Regulations & Best Practice

- Collect and distribute information on:
 - existing national and international regulations
 - recognised recommendations
- Establish the best practice for safety and security of underground facilities
- Preparation of COSUF reports on:
 - Smoke control for metro systems
 - Disabled persons in emergency scenarios
 - Recommendation of Platform screen doors

AG 3 Research and new findings

- Exchange information about R+D activities worldwide
- Up-to-date awareness of latest R+D results
- Initiate and support scientific work on subjects with high actuality
- Indicate research opportunities
- Networking for future research consortia
- Overview of ongoing research projects on safety and security in underground spaces
- Participation in current safety & security calls within Horizon 2020

AG 4 European forum for road tunnel safety officers

- Facilitating exchange of experience between tunnel safety officers (TSO) by:
 - Planning and organizing a biannual European TSO Forum (4 successful forums up to now)
 - Establishing best practices for TSO's on tasks and functions
 - Exchange of working methods
- Topics of interest
 - Maintenance & refurbishing during operation
 - Role & responsibility of emergency services

- Degrading of tunnels & failures
- Minimal operation requirements
- Best practices on tunnel safety documentation
- **Ambition:** All European Tunnel Safety Officers shall become a member of ITA-COSUF and AG4

➤ **ITA-CET**

ITA-CET Committee organization (meeting, members and secretariat)

The Committee met in Dubrovnik during the WTC 2015 and will meet again in San Francisco during the WTC 2016.

In addition, the Steering Board has met twice over the last year, in Zurich on 13th October 2015 and in Lyon on 8th February 2016.

A new technical secretary has taken over from Bérénice Moreau. Emmanuel Humber (CETU) took up this position in October 2015.

Committee membership has remained stable over the last year, with 23 “academic” and 10 “industry” members, in addition to the 12 Steering Board members. The Committee secretariat also comprises an administrative secretary.

• **ITA-CET input to ITA Strategic Plan 2014-2016**

Within ITA’s Strategic Plan for 2014-2016, Strategic Goal 4, “*Encourage further knowledge sharing through education and training*”, fixed the following seven objectives for the ITA-CET Committee:

- Support Member Nations through training and workshops
- Organize and develop a regional ITA-CET correspondent network
- Implement training for professionals and industry
- Implement e-learning/webinars
- Create and develop a university network
- Improve and expand the lecturer database and the portfolio of training topics
- Internal and external communication on ITA-CET activities

These objectives have either been achieved or are well on the way to being achieved, thanks to the actions carried out by the Committee’s four activity groups, the secretariat and the help of the ITACET Foundation.

- Support Member Nations through training and workshops

Over the last year the close collaboration between the Committee and the ITACET Foundation has enabled 11 training sessions to be organized in four different continents and on a wide variety of topics:

- Soft Ground Urban Tunnelling (WTC 2015): Dubrovnik, Croatia, May 2015
- Rock Tunnelling in Karst (WTC 2015): Dubrovnik, Croatia, May 2015
- Tunnelling and Deep Excavation for Infrastructure in Urban Areas: Rangoon, Myanmar, May 2015
- Mechanized Tunnelling: Guadalajara, Mexico, June 2015
- Health, Safety and Logistics in Tunnel Construction: Buenos Aires, Argentina, September 2015
- Waterproofing & Drainage: Hagerbach, Switzerland, September 2015
- Challenges in Undersea Deep Long Distance Tunnels (UDLDT): Shanghai, China,

October 2015

- Landslides and Tunnelling: Riyadh, Saudi Arabia, January 2016
- Waterproofing: Santiago, Chile, March 2016
- Monitoring and Control in Tunnelling (WTC 2015): San Francisco, USA, April 2016
- Underground Space Use (WTC 2016): San Francisco, USA, April 2016

Feedback from these training sessions remains positive and evaluation forms handed out to participants at the end of each session enable future avenues of progress to be identified.

- Organize and develop a regional ITA-CET correspondent network

At present, the preparation of training sessions in collaboration with the ITACET Foundation is the most visible part of the ITA-CET Committee's activities. These sessions are currently organized at the request of ITA Member Nations, on their own initiative, or following contact with representatives of the Association or Committee.

Activity Group 1 of the ITA-CET Committee is responsible for engaging discussions with the requesting nation, identifying its specific requirements for a given training session and preparing the detailed program in collaboration with local correspondents. Once the training session is over, it is important to maintain and strengthen relations with these local correspondents around the globe. This will help to establish a solid, long-term partnership with the ITA-CET Committee and help to implement new training sessions. It will also enable any shortfalls in previous sessions to be identified and overcome.

In May 2015, during the WTC in Dubrovnik, Activity Group 1 invited key correspondents who had significantly contributed towards the successful organization of the 2014 - 2015 training sessions to meet with ITA-CET representatives. The aim of this meeting was to identify how to:

- establish a durable partnership with the ITA-CET Committee,
- communicate on existing training opportunities and further training requirements at a local level,
- develop training strategies and packages (possibly through international co-operations),
- make use of new tools such as Webinars to offer training opportunities to a broader public.

The meeting in Dubrovnik brought together correspondents who organize training sessions within the same region of the globe. It enabled discussions on training requirements and possible future international co-operations between neighboring countries, particular between South American member nations.

Developing training strategies was identified as particularly important. These strategies can provide coherent packages and help tailor training sessions to meet local needs and even offer complete training paths. They can also facilitate the involvement of sponsoring companies and consequently help to find sources of funding and financial support.

It was agreed that new tools like webinars would enable a broader public to be reached and could be taken into account in these strategies. The ITA-CET Committee is currently looking into the best way to implement such tools.

This key correspondent network currently comprises around ten Member Nations and the Committee is confident that this network will help to expand ITA's training activities.

- Implement training for professionals and industry

Two meetings with representatives of the ITAtech Committee took place in 2015, in May and November. The aim was to examine how to strengthen the relationship between the two committees and to identify how they could work together to develop training actions for professionals and industry.

Although most major companies already have their own staff training programs and procedures, they are generally dedicated to the company's own specific field of activity. ITACET training sessions could provide an additional wider overview of more general aspects of tunnelling. ITA-tech representatives have agreed to identify which training sessions from the current ITA-CET portfolio could be of interest to their staff and in which particular

countries training is required. ITA-CET will adapt existing programs if necessary or create new ones.

The ITAtech Committee has set up several working groups in charge of the preparation of guidelines on various topics. The report contents could then be disseminated through training sessions in the form of Deminars, which mix traditional class room presentations with practical demonstrations of the latest technological developments available in industry. An initial Deminar on the topic of “Waterproofing” took place in the Hagerbach Test Gallery, Switzerland, in September 2015.

Following the success of this Deminar, discussions between representatives of the two committees and the ITA Foundation led to the decision to further develop the concept of Deminars. They are currently working on the programme for a Deminar on “Life Cycle Management of Tunnel Installations”, programmed for September 2016.

- Create and develop a university network

Activity Group 3 has continued its collaboration with the Committee’s university network members. The replies received from these members to the questionnaire on tunnelling-related courses within their establishments have been published on the ITA-CET Committee’s web pages.

ITA course endorsement principles were discussed in Dubrovnik in 2015 and the vocabulary of the current endorsement system has since been simplified.

Two new post-graduate courses received ITA endorsement in 2015:

- the Master in Tunnels and Underground Works (Madrid, Spain),
- the On-line Certificate in Tunneling (Colorado, USA).

Currently in its 10th year, the Master in Tunnels and Underground Works is organized by AETOS (the Spanish Association of Underground Works), CICCOP (Association of Civil Engineers) and UNED (the Spanish Open University). This one-year course is open to students with a degree in civil or mining engineering or geology.

The On-line Certificate in Tunnelling, run by The University of Colorado Boulder is open to students with an MS and BS in civil engineering, geology or mining engineering, who want to obtain a working knowledge of tunnel design and construction by applying the fundamentals acquired in their BS and MS degrees. This on-line course can be started at any time. Its duration depends on the student’s own pace, but it must be completed within 4 years. The Committee recognized the experimental aspect of this course based on homework. To issue the endorsement, it asked for guarantee on the conduction of a face to face evaluation of each student.

The MAS in Tunnelling at the EPFL in Lausanne, Switzerland, has ceased to run, due to a change in staff.

- Implement e-learning / webinars

Activity Group 4 has looked into how to develop “online” or distance learning in order to enable a wider audience to benefit from ITA training events. The term “online” learning encompasses a range of technical tools such as video-conferencing, webinars or webcasts. The ITA-CET Committee Steering Board has examined the advantages and drawbacks of each of these tools in order to decide on how best to launch its first online events. After in-depth discussion at the ITA-CET Steering Board meeting in Zurich in October 2015, it was decided to opt for video conferencing as an initial means of launching ITA distance learning events. The two main reasons are that:

- video conferencing equipment is already available to several European based ITA-CET lecturers at universities or training organizations.
- the use of video-conferencing equipment would require less training for lecturers than webinar software.

An initial “test” training session was organized in February 2016. This short one-hour training on “Resource-efficient Tunnelling” was given to Master students at the ENTPE in Lyon and

simultaneously broadcast by video-conference to a group of Master students at the Politecnico di Torino and to a group of engineers at the CETU in Lyons. The lecture was followed by a question and answer session in which all three sites were able to interact with the lecturer and with each other.

At a later stage, the ITA-CET Committee envisages implementing webinars, which could be either live or recorded. These short webinars would be modules of a specific topic, which when grouped together would form an entire training program.

The implementation of online learning events will enable considerable financial savings by reducing travel costs for both lecturers and participants. It will also enable wider audiences to be targeted, thus helping to fulfill ITA's commitment to worldwide knowledge sharing in the field of tunnelling and underground space.

- Improve and expand the lecturer database and the portfolio of training topics

The lecturer database is regularly updated and currently comprises 128 lecturers. An additional file has been added to this database which enables the most active lecturers to be identified.

The Committee has been working on several new course programmes, three of which will shortly be made available in the official course portfolio:

- Calculation Methods for Tunnel Design
- Numerical Simulation for Tunnel Design
- Sustainable Tunnelling

The objectives of the programme entitled "Calculation Methods for Tunnel Design" is to present a general overview of the design methods commonly used to assess tunnel stability, from those suitable for rock mechanics to those suitable for soil mechanics. The programme focuses on the field of application of the methods throughout the entire tunnel design process. It therefore covers not only design methods employed in the preliminary stages but also those employed in the detailed stages of studies.

"Numerical Simulation for Tunnel Design" aims to focus on numerical simulation in tunnelling.

It explains the use, advantages and difficulties of numerical simulation, followed by optional, more in-depth sessions on the implementation of numerical models and associated parameters.

This course session is aimed at professionals in tunnelling with prior knowledge in the field of geomechanics.

"Sustainable Tunnelling" will cover subjects such as the environmental issues of excavated material, life cycle assessment and environmental impacts of construction and operation phases.

With these three new programmes, the portfolio will comprise 20 different topics.

Other programmes still under preparation include:

- Contractual Practices,
- Ground Improvement for Tunnelling (Auxiliary methods),
- Use of Reinforced Fibre Concrete,
- Sub-surface use.

- Internal and external communication on ITA-CET activities

After publishing the first issue of its newsletter in December 2014, the ITA-CET Committee has published two further issues over the last year, in May and December 2015. The May issue was included in delegates' bags at the WTC in Dubrovnik. The December issue was e-mailed to the members of the key correspondent network in addition to all Committee members. Articles on all three issues have been included in ITA's electronic newsletter.

In addition to the newsletter, The ITA-CET Committee's web pages are regularly updated with news on university courses, training sessions, etc.

➤ ITACUS

- In May 2015, the ITACUS chair and vice chair gave a presentation at The Geological Society of London on 'Planning and legal aspect of underground space use'.
- During WTC 2015 in Dubrovnik, ITACUS participated in the internal ITA meetings, held a Steering Board meeting, held the Annual General Meeting and organized an ITACUS 'Think Deep' Open Session. Two new groups were introduced; AG1 on Urban Underground Freight and AG2 on Underground City Resilience. Talks were held with ACUUS with regards to a MoU. The ITACUS chair and vice chair also participated in a press conference addressing issues of climate change and the role of underground infrastructure in that respect.
- In June 2015, the ITACUS chair participated in a meeting of the UNISDR Urban Planning Advisory Group during the ICLEI Resilient Cities Conference in Bonn, Germany.
- In July 2015, the vice chair presented at a one-day seminar on 'Use of the underground' hosted by EEA (European Environmental Agency) at the ETH Swiss Polytechnic in Zurich.
- In August 2015, The ITACUS chair and vice chair met the ITAym chair and vice chair for a meeting in Rotterdam, the Netherlands to discuss future cooperation between the two committees.
- In September 2015 the ITACUS chair and vice chair participated in the inaugural meeting of the MAG2US, Multidisciplinary Activity Group for Use of Underground Space in the UK.
- Later that same month, the ITACUS chair and vice chair took part in the Hidden Depth workshop organized at the Urban Innovation Centre in London.
- The ITACUS Steering Board held a teleconference meeting in October 2015 discussing items for the upcoming Steering Board meeting in November.
- In October, the ITACUS chair participated in a teleconference meeting of the UNISDR Urban Planning Advisory Group. He also attended the ISOCARP Congress in Rotterdam, the Netherlands and gave a short presentation at the ISOCARP General Assembly on the joint ISOCARP-ITACUS publication 'Think Deep'.
- A press lunch was organized by ITA in Paris, France, in November 2015 in the lead up to the climate conference COP21. The ITACUS chair and vice chair explained to reporters how ITA is committed to climate change through the advancement of underground space use. The press lunch was well attended and resulted in numerous press articles.
- In November 2015, the ITACUS chair attended an innovation roundtable on underground transport organized by the Province of Noord-Brabant in the Netherlands.
- Members of the ITACUS Steering Board participated in the ITA Tunnelling and Underground Space Awards 2015 in November 2015 in Hagerbach, Switzerland. The ITACUS Steering Board met the day after at the Hagerbach Test Facility, following which the ITACUS chair and vice chair met with the ITA Executive Council to discuss upcoming activities. A third activity group AG3 was launched under the working title 'International Centre Applied Research Underground Space –ICARUS'.
- In January 2016 the ITACUS chair, vice chair and the ITAym vice chair met in Amsterdam, the Netherlands with two vice chairs of ISOCARP to discuss cooperation in the field of young professionals. The meeting led to the setting up of the Young Professional's Think Deep Programme (YPTDP). Within ITACUS, this will be coordinated by Petr Salak, who is the proposed leader of AG4, the Young Professional's Think Deep Programme (YPTDP).

- In February 2016, the ITACUS chair and vice chair together with Steering Board members Youssef Diab hosted the ‘Think Deep’ morning session at an AFTES/COMES seminar in Paris, France. The ITACUS AG1 leader, Yvette Körber was also present and gave a keynote on ‘Enabling Underground Freight Projects’.
- In March, the ITACUS chair and vice chair hosted the ICE Engineering Underground Space conference in London, UK. They also participated in a further MAG2US meeting during that visit.
- The ITACUS chair participated in several preparatory meetings in January-March 2016, for the Day of the Underground during the International Architecture Biennale Rotterdam to be held in June 2016 in which ITACUS will also participate.

➤ ITAttech

After having been interim Chair of the ITAttech since October 2014, Pauli Arenram (Atlas Copco) was elected Chair for the Committee in February 2015, which was validated by the General Assembly at the WTC in Dubrovnik 2015.

7 Activity groups and 9 Sub Activity Groups have been working, and until now 7 reports have been published. One new Activity groups have been formed: Investigation. Physical meetings, conference calls and web conferences have been organized by the different Activity Groups

INVESTIGATION	15/12/2015 Kickoff Meeting 29/03/2016
EXCAVATION	26/05/2015 - WTC 2015
Mechanized	
Rebuilt Equipment	
Quality Drill & Blast	26/05/2015 - WTC 2015
SUPPORT	
PFRCS	26/05/2015 - WTC 2015 25/09/2015 12/11/2015 21/01/2015
Bolts & Arches	26/05/2015 - WTC 2015 7/10/2015 30/11/2015 11 & 12/01/2016
Sprayed Concrete for Permanent Works	23/01/2016
LINNING & WATERPROOFING	
MONITORING	26/05/2015 - WTC 2015
Frequency of Measurements	
Efficient Data Management in Tunnelling	26/05/2015 - WTC 2015 10/03/2016
Remote Measurements	
REHABILITATION	
DESIGN	26/05/2015 - WTC 2015

The Steering Board met physically in Dubrovnik, and Zurich, and in addition several times by conference calls/web conferences.

- AG Excavation

I. Mechanized

Quality Drill & Blast: Document “Vibration Control in Urban Drill and Blast Tunneling” is published at the WTC 2016 in San Francisco.

Two Bachelor thesis works are made, one at Saimaa University of Applied Sciences Technology, Finland, and one at the Mining University of Leoben”, Austria.

Rebuilt Equipment: A guideline, specifying requirements for rebuilding/rebuilt TBMs, was published and presented at WTC2015. A translation into Chinese language ongoing.

Full Section Design Approach: A new subgroup aiming at writing a guideline on full section design as tunnelling method.

- AG Monitoring –

I. Guideline on Measurement Frequencies was published at the WTC 2015 in Dubrovnik.

II. Guideline on Remote Measurements was published at the WTC 2015 in Dubrovnik.

III. Effective Data Management: A new subgroup was formed which will work out a guideline on ‘Effective Data Management in Tunnelling’.

- AG Rehabilitation No progress in this AG.
- AG Support

I. Fibre Reinforced Concrete Precast Segment: – A draft guideline was published shortly after the WTC2015 in Dubrovnik, and final version “ITAtch Guidance for Precast Fiber Reinforced Concrete Segments-Vol.1Design Aspects” is published at the WTC2016 in San Francisco.

II. Bolt and Arches: Guideline – The structure of the working document is finished, the contents are partly filled, the goal is to have a draft version finished for the San Francisco WTC.

III. Sprayed concrete for permanent works: Title changed from “Sustainable Sprayed Concrete” – Good progress now after some initial “hick-ups” in this AG. To produce a 5-page report covering following goals:

- Improved awareness of permanent sprayed concrete applications world wide
- Increased opportunities for commercial benefit through increased size of the market
- Adoption of permanent sprayed concrete to enable more sustainable solutions
- Enable the utilization of single shell linings to reduce costs and improve viability of the tunnelling option
- AG Lining & Waterproofing A comprehensive training program developed.
- AG Design: this AG does not produce own documents, but is involved in many of the other AG topics notably in a peer reviewing role.
- AG Investigation: A new AG was formed with the aim to write a guideline on geophysical probing during excavation. Timeline for the elaboration of the guideline has been established and currently 3 Prime Sponsors participate in this AG.

➤ **ITA Young Member group**

Activities Report

WTC2015 – Dubrovnik, Croatia – May 2015

- The ITA-YM held their first Annual General Meeting with encouraging attendance.
- At the meeting 2 new members of the Steering board were elected by the official representatives of all member nations present.

ITACUS – Netherlands July 2015

- Petr Salak and Jurij Karlovsek met with the ITACUS Chair and Vice Chair to discuss YM involvement in the committee.
- It was agreed that regular contact will occur to foster collaboration between the groups.
- Launched a joint activity group including Young Planners and Young Tunnellers – led by Petr Salak.

ITA Tunnelling Awards – Switzerland – November 2015

- The ITA Tunnelling Awards were held at Hagerbach in Switzerland in November 2015. Two of the ITA-YM Steering Board members were nominated as Young Tunneller of the year (Sindre Log and Jurij Karlovsek). The award was presented to Jurij Karlovsek

BTSYM Conference – March 11, 2016

- Endorsed by ITAYM
- 3 international speakers from the ITAYM mailing list will present at the conference

Main Objectives

- Encourage and support member nations in establishing national Young Members Organisations
- Strengthen the international network between already existing Young Member organisations.
- To make the practical preparations for an ITA Young Members General Assembly at the WTC 2016, San Francisco, USA

Progress Report

The ITA-YM was highly promoted at the WTC2015 in Dubrovnik, and were mentioned in nearly every portion of the General Assembly. The group seemed to be well received by all.

The ITA-YM held their own General Meeting that was well attended by representatives from 18 different member nations.

The ITA-YM networking event, sponsored by Normet, was well attended and provided a great ice-breaker for young professionals (and a few more experienced ITA members) to get to know each other and learn a bit about what the ITA-YM group is about.

The following countries were successful in establishing their own YM groups in 2015: Mexico, Poland, Slovenia, Switzerland.

The ITAYM steering board is hopeful that in San Francisco many young professionals will participate in events specifically organized for young members – this is being organized by the Underground Construction Association of the Society for Mining, Metallurgy, and Exploration Young Members Group (UCAYM) o The ITAYM will share a booth at the exhibition with the UCAYM to promote the aims and objectives of the group.

The Second Annual General Meeting will occur during the WTC2016, April 27, 2016.

ITAYM has begun cooperation with ITACET and they will present at the General Meeting.

The ITAYM and UCAYM will host a Networking Event, where all YM will have the chance to network and foster links between young tunnellers from different countries.

Tickets to this networking event will be distributed to all registrants under 35 when they receive their registration packages.

Young professionals will continue to receive reduced rates for WTC2016 registration.

Participation of Young Members in the Committees and in working groups is strongly encouraged.

The Second Issue of “Breakthrough” Magazine will be distributed at WTC2016.

5 – APPROVAL OF NEW MEMBERS

5.1. Member Nations

The Association has not had new requests for admission.

Vietnam was represented by ITST (Institute of Transport Science and Technology). ITST agreed to a change of representative. The new representative is VIETNAMESE TUNNELLING ASSOCIATION

The number of Member Nations is 73. (Encl. 3)

5.2. Affiliates

5.2.1. Requests for membership

a. Corporate Members: 6

352 Kordsa Global	Turkey
353 Forta Corporation	USA
354 ETA SA	Colombia
355 Arcelormittal Wire Solution	Luxembourg
356 Sormat Oy	Finland
357 Larsen & Toubro Ltd	India

b. Individual Members: 5

410 Olayemi Frederik Olabode	Qatar
411 Eunhye Kim	USA
412 Keith Bannermann	Australia
413 Masoud Zare Naghadehi	Iran
414 Andreas Tauschinger	Qatar

c. The voting delegates of the concerned Member Nations did not object and the General Assembly confirmed these candidatures.

5.2.2. Resignations

a. Corporate Members: 6

126 Pöyry	Austria
191 Cegelec Centre Est	France
227 Jiangsu East China Geological Construction Group Co., Ltd	China
294 Wacker Chemie	Germany
306 Brasfond Fundacoes Especiais S/A	Brazil
315 Smazka.ru LLC	Russia

b. Individual Members: 4

307 Timothy P. Smirnoff	USA
400 Ozturk Ozgur	Hong Kong
405 Rafael Jurado Vazquez	Singapore
404 Irwin Shame	Ireland

5.2.3. Exclusions

The exclusions of Affiliate Members, pronounced for non-payment of the subscription fee for over three years, are the following ones:

- | | |
|---|-------------|
| a. Corporate Members: 7 | |
| 257 SKE&C South | Korea |
| 026 BG Bau | Germany |
| 134 Razel-Bec | France |
| 222 Pöyry Infra Consultoria e Projetos Ltda | Brazil |
| 262 Daelim Industrial Company Ltd | South Korea |
| 309 Drake Underground LLC | USA |
| 314 CJSC Association Engeocom | Russia |
| b. Individual Members: 4 | |
| 307 Timothy P. Smirnov | USA |
| 400 Ozturk Ozgur | Hong Kong |
| 405 Rafael Jurado Vazquez | Singapore |
| 404 Irwin Shame | Ireland |

5.2.4. The number of Affiliate Members therefore reaches 271 (Corporate: 184 – Individual: 87). (Encl. 4 and Encl. 5)

5.3 Prime Sponsors

5.3.1 Admissions

PORR has decided to become Prime Sponsor.

The number of Prime Sponsors therefore reaches 17 (Encl. 6)

The President expressed his gratitude to these companies for having decided to support the Association by becoming Prime Sponsor.

5.4 Supporters

5.4.1 Admissions

Three companies have decided to become Supporters:

- | | |
|----------------------------------|------------|
| 062 Kordsa Global | Turkey |
| 063 Forta Corporation | USA |
| 064 Arcelormittal Wire Solutions | Luxembourg |

The President expressed his gratitude to these 3 companies for having decided to support the Association more actively in becoming Supporters.

5.4.2. Resignations

Five companies have decided to resign as a Supporter:

- | | |
|-----------------------------------|---------|
| 014 Wacker Chemie | Germany |
| 025 Putzmeister | Spain |
| 044 CRCHI –became PS | China |
| 054 Geoconsult ZT GmbH –became PS | Austria |
| 056 Systra | France |

The number of Supporters therefore reaches 57. (Encl. 7)

5.5. ITA COSUF Committee

5.5.1. Requests for membership: 3

- | | |
|--|-----------------|
| 108 Elkuch Bator | Switzerland |
| 109 Enprodes | The Netherlands |
| 110 Avrasya Tuneli Isletme Insaat ve Yatirim | Turkey |

5.5.2. Resignations: 6

024 Eltodo	Czech. Republic
029 Alptransit	Switzerland
048 ConBef AB	Sweden
062 Bast	Germany
072 University of Ljubljana	Slovenia
095 Netivei Israel	Israel

The General Assembly did not present any remarks concerning the 3 additional organizations that have asked to become member of the Committee ITA COSUF; their candidature was approved. (Encl. 8)

5.6. ITA-CET Committee (Encl. 9).

5.6.1. Requests for membership : 0

Last request in 2015 :

E013 Crossrail Ltd	UK
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5.7. ITACUS Committee

5.7.1. Requests for membership: 3

051 Loglay AG	Switzerland
052 Urben	United Kingdom
053 IFSTTAR	France

The General Assembly did not present any remarks concerning the three organizations that have asked to become a member of the Committee Itacus; their candidatures were thus approved. (Encl. 10)

5.8. ITAtech Committee

All Prime Sponsors and Supporters are entitled to be member of ITAtech Committee. At the moment, 18 Prime Sponsors and 56 Supporters are participating actively.

6 – REPORT FROM THE INTERNAL AUDITOR ON THE CONFORMITY OF THE ACTIONS OF THE EXECUTIVE COUNCIL

Since the last General Assembly, notable steps towards the achievement of the strategic goals were made as presented by the minutes of the Executive Council meetings and the extensive report prepared for the General Assembly, that outlines the progress registered.

The seven main lines of strategic development of the Strategy as presented to the Member Nations at the 2014 General Assembly have been followed and scrutinized by the ExCo members in charge of each item. The clear setup of the tasks and goals give a very clear image about the planned activities and of the status of the progress achieved.

Constant review was done during the last year, at the regular ExCo meetings.

The first goal is to Consolidate/Activate Member Nations - particularly newly joined Member Nations.

This goal should be considered of maximum importance and will need further attention in order to address the specific needs of the new member nations as they became an important numeric part of the association and the final result of these actions aim at attaining a better cohesion inside ITA.

The second goal is to Improve Functioning of Working Groups and Committees and Communication between them. A great deal of attention has been granted, in order to accelerate and improve the review process, to facilitate interaction between Working Groups and Committees. A clear procedure of the funding of the WG work has been set up.

Third goal, Expand Industry Relations, has been constantly followed and full agreements with all existing Prime Sponsors and supporters are concluded.

Fourth important goal, encourage knowledge sharing through education and training was also addressed constantly through 8 trainings and workshops but more modern methods such as e-learning and webinars need to be implemented.

Fifth goal, Create and develop an ITA Young Members Group, is now past the creation phase and into the development stage, in order to promote and accommodate the group into our organization.

Sixth goal, promote the use of underground space, was more based on cooperation actions with sister organizations, but a well devised and coherent ITA communication plan and strategy is still ‘under construction’ and needs lots of efforts in order to be implemented effectively.

Last but not least, the seventh goal, improve communication with Member Nations, public agencies and industry, up to now was focused mainly towards improving the relations with the press and the auditor suggests that ITA should use our web site in a more aggressive, innovative and modern manner towards the public, involving the industry and the Member Nations.

As a conclusion, we can definitely say that we have a safe and sound detailed roadmap to follow during the next years.

The usual current businesses of the ExCo continued in plenary meetings as planned, supplemented by ad-hoc meetings of the members of different task forces or by individual assignment of the ExCo members and co-opted experts.

As usual, an important part of the role of the President and ExCo members was to improve and maintain contact with the Member Nations not only by visiting 19 of them but also by keeping a closer contact with them via the Secretariat and by endorsing various national and regional tunnelling events.

Since WTC 2013 an internal information bulletin was regularly issued and sent to Member Nations, WG Animators and Committee Chairs, summarizing the in progress activities that are on the ExCo agenda. These ‘inside information’ were well received by the ITA ‘tunnelling family’.

In conclusion, the activity of the ExCo continued to improve during the last year, based on better schedule, clear assignment of responsibilities, more satisfactory reporting of results, increased transparency, good governance procedures and principles and increased involvement of the main stakeholders.

Based on these conclusions there is a special recommendation of the auditor for the new ExCo, to continue on a similar strategic planning, permanently improved and updated, as to fulfill ITA’s Vision and Mission.

The General Assembly unanimously thanked, Sorin Calinescu for his report to GA.

7 – REPORT OF ACTIVITY OF THE MEMBER NATIONS

Forty-three Member Nations 2015 activity reports were received at the secretariat and were posted on ITA website and during the WTC2016 presented at the ITA Information desk. The reports were coming from following Member Nations:

- | | | |
|-------------|-----------|------------|
| • Argentina | • Egypt | • Norway |
| • Australia | • France | • Poland |
| • Austria | • Germany | • Portugal |
| • Belgium | • Greece | • Qatar |
| • Bhutan | • Hungary | • Romania |
| • Brazil | • Iceland | • Russia |

- Canada
- Chile
- China
- Colombia
- Costa Rica
- Czech Republic
- Denmark
- India
- Iran
- Italy
- Japan
- Korea
- Mexico
- Nepal
- Netherlands
- Saudi Arabia
- Slovenia
- South Africa
- Spain
- Sweden
- Switzerland
- Thailand
- Turkey
- UK

These reports are enclosed to the Minutes (encl. 11).

During the General Assembly, following Member Nation informed the Assembly of their actions:

- Australia
- Austria
- China
- Denmark
- France
- Germany
- Greece
- Guatemala
- India
- Iran
- Italy
- Japan
- Korea
- Malaysia
- Mexico
- Norway
- Qatar
- Russia
- Saudi Arabia
- Sweden
- Switzerland
- Thailand
- Turkey
- UAE
- United States of America
- UK

* Texts are enclosed to the Minutes (encl. 12).

8 – REPORT OF ACTIVITY OF THE ITACET FOUNDATION

Claude Berenguier, Executive Director of the ITACET Foundation, made a short presentation of the activities of the Foundation, on behalf of the Council (encl. 13).

The main objective is to encourage the Education and the Professional Training of specialists in Underground Space Use for the benefits of the emerging countries.

- Portfolio: 20 programmes
 - Mechanized Tunnelling
 - Conventional Tunnelling
 - Sprayed Concrete
 - Health and Safety during Construction and Operation
 - Risk Management
 - Waterproofing
 - Management of User Safety
 - Immersed Tunnels
 - Utility Tunnels in Cities
 - Monitoring and Control
 - Tunnelling Innovation
 - Maintenance and Repair
 - Numerical Simulation
 - Underground Space use
 - Innovations in Tunnelling
 - Site Investigation
 - Design for Tunnelling
 - Calculation Methods for Design
 - Numerical Simulation for Design

- Sustainable Tunnelling
- Sponsorship of Students for postgraduate Master Courses
Foundation sponsored tuition fees for students coming from:
 - Turkey, Vietnam and Ivory Coast in France (INSA-ENTPE)
 - Nepal in Switzerland (EPFL)
 - Argentina, Indonesia and India in Italy (Politecnico di Torino)
 - Nepal and India in UK (Warwick)
- 2015-2016 Realized actions
 - Torino (Italy) - 15 – 16 January 2015 on Conventional Tunnelling
 - Kuala Lumpur (Malaysia)- 28 Feb – 1 March 2015 on Transport in Urban Areas
 - San-ago (Chile) – 23-24 March 2015 on Mechanized Tunnelling
 - Yangon (Myanmar) – 11-12 May 2015 on Tunnelling for infrastructures in Urban Areas
 - Dubrovnik (Croatia) – 22-23 May 2015 on Soft Ground Urban Tunnelling and on Rock Tunnelling in karst (WTC 2015)
 - Guadalajara (Mexico) -29-30 June 2005 on Mechanized Tunnelling
 - Buenos-Aires (Argentina) - 8 Sept. 2015 on Health & Safety during Construction
 - Hagerbach (Switzerland) – 23-24 September 2015 on Waterproofing
 - Shanghai (China)- 17-18 October 2015 on Undersea deep long Tunnels
 - Riyadh (KSA) – 25-26 January 2016 on Tunnelling and Landslides
 - Riyadh (KSA) – 27 January 2016 on Rock fall and Protection techniques
 - Santiago (Chile) – 16-17 March 2016 on Waterproofing
 - Torino (Italy) – 4-8 April – Foundation week for the Master students
 - San Francisco (USA) – 22-23 April on Underground Space Use (WTC2016)
 - San Francisco (USA) – 22-23 April on Monitoring (WTC2016)
- Realized Actions

AWARD

Two Awards are given per year to recognize individuals who gave their time and efforts to support the actions of the Foundation

- In 2014, the Awards were given to Andre ASSIS and to Saudi Arabia through The President of the Foundation, Eng. Abdullah Al MOGBEL
- In 2015, the Awards were given to Koichi ONO and to Ecole Polytechnique Federale de Lausanne
- In 2016, the Awards will be given to Harald WAGNER and to AMITOS, ITA Representative for Mexico

Website: www.itacet.org Visitors from 62 countries

ITACET Foundation is on Linked In

- University page – Join us to :
 - Keep in Touch with your fellow ITACET training course participants.
 - Receive news from our training activities.
- Find us on www.linkedin.com/edu/school?id=4318
Or type: itacet linkedin university in your search engine, the search results will take you there.
- Company page - Follow us to:
 - Extend your professional and social network.
 - Receive news from the Foundation's activities.
- Find us on www.linkedin.com/company/itacet-foundation

Or type: itacet foundation linkedin in your search engine, the search results will take you there.

- Actions under preparation
 - Bhutan (30-31 May 2016) on Tunnel Design
 - Chile (10-11 August 2016) on Health & Safety in Tunnel construction
 - Netherlands (8-9 September 2016) on Immersed Tunnelling
 - Switzerland (15-16 September 2016) : Deminar on Maintenance and Rehabilitation
 - Nepal (29 September 2016) on Risk Management
 - Mexico (20-21 October) on Tunnelling in soft ground
 - Italy (December 2016) on Mechanized Tunnelling – Lessons learned from Case Histories
 - And others under discussion, including for WTC2017 in Bergen
- Results

Since September 2009, the Foundation co-organized 53 Training Sessions all over the world.
The sessions have gathered more than 5500 participants
www.itacet.org

9 – COMMUNICATION FROM THE SISTER INTERNATIONAL ASSOCIATIONS

9.1 World Road Association (PIARC)

Michel Deffayet on behalf of Marc Tesson and Pierre Schmitz presented the report of PIARC.
(encl. 14)

➤ What is AIPCR / PIARC?

PIARC: Permanent International Association of Road Congresses

It was the name of the association from 1909 till 1995

AIPCR : Association Internationale Permanente des Congrès de la Route

Nom de l'association de 1909 à 1995

Now / Maintenant:

World Road Association

Association Mondiale de la Route

➤ PIARC relationship with ITA:

- **Continuing co-operation ITA - PIARC since ITA creation in 1974**
- **Co-operation formalized by a Memorandum of understanding between PIARC and ITA** (*signed in 2005 en updated in 09.2012*)
- **General principles (for road tunnels):**
 - PIARC is leader for: geometry, equipment, operation, safety, environment of road tunnels
 - ITA is leader for: civil engineering, design, construction technology.

➤ 25th PIARC world congress in Seoul

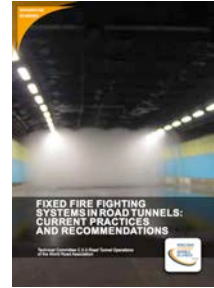
Roads and mobility - Creating new value from transport

- Seoul COEX
- 2-6/11/2015
- 2700 delegates
- from 114 countries
- 6 plenary sessions
- 55 parallel sessions
- 10 workshops
- Poster sessions

- 197 exhibitors

➤ **Congress road tunnel sessions**

- Special session on large structures: Bridges & “Recent major progress in underground construction technologies and main issues associated with operations of complex underground structures”
- Session of the Strategic Theme 3 – Safety
- Session of the Tunnel Technical Committee
- 2 workshops on “How to make the Road Tunnel Manual more efficient for training courses?”
- Poster session



➤ **New technical reports (1/3)**

Best practice for life cycle analysis for tunnel equipment

This report describes how life cycle analysis in the sense of condition analysis should be performed systematically, how system criteria can be used, how aggregation of different criteria should be done and how risk-based methods for system analysis can be applied.

Improving safety in road tunnels through real-time communication with users



This report describes human behavioural aspects when driving, and how to communicate information to tunnel users in normal, congested and critical situations. It details the various systems that can be activated for real-time communication with users. It reviews how these devices can be used in cases of congestion, a serious incident and fire.

Fixed firefighting systems in road tunnels: Current practices and recommendations

Within this report, information is presented about the types of systems available, their use in road tunnels for various countries, and advice provided on the design and selection of appropriate FFFS. Where FFFS are adopted, it is essential that they are correctly designed, installed, integrated, commissioned, maintained, tested and operated & activated in the early stages of a fire to provide the desired effectiveness.



➤ **Technical reports still under publication:**

1. Design fire characteristics for road tunnels
2. Sustainable road tunnel operations
3. Experience with Significant Incidents in Road Tunnels
4. Underground road networks: case studies
 - Summary of the report already available in the Manual
 - 17 case studies (from the 27) already available

➤ **The new PIARC Technical Committees:**

5 Strategic Themes with 17 Technical Committees + 4 Task Forces

ST A: Management and Finance (3 TC + 2 TF)

ST B: Access and Mobility (4 TC + 1 TF)

ST C: Safety (2 TC + 1 TF)

Strategic Theme D: Infrastructure (5 TC)

D.1: Asset Management

D.2: Pavements

D.3: Bridges

D.4: Rural Roads and Earthworks

D.5: Road Tunnel Operations

ST E: Climate Change, Environment & Disasters (3 TC)

+ **Committee on Terminology**

➤ **The TC D5 «Road Tunnel Operations" :**

Cycle 2016-2019: Marc Tesson Chairman

Gary Clark English speaking secretary

Jean-Claude Martin French speaking secretary

Rafael Lopez Guarga Spanish speaking secretary

Six Working Groups:

- WG1: Sustainable operation
- WG2: Safety
- WG3: Human factors and ITS
- WG4: Vehicle emissions
- WG5: Complex road tunnels
- WG6: Knowledge management

Members from all over the world

- 72 members from 33 countries
- 10 WGs associated members

➤ **PIARC Road Tunnel Manual**

- New website with a common layout for the 2 other PIARC web manuals
- Available in 10 languages: *English, French, Spanish + Italian, Japanese, and soon Arabic, Chinese, Czech, Korean and Portuguese.*

➤ **Training in cooperation with ITA-CET**

- A basic set of 3 types of training sessions, on the following topics:
 - Design in tunnelling
 - Construction of tunnels
 - Operation in tunnelling
- + Tailor-made training sessions
- No request for a PIARC participation in training sessions since the 2013 GA in Geneva.
- TC D5 continues to be at the disposal of ITA(-CET) for future participations in training sessions.

➤ **Cooperation for a Tunnel Dictionary**

- 140 terms and definitions translated in 20 languages: ***English, French, Spanish + Arabic, Chinese, Czech, Danish, Dutch, Finnish, German, Greek, Italian, Japanese, Korean, Norwegian, Persian, (Portuguese), Slovene, Swedish and Vietnamese.***
- Translations in progress: 44 new terms and definitions
- Translations available for free on **www.piarc.org**
- Wish for a closer cooperation with ITA for a similar work with terms related to civil engineering, design and construction technology that are under ITA leadership.

➤ **Other action in cooperation with ITA**

- A fire protection report has been prepared by ITA.
- This report was examined in a very detailed way by D5.

- TC D5 sent ITA comments and suggestions in 2015.
- No answer was sent to the TC D5 concerning the follow up.
- TC D5 considers that it is a topic of a great interest and is encouraging ITA to finalise and to publish this report once revised in accordance with the comments and suggestions sent by TC D5.

9.2 International Society for Rock Mechanics (ISRM)

Seokwon Jeon presented the report of ISRM, International Society for Rock Mechanics (see full report in encl. 15)

Introduction to ISRM: Seokwon Jeon, ISRM Vice-President for Asia

➤ Nature of the ISRM

- Non-profit scientific association
- Founded in 1962, in Salzburg, by Prof. Leopold Müller
- The Council represents the National Groups
- The Board, elected by the National Groups, is composed of:
 - the President
 - 6 Regional Vice Presidents
 - 3 Vice Presidents at Large, and
 - the Secretary General

➤ Field of activities

- **Rock mechanics and rock engineering:**
 “is taken to include all studies relative to the physical and mechanical behaviour of rocks and rock masses and the applications of this knowledge for the better understanding of geological processes and in the fields of Engineering.”
 Applied to **civil, mining and petroleum engineering** works

➤ Membership

- **7,797 individual members**
- 147 corporate members
- 60 National Groups (new: Ukraine, Romania, Bulgaria, Iceland, Malaysia)

➤ ISRM Initiatives

- Awards (Müller Award, Fellows, Rocha Medal, ...)
- Commission activities (17 Commissions)
- Suggested testing methods (Blue Book, Orange Book, Video Files)
- Publications (Book series with CRC Press)
- Education (Education Fund, Scholarships, RockBowl, ...)
- Online lectures
- Digital Library
- Multi-lingual Technical Glossary (15 different languages)
- Communication (News Journal, e-Newsletter, web site, Twitter, ...)

➤ Conferences

International Congresses: – 2019, Foz de Iguaçu, Brazil at four years' interval

International Symposia: – 2016, Cappadocia, Turkey yearly
 – 2017, AfriRock, Cape Town, S. Africa

Regional Symposia: – ARMS9 2016, Bali, Indonesia
 – Eurock 2017, Ostrava, Czech Republic
 – ARMS10 2018, Singapore

Specialized Conferences:

- 7th In-Situ Rock Stress Symposium 2016, Tampere, FINLAND
- RockDyn2, Suzhou, CHINA
- GeoSafe 2016: Reducing Risks in Rock Engineering, Xi'an, CHINA

10 - FINANCIAL REPORT FOR 2016

10.1. Closing of the Accounts - Report from the Financial Auditor

The closing accounts for the year 2015-2016 were sent to the Member Nations on April 18, 2016. (encl. 16)

The closing is prepared by the Executive Director and the Treasurer of the Association, while the certification, sent along with the accounts, has been made by the Swiss Auditor DSK, in accordance with the decisions of the 2004 General Assembly, renewed in 2014.

The Treasurer commented on the documents.

ITA balance 2015 – 2016

➤ Comparison with previous year 2014:

- Increase of revenues by 40%
- Increase of expenditures by 45%

➤ Main features:

- Drop in budgeted revenues by approx. 20% and in budgeted expenditures by approx. 15%
Done: revenues 765'719 € / expenditures 723'797 €
Budget: revenues 928'800 € / expenditures 848'050 €
- Final result less than budgeted but still positive
Done: revenues in excess 41'922 €
Budget: revenues in excess 80'750 €

➤ Revenues:

- **Membership**

Slight increase in membership subscriptions due to increase of membership fees (61 countries paid in time)

- **Sponsorship**

Budget reached for Prime Sponsors (16 PS); but less Supporters than planned (46 paying / 60 planned)

- **WTC contribution**

Contribution from WTC 2015 a bit less than budgeted

- **Committees**

ITA COSUF spent more than revenues, but ITA COSUF has large reserves

Revenues of ITAtech less than budgeted, cost of ITAtech dinner has been less than planned.

- **ITA Awards**

Participation at the awards has been less than budgeted. So the income has been less than budgeted (150 PAX / 200 budgeted)

➤ Expenditures:

- **Secretariat**

7.5% less than budgeted (change of secretary)

- **Communication**

Expenditures have increased by 22% (without Awards) (new functionalities of the web, Muir Wood lecture, video on tunnelling works)

- **Committees**

Less than budgeted for ITA COSUF, ITA-CET and ITAtech (cost of ITAtech including Industry dinner is 31'000 €)

- **Awards**

Less than budgeted –the awards have had a cost of 25,000

- **WG**

Less than budgeted – some actions have been postponed.

10.2. Approval of the accounts

The accounts was unanimously approved.

The General Assembly unanimously gave their quitus to the Executive Council and notably to the Treasurer for the financial situation and the management for 2015-2016.

11 – PREPARATION OF THE ELECTION OF EXECUTIVE MEMBERS

President: at the end of the application period, the secretariat didn't receive any candidature. According to By Laws 1.2.b, the retiring President, after discussion with the Executive Council proposed the candidature of **Tarcisio CELESTINO** from Brazil, who accepted to be candidate.

For Vice-presidents the following five candidatures have been received:

- . **Alexandre GOMES**, presented by Chile
- . **Ruth Gunlaug HAUG**, presented by Norway
- . **Nikolaos KAZILIS**, presented by Greece.
- . **Eric LECA**, presented by France
- . **Jinxiu (Jenny) YAN**, presented by China

Executive Council Members: The secretariat received in due time following valid candidacies (more candidacies had been received but they were not eligible according to the By-laws):

- . **Davorin KOLIC**, presented by Croatia
- . **Giuseppe LUNARDI**, presented by Italy
- . **Chungsik YOO**, presented by Korea

The General Assembly had to appoint the Treasurer; the Executive Council proposed the appointment of **Felix Amberg**, presented by Switzerland.

12. PREPARATION OF THE OTHER DECISIONS OF THE GENERAL ASSEMBLY ON WEDNESDAY 27 APRIL 2016

For all these items the Member nations received complete files together with the notice to the General Assembly.

12.1 Modification of the article 1.6.b of the By Laws

The ExCo proposed to modify the article 1.6.b of the By-Laws (*encl. 17*) concerning the procedure of adoption of candidates to the Executive as follows:

The Executive Council proposes to modify the article 1.6.b:

1.6.b The candidates for the office of Executive Council member shall be proposed by a Member Nation, to the Secretariat, at least three months before the date of the General

Assembly, during which the election will take place. Every candidate for this office must at least previously have been the Voting Delegate of a Member Nation, Animateur, Vice-Animateur, **Chair or Vice Chair of the Young Member Group or of a Committee**, or an official Member Nation representative to an ITA working group.

12.2 Presentation of the candidatures for the 2019 General Assembly

The President reminded the name of the four candidates to host the 2019 General Assembly: Austria, Italy, Turkey and United Kingdom.

The four candidates gave a presentation of their respective proposals (Encl. 18, 19, 20, 21,).

ON SUNDAY 24TH APRIL 2016 AT 1.00PM, THE PRESIDENT CLOSED THE FIRST PART OF THE GENERAL ASSEMBLY.

B – ASSEMBLY ON WEDNESDAY APRIL 27, 2016

On Wednesday 27th April 2016 at 1:30PM, the President opened second part of the General Assembly.

13. ELECTION OF THE ITA EXECUTIVE COUNCIL MEMBERS

a) The following **scrutineers** were appointed:

- Hassan Ahmed Al-Marwani Delegate from Qatar
- Rayed Al Arashi Delegate from UAE

b) **Voting delegates:**

Present: 50

Votes by correspondence: 2 (Azerbaijan, Macedonia FYROM),

Votes by proxies: 5 (Bosnie-Herzegovina, Iceland, Myanmar, Serbia, Vietnam),

Absolute majority for the first round is: 29

It is reminded that an absolute majority is needed.

13.1 Election of the President

Tarcisio **CELESTINO** has been elected for 3 years (56 votes).

The Executive Council members give to the new President a right to sign individually.

13.2 Election of the Vice-Presidents

The following candidates have been elected:

Eric **LECA** (47 votes)

Jinxiu (Jenny) **YAN** (44 votes)

Alexandre **GOMES** (42 votes)

Ruth Gunlaug **HAUG** (41 votes)

13.3 Election of the other Council members

The following candidates have been elected:

Chungsik **YOO** (46 votes)

Giuseppe **LUNARDI** (46 votes)

Davorin **KOLIC** (34 votes)

13.4 Nomination of the Treasurer

The General Assembly accepted unanimously the nomination of Felix Amberg as Treasurer following the proposal of **the Executive Council**.

14 – REPORT OF THE OPEN SESSION HELD ON SUNDAY 24 APRIL 2016 TITLE: “INDUSTRY ADVANCES”

The Open Session, which took place on April 26th, was dedicated on “Industry Advances”.

The session chairs: Tarcisio Celestino, Priscilla Nelson and Randall Essex.

The Open Session consisted of two sessions. The first session, chaired by Tarcisio Celestino, focused on recently completed technical reports prepared by Working Groups WG 2, WG 11, WG14 and 19, and two ITtech technical committees as follows:

- WG 2 Research: Twenty Years of FRC Tunnel Segments Practice: Lessons Learned and Proposed Design Principles
- WG 11 Immersed and Floating Tunnels: Owners Guide to Immersed Tunnels
- WG 14/19 Mechanized and Conventional Tunnelling: Recommendations on the Development of Underground Projects with Respect to The Tunnelling Methods
- ITAtech: Guidance for Precast Fibre Reinforced Concrete Segments – Volume 1: Design Aspects

- ITAtech: Vibration Control in Urban Drill & Blast Tunnelling

Presentations were made by the Working Group Animateurs and ITAtech Committee Chairs for each of the completed publications.

The second session, chaired by Priscilla Nelson and Randall Essex, addressed a number of ongoing research efforts by three selected Working Groups:

WG2 Research

- Risk Management – Current Practices
- Fibre Reinforcement of Precast Concrete Segments
- In-Situ Measurements for High Stress Conditions and Pressurized Conveyances

WG3 Contractual Practices

- A review of past contracting practices and why they have not worked to the satisfaction of the stakeholders
- Improved contracting practices from around the world, including Switzerland, South Africa, France, USA, Asia, and Middle East
- ITA's collaboration with FIDIC to develop new FIDIC contract clauses that better address subsurface risk

WG20 – Urban Problems and Underground Solutions

- Political and commercial challenges of developing underground space in urban areas, and lessons learned from past and ongoing projects

Representatives from the three Working Groups engaged with other industry representatives in presentations and panel discussions. The purpose was to solicit comments and feedback from audience members on what had been presented, whether they agreed or disagreed with specific ideas and approaches, what personal experience they had in the topic areas, and what issues they believed should be the focus of future activities by these and other Working Groups.

Of particular note, one owner representative offered that while the working group presentations were focused on technical matters related to analysis and design, her greatest challenges centred on how to best engage the public on large infrastructure projects, particularly informing the public and managing public expectations. All participants acknowledged that this could and should be raised as a theme for a new working group.

The Working Groups are the heart and soul of this organization. WTC events should continue to engage the working groups and delegates in discussion so that working group topics connect with what's on the minds of the delegates at large.

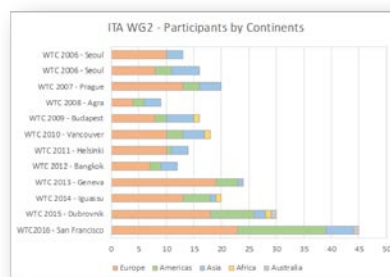
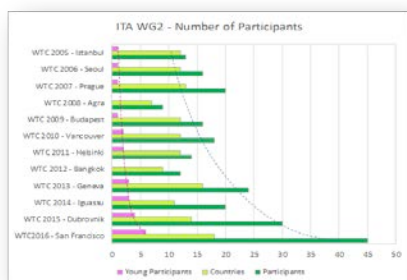
15 – ITA WORKING GROUPS AND COMMITTEES– REPORTS AND PROJECTS OF ACTIVITY

During the WTC, all ITA Working Groups met once or twice to make progress in their ongoing activities and study further possible topics. (Encl. 22)

15.1 – Working Group 2 - Research

Animateur: Chungsik Yoo (South Korea), Vice-Animateur: Elena Chiriotti (France), Tutor: Eric Leca (France) - Report presented by Chungsik Yoo. Report presented by Chungsik Yoo.

- Two meetings held in San Francisco April 24th & 25th
- 45 participants from 16 countries: Australia (3), Austria (2), Belgium (2), Brazil (2), China (1), Colombia (1), Korea (2), Spain (1), France (3), Germany (2), Italy (3), Japan (1), Malaysia (1), Sweden (2), UK (3), USA (14)
- Participants
 - Constant interest in WG2 activities à benefits for broad topics
 - Historic core group facilitating the continuity of the activity
 - Pick of participation in USA
 - Increasing number of Youngers



- On-going Activities
 - Face Support Pressure Calculation in Shield Tunnelling
 - Risk Assessment (Application Guide)
 - In-Situ Stress Measurements
 - Design of Segment Lining
 - Tunnelling-induced Utility Damage
 - Damages of Segmental Lining
 - Selection Criteria for Geophysical Exploration Methods for Tunnelling

Progress at WTC 2016

ONGOING ACTIVITIES	Task Team	Content settled	Proposed structure	1st draft	Final draft	Internal reviewers	Internal review
Face Support Pressure Calculation in Shield Tunnelling							
Risk Assessment (Application Guide)							
In-Situ Stress Measurements							
Design of Segment Lining							
Tunnelling-induced Utility Damage							
Damages of Segmental Lining							
Selection Criteria for Geophysical Exploration Methods for Tunnelling							

Expected progress at WTC 2017 – on going activities

ONGOING ACTIVITIES	Task Team	Content settled	Proposed structure	1st draft	Final draft	Internal reviewers	Internal review
Face Support Pressure Calculation in Shield Tunnelling (*)							
Risk Assessment (Application Guide)							
In-Situ Stress Measurements							
Design of Segment Lining (*)							
Tunnelling-induced Utility Damage							
Damages of Segmental Lining							
Selection Criteria for Geophysical Exploration Methods for Tunnelling							

(*) READY FOR ITA REVIEW BEFORE WTC 2017

Two additional subjects identified during WTC 2016

- Longitudinal joints design for fibre reinforced segmental tunnel linings
- Tunnelling-induced settlement and damage to buildings

HOW DO WE DO ?



We continue to **keep the motivated attitude of members** by encouraging the contribution of individuals through **small Task-Teams within the WG**, each having objectives to achieve and to share with the WG

Expected progress at WTC 2017 – new activities

ONGOING ACTIVITIES	Task Team	Content settled	Proposed structure	1st draft	Final draft	Internal reviewers	Internal review
Longitudinal joints design for fibre reinforced segmental tunnel linings							
Tunnelling-induced settlement and damage to building							

REQUEST FOR FUNDS → DATABASE of VOLUME LOSS

➤ GOING FORWARD

- **Remain a dynamic WG:** needs participants, ideas, dynamism, time and passion
- Continue to **keep the motivated attitude of members** by encouraging the contribution of individuals
- **Encourage the exchange on RESEARCH among continents and cultures**
- Share our achievements: **increase the cooperation with ITA-CET**
- Listen to the needs of the ITA Community: **your suggestions are precious to us!**
- Encourage the Youngers to work with us: **needs new points of view!**

➤ **New Animateur: E. Chiriotti (France), New Vice-Animateur: Ron Tluczek (South Africa)**

15.2 - Working Group 3 - Contractual practices in underground construction

Animateur: Arnold Dix (Australia), Vice-Animateur: Martin Smith (UK), FIDIC/ITA Project Lead: Matthias Neuenschwander, Tutor: Tarcisio Celestino. Report presented by Arnold Dix:

➤ **Mission –Best Practice in subsurface construction contracting**

- 27 active members from 17 Nations from all continents and subcontinents from Developed and Emerging Nations.

This Year we have:

- sent 6000 surveys to the extended ITA community and conducted statistical analysis of the results
- Verified and validated our published checklist statistically
- Developed a web platform for hosting documents.

At WTC We:

- met twice and attended to all tasks
- Actively participated in the open session Presented two papers
- We Are
 - In the last phases of completing the worlds first ITA/FIDIC underground works dedicated contract
 - Completing Edition 2 of the Contractual Practices Checklist
 - Publishing endorsements for many of the worlds leading legal and technical publications from ITA and member nations.
 - Reviewing the latest EU directive on procurement- and intend producing an ITA audit report for the EU parliament
- Our Aspiration: ITA the voice of subsurface contracting excellence.

15.3 - Working Group 5 – Health and Safety in Construction

Animateur: Donald Lamont (UK), Vice-Animateur: Martin Vogel (Switzerland), Tutor: Ruth G. Haug - Report presented by Donald Lamont:

- WG5 met once during WTC 2016
- Dr Donald Lamont, Animateur chaired the meeting. Ruth Haug attended as ITA Tutor.
- Martin Vogel vice animateur was unable to attend for family reasons.
- 7 others attended from Germany, India, Italy, Japan, Switzerland, USA.
- Finland participated by Skype call.
- Report 14 – Refuge chambers
 - WG5 has received a request for clarification of the guideline in respect of the occurrence of flammable gas in the tunnel.
 - WG5 discussed the matter and agreed that the guideline should be amended.
 - **In the event of a tunnel evacuation due to the occurrence of flammable gas the refuge chamber should not be used.**
 - A number of technical requirements to cover explosion protection of the chamber electrical system were identified.
 - The recommendations on training need to include flammable gas occurrences.
- Report 10 – High Pressure - Compressed Air
 - This has been a year in which this guideline has been subject to considerable scrutiny due to its adoption by Hong Kong Labour Dept. for enforcement purposes.
 - A number of omissions and potential modifications have been identified
 - BTS CAWG has already begun addressing these.
 - ITA WG5 hope to draft a revised text for discussion in Bergen
 - Winner of the NCE 2015 “Safety Initiative of the Year”
- WG5 – other matters

- WG5 discussed the current situation with machinery safety standards and was please to note the increased participation by ITA.
- WG5 believes that both its reports 14 and 10 should be translated into other languages such as Spanish and Chinese
- WG5 recommends that ExCo identify important papers presented during the WTC and publishes them on the ITA website

15.4 - Working Group 6 – Maintenance and Repair

Animateur: Henry A. Russell, Vice-Animateur: René van den Bosch, Tutor: Tarcisio Celestino - Report presented by Henry Russell.

The working Group met on Sunday April 24 2016 at WTC in San Francisco California.

There were members from representatives from 10 member nations; Brazil, Germany, Italy, Netherlands, Thailand, Taiwan, United Kingdom and United States of America

A presentation by Mr. Kaz Tabrizi of the United States presented a technical paper on the use of LIDAR Combined with Infra-red to inspect tunnel liners and to document the physical condition of the liner.

In addition to the LIDAR the use of Infra sensing identified groundwater intrusion by the thermal sensing.

This approach to identify leakage is a breakthrough in the industry and the Working Group desires to place Descriptions and illustrations of this system in our upcoming publication Control of Groundwater Intrusion in Operating Tunnels.

The Working Group is currently continuing our work on the Control Of Groundwater Intrusion in Operating Tunnels. The progress has been steady and the first chapter of the document is complete.

The Working Group Discussed the progress of the review of the last document ***Recommendations for Structural Fire Resistance in Road Tunnels***, which was submitted in Geneva in 2013.

Review Comments were received early in 2014 and were addressed in Brazil in 2014.

In 2015 and resubmitted to the Secretariat for review and comment from the Reviewers.

This document has comments, been sent to PIARC for the Working Group is concerned about the length of time to review the document.

Moving forward, the Working Group is willing and motivated to cooperatively work with whichever delegation. Delegation from PIARV, CETU ITA to address any concerns gets aligned and publishes the document.

Working Group had two documents successfully developed and approved in the past. One of which ***Guidelines for Structural Fire Resistance for Road Tunnels*** was adopted by the National Fire Protection Association (NFPA) was adopted in NFPA 502 in regard to fire protection levels for tunnel liners. This was a significant recognition of the work produced by the Working Group. The Working Group wishes to continue is valuable work, in developing guidelines for numerous needs for operating tunnel owners and operators.

Those Include:

- Seismic reinforcement
- Waterproofing repairs
- Technical Advances for inspection
- Review of new repair materials
- Facility management in regard to maintenance
- Structural repairs
- Maintenance and frequency recommendations

The Working Group looks forward to working with other Working Groups and Committees to advance the state of the art in Maintenance.

15.5 - Working Group 9 – Seismic effects

Animateur: Giorgio Piaggio (Chile), Vice-Animateur: Wenge Qiu (China), Tutor: Daniele Peila (Italy) - Report presented by Giorgio Piaggio. Report presented by Giorgio Piaggio

Summary of Activities:

– Sunday 24th the WG met with the following attendance:

Japan (2)

Norway (1)

Italy (1)

China (2)

Chile (1)

US (4)

Brazil (1)

Canada (1)

Australia (1)

TOTAL 14

➤ Summary of Activities:

– Presentations from WG members:

- Tai Tien Wang (National Taipei University of Technology): *Instrumentation and monitoring under seismic loads.*

- Gary Kramer (Hatch): *Regional Connector for the LA Metro.*

- Youseff Hashash (University of Illinois): *Interaction between buildings and tunnels under seismic loads.*

- Giorgio Piaggio (Pacific Hydro): *Design and construction of two new Metro Lines in Chile.*

– Discussions regarding to:

- How to improve the voluntary work for the WG.

- Publication in the short-medium term: WG report on seismic design in different areas of the world. We will present the work that is being done regarding to design, instrumentation, testing and risk assessment.

– Draft at the end of this year.

- General recommendations for seismic design.

We invite all people interested on this important topic to take contact and share their experience and knowledge.

15.6 - Working Group 11 – Immersed and Submerged Floating Tunnels

Animateur: Jonathan Baber (UK), Vice-Animateur: Eelco van Putten (Netherlands), Tutor. Report presented by Jonathan Baber

➤ Report from meetings:

– 32 attendees from 10 countries across

- Europe, N. America and Asia

- Both Sunday and Monday meetings
- Work plan developed for coming year
- 9 project and technical reports both on immersed and submerged floating tunnels



- Achievements 2015-2016
 - Owner's guide to immersed tunnels:
 - 3rd edition of ITA report no.7 published: 13 new appendices + update of main document.
 - Drafts for 4th and final edition of ITA report no. 7 well progressed.
 - Owner's guide to immersed tunnels:
 - 27 Annexes now complete
 - Environmental paper published
- Plan for 2016-2017:
 - SFT Owners Guide
 - First draft will be completed and will undergo review.
 - Immersed Tunnel Owners Guide (ITA report no.7):
 - Publication of 4th Edition by WTC2017 with all 45 Annexes complete.
 - Transfer immersed tunnel catalogue to WG20 database.
 - Commence construction risk information paper.

15.7 - Working Group 12 – Sprayed Concrete Use

Animateur: Eivind Grov (Norway), Vice-Animateur: Stefan Bernard (Australia), Tutor: Nikolaos Kazilis (Greece) - Report presented by Eivind Grov:

- Meeting on Sunday afternoon

33 participants from 17 members nations: Australia, Brazil, Canada, Denmark, France, Finland, Germany, India, Italy, Japan, Luxemburg, Norway, South Africa, Turkey, UK, UAE, U.S.A.
- Current Activities, prioritised by the WG
 - Fiber-reinforced sprayed concrete

The document is now reduced to a shorter and precise document, with a solid list of references. Ready to be reviewed internally in the WG in very short time, then to be sent to ExCo 3rd Q of 2016.
 - Sprayed concrete durability

Paper will go to an internal review by the WG tomorrow, then to the ExCo in 3rd Q of 2016.
 - Quality control

Have had internal discussions in Europe following WTC2015, persons are appointed for this task but no progress reported this year.
 - Permanent sprayed concrete lining

To be coordinated with ITA-Tech and submit to ExCo in 2nd Q 2017.
- Other issues to work with in the WG
 - Coordination and liaison with ITA-Tech

At this meeting we were lucky to have a representative from the ITA-Tech in the WG meeting which was really appreciated. A document from WG will be a joint document with ITA-Tech.
 - Management plan of WG12

Management plan for WG12 has been further developed. The main purpose is to activate members, encourage them to take on tasks on behalf of ITA & allow them the credit when documents are presented.

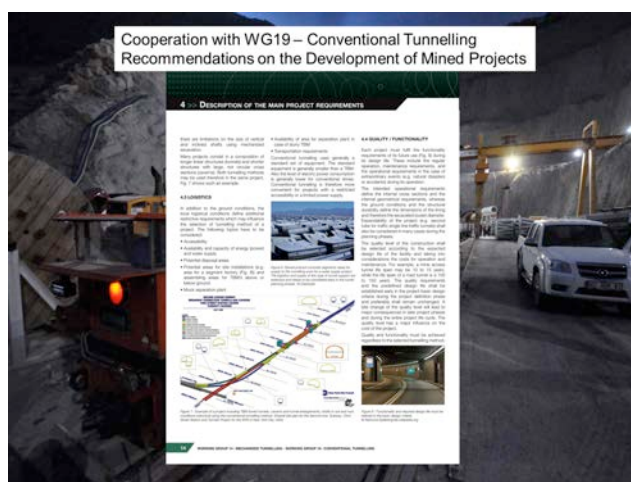
- **Communication architecture**

Distribution is a challenge. A drop-box to serve for exchange of documents, but even more modern means on management system was discussed to improve communication internally.

15.8 - Working Group 14 – Mechanized tunnelling

Animateur: Lars Babendererde (Germany), Vice-Animateur: Brian Fulcher (USA), Tutor: Rick Lovat (Canada) - Report presented by Lars Babendererde:

- Annual meeting 2016 in San Francisco: 27 attendees from 11 countries
- Cooperation with WG19 – Conventional Tunnelling: Recommendations on the Development of Mined Projects



- Productive brainstorming to look for new tasks and publications and collaborations with other WGs.
 - Meanwhile we are continuing to elaborate on the ongoing projects:
 - Major Projects
 - Key Reference Material
- **Election of a new Animateur Brian Fulcher (USA) New Vice-Animateur: Karin Bäßler (Germany).**

15.9 - Working Group 15 – Underground and Environment

Animateur: Jan K. G. Rohde (Norway), Vice-Animateur: Nikolai Bobylev (Russia), Tutor: Anna Lewandowska (Poland) – Report presented by Jan Rohde

- Meeting Sunday 24th April
 - 7 members representing 7 nations: Canada, Italy, Japan, Poland, Taiwan, USA, Norway
 - Main topic: Draft Report on Handling of excavated material March 2016 issue, to be revised (minor adjustments) and reviewed, review team to be selected by ExCo ITA

- Next topic: Noise and vibrations to commence, duties distributed

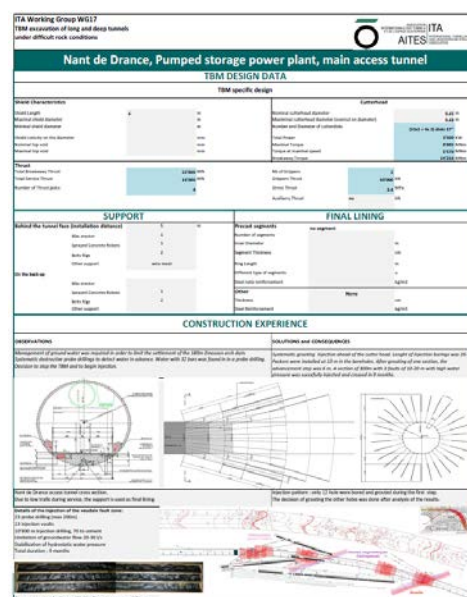
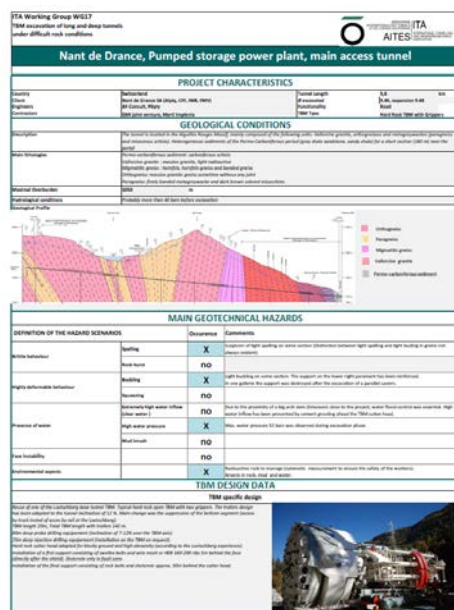
➤ Proposed Time Schedule Excavated Material:

- Draft report, minor adjustments May 2016
- Draft Final Report to ExCo May 2016
- Final Report September 2016
- Noise and vibrations to follow closely

15.10 - Working Group 17 – Long tunnels at great depth

Animateur: Gérard Seingre (Switzerland), Vice-Animateur: Magali Schivre (France), Tutor: Jinxiu (Jenny) Yan (China) – Report presented by: Gerard Seingre

- 4 intermediate meetings in Europe during last year
- 2 meetings in San Francisco
- 14 members from 9 different countries: China, France, Italy, Japan, Korea, Norway, Saudi Arabia, Switzerland and USA
- 7 of the attendees were former members to the WG
- Presentations on projects and review of state of advancement of exiting project:
 - Follo Line Project in Norway
- Final lecture of the report in 2 meetings:
 - **TBM excavation of long and deep tunnels under difficult rock conditions**
 - Often long discussions to find an agreement
 - Opinion's confrontation is very interesting
 - **80% done**
 - It will be finished by web meeting
 - Goal: send report for peer review in September
- Progress in the constitution of the associated data base



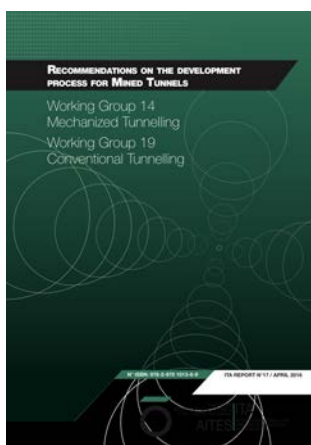
15.11 - Working Group 19 – Conventional Tunnelling

Animateur: Heinz Ehrbar (Switzerland), Vice-Animateur: Robert Galler (Austria), Tutor: Alexandre Gomes (Chile) - Report presented by Heinz Ehrbar:

- Overview on the meeting
 - Sunday April 24, 2016, 14:15 – 16:45
 - Meeting chaired by Heinz Ehrbar
 - 18 delegates representing 11 nations
 - Main Topics:
 1. **Review on ITA WG 19 activities**
 - Meeting at Dortmund
 - Recommendations on the development process for mined tunnels
 - List of publications
 2. **Election of a new animator => Nasri Munfah, USA**
 3. **Presentations from member nations Jairo Pascoal, Brasil**
 4. **New Projects for WG 19**
- **ITA Report # 17 – it's done !**

Content

 1. Glossary
 2. Summary
 3. Introduction
 4. Description of the main Project Requirements
 5. Project Definition Phase
 6. Design Phase
 7. Preparation for Construction (Tender Phase)
 8. Tasks during the Construction
 9. Brief Conclusions
 10. References
 11. Annex – List of typical and exceptional Projects



➤ Publications of WG 19 since 2004

ITA Report	Title	Year of publication
2	Conventional Tunnelling General Report of the ITA WG 19	2009
13	Guidelines on Special Aspects in Contracts for Conventional Tunnelling	2013
17	Recommendations on the development process of mined tunnels	2016

Elaborating Publications in Working Groups needs time!
The final document represents the opinion of the member nations.
It's worth to invest the time needed!
Many thanks to all delegates and ExCO-members
and the ITA-Secretariat who always supported our work!

➤ Discussion about new Projects

Guidelines for the Design and Implementation of Conventional Tunnelling in Difficult Ground	✓
Performance of Conventional Tunnelling (incl. case studies), Contribution to ITA-Database	will be supported under clear boundary conditions (e.g. quality assurance)
General conditions for tunnelling (FIDIC) with respect to conventional tunnelling	will be followed up
Risk management / risk sharing	✗
Industrialisation (Robotics) and Digitalisation in Conventional Tunnelling	postponed

Member nations are requested to give a stronger support to the working groups, e.g. by creating **national mirror groups**!

➤ New Animateur: Nasri Munfah (USA)

15.12 - Working Group 20 – Urban Problems – Underground Solutions

Animateur: Wout Broere (Netherlands), New Vice-Animateur: Damian McGirr (UK),
Tutor: In Mo Lee (South Korea) - Report presented by Wout Broere:

- 18 participants with 10 countries represented: The Netherlands, Korea, France, Italy, Australia, UK, USA, Japan, India, Norway
- Highlight the solutions the underground can bring:
 - Get more people involved
 - Bring it to a wider audience
 - Set up a web-based survey and search-able database of urban underground
- Presentations on Mumbai Metro Line 3
 - ThinkDeep UK



- Discussed the workflow of the project database at <http://wg.ita-aites.org>



➤ Panel discussion in the Open Session

- *Success in Urban Underground Space*

- What key factors are needed to make UUS project successful?
- Can we identify the indirect benefits of UUS that drive its success?
- Can these benefits be included early on in the decision making process when considering above ground and underground alternatives?
- How do we communicate success in UUS?

15.13 - Working Group 21 – Life Cycle Asset Management

Animateur: Martin Muncke (Austria), Vice-Animateur: Laetitia d'Aloia-Schwartzentruber (France), Tutor: Soren Degn Eskesen (Denmark) - Report presented by Martin Muncke:

- 13 colleagues (from AT, AU, DE, DK, FR, IT, JP, NL, NO, SE, US) met here in San Francisco in a meeting to discuss the items of the working group.
- The main focus of this WG will be the preparation of guidelines for the owners of tunnels to support the “Life Cycle Asset Management”.
- We had a presentation from France, CETU about the current state of art in France.
- Due to some problems with the communication between ITA and the WG as well within the WG the work couldn't go forward as planned.
- The WG prepared a questionnaire which will be distributed to the ITA Member Nations to get some national demands and solutions.
- The WG is proposing a strong cooperation with BIM activities in particular creating a new WG for this item.
- Report II
 - We had also a very good discussion about the different aspects of the work. We discussed also the content of our guideline and the contributions of some WG members.
 - The providing of a communication platform is necessary

➤ Work plan 2016-2017

Working Groups and Committees			2016				2017				2018			
Working Groups	Animateur	Tutor	1	2	3	4	1	2	3	4	1	2	3	4
21 Life Cycle Asset Mgmt	M. Muncke	S. Eskesen												
Guidelines for owners														
checklists														
Progress Report submitted														
Progress Report requests addressed														
e-Meetings/Conf Calls														

15.14 – ITA COSUF Committee – ITA Committee on Operational Safety in Underground Facilities

Chair: Roland Leucker (Germany), Vice-Chair: Max Wietek (Switzerland), Tutor: Felix Amberg (Switzerland) - Report presented by Roland Leucker.

➤ ITA COSUF supporting organisations

- *The first committee of ITA founded in 2005 GA Istanbul*
- *Supported by PIARC the World Road Association*
- *Memorandum of Understanding (PIARC/ITA)*
 - *ITA = supporting organisation*
 - *Co-ordination with PIARC activities*
 - *PIARC represented in COSUF Steering Board*
 - *COSUF represented in PIARC Committee 3.3*

➤ Strategic positioning

A particular role in underground safety/security:

- Scope: covers all underground facilities
- Membership: authorities, consultants, research, industry, contractors, operators, safety officers, etc.
- Focus: devoted to underground safety/security only

ITA COSUF is unique and should be the platform for communication on operational safety and security underground

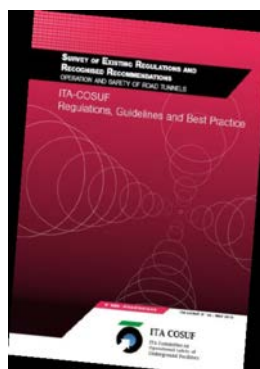
➤ Activity groups

- 4 AG's open to all ITA COSUF members
- 2 meetings per year at ITA COSUF workshops
 - AG 1: Interaction with European and international activities
 - AG 2: Regulations and best practice
 - AG 3: Research and new findings
 - AG 4: Road Tunnel Safety Officers

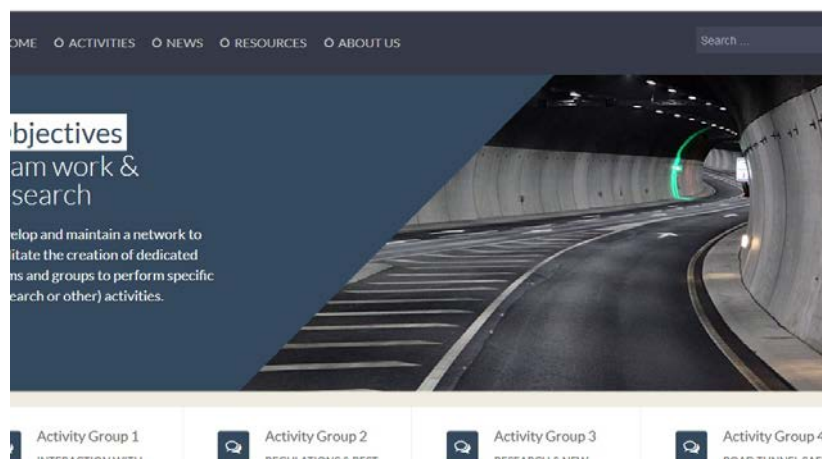
For more information: www.ita-cosuf.org

Latest publications

- “An Engineering Methodology for Performance-Based Fire Safety Design of Underground Rail Systems”.
- Survey of Existing Regulations and Recognised Recommendations (on Operation and Safety of Road Tunnels). Updated version with links to regulations.
- Available on the website.



- **Private Workshops**
 - One private workshop per year (reserved for members)
 - 29 Oct. 2015 in Hamburg: Visit of Elbe Tunnel and Metro operation centre; Ventilation demonstration in a closed tunnel tube
- **ITA COSUF - TSO Forum**
 - 4th European Road Tunnel Safety Officers Forum (Rotterdam) 2016, supported by PIARC & European Commission
 - Next Forum: London 2018 Other events endorsed by ITA COSUF
- Other events endorsed by ITA COSUF
 - ISTSS 2016, Montreal, 16-18 March 2016
 - International Symposium on Tunnel Safety and Security
 - ISAVFT 2015, Seattle, 15-17 September 2015
 - International Symposium on Aerodynamics, Ventilation & Fire in Tunnels
- **Future activities**
 - Next private workshop: Helsinki (FI), 25/26 October 2016, together with General Assembly of COSUF
- **ITA COSUF Award**
 - 2014 Winner: Francesco Collella (33 years old) for his work on Modelling Tunnel Ventilations
 - 2015 Winner: Karl Fridolf (28 years old) for his thesis on Evacuation in Rail Tunnels.
 - 2016 Winner: will be announced during autumn workshop
- **ITA COSUF New Website**
www.ita-cosuf.org



15.15 – Committee ITA-CET

Chair: Robert Galler (Austria), Vice-Chair: Michel Deffayet (France), Tutor: Daniele Peila (Italy) - Report presented by Michel Deffayet:

- 2 parallel 2-days training courses (~ 70 attendees)

Topics:

1) Monitoring and control in tunnelling

2) Underground space use

(organized by ITA-CET Commi2ee/ITACET Foundation/UCA of SME)

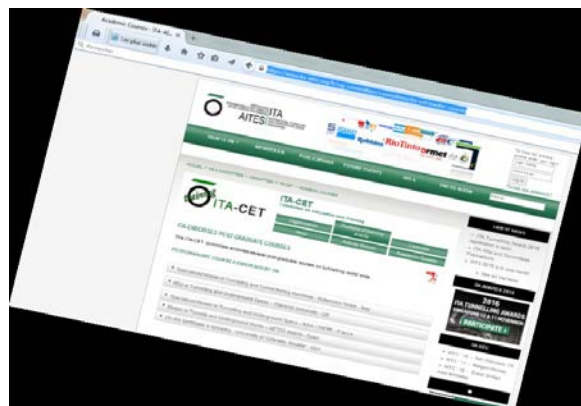
ITA-CET Committee Meeting on Monday 25th of April 2016

- **How to reinforce the network of member nations and WG's and committees**
 - New topics (including involvement of WG's)
 - Organizations who were once in contact with ITACET are automatically coming into ITA-CET network
 -and to be active for ITACET communication
- Portfolio – 20 programmes
 - Mechanized Tunnelling
 - Conventional Tunnelling
 - Sprayed Concrete
 - Health and Safety during Construction and Operation
 - Risk Management
 - Waterproofing
 - Management of User Safety
 - Immersed Tunnels
 - Utility Tunnels in Cities
 - Monitoring and Control
 - Tunnelling Innovation
 - Maintenance and Repair
 - Numerical Simulation
 - Underground Space use
 - Innovations in Tunnelling
 - Site Investigation
 - Design for Tunnelling
 - Calculation Methods for Design
 - Numerical Simulation for Desing
 - NEW: Sustainable Tunnelling
- University Work



▶ Austria - University of Leoben
▶ Brazil - University of Brasilia
▶ Brazil - University of São-Paulo
▶ China - Tongji University
▶ China - Southwest Jiaotong University
▶ France - Ecole Nationale des Travaux Publics de l'Etat
▶ Germany - Ruhr University, Bochum
▶ Italy - Politecnico di Torino
▶ Netherlands - Delft University of Technology
▶ Norway - Norwegian University of Science and Technology
▶ Slovenia - University of Ljubljana
▶ Switzerland - ETH Zurich

- Relationship with industry
 - Deminar
 - Next deminar : Life cycle management
- Communication



- **Actions under preparation**
 - Bhutan (30-31.05.2016) Tunnel Design
 - Netherlands (6-9.09.2016) Immersed Tunnelling
 - Switzerland (15-16.09.2016) Deminar on Maintenance and Rehabilitation
 - Nepal (09 or 10.2016) Contracts and Risks
 - Italy (12.2016) Mechanized Tunnelling – Lessons learned from Case Histories
 - And others under discussion, including for WTC2017 in Bergen

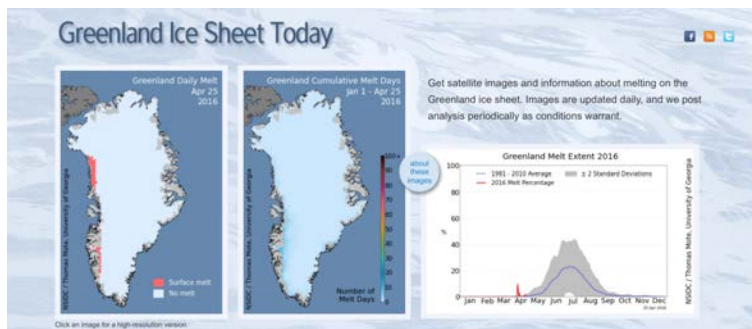
15.16 – Committee Itacus – ITA Committee on underground space

Chair: Han Admiraal (Netherlands), Vice-Chair: Antonia Cornaro (Switzerland), Tutor: Amanda Eliooff (USA) - Report presented by Han Admiraal.

OUT OF TOUCH – Greenland Icecap



Unusual early ice melt



On relevance: are we in denial or are we meeting the challenge?

- ITACUS activities
 - URBAN UNDERGROUND FREIGHT
 - YOUNG PROFESSIONALS' THINK DEEP PROGRAMME
 - NATIONAL LEVEL ACTIONS – THINK DEEP UK

How the children will remember us?. AS THE GENERATION THAT DESTROYED OUR PLANET OR AS THE GENERATION THAT STARTED TO BUILD THE FUTURE WE WANT WITH THE CITIES WE NEED.

15.17 – ITAtech Committee

New Chair: Pauli Arenram (Sweden), Tutor: Rick Lovat (Canada) - Report presented by Chair, Pauli Arenram:

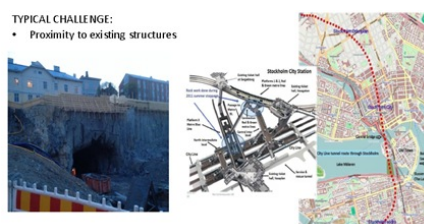
- Functioning of the Committee
 - The ITAtech activity groups include all processes related to underground construction such as Investigation, Excavation, Support, Lining and Waterproofing, Installation and Interior works, Monitoring, Rehabilitation, and Design.
 - 7 Activity Groups (9 sub-activity groups)
 - Investigation
 - Excavation
 - Support
 - Lining & Waterproofing
 - Monitoring
 - Rehabilitation and Design

- 7 reports have been published since the conception of ITAtech
- Physical meetings and WEB/Phone conferences

➤ AG EXCAVATION

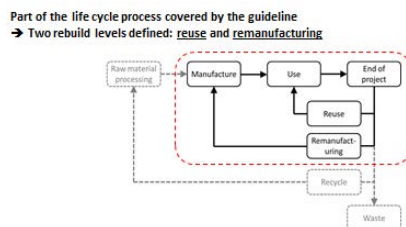
- SUB AG - Quality in Drill & Blast

- Guideline on “Vibration Control in Urban Drill and Blast Tunnelling”
- **Published at WTC2016**
- Significant input from two Bachelor thesis :
 1. Saimaa University of Applied Sciences Technology (Fi)
 2. Mining University of Leoben” (At)



- SUB AG – Rebuilt Equipment

- Guideline for rebuilt TBMs
- Published at WTC2015
- Translation to Chinese made



- **SUB AG - TBM operator certification: NEW!**
- WIP

➤ AG MONITORING

- **SUB AG – Effective Data Management in Tunnelling**
- Produce a guideline to WTC2017

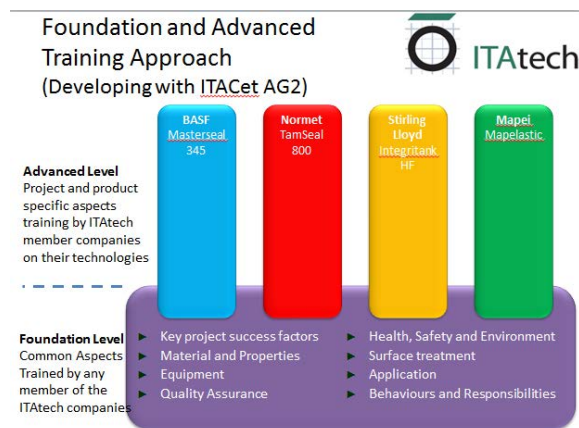
➤ AG SUPPORT

- **SUB AG - Fibre Reinforced Concrete Precast Segments**
 - Draft guideline published at WTC2015
 - Final guideline Vol 1 published at WTC2016
 - Vol 2 Work in Progress
- **SUB AG - Bolts and Arches**
 - Presentation on ITAtech Session at WTC2016

- Guideline Work in Progress
- **SUB AG – Permanent Sprayed Concrete**
 - Guideline Work in Progress in cooperation with WG12

➤ **AG LINING & WATERPROOFING**

- An extensive training package produced



- **Some fine-tuning Remains**

➤ **AG REHABILITATION**

- Work started 2013
- Project stuck and stopped

➤ **AG DESIGN**

- AG Design is not producing guidelines
- AG Design is involved into most ITAttech topics, as peer reviewer

➤ **NEW ACTIVITY GROUPS**

- NEW! Investigation: Geophysical Ahead Investigation Methods

➤ **SUMMARY 2014 – 2015**

- 1 AG stopped
- 1 new sub-activity group started
- 2 guidelines completed

15.18 – ITA Young Members Group

- Steering Board for period 2016-2018

Chair: Sindre **LOG** (Norway)

Vice-Chair: Lasse **VESTER** (Denmark)

Immediate Past Chair: Jurij **KARLOVŠEK** (Australia)

Members:

- Nichole Boulton (Canada)
- Senthil Nath (Singapore)

- Giuseppe Maria Gaspari (Italy)
- Doris Frank (Slovenia)
- Joanne Sui (United Kingdom)

➤ **2015 – 2016 Activities Report Summary**

- Encourage and support member nations in establishing national Young Members organizations
- Organization of the 2nd ITA YM General Meeting at WTC2016
- Organization of a networking event for all Young Member participants at WTC2016
- Creation of ITAYM Magazine – Breakthrough 2
- WTC2015 – Dubrovnik, Croatia – May 2015
 1. The ITA-YM held their first Annual General Meeting with encouraging attendance.
 2. At the meeting 2 new members of the Steering board were elected by the official representatives of all member nations present.
- ITACUS – Netherlands July 2015
 1. Petr Salak and Jurij Karlovsek met with the ITACUS Chair and Vice Chair to discuss YM involvement in the committee.
 2. It was agreed that regular contact will occur to foster collaboration between the groups.
 3. Launched a joint activity group including Young Planners and Young Tunnellers – led by Petr Salak.
- ITA Tunnelling Awards – Switzerland – November 2015

The ITA Tunnelling Awards were held at Hagerbach in Switzerland in November 2015. Two of the ITA-YM Steering Board members were nominated as Young Tunneller of the year (Sindre Log and Jurij Karlovsek). The award was presented to Jurij Karlovsek
- BTSYM Conference – March 11, 2016
 - Endorsed by ITAYM
 - 3 international speakers from the ITAYM mailing list will present at the conference

➤ **NETWORKING MEETING WITH UCA OF SME YM**

- Organisation of a networking event for all Young Member participants at WTC2016
- Monday 25th April (20:00 – 23:00) – 150+ participants
- New ITAYM Member Nations Representative: Austria, Switzerland, Slovenia and Mexico
- All together 30 Member Nations Young Members

ITA BIM Workshop

A workshop has been held on Monday, 25th April 2016 from 14:00 to 17:30 at The Moscone Centre. Chair by Dr Jurij Karlovšek

112 participants from 23 countries participated. All information is in the encl. 23

16 – APPOINTMENT OF THE AUDITOR OF THE CONFORMITY OF THE ACTIONS OF THE EXECUTIVE COUNCIL

The Member Nation Romania proposed Sorin Calinescu as auditor; no other candidates.

The General Assembly unanimously confirmed the choice of S. CALINESCU for the year 2016.

17 – PREPARATION OF THE GENERAL ASSEMBLIES 2017 AND 2018

17.1 – Assembly 2017

Heidi Berg presented the progress of the preparation of the Congress 2017 in Bergen (NOR); this presentation did not give rise to any remarks from the Member Nations. (See Encl. 24)

17.2 - Assembly 2018

Eng. Salma Almaamari presented the progress of the preparation of the Congress 2018 in Dubai (UAE); this presentation did not give rise to any remarks from the Member Nations. (See Encl. 25)

18 - APPOINTMENT OF THE THIRD MEMBER OF THE SURVEILLANCE COUNCIL (STATUTES – SECTION X)

The General Assembly appointed the third member of the Surveillance Council, in accordance with the Statutes § 10.3.

The surveillance council is composed of three persons: - The Association Antepenultimate President (Past-past President): In-Mo Lee (Korea)

- The Internal Auditor: Sorin Calinescu (Romania)

- A third person chosen by ITA General Assembly – The General Assembly appointed unanimously Markus **THEWES** (Germany)

19 - MODIFICATION OF THE ARTICLE 1.6.B OF THE BY LAWS

The General Assembly accepted the modification of the Article 1.6 of the By Laws: 55 in favour and 2 against (see encl. 16).

20 – APPROBATION OF THE BUDGET FOR 2016

The budget for 2016-2017 (Encl. 26), sent to the members with the invitation to the General Assembly, was presented and commented by the Treasurer.

Revenues:

- Increase to 17 PS (before 16)
- 5k€ from Norway for ITA Young Members
- WTC Fees in line with WTC 2016 budget
- ITAtech revenues coming from Industry dinner (75 k€)

Expenditures:

- Control of costs of personnel but increase of meetings costs and office costs
- Slight increase of communication costs

- Incorporation of awards
- ITAtech expenditures

The General Assembly unanimously approved the budget for 2016-2017.

21 – DRAFT BUDGET 2017

The draft budget for 2017-2018 (Encl. 27) also sent with the invitation to the General Assembly, was shortly commented by the Treasurer. It shows an increase in revenues of (vs budget 2015/2016) and of expenditures (3.5%).

22 - CHOICE OF THE PLACE FOR THE GENERAL ASSEMBLY 2019

b) The following **scrutineers** were appointed:

- Hassan Ahmed Al-Marwani Delegate from Qatar
- Rayed Al Arashi Delegate from UAE

c) **Voting delegates:**

Present: 50

Votes by correspondence: 2 (Azerbaijan, Macedonia FYROM),

Votes by proxy: 5 (Bosnie-Herzegovina, Iceland, Myanmar, Serbia, Vietnam),

Absolute majority for the first round is: 29

It is reminded that an absolute majority is needed.

c) The votes gave following **results**:

	1 st round	2 nd round
Austria	9	10
Italy	24	29
Turkey	7	
United Kingdom	16	16

Italy will organize the World Tunnel Congress and the General Assembly of the Member Nations in May 2019 in Naples.

23 – OTHER BUSINESS

23.1 Presentation of the President Søren Degn

A Power point presentation of Søren Eskesen as ITA President (2013-2016) has been shown to the General Assembly. He has been thanked for his hard work and leadership during this period.

23.2 Muir Wood Lecture 2017

Hakan Stille (Sweden), based on proposal by the Member Nation, has been selected by the Executive Council to deliver the Muir Wood lecture during the WTC 2017 in Bergen.

23.3 Speech of Tarcisio Celestino

Tarcisio Celestino, the new elected President, thanked the General Assembly and presented this speech:

“I want to thank the delegates who have just given me an expressive vote to become the next ITA President. I feel honored, even though I understand this is not an honoring position. I am aware that being ITA President requires energy and dedication for the good of the Association and for the growth of the tunneling industry. I will do my best for these purposes”.

24 – CLOSING ADDRESS

The President Søren Degn Eskesen declared the 42st General Assembly officially closed.

The President

A handwritten signature in blue ink, appearing to read 'S. Degn Eskesen', written in a cursive style.

Søren Degn Eskesen

The Executive Director

A handwritten signature in blue ink, appearing to read 'O. Vion', written in a cursive style.

Olivier Vion