

**ASSOCIATION INTERNATIONALE DES
TUNNELS ET DE L'ESPACE SOUTERRAIN**

**INTERNATIONAL TUNNELLING AND
UNDERGROUND SPACE ASSOCIATION**

Compte-rendu de la 45^{ème} Assemblée Générale

Naples, Italie

5 – 8 Mai 2019

Minutes of the 45th General Assembly

Naples, Italy

5 – 8 May 2019

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The 45th meeting of the General Assembly of the Member Nations of ITA was held in Naples (Italy) on 5 and 8 May 2019 under the Presidency of Mr. Tarcisio B. Celestino (Brazil), assisted by the Executive Council Members (see encl. 0) and the Executive Director.

VOTING REPRESENTATIVES

South Africa	Ron Tluczek-
Albania	Adrian Tola / Proxy given to Turkey (2 nd part)
Algeria	--
Germany	Roland Leucker
Saudi Arabia	--
Argentina	Oscar Vardé
Australia	Ed Taylor
Austria	Robert Galler (1st part) and Wolfgang Stipek (2nd part)
Azerbaijan	Shaik Efendiyev
Belarus	Valery Chekanau
Belgium	Johan Mignon
Bhutan	Dorjee Tashi
Bolivia	Marcelo Alfaro
Bosnia-Herzegovina	Mehmed Mesihovic
Brazil	Jairo Pascoal
Bulgaria	--
Cambodia	--
Canada	Erik Eberhardt
Chile	Giorgio Piaggio
China	Yungchong Guo
Colombia	Andrés Marulanda
Republic of Korea	Hangseok Choi
Costa Rica	Proxy to Mexico
Croatia	Davorin Kolic
Czech Republic	Ivan Hardina
Denmark	Lasse Vester
Egypt	Ashraf Abu-Krisha
United Arab Emirates	--
Ecuador	Piergiorgio Grasso
Spain	Miguel Fernández-Bollo (1 st part), Daniel J. Matutes (2 nd part)
USA	Michael Roach
Finland	Janne Lehto
France	Michel Deffayet
Greece	Ioannis Fikiris
Guatemala	Fridolin Birk
Hungary	Tibor Horvath

India	Suresh Sharma
Indonesia	--
Iran	Siamak Hashemi
Iceland	--
Israel	--
Italy	Andrea Pigorini
Japan	Nobuharu Isago
Kazakhstan	--
Kenya	<i>Proxy given to Nigeria</i>
Laos	--
Lesotho	Moroke Nteene
Lebanon	Mohamed El Tani
Macedonia (North)	<i>Proxy given to Canada--</i>
Malaysia	Ooi Teik Aun
Morocco	--
Mexico	Fermín Sánchez
Montenegro	<i>Proxy given to Slovenia</i>
Myanmar	<i>Zaw Zaw Aye / Proxy given to Thailand on 2nd part</i>
Nepal	Krishna Kanta Panthi
New Zealand	Bill Newns
Nigeria	Abidemi Agwor
Norway	Øyvind Engelstad
Panama	--
Netherlands	Sallo van der Woude
Peru	<i>Proxy given to Colombia</i>
Poland	Monika Mitew-Czajewska
Portugal	Joao Bille Serra
Qatar	--
Romania	Sorin Calinescu
Russia	Mikhail Belenkiy
Serbia	<i>Proxy given to Croatia</i>
Singapore	Jeyatharan Kumarasamy
Slovakia	--
Slovenia	Angelo Zigon
Sweden	Robert Sturk
Switzerland	Stefan Maurhofer
Thailand	Aphichat Sramoon
Turkey	Hamdi Aydin

Ukraine

Oleksandr Okhotnikov

United Kingdom

Damian McGirr

Venezuela

--

Vietnam

Proxy given to Malaysia

AGENDA

Sunday morning 5 May 2019 from 8.30 am to 1.00 pm

1. Opening speech
2. Approval of the agenda
3. Approval of the minutes of the General Assembly 2018
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 2018 - 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 9 May 2019
 - 12.1 Modification of the Statutes and By Laws
 - 12.2 Modification of the subscription fees amount
 - 12.3 Presentation of the candidatures for the 2022 General Assembly
 - 12.4 New Working Group
 - 12.5 Auditing proposal

Wednesday afternoon 8 May 2019 from 1.30 pm to 5.00 pm

13. Election of the Executive Council Members
 - 13.1 Election of the President
 - 13.2 Election of the Vice Presidents
 - 13.3 Election of the other Executive council members
 - 13.4 Appointment of the Treasurer
14. Report on the Open Session held on Tuesday 8 May 2019
15. Working Groups and Committees: Reports and projects of activity – Approval
16. Preparation of the General Assemblies 2020 and 2021
17. Modification of the Statutes and the By Laws
18. Modification of the subscription fees amount
19. Election of the 2 Auditor Council members
20. Approval of the 2019-2020 budget
21. Draft budget 2020-2021
22. Choice of the place for the General Assembly 2022
23. Other business
24. Closing address

A – ASSEMBLY ON SUNDAY 5 MAY 2019

1 – OPENING SPEECH

The President Tarcisio Celestino welcomed the delegates of the Member Nations, ITA members to the 45th ITA General Assembly in Naples, Italy.

He requested an official moment of silence dedicated to Dr Eng. Wojciech Grodecki. Some slides and speeches have been shown in his memorial by Anna Lewandowska (**encl. 1**).

Giuseppe Lunardi, Vice-President of the Societa Italiana Gallerie welcomed the Executive Council members and the present delegates and presented the venue.

The President declared the 45th ITA General Assembly to be opened. (See opening speech in **encl. 2**)

2 – APPROVAL OF THE AGENDA

This year the notice, the agenda and the enclosures were sent on November 16, 2018, to all 75 Member Nations. The President presented the agenda; it was approved without amendments.

3 – APPROVAL OF THE MINUTES OF THE GENERAL ASSEMBLY 2018

The minutes of the General Assembly 2018 were sent on July 23, 2018 (English) and August 24, 2018 (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 April 18, 2019, and asked for the comments from the Assembly. (**Encl. 3**). A “public” version has also been released (**Encl. 3b**) highlighting the main actions of the year.

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

4.1 Functioning of the Executive Council:

a. The Executive Council held **plenary meetings** in Dubai (UAE) on 21 & 26 April 2018, in Skopje (North Macedonia) on 7 & 8 June 2018, in Madrid (Spain) on 29 & 30 September 2018, in Chuzhou (China) on 4 & 5 November 2018 on the occasion of the Awards and in Florianopolis (Brazil) on 23 & 24 February 2019.

b. In addition, 50 web conferences have been held between the President, the Vice Presidents and the Executive Director as preparations for each Executive Council meetings. Other web conferences and ad hoc meetings took place between ExCo members for different topics.

c. During this year, the Executive Council carried out its **traditional activities** in taking into account the conclusions of the report from the Auditor, as well as the remarks from the Member Nations during the General Assembly. During this year the ExCo studied more deeply the governance of the association and how to improve it. This will bring some modifications of the Statutes and By Laws as well as different documents that are at a draft stage for the moment.

d. Strategy

In Dubai, the Executive Council presented the progress of the strategy plan started in Bergen. The work has been continued this year with several actions already implemented and other ones still to be.

The Goal 1 has been reported by Alexandre Gomes.

GOAL #1 – Encourage MN to actively develop and share technology, promote underground space and be active as a MN in ITA

Through the new Member Nations activity reports format, the sharing of information between the Member Nations and with the Executive Council and the secretariat has been more intense. For the past 2 years we have received 46 activity reports. In addition, several Member Nations provided ITA with examples of tunnelling works that have then been used for the video of “Tunnelling the world 2018”.

During the year several seminars and training have been organized in the Member Nations such as North Macedonia, China, Belgium, Malaysia.

For several years now Member nations belonging to the same geographic area meet during the WTC and sometimes along the year to share their best practices.

The Goal 2 has been reported by Ruth Haug.

GOAL #2 – Optimize the contribution of WGs and Committees through facilitating interaction with MNs & Sponsors, encouraging synergies, and deploying modern communication practices

During the annual meeting with WGs Animateurs, Committees Chairs and ExCo members, it has been highlighted some important topics to be implemented such as improvement in coordination, focus and working with outside institution and increase the diversity in participating Member Nation. The secretariat is regularly contacting Member Nations to update the list of participants in the different Working Groups as well as the industry to find experts for the various Committees.

The process of document reviewing has been improved and all documents published this year have followed this process.

At this stage it is necessary to find ways to help WGs to produce for every publication and guidelines related documents for training purposes in different format presentation but also audio visual.

The Goal 3 has been reported by Eric Leca.

Goal #3 - Enhance Interaction with Industry

Three main objectives have been set up to achieve goal n°3. During the year the following actions have been made:

- Follow up on collaboration with Prime Sponsors and Supporters:
 - Regular visits to PS,
 - Yearly meeting with PS at the occasion of each WTC,
 - Satisfaction survey completed in 2017 and used to realign objectives.
- Develop mutually beneficial initiatives with Industry:
 - PS invited to present at events adjoining ExCo meetings such as in Florianopolis.
- Regularly update tunnel market forecast and organize dissemination:
 - Second market survey finalized and disseminated at WTC 2017 in Bergen. An addendum on African market will be delivered at WTC 2019 Naples.

The Goal 4 has been reported by Soren Eskesen.

Goal # 4 - Encourage further knowledge sharing through Education and Training

Training is one of the cores of ITA. In order to help Member Nations, the ITA Committee on Education and Training is providing the possibility of training sessions. The ITA ExCo has been working closely with the ITACET Foundation to find better ways for the organization of the training sessions. During the year, training sessions have been organized in France, UAE, Argentina, Kenya and Nepal.

In addition, the ExCo started to work with different International banks and funding bodies to promote training when financing infrastructures that include tunnels & underground spaces.

One of the other axes of work concern a survey with Member Nations about the level of training on underground works for professionals obtaining degrees on civil engineering, mining engineering and geology.

The Goal 5 has been reported by ChungSik Yoo,

Goal #5 - Enhance Tunnelling and Underground Space Awareness

ITACUS is the main entity in enhance tunnelling and underground space awareness. It's also important to develop digital materials and share the good examples. This year, a success story of highspeed railway tunnels for PyoungChang Winter Olympics has been published in Tunneltalk.

We are also engaged to develop educational materials for non- engineers and disseminate them by posting on our website and Youtube.

In 2018 ITACUS organized three thematic workshops on underground spaces.

Think Deep Sweden has been formed.

“Think Deep” publication being disseminated in coordination with ISOCARP.

THINK DEEP National Action Program (TDNAP) is planned during WTC2019: Five National Action groups will participate (Australia, UK, Nigeria, Netherlands, Sweden).

Through ITACUS we have maintained and improved contacts with ISOCARP in participating in their congress and with other bodies such as UN Habitat, ACUUS, ICLEI....

The organization of specific training sessions on the use of underground space in developing countries is an important action to help decision makers, planners, engineers to better know the benefit of using the underground space.

ITA and ITACUS have, together with the Member Nations and the ITA-CET, organised training session in Abuja, Nigeria done in March and another in Nairobi in December.

The Goal 6 has been reported by Davorin Kolic.

Goal #6 - Improve communication with Member Nations, Industry and General public

In the strategic plan, actions concern a better planning of communication as well as sharing innovation and successful projects of Member Nations and Industry.

To perform this goal, we have this year emphasis the communication towards the member nation in the preparation of the General Assembly, in order that all Member nations can know sufficiently in advance what is planned and how to communicate.

As for the previous year, the Member Nation reports will be disseminated to the Member nations but more largely to all participants at the WTC. Through this magazine, which will be produced for the third year, ITA takes care to better communicate to the whole tunnelling industry the activities but also showcase the works and projects in all Member Nations.

From October, Anne Brissaud has joined the ITA staff as Communication Officer. We have now more possibilities to share information largely through the ita@news, specific information, the internal bulletin and of course with a publication as this one which allow a better communication from the ITA Executive Council towards the Member Nations and more largely the ITA family.

This year, the Member Nations have sent quite a lot material that has been used for producing the “Video of the Year” focusing on projects that have been achieved or were under construction during the year 2018.

We have also produced a video presenting in 10 minutes the ITA as well as for the previous year a video showing the tremendous event which has been the ITA Awards 2018 in China. All the videos are available on ITA YouTube channel.

e. Task Forces

This year different task forces worked on the following topics.

- i. ITA Awards** (Tarcisio Celestino, Mark Charles, Soren Eskesen, Randall Essex, Zhang Fengshou, Davorin Kolic, Eric Leca, Anna Lewandowska, Diane Loth, Tom Melbye, Pekka Nieminen, Olivier Vion, Sonia Salles, Jenny Yan, Chungsik Yoo, Feli Zhai, Yan Zhiguo).
- ii. WTCs** (Randall Essex, Lars Babendererde, Alexandre Gomes, Ruth Haug, Eric Leca, Davorin, Kolic, Olivier Vion, Chungsik Yoo).
- iii. Accidents** (Tarcisio Celestino, Arnold Dix, Alexandre Gomes, Lars Babendererde, Chungsik Yoo).
- iv. Governance** (Arnold Dix, Eric Leca, Ruth G Haug, Soren Eskesen, Lars Babendererde, Chungsik Yoo, Felix Amberg, Olivier Vion).

4.1 e i ITA Awards – reported by Jenny Yan

The 4th edition of the ITA Tunnelling Awards was held in Chuzhou-Nanjing in China, from 5 to 7 November 2018, and in conjunction with the 20th CTUC, Chinese Tunnels and Underground Works Conference.

Following a day-long conference the finalists of the 8 categories presented their projects / initiatives and the winners were rewarded during the Gala Dinner.

After two days of presentations, case studies and technical conferences, the Awards ceremony was a successful finale and offered the audience an immersion in of ancient China. With more than 300 attendees for the 4th edition (day and ceremony), the ITA Tunnelling Awards confirms its position as a reference for recognizing major projects and innovations on-going in the world. This unique and international event attracted underground specialists: experts, architects, civil engineers and urban planners who shared this exceptional evening.

The list of winners is available at <https://awards.ita-aites.org/previous/2018/winners>

The video of the Conference and banquet is available: <https://youtu.be/j75weUXZceM>

The 2019 edition will take place from 18 to 20 November in Miami, USA at the occasion of the 8th edition of Cutting-Edge conference organized by UCA of SME and the Tunnelling Journal. Have a look to the presentation video: https://youtu.be/AwCz3Ugl4_c

4.1 e ii WTCs – reported by Lars Babendererde & Randall Essex

Furthering ITA’s Outreach to the Member Nations

- How it started
 - Since the 1980's the use of the underground for infrastructure has increased worldwide.
 - From local centres of excellence, the tunnelling industry has evolved into a global network of international professionals.
- What we are
 - Permanent Staff
 - 14 Working Groups
 - 4 Committees: ITAtech with 6 Activity Groups, ITACUS, ITA-CET and ITA COSUF
 - Young Member Organisation
 - Workshops and ITA-endorsed events
 - 2 Main events per year: WTC and the ITA Awards
- ITA is different:
 - Unique collaboration of science, industry and cultures
 - High scientific level is a must
 - The industry as a vital partner
 - Truly world-wide exchange
- Your consent is required
 - Challenge to engage in the future with the MNs as the numbers continue to grow.
The ExCo seeks to enhance the outreach to all its MNs by:
 - maintaining the above-mentioned core interests, and
 - incorporating comments received from MNs in response to an ExCo questionnaire issued during 2018.
 - MNs are asked to support the ExCo as we prepare adaptations to the ITA statutes and By-Laws, to be submitted ahead of the next WTC in Malaysia.
The goal of the proposal should be:
 - a) Ratify a WTC Guidelines document that ensures that ITA's WTC remains the pre-eminent global international tunnelling conference.
 - b) Enhance the ITA Tunnelling Awards program so that it combines international excellence with a strong, regional and cultural exchange.
 - c) Increase the number of training programs in developing countries.
- The Executive Council sent a survey to all Member Nations to explore their views on WTCs. The survey was on the following topics:
 - Selection process
 - How should WTC be organized
 - Format of the WTC (number of days/ sessions...)

18 MN replied to the request

 - Main comments on the topics have been:
 - Selection process of WTC host country:
 - ✓ Expected to be more streamlining from ExCo with stricter criteria. Notably including ITA policy
 - Degree of involvement of ITA in the organization of WTC:
 - ✓ ITA should be the custodian of the brand, but host MN should still manage the WTC.
 - ✓ Does it require that we start the process earlier (4 or 5Y in advance?).
 - ✓ A bonus/malus system could be implemented to take into account the way the process is proceeding according to the planned schedule.

- Programs of WTCs:
 - Too many parallel sessions
 - More WGs involvement in the sessions
 - WTC should differentiate from other conferences
 - Increase the quality of presentations
 - Should ITA activities be more concentrate to allow representative of MNs to spend less time and be more cost effective.

- Presentation of Draft Publication / WTC Guideline
 - Topics
 - Background
 - Guidelines Table of Contents
 - Figures
 - Next Steps

- Why a WTC Guideline?
 - Responses from MN 2018 Questionnaire
 - Better organization/guidance for WTCs
 - More involvement by ExCo
 - Offer lessons learned from past WTCs
 - Effort started in mid-2018
 - Incorporated lessons learned from past WTC events
 - Helsinki (2011) - Dubrovnik (2015)
 - Bangkok (2012) - USA (2016)
 - Geneva (2013) - Bergen (2017)
 - Iguassu Falls (2014) - Dubai (2018)
 - ExCo reviewed several drafts
 - Comments obtained from recent WTCs: USA, Norway, UAE
 - October 2018: workshop with Naples Org. Committee
 - November 2018: comments obtained A. Pigorini
 - Final ExCo review in early 2019
 - Request feedback from other MNs
 - By Law changes will be proposed at WTC 2020 GA

- Next Steps
 - We want your comments
 - Changes to By Laws will be developed for approval at 2020 GA

The draft WTC Guidelines are enclosed (**encl. 4**).

4.1 e) iii Accidents – reported by Tarcisio Celestino

Tunnel accidents continue to occur, in most of the cases with serious consequences. The potential for loss of life and property due to tunnel collapse is very high, mainly in urban areas. In addition to that, the image of the tunnelling industry is severely affected after each accident. Decreasing the accident ratio is therefore of utmost importance.

The ExCo decided to pursue this task. It will be proposed to form a group of experts coming from different MNs as well as with members of WGs 2, 14 & 19. D. Lamont suggested to add the WG5 in the group of experts.

4.1 e) iv Governance – reported by Arnold Dix

One of the main tasks has been to take into consideration the comments made by the General Assembly in Dubai. A proposal of changes of the Statutes and By-Laws will be submitted to the GA. In parallel the ExCo tried to list the different activities of ITA and see how to better apply a good and transparent governance.

It is proposed to combine the internal auditor with the Governance board into the Auditing board composed of 2 members.

This will allow an ongoing audit of the governance and not only a one shot every 3 years.

The Auditing board will be able to inform the GA and make proposal.

4.2 Relations with the Member Nations

- in visiting 26 Member Nations: **Algeria, Argentina, Austria, Australia, Brazil, Chile, China, Colombia, Costa Rica, Croatia, Denmark, France, Germany, Italy, Korea, North Macedonia, Malaysia, Norway, Poland, Singapore, Spain, Switzerland, Turkey, UAE, United Kingdom and USA.**
- in participating in the meetings or events organized by them
- to be closer to the Member Nations
- to facilitate actions and implementation of ITA mission in the different countries
- encouraging Regional forum
- in granting the sponsorship to the events organized
- report of activity 2018 of MN: 45

4.3 Development of the Affiliate Members

The membership of 4 new Corporate Affiliate Members will be pronounced in item 5 of the General Assembly.

As agreed in 2006, the category of **Individual Affiliate Members** is now reserved to Young Professionals, retired people and the personnel from companies already Corporate Affiliate Members.

4.4 Development of the “Prime Sponsors” and the “Supporters”

- a) Existing Primes Sponsors are (in alphabetic order): BASF, BEKAERT MACCAFERRI UNDERGROUND SOLUTIONS, EPIROC, CRCHI, CREG TBM, GEO-DATA CONSULT, HERRENKNECHT, IMPLENIA SWITZERLAND, MAPEI, NORMET, PORR BAU GMBH, ROBBINS, SANDVIK, SELI OVERSEAS, SIKA, STC and VMT GmbH.
- b) 2 new companies joined the category of "Supporters" and 3 companies resigned, the supporting companies are, in alphabetic order, (Names in bold joined since May 1st 2018): ALDEA SERVICES (USA), ARCADIS (FRANCE), ARCELORMITTAL (Luxembourg), BABENDERERDE (Germany), **BENTLEY SYSTEMS EUROPE B. V. (The Netherlands)**, BOUYGUES TP (France), BRUGG CONTEC (Switzerland), CHINA RAILWAY 16TH BUREAU GROUP (China), CHINA RAILWAY ACADEMY (China), COWI (Denmark), DENKA CHEMICALS (Germany), DSI UNDERGROUND (Austria), ELASTO PLASTIC CONCRETE (Ireland), EPC Groupe(France), FORTA-FERRO (USA), FRONTIER WORKS ORG. (Pakistan), GEODATA SpA(Italy), GEO-QYASAT (SAUDI ARABIA), GIERTSEN TUNNEL (Norway), **GT CHEMICAL SOLUTIONS GmbH (Germany)**, HAGERBACH (Switzerland), HALFEN GMBH (Germany), HARVEY PARKER & ASSOCIATES (USA),

HYDROMAT (Bulgaria), JACOBS (UK), KRAMPEHAREX GmbH (Germany), KORDSA GLOBAL (Turkey), MINOVA (Austria), MOTT MACDONALD (UK), ORICA PTY LTD (Australia), PENETRON INTERNATIONAL (USA), POYRY AUSTRIA GmbH (Austria), PROPEX CONCRETE (UK), RAMBOLL (Denmark), ROCKSOIL (Italy), SMARTEC MINING ENG. CO. (China), SOLETANCHE BACHY TUNNELS (France), SUNG KUYN KWAN UNIVERSITY (Korea), SWS Engineering (Italy), TECHGONG (China), TERRATEC (Australia), THEMAG ENGENHARIA (Brazil), TRELLEBORG (Netherlands), WSP PARSONS BRINCKERHOFF (USA).

4.5 Relations with the UN, the World Bank and the European Union

Development of contacts with **UN-HABITAT** and **UN-ISDR** are mainly conducted with ITACUS (see hereafter).

World Bank. and other International Financing bodies Contact with the International Financing bodies are part of the actions to be implemented in the course of Goal 4 of the strategy Dedicated correspondence has started with some of them.

PIARC: The technical Committee TC D 5 met twice during the year in Lyon and in Florence Olivier Vion participated in the meeting in Lyon The ITA COSUF representative participated in both meetings The TC D 5 will present the activities during the GA.

FIDIC: The Emerald book prepared by the jointed TG ITA FIDIC presented in Dubai has been finalized. The book has been reviewed during the year by ITA and FIDIC reviewers as well has being approved by FIDIC Contracts committee. The final version will be presented in Naples and the book available.

IRF: ITACOSUF is working with IRF for the preparation of the special COSUF session in Naples.

ISOCARP—see ITACUS

4.6 Functioning of the Working Groups

4.6.1 All the groups will meet in Naples on Sunday 5 and Monday 6 May 2019 under the chairmanship of their Animateurs or their Vice Animateurs. The reports presented by the Animateur in Dubai are annexed to Dubai General Assembly minutes.

4.6.2 Activity of the working groups continues all over the year The WG Animateurs are filling up a progress report twice a year. This report enables the ExCo to follow what is going on and to better answer to request for the WGs Progress Reports are asked 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.

4.6.3 Three WG reports have been published:

- **WG 2 Guidelines for the Design of Segmental Tunnel Linings**
- **WG 5: Guide to ITA/BTS CAWG Report 10 for Clients and others not familiar with high pressure compressed air work**
- **WG 14 / 15 -Handling, Treatment and Disposal of Tunnel Spoil Materials**

As well as 3 reports from the Committees:

- **ITAtch – Practical approach for controlling the blasting vibration and optimizing advance in urban tunnelling**

- ITAtch – Guidelines on rebuilds of machinery for mechanized tunneling excavation
- ITA COSUF - Current practice on cross-passage design to support safety in rail and metro tunnels

5 – APPROVAL OF NEW MEMBERS

5.1. Member Nations

Albanian Tunnelling, Tunnelling Association of Kenya (TAK) and Lebanese Association for Underground Space (LAUS) requested to become an ITA Member.

The Chairs of the Albanian Tunnelling, Tunnelling and Lebanese Association for Underground Space (LAUS) made a presentation of the activities of their Associations. Unfortunately, due to administrative reasons, the representative of TAK could not attend the GA. **(Encl. 5 and 6)**

Member Nations unanimously accepted these three Associations as ITA Member Nation representing Albania, Kenya and Lebanon.

Applauses

5.2. Affiliates

5.2.1. Requests for membership

a. Corporate Members: 5

379	CETCO	Poland
380	BY Consulting	China
381	Dynamic Infrastructure	Israel
382	TPH Bausysteme GmbH	Germany
383	Bentley Systems Europe B. V.	The Netherlands

b. Individual Members: 4

442	Suresh Dhanabalan	Singapore
443	Adel R. Remmas	USA
444	Arvind Kumar Mishra	India
445	Paola Castillo	Colombia

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: 5

312	Obras Subterraneas	Spain
345	Saudi Bin Ladin (MOT)	Saudi Arabia
356	Sormat Oy	Finland
325	Penguin Automated Systems Inc.	Canada
172	Soletanche Bachy France	France

b. Individual Members: 1

307	Timothy P.Smirnoff	USA
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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: 8

235	Shanghai Underground Space Architecture Design	China
251	Sinotech Engineering Consultants, Inc.	Chinese Taipei
258	Doosan Engineering & Construction Co., Ltd	Korea
267	Crossrail Ltd	United Kingdom
280	Arabian Pipeline & Services Co. Ltd (ANABEEB)	Saudi Arabia
358	EnviroSystems, MFG, LLC	USA
349	Techgong (Shanghai) International Trading Co., Ltd	China
353	Forta Corporation	USA

b. Individual Members: 1

044	MJ Kelly	Canada
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5.2.4. The number of Affiliate Members therefore reaches 259 (Corporate: 165 – Individual: 96) (Encl. 7 and Encl. 8).

5.3 Prime Sponsors

5.3.1 Admissions

During this year, none request of new Prime Sponsor.

5.3.2 Resignations

9	Saudi Binladin Group (MOT)	Saudi Arabia
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The number of Prime Sponsors therefore reaches 17 (**Encl. 9**).

5.4 Supporters

5.4.1 Admissions

Two companies have decided to become Supporters:

078	TPH Bausysteme GmbH	Germany
079	Bentley Systems Europe B. V.	The Netherlands

The President expressed his gratitude to these 2 companies for having decided to support the Association more actively in becoming Supporters.

5.4.2. Resignations

3 companies have decided to resign as a Supporter:

026	Obras Subterraneas	Spain
043	Penguin Automated Systems Inc.	Canada
005	Soletanche Bachy France	France

5.4.3. Exclusions

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

061	Techgong (Shanghai) International Trading Co., Ltd	China
063	Forta Corporation	USA

The number of Supporters therefore reaches 45 (**Encl. 10**).

5.4.4. Modifications

Some Supporters have modified their name:

Pöyry Infra GmbH	→	Pöyry Austria GmbH	Austria
CH2M	→	Jacobs	USA
Kordsa Global	→	Kordsa Teknik Tekstil A.S.	Turkey
Elastoplastie	→	BarChip Inc	Ireland

5.5. ITA COSUF Committee

5.5.1. Requests for membership: 4

115	Brillant Group Corporation	USA
116	VID Fire-Kill ApS	Denmark
117	Applus JGAI Technological Center	Spain
118	Delft University of Technology	The Netherlands

5.5.2. Resignations: 4

017	COWI	Denmark
090	Securiton SA	Switzerland
111	Pusan	Korea
115	Brillant Group Corporation	USA

5.5.3. Exclusions: 1

053	Tongji University	China
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5.6. ITACUS Committee

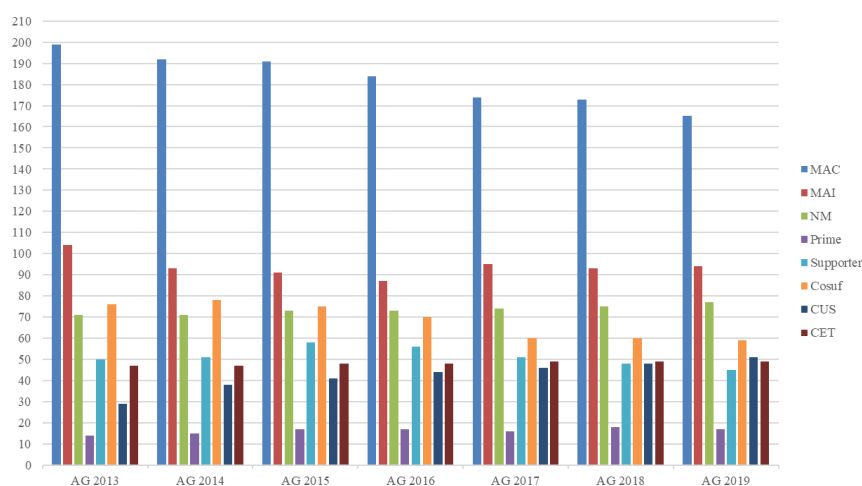
5.6.1. Requests for membership: 3

58	University of Stavanger	Norway	Ove Njå
59	Galvao Engenharia SA	Brazil	Flavio H. Cunha L.
60	Cardno	Australia	Chris Swaine

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. 11)**

5.7. ITAtech Committee

All Prime Sponsors and Supporters are entitled to be member of ITAtech Committee. At the moment, 17 Prime Sponsors and 45 Supporters are participating actively.



6 – REPORT FROM THE INTERNAL AUDITOR

Sorin Calinescu from Romania presented the report:

Since the last General Assembly, the ExCo continued to pursue the needed steps towards the achievement of the goals that were set up by the strategy previously approved by General Assembly decision.

Constant review was done during the last year, at the regular ExCo meetings, by setting up a task force for each goal.

From the minutes of the Executive Council meetings, this was a permanent preoccupation that resulted in some constant progress over the year to analyse and prepare a renewed strategy of the Association for the next three-year period.

Also, other areas of interest were on the ExCo permanent agenda, with constant follow-up of the tasks, assignments and results, as presented in the extensive report prepared for the General Assembly.

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 and subsequent actions have been suggested.

A brief review of the current strategy is as follows:

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

This goal should be further 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. This item is to be continued with maximum attention. One important nuance is the need for biunivocal direction of such communication, not only for reporting from Member Nations to the ExCo but also the other way out. Keeping in mind that the ExCo will never be able to directly contact each Member Nation by physically visiting them new ways have to be thought out.

The second goal was 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. Maybe the ExCo should look more carefully on those WGs that did not produce anything relevant during the last year and either revive them or put them on hold. A change of policies is needed; instead of various mute spectators we need authoritative technical voices involved that can outline the state-of-the-art trends and issues on the main topics.

Third goal, Expand Industry Relations, has been constantly followed and full agreements with all existing Prime Sponsors and supporters are concluded. More action is needed in order to develop mutually beneficial initiatives and synergies and the direction looks promising.

Fourth important goal, encourage knowledge sharing through education and training was also addressed constantly through trainings and workshops but more modern methods such as e-learning

and webinars need to be implemented. This is one of the most important aspects of our Association and should be firmly pursued.

Fifth goal, Promote the use of underground space, was more based on cooperation actions with sister organizations, but a well devised and a 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. This task is still of great actuality.

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.

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 facts, the internal auditor is in a position to report to the General Assembly that the ExCo activity during the previous year has been in line and conformity with the statutes and by-laws, the approved strategic planning and ITA’s Vision and Mission.

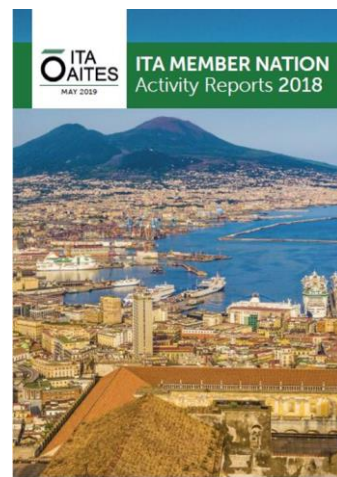
7 – REPORT OF ACTIVITY OF THE MEMBER NATIONS

Forty-five Member Nations 2018 activity reports were received at the secretariat and were posted on ITA website and during the WTC 2018 presented at the ITA Information desk.

For the 3rd time, a special magazine has been prepared to present the reports of the Member nations. It contains reports from 45 Member Nations. It is distributed to all WTC participants.

All these member nations have sent their reports (some out of deadline, is the reason why they not appear in the published magazine).

This report is quite appreciated by the Member Nations.



The reports came from following Member Nations (2 after the deadline):

- | | | |
|------------------|-------------------|-----------------|
| • Argentina | • France | • Nigeria |
| • Australia | • Germany | • New Zealand |
| • Austria | • Greece | • Norway |
| • Belarus | • Guatemala | • Poland |
| • Belgium | • Hungary | • Romania |
| • Brazil | • Iceland | • Russia |
| • Canada | • India | • Singapore |
| • Chile | • Iran | • Slovakia |
| • China | • Italy | • Slovenia |
| • Colombia | • Japan | • Sweden |
| • Costa Rica | • Korea | • Switzerland |
| • Croatia | • Macedonia FYROM | • Thailand |
| • Czech Republic | • Malaysia | • Turkey |
| • Denmark | • Nepal | • Ukraine |
| • Egypte | • Netherlands | • United States |
| • Finland | | |

The magazine is enclosed to the Minutes (**encl. 12**).

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

- | | | |
|-------------|-------------|------------------------------|
| • Austria * | • India | • Switzerland * |
| • Egypte * | • Italy * | • Turkey * |
| • Finland * | • Korea * | • Ukraine * |
| • Germany * | • Lebanon * | • United Kingdom * |
| • Iran * | • Russia * | • United States of America * |

* Texts are enclosed to the Minutes (**encl. 13**). (* Speeches received)

8 – REPORT OF ACTIVITY OF THE ITACET FOUNDATION

Piergiorgio Grasso, Vice-President of the ITACET Foundation presented the report.

Created in September 2009, the ITACET Foundation is now completing its tenth year of activity.

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

The Foundation has very close relations with ITA. In particular the ITA-CET committee continues to be in charge of preparing the training programmes and of choosing the lecturers of the sessions organized by the Foundation.

The Foundation is also continuing to develop its relationship with the Industry, directly with the Companies represented in the Council of the Foundation and also with the IRF, having signed an MOU in October 2017 outlining the preparation of training sessions over 3 years.

3- The Foundation's Head office has been hosted since January 2019 in Geneva at the ITA office; the operational secretariat continues to be at the CETU (Centre for Tunnel Studies) in Lyon.

4- Since the ITA 2018 General Assembly, the Foundation has organised 7 events:

- Le Bourget du Lac (France) on 20-21 June 2018 on Sharing experiences on the construction of long tunnels at great depth

Client: TELT (Lyon – Turin) – 100 participants

- Buenos-Aires (Argentina) on 5 September 2018 on Management of user safety in underground railways facilities.

Client: AATES, the ITA representative – 90 participants

- Nairobi (Kenya) on 7 December 2018 on Underground space use and tunnel project management

Client: Athi Water – 76 participants

- Kathmandu (Nepal) on 13 December 2018 on Operation and maintenance of hydro tunnels

Client: NTU, the ITA representative – 123 participants

- Naples (Italy) on 3-4 May 2019 on Information technology at the occasion of WTC2019

- Naples (Italy) on 4 May 2019 on Communication and stakeholders' engagement at the occasion of WTC2019

- Naples (Italy) on 7 May 2019 on Operational safety of underground transportation facilities in close cooperation with IRF during the WTC2019

The Foundation has organised 74 sessions gathering more than 8200 participants since its creation.

The reports concerning all of these events were published in the Foundation Newsletters (29 issues published to date) and on the Foundation website (www.itacet.org).

5- The Foundation gave sponsorships to students accepted onto ITA-endorsed Postgraduate Master Courses. This year, the sponsorship was granted to two students from India and Columbia, respectively in:

- ITALY: Politecnico di Torino: “Tunneling and TBM”
- FRANCE: INSA/ENTPE in Lyon: “Tunnels and Underground Works”

6- The Foundation Awards will be granted during the WTC2019 opening ceremony to:

- - Sebastiano PELIZZA for his involvement as a surveyor of the Foundation
- - AFTES, the ITA representative in France for its continued support toward the Foundation

7- The Foundation continues to develop its outreach via communication, most recently with the LinkedIn page which is currently followed by over 500 professionals.

8- For the improvement of future relations, the Foundation has recently signed a MOU with ITA for the development of its activity; this MOU will allow the Foundation to work more closely with the ITA family representatives: Member Nations (developed and emerging countries) and Industry representatives.

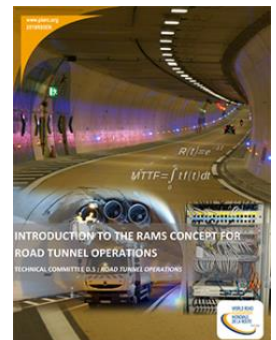
9 – COMMUNICATION FROM THE SISTER INTERNATIONAL ASSOCIATIONS

9.1 World Road Association (PIARC)

Report presented by Arild Sovik (Encl. 14).

What is PIARC?

- Non-political, non-profit association established in 1909
- **Aim:** promote international cooperation on issues related to roads and road transport
- Consultative Status to United Nations
- Main objective **“Exchange of knowledge on roads and road transport policy and practices within the context of integrated, sustainable transport.”**
- Recognised for the quality of its outputs



Technical committee D.5 “Road tunnel operations”

- 77 official members + 86 “associated members” of the Committee’s working groups

Technical reports produced during the current 2016-2019 work cycle

- *“Introduction to the RAMS concept for road tunnel operations”*

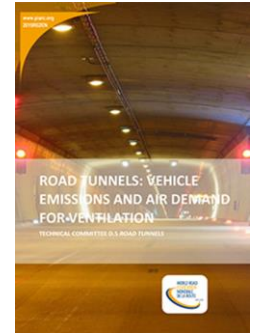
(published March 2019).

Examines how the **“Reliability, Availability, Maintainability and Safety of tunnel systems/equipment can be achieved by applying the methodology of standard EN 50126**



- *“Prevention and mitigation of tunnel-related collisions”* (published March 2019)
Presents possible organizational and technical measures that can be implemented to prevent and /or mitigate collisions in which the specific characteristics of a tunnel play a role in either the cause or the effect.

- *“Road tunnels: Vehicle emissions and air demand for ventilation”* (published March 2019)
Revised version of the 2012 report. Provides updated emission rates and an assessment methodology for establishing the minimum fresh-air demand for adequate in-tunnel air quality and visibility thresholds.



- *“General principles for improving accessibility for persons with reduced mobility in road tunnels”* (to be published shortly)

Principles that can be adopted to make allowance for persons with reduced mobility when designing or refurbishing a road tunnel. Examples of implementations from various countries are presented.

- *“Large underground and interconnected infrastructures: specific analysis and recommendations”* (to be published by end 2019)

Specific challenges of complex underground networks with recommendations in terms of ventilation, signage, operation and maintenance.

Other outputs from the current 2016- 2019 work cycle

- Technology watch documents

Enable the Committee to undertake an initial study of a specific issue, with a view to further developing the topic in a technical report in the next PIARC cycle:

- Led lighting
- Intelligent Transports Systems
- New propulsion systems

- Special issue « road tunnels » of Routes/Roads magazine: autumn 2018



- Internal surveys launched at the initiative of TC members. Example: The use of loudspeaker public address systems. Results published as an appendix to report on Real Time Communication with Users
- Workshop, Montréal (April 2017)

- International seminar, Cape Town (October 2017)
- 1st PIARC International Conference on Road Tunnel Operations and Safety, Lyon (October 2018)

Proposed topics for next work cycle (2020-2023)

- Best practices in maintenance and traffic management, particularly for urban and heavy traffic tunnels,
- Measures for increasing resilience in tunnels with risk reduction measures and associated risk analysis methods,
- Impact of Intelligent Transport Systems on road tunnel operations and safety,
- Prevention and mitigation of potential consequences of incidents involving alternative fuel vehicles (this topic will probably be dealt with in cooperation with ITA-COSUF),
- Best practices and innovations in design and construction for road tunnel operations,
- Update of the road tunnels manual.

9.2 International Federation of Consulting Engineers (FIDIC)

Mrs Aisha Nadar, member of the Board of FIDIC, presented the activities (**Encl. 15**).

She presented also the “Emerald book” which has been distributed to each Member Nation.



10 – FINANCIAL REPORT FOR 2018 - COMMENTS AND APPROVAL OF THE ACCOUNTS

10.1 Comments

Income

	2018-2019 Budget	2018-2019 Réalisé/Done	
Cotisations	173 000 €	169 000 €	Membership
Sponsoring	345 000€	306 150 €	Sponsoring
Redevances WTC 2018	150 000 €	158 600 €	WTC fees 2018
Awards	140 000 €	187 100 €	Awards
Autres	105 000€	97 000 €	Others
TOTAL	908 500 €	917 900 €	TOTAL

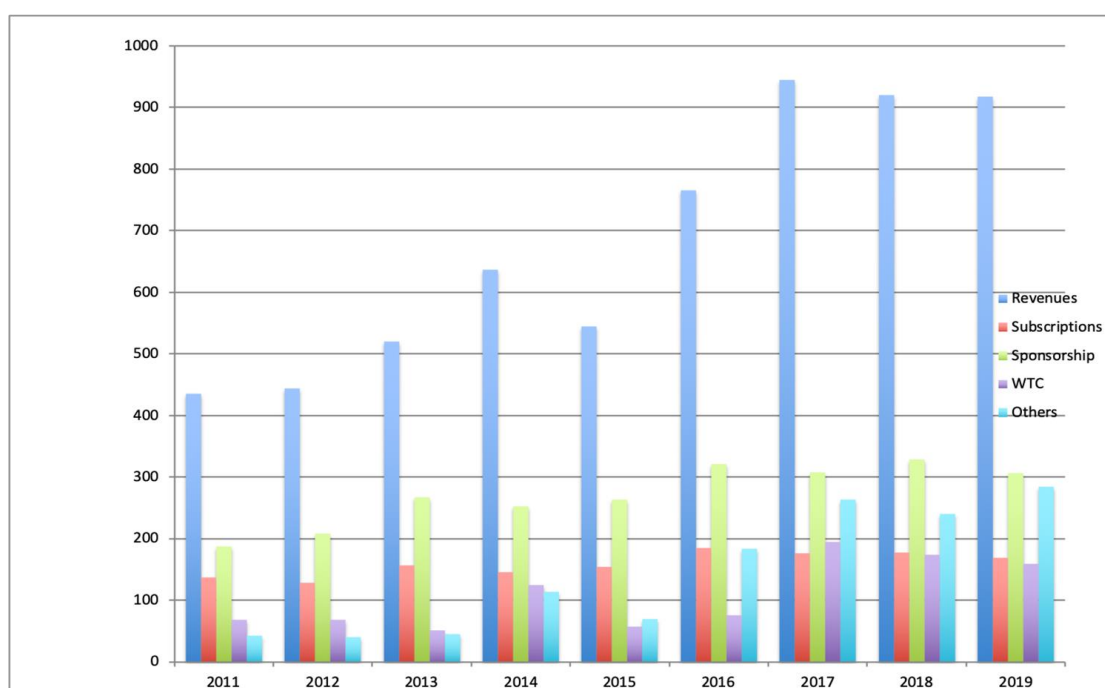
Expenditures

	2018-2019 Budget	2018-2019 Réalisé/Done	
Secrétariat	394 000 €	378 000 €	Secretariat
Communication	167 000 €	133 900 €	Communication
Comités	175 000 €	158 600 €	Committees
Groupes de travail	10 000 €	5 000 €	Working Groups
Awards	130 000 €	178 500 €	Awards
Autres	5 000 €	7 000 €	Others
TOTAL	881 000 €	860 800 €	TOTAL

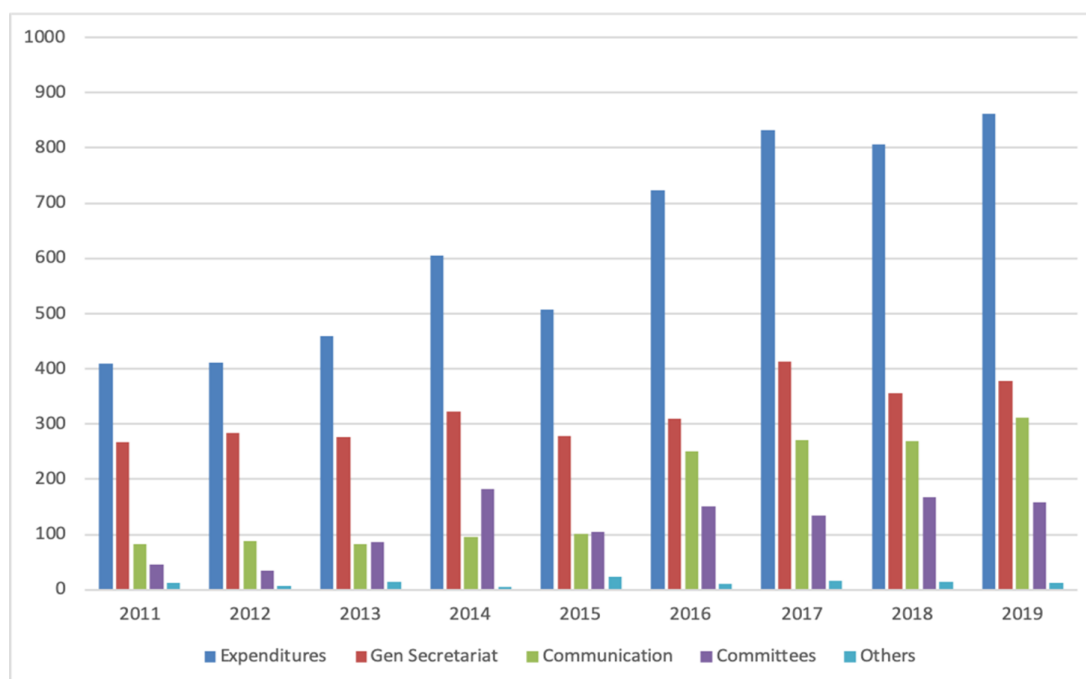
BALANCE

	<u>2018-2019</u> <u>Budget</u>	<u>2018-2019</u> <u>Réalisé/Done</u>	
Recettes	908 500 €	917 900 €	Income
Dépenses	881 000 €	860 800 €	Expenditures
Résultats	27 500 €	57 100 €	Result

EVOLUTION OF REVENUES



EVOLUTION OF EXPENDITURES



Comments to ITA Balance

Comparison with previous year 2017-2018:

- Same level of revenues
- Increase of expenditures by 6,5 %

Main features:

- **Increase in budgeted revenues by approx. 1% and decrease in budgeted expenditures by approx. 2.5 %**
 - Done: revenues 917'900 € / expenditures 860'800 €
 - Budget: revenues 908'500 € / expenditures 881'000 €
- **Final result higher than budgeted**
 - Done: revenues in excess 57'100 €
 - Budget: revenues in excess 27'500 €

* Exceptional expenditures 11'000€ (last year provisions that have not been recovered)

➤ **Revenues:**

- **Membership**
 - Still a decrease in the membership, notably corporate members
- **Sponsorship**
 - Loss of a PS and no additional PS as budgeted- Loss of several supporters
- **WTC contribution**
 - Contribution from WTC 2018 is in line with the budget- less than in 2017
- **Committees**
 - Revenues are on line with budget
- **ITA Awards**
 - This year the awards have been very successful. Very good sponsorship answer, notably from Chinese companies

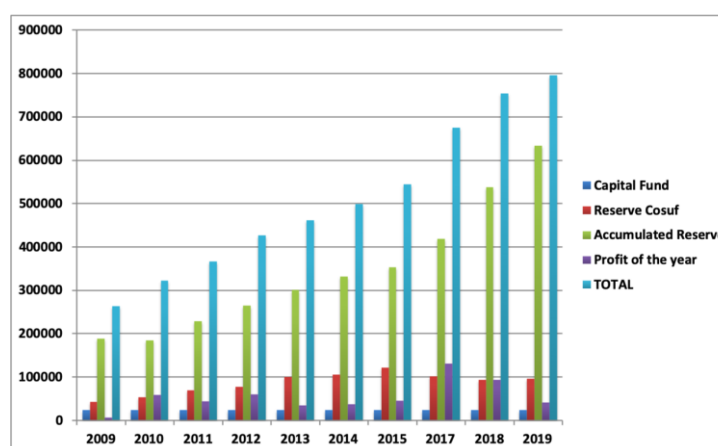
➤ **Expenditures:**

- **Secretariat**
Increase of 6% vs 2017-18 but decrease of 4 % vs budget. Communication officer has been integrated in the staff in October.
- **Communication**
Expenditures are a bit less than budgeted – most of the changes in the web (notably Library-bookshop) had already been paid on previous year.
- **Committees**
On line with budget
- **Awards**
Benefits of awards is #10'000 €
- **WG**
Less than budgeted.

FORTUNE

	31/3/2019	31/3/2018
▪ Capital Fund	: 24'044 €	24'044 €
▪ Accumulated reserve	: 633'961 €	538'187 €
▪ Profit of the year	: 41'295 €	95'574 €
▪ Reserve COSUF	: 96'254 €	93'420 €
▪ TOTAL	: 795 554 €	751'225 €

FINANCIAL ASSETS



10.2. Approval of the accounts.

The accounts are approved by the General Assembly.

11. PREPARATION OF THE ELECTION OF EXECUTIVE MEMBERS

The secretariat received in due time following valid candidacies:

President:

Eric LECA presented by France

Jinxiu (Jenny) YAN presented by China

The Executive Director reminded the articles of the Statutes concerning the vote:

6.4: “The election of the President shall be by secret ballot. To be elected, a candidate shall receive a majority (i.e. more than 50%) of the votes of the Voting Delegates present or represented in

accordance with Section VIII, paragraph 8.11. Procedures for adoption of candidates to the position of President and election are described in By-Laws Section I 1.2 a/b”.

8.10 The President is entitled to vote only when it is necessary to give a casting vote. A Vice-President during his term of office is not entitled to vote unless he has been appointed by a Member Nation as its Voting Delegate.

Vice-Presidents:

Lars BABENDERERDE	presented by Germany
Arnold DIX	presented by Australia
Randall ESSEX	presented by United States of America
Davorin KOLIC	presented by Croatia
Giuseppe LUNARDI	presented by Italy

Executive Council members:

Abidemi AGWOR	presented by Nigeria
Hamdi AYDN	presented by Turkey
Hangseok CHOI	presented by Republic of Korea
Jeyatharan KUMARASAMY	presented by Singapore
Andres MARULANDA	presented by Colombia
Jamal RASTAMI	presented by Iran

Nomination of the Treasurer:

Gérard SEINGRE	presented by Switzerland
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For all these items, the Member Nations received complete files together with the notice to the General Assembly.

**12. PREPARATION OF THE OTHER DECISIONS OF THE GENERAL ASSEMBLY ON
WEDNESDAY 8 MAY 2019**

12.1 Modification of the Statutes and By Laws

The Executive Council proposed to the General Assembly to modify articles of the Statutes and By Laws. Some are compulsory by the specificity of the Canton of Geneva, where ITA has its new headquarter. Some came from discussions held during previous general Assemblies and some are minor changes, mostly to harmonize French and English versions.

The Member Nations have received in due time a version with the current text in the left-side column and the proposed new text in the right-side column

Statutes 4.4 – Activity report of the Member Nations

Statutes 6.6 – Nationality of the Treasurer (request from the fiscal administration of Geneva)

Statutes 13.1 – Dissolution (request from the fiscal administration of Geneva)

BL 2.2 d – conduct of the General Assembly

BL 3.1 – Membership fee payment
BL 4.1 – Application procedures for Individual and Corporate members
BL 4.2, 4.4, 4.5 - Use of ITA logos for affiliate members
BL 6.8 – term of office for WG Animateurs and Vice Animateurs

The Statutes concerns a significant amendment proposing to merge the internal auditor and the Board of Governance into one entity: the Board of Auditors, the nationality of the Treasurer and the dissolution of the Association. The By Laws concerns the Auditing Council and the term of office of the Working Group Animator.

12.2 Modification of the subscription fees amount

Considering:

- Article 9.1 of the Statutes and Chapter III of the By-laws of the Association which give the responsibility to the General Assembly of the Member Nations to fix the amount of the subscription fees on a motion proposed by the Executive Council,
- The decision of the General Assembly 1999 to establish the system of differentiated subscription fees in three categories according to the contribution of the countries in the general budget of the UN,
- The decisions of the 2014 General Assembly to fix the subscription fees to the current amount and the decision of the 2011 General Assembly to fix Category I for countries with contribution over 0,5%, Category II for countries with contribution included between 0,5% and 0,05%, and Category III for countries with contribution under 0,05%,
- The decision of the General Assembly of the United Nations in January 2013 of the new scale of assessments for the calculation of the contributions.

Noting:

- The general world inflation since 2014,
- The increase in activities of the Association.

The Executive Council proposes:

To modify the annual membership fees of the members as follows:

- Member Nations, from 2020 on:
 - Category I : 1 275 EUR instead of 1 200 EUR
 - Category II : 900 EUR instead of 850 EUR
 - Category III : 500 EUR remains unchanged
- Corporate Affiliate Members, from July 1st, 2019, on: 900 EUR instead of 850 EUR
- Individual Affiliate Members, from July 1st, 2019, on: 155 EUR instead of 150 EUR
- To note the change from category III to category II : Azerbaijan, Equateur and Vietnam
- change from category II to category I : Argentina and Indonesia
- and change from category I to category II : Finland and Greece.

12.3 Presentation of the candidatures for the 2022 General Assembly

The President reminded the name of the two candidates to host the 2022 General Assembly: India and Mexico.

The two candidates have shown a presentation of their respective proposals (**Encl. 16 and 17**).

12.4 New Working Group

Following a proposal made in 2018 by the Member Nation of Iran, with the support of the Member Nations of Australia, China and Turkey, the Executive Council proposes to the GA to establish a new Working Group (WG 23) for “Shaft Design and Construction” (**Encl. 18**).

12.5 Auditing proposal

The Member Nation of Norway has proposed an evaluation of the ITA processes, systems and governance structure through an external audit (**Encl. 19**).

Norway explained the purpose of the proposal and the issue was intensively discussed by the Member Nations. Some of them think that the considered amount is far too high.

On Sunday 5th May at 1.00 PM, the President closed the first part of the GA.

B – ASSEMBLY ON WEDNESDAY 8 MAY 2019

On Wednesday 8th May 2019 at 1:30 pm, the President opened second part of the General Assembly.

He requested an official moment of silence dedicated to Miguel Fernandez Bollo, the representative of AETOS (Asociación Española de Túneles y Obras Subterráneas), who suddenly passed away during the conference. Some slides and speeches have been shown in his memorial.

The Executive Director suggested starting with the presentation of the Open Session and the presentation of the Working Groups. Then the GA will go to the elections to know the exact number of Member Nations presents.

13. ELECTION OF THE EXECUTIVE COUNCIL MEMBERS

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

- | | |
|-----------------|----------------------------|
| • Jairo Pascoal | Delegate from Brazil |
| • Ron Tluczek | Delegate from South Africa |

b) **Voting delegates:**

Presents or represented: 62

Votes by proxies: 9 (Albania, Costa Rica, Kenya, North Macedonia, Montenegro, Myanmar, Peru, Serbia, Vietnam),

Absolute majority is: 32

It is reminded that an absolute majority is needed. The Executive Director explains that in case of even number, as requested in the Statutes, the vote of the current President is compulsory. There are 62 countries present or represented thus the President Mr. Tarcisio Celestino will prepare a vote which will be disclosed only if necessary.

13.1 Election of the President

1st tour:

Eric LECA	30 votes
Jinxu (Jenny) YAN	32 votes

Mrs Jinxu (Jenny) YAN is elected for 3 years.

She thanked all persons, Member Nations and companies which have strongly supported her. She will take care of all her responsibilities towards Member Nations and others. She already thanked Executive Council Members for their support, specially Tarcisio Celestino. They have spent so much efforts and money for ITA. She really hopes to enjoy walking together for the future.

13.2 Election of the Vice Presidents

The results are as shown below

Lars BABENDERERDE (Germany)	53 votes
Randall ESSEX (USA)	48 votes
Arnold DIX (Australia)	47 votes
Giuseppe LUNARDI (Italy)	38 votes
Davorin KOLIC (Croatia)	34 votes

The four candidates with the most votes are elected as Vice Presidents; **Lars BABENDERERDE** who got the highest number of votes is the First Vice-President.

13.3 Election of the other Executive Council members

The six candidates got an absolute majority and therefore are all elected:

Abidemi AGWOR (Nigeria)
Hamdi AYDN (Turkey)
Hangseok CHOI (Korea)
Jeyatharan KUMARASAMY (Singapore)
Andres MARULANDA (Colombia)
Jamal ROSTAMI (Iran)

13.4 Appointment of the Treasurer

Following the proposal of the Executive Council, the General Assembly accepted unanimously the nomination of **Gérard SEINGRE**, from Switzerland, as Treasurer for the coming term 2019-2022.

14 – REPORT OF THE OPEN SESSION HELD ON TUESDAY 7 MAY 2019:

Report to the General Assembly by Alexandre Gomes.

The 1st part of the Open Session was dedicated to the presentation of the guidelines/reports prepared by WGs and Committees :

- **WG 2 Guidelines for the Design of Segmental Tunnel Linings**
- **WG 5: Guide to ITA/BTS CAWG Report 10 for Clients and others not familiar with high pressure compressed air work**
- **WG 14 / 15 -Handling, Treatment and Disposal of Tunnel Spoil Materials**

As well as 3 reports from the Committees:

- **ITAtch – Practical approach for controlling the blasting vibration and optimizing advance in urban tunnelling**
- **ITAtch – Guidelines on rebuilds of machinery for mechanized tunneling excavation**
- **ITA COSUF - Current practice on cross-passage design to support safety in rail and metro tunnels**
- **ITA-FIDIC Emerald Book**

2nd part

“TUNNELS A RESILIENT LINK BETWEEN PAST AND FUTURE”

Moderator; Mr. Jean-Christophe Giesbert

Panel:

- Bernard Cathelain – Grand Paris Express
- Paolo Guglielminetti – PwC
- Paola Firmi – RFI
- Martin Muncke – WG21
- Nobuharu ISAGO – Tokyo Metropolitan University
- Ed Taylor- WG6
- Jurij Karlovsek – WG22
- Salo Van der Woude – Arcadis
- M. Shijeta – Pacific Consultants

Two discussion themes:

- 1st round table: Tunnel life cycle considerations
- 2nd round table: Maintenance, survey and repair works

Maintenance & Repair strategy in the finance model:

- The financial modelling results (e.g. IRR) is quite dependent on the forecasted values and cycles of M&R
- However, in most cases the analysis is quite «basic» on such aspects, with typically two kind of estimating approaches:
 - Data from the engineering design studies (if available)
- More in-depth analysis would be required for complex infrastructure such tunnels, also considering
 - the **specific M&R needs** of the different sub-systems,
 - the **need to optimize the financial profile** of the project
- Lesson learned: **new «modern» infrastructure** tends to have lower maintenance costs in the first operating period
- **Comparison of MRO costs vs Construction Costs (Net Present Value) :**
 - **Long tunnels** Up to **10-15%** of the construction costs
 - **Railway lines** Up to **5-8%** of the construction costs

Road tunnel maintenance:

- The law of maintenance by government was revised in 2014.
- Inspection is mandatory for all road tunnels.
- Periodical inspection is legally done every 5 years from 2014.

- Close visual inspection is mandatory and non-destructive test, such as hammer strike test, is added if necessary.
- Classification of 4 or 5 category codes to grade inspection result is also mandatory and must be reported to central government.

Summary

The Session has been well attended. The main subjects were that engineers and financial people have to work together from the beginning to take into account maintenance as a crucial point.

Tunnels are difficult to replace so their operating life has to be long more than 120 years.

The structure of the tunnel is usually not the problem but that Mechanical & Electrical equipment. For this BIM can help a lot.

New survey methods are being developed and data analysis has to be improved. We can have data on nearly continuous basis.

Even though tunnels are built for long time state of the art is changing and therefore some changes are sometimes needed in the structure of the tunnels.

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

15.1 – Executive Council, Working Group Animateurs and Committee Chairs Meeting

A meeting between the Executive Council, Working Group Animators and Committee Chair has been held on Saturday 4 May, 2019, chaired by Ruth G. Haug and Alexandre Gomes (**Encl. 20**). Ruth G. Haug reported about it.

Purpose of the meeting (as last year):

The meeting is a platform for direct communication among **WGs, Committees and ITA ExCo / Secretariat**, aiming at:

- Enhanced cooperation between WGs and Committees, 3 C's (Communication, Collaboration, Cooperation)
- Enhanced role of Animateurs
- Improved communication mechanisms and procedures
- Focus on the WG/AGs' leadership to enable stronger and more dedicated WG/AGs leadership. Important **leader** role in the ITA system

Meeting Agenda

- 1) Meeting purpose and approval of the agenda (RGH/AG)
- 2) **Welcome by ITA President Tarcisio Celestino**
- 3) News and comments of the delegates (**round table**), name, country, company, ITA role, news, needs, need of interaction (every wg/ag, 3 min each)
- 4) **Stronger together**- Open discussion in subgroups (RGH/AG). Prepared discussion
- 5) Practical/logistic/web Aspects (O. Vion)
- 6) Other matters to be addressed
- 7) Wrap up and final conclusions

Open –and preplanned discussion

The purpose of this discussion was to effectively have all involved and active to get a broad conclusion in short time.

Last year's open discussion -Main takeaways

A - What is the main purpose of the WGs and the Committee as seen from animateurs view?

- *Technical network;*
- *Produce guidelines;*
- *Consolidate global know-how;*
- *Knowledge sharing;*
- *Mentor young professionals;*
- *Contribute to ITA mission (tunnel world authority);*
- *Setting standards for the industry.*

Question A:

Given this summary; What has changed or will be changed in your WG in order to fulfil this? What was achieved in this regard? Further suggested actions to all involved parties?

2019 discussion

1. Given this summary; what has changed or improved or will be in focus in your WG/Com the next period in order to reach goals and the desired output. Emphasize also if you like what is working well.
2. As an animateur/com chair; which means leader in ITA; how can you contribute to improve the results of the WG / Com, making ITA WG / com even more attractive and productive.
3. Please give input to what you like to be discussed in this meeting next year!

Practical / Logistic / Web Aspects

Discussion related to: Mailing lists, Platform for communication, National nominated delegates, voting procedures, Turn over in WG / Committees.

15.2 – Working Group 2 - Research

Animateur: Elena Chiriotti (France), Vice-Animateur: Ron Tluczek (South Africa), Tutor: Chungsik Yoo (Korea)

Report presented by Elena Chiriotti.

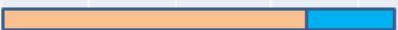
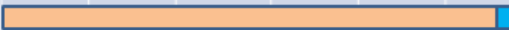


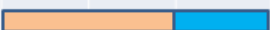
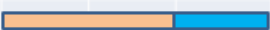
One meeting in Naples on Sunday 5th of May 2019.

- Review of the ongoing activities of the 8 active sub-groups
- Election of the Animator and Vice-animator (last election in San Francisco)
- Preparation of the WG2-WG3 Joint Workshop on Risk Management

IDENTIFIED INTERFACES

WG3, ITIG / WG14, WG19 / AG-SIG, WG6

WG02 - We progress...

ONGOING ACTIVITIES in WG2	Task Team	Content settled	Proposed structure	1st draft	Final draft	Internal review	Publication
RISKS MANAGEMENT Application Guide	See results of WG2-WG3 Joint Workshop						2021
MANAGEMENT of FACE PRESSURE							2022
STRESS MEASUREMENT							2020
UTILITIES' DAMAGE							2023
SETTLEMENT (Review of existing Report)							
GEOPIYSICAL INVESTIGATIONS (*)							
SEGMENT DAMAGES	WG2 will review the 2019 recommendation published by SIG						2022
SEGMENT LONGITUDINAL JONTS							

 Progress at WTC 2019  Expected progress at WTC 2020

WG2 – WG3 Joint Workshop on «Risk Management» in Naples on Monday, May 6th, 2019

32 participants (WG2, WG3 and external)

TOPIC A: Organisation of Risk Management through Projects

TOPIC B: Integration of Risk Management into Projects' Costs & Schedule

TOPIC C: Impact of different forms of Contract on Risk Management

2 WGs: a task force of 6 (Bettina, Tiago, Karl, Elena, Philip, Emmanuel) and 1 common objective: APPLICATION GUIDELINE FOR RISK MANAGEMENT IN TUNNELLING

We respect our engagements...

Engagements since WTC 2017:

- Encourage best contributions: increased cooperation with other WGs and with national associations
- Share our achievements: increase the cooperation with ITA-CET
- Encourage YM to work with us: RESEARCH needs new points of view!

WG3, SIG

Video for the new recommendation

...and create new ones

1 WG2 report / year in the next 5 years

15.3 - Working Group 3 - Contractual practices in underground construction

Animateur: Matthias Neuenschwander (Switzerland), Vice-Animateur: Martin Smith (UK), Tutor: Randall Essex (USA), special expert: Arnold Dix (Australia).

Report presented by Martin Smith.

➤ **WG3 activities since WTC 2018**

- **Emerald Book:**
Emerald Book launched May, 7th, 2019
- **Revision of ITA Report no. 006**
Peer Review process under way
- **Report on Procurement practices**
Google based survey ready for test run

Joint Workshop with WG02 organized on risk management

➤ **WG 3 Meeting Sunday, May 5th, 14-18**

29 participants, 2 excused. With the participation of R. Essex (Tutor) and A. Dix (Special Expert)

Activities:

- Informed about Country Delegates issue
 - Revision of Report No. 6 (Gonçalo Diniz Vieira, Portugal)
 - Sneak peek of Emerald Book (Andres Marulanda, Colombia, Member, TG10)
 - Procurement practices survey questionnaire (Jenny Chu, New Zealand)
 - Recommended Contract Practices for Underground Construction (Bill Edgerton, USA)
 - Introduction to the joint Workshop with WG02 Risk Management on May 6° (Andrew Bourget, Switzerland/Tiago Ern, Brasil)
- Agreement on WG3 objectives, subgroups and next steps

➤ **WG 3 / WG 2 joint Workshop Monday, May, 6th, Moderation: Andrew Bourget/Tiago Ern**

27 participants with the participation of R. Essex (Tutor WG3),

Introduction by M. Neuenschwander, E. Chiriotti, A. Bourget

Subgroup discussion of 3 topics regarding Risk Management

- A Organisation of Risk Management through Projects
- B Integration of Risk Management into Projects Costs and Schedule
- C Impact of different Forms of Contract on Risk Management

Next steps:

Collaboration of WG 2 and WG 3 for the update of Report on Risk Management, target: draft for discussion by WTC 2020.

➤ **WG 3 2019-2022 objectives, cooperation, next group activities, budget**

Objectives 2019-2022:

- Publication of Revision of ITA Report 006 (Contractual Framework Checklist for Subsurface Construction Projects, Task leader: Gonçalo Diniz Vieira, Portugal) : WTC 2020

- Contracts guide to the Emerald Book (TG 10): WTC 2021
- Publication of Report on Procurement practices (Task lead: Jenny Chu/Bill Edgerton): WTC 2021/2022
- Start, work on report on Contract practices for Designers/Engineers/Supervisors (Task lead: Davide Fabbri)

Cooperation:

- WG 2, report on Risk Management (contact persons: Tiago Ern/Bettina Geisseler/Kurt Hechenblaickner)
- WG 22 (contact person: Jenny Chu)

Next group activities:

- May: test run survey on procurement practices
- July-November: survey amongst Member Nations on procurement practices and evaluation
- December-January: internal report on survey and draft Table of contents to be discussed WTC 2020
- 3 points of contact between WG animateur and each task leader (F2F or screen)
- WTC 2020, Kuala Lumpur

Budget requests announced (2019):

- Part of travel expenses of ITA members to TG10, except chair (5'000 \$)
- Translation of Revision of Report No. 6 to 5 official UN languages (5'000 \$) (announced 2018)

➤ **Next focus of WG3 (starting WTC 2019):**

- Survey on procurement practices
- Publication of Revision of Report 006 (Contractual Framework Checklist)
- Contract practices for Designers/Engineers/Supervisors

WG 3 thanks all its partners within ITA and outside, in particular the FIDIC Contracts Committee, the WG 22 and WG 2, for their support during this past year, and looks forward to cooperating in the future!

GRAZIE!

15.4 - Working Group 5 – Health and Safety in Construction

Animateur: Donald Lamont (UK), Vice-Animateur: Werner Burger (Germany) Tutor: Ruth G. Haug (Norway)

Report presented by Donald Lamont.

WG5 met twice in a tent during WTC 2019 with the meeting on Sunday being particularly cold and noisy.

The Animateur was Dr Donald Lamont (UK), the vice-Animateur was Werner Burger (Germany). The Tutor was Ruth Haug (Norway).

8 members from Austria, Australia, France, India, Italy, Japan, New Zealand and Norway attended. WG5 was very pleased to note the launch at the Open Session of its latest report – “Guide to ITA/BTS CAWG Report 10 for Clients and others not familiar with high pressure compressed air work”.

The report was completed within one year of commencement.

WG5 had useful presentations on:

- progress with the revision of CEN standards
- diesel particulate monitoring
- H&S challenges in long deep tunnels
- A new Austrian Guideline and Regulation (RVS) 09.01.51 on "Health and Safety on underground construction sites “.

WG5 noted with surprise and regret it had not been included in the list of WGs to participate in the ITA task group on “Accidents” announced at the GA on Sunday.



WG5 identified dust as probably the most significant occupational health issue in tunnelling today.

WG5 noted that respirable crystalline silica is now classified in Europe as a carcinogen.

WG5 discussed drafting a guideline on control of exposure to dust but national regulations vary so considerably that consensus over good practice could be difficult.

WG5 wishes to draw the attention of other WGs to the occupational health risks from dust exposure particularly in sprayed concrete work and will be pleased to collaborate

WG5 considered its future work programme and decided to commence a guide for tunnel clients and designers on the essential planning for health and safety required in the stages from project inception through to procurement.

WG5 has contacted WG23 with an offer to collaborate on the topic of health and safety in shafts.

WG5 wishes to collaborate with other working groups to raise the profile of health and safety in all ITA publications and thanks WG14 for the chance to present to it on HPCA.

15.5 - Working Group 6 – Maintenance and Repair

Animateur: Henry A. Russell (USA), NEW Vice-Animateur: Ed Taylor (AUS), Tutor: Arnold Dix (Australia) -

Report presented by Henry Russell.

Working Group met, Sunday May 5, 2019.

Members in Attendance: 13

Representing 11 Nations

50% New Members

From: Australia, Austria, Brazil, Italy, France, Germany, Japan, Netherlands, Sweden, Switzerland, USA.

51 Nations do not have a delegate to the Working Group

Current Work Program/ Schedule

- Working Group is divided into 3 basic study areas:
 - Groundwater Intrusion In Operating Tunnels
 - Tunnel Refurbishment Strategy
 - Current Trends in Tunnel Fire protection

Document Format/ Schedule

- Documents to be Short approximately 10 Pages
- To Identify new trends in the particular subject
- Schedule: Draft September 1, 2019 final February 1, 2020
- On website by next World Tunnel Congress

Working Group Participation

51 Nations need to assign a delegate

Interested in the repair/ maintenance of Tunnels?

Contact the Working Group

ITA Working Group mailbox: WG6@ita-aites.org

Contact Animateur : Henry.Russell@Mottmac.com

15.6 - Working Group 9 – Seismic effects

New Animateur: Conrad Felice (USA), Vice-Animateur: Wenge Qiu (China), Tutor: Daniele Peila (Italy)

Report presented by Gary Kramer.

WTC 2019 Group discussed state of WG 9 – agreed on need for re-energization of WG.
New Animateur discussed – WG 9 proposes Conrad Felice of USA as new Animateur.

Group discussed goals of WG 9

Primary Goal is to promote the use of tunnels and underground space in seismic regions noting that:

- Tunnels are a good solution in seismic areas
- Tunnels are very safe in seismic areas – have performed very well during events – much less damage than surface structures
- Do need special design provisions, but those provisions are generally much less than for surface structures

– 1 Year Goals

At WTC 2019 WG 9 developed a 2 to 3-year list of goals - 1st Year Goals:

1. Confirm new animateur – Conrad Felice (USA) proposed.
2. Re-establish communications within group
3. Communicate benefits of tunnels in seismic and earthquake areas (Target 1-year, next WTC) – ITA web page to help educate owners of benefits of considering use of tunnels
4. Establish a list of Member Nations to participate in the committee – increase participation
5. Establish what tunnel seismic design related information would be most valuable to ITA members
6. Develop accessible database of tunnel seismic related papers/resources (bibliography 1st – copies later)

– Later Year Goals

1. Provide & maintain history of performance of tunnels in seismic zone – ongoing, accessible database
2. Establish goals of design – performance levels etc.
3. Synthesis of standards from around the world/current practice – resource to ITA members – identify gaps
4. Develop & provide suggested guidelines for design – analysis & design details – different types of tunnels – build upon Hashash et al, 2001 ITA work
5. Identify research needs & interest items:
 - performance of connections between openings (e.g. tunnels/stations, tunnels/cross passages)
 - instrumentation
 - gaskets & connecting devices
 - numerical modelling
 - post seismic event inspections

15.7 - Working Group 11 – Immersed and Submerged Floating Tunnels

Animateur: Jonathan Baber (UK), Vice-Animateur: Eelco van Putten (Netherlands), Tutor. Davorin Kolic (Croatia)

Report presented by Jonathan Baber.

Report from meetings:

- 35 attendees from 10 countries across UK, Netherlands, Denmark, Australia, China, Belgium, Norway, USA, Japan, Germany
- Both Sunday and Monday meetings
- Work plan developed for coming year and 4no. task group workshops for current 3-year plan activities.
- 6 project and technical reports both on immersed and submerged floating tunnels

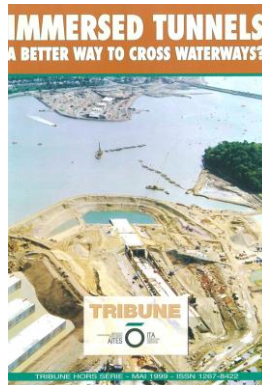
Coming year:

- Completion of 17no. final annexes for version 4 publication of report No.7. Intention to finalise for Kuala Lumpur WTC2020
- Continuation with project case study database

Meeting activities for 3-year plan:

- Task 1 – special set of technical papers on immersed tunnels for TUST / WTC proceedings in 2021.
- Task 2 – publication on maintenance and repair aspects for immersed tunnels (with WG6), similar to environmental leaflet.
- Task 3 – Education/R&D work-group:
 - Plan for education materials, supporting university courses and supporting ITA-CET
- Task 4 - Publication on innovations and recent technology advances. Leaflet style.
- Task 5 – Submerged Floating Tunnel Owners Guide
 - Potential cooperation with FIB and IABSE

- Task 6 – video presentation on benefits and application of immersed tunnels. To replace old leaflet on “A better way to cross waterways”
- Additional activity – cooperation with China on standards and manuals for immersed tunnels.



Walter Grantz Memorial Award: Awarded to Fern van Efferink of Ballast Nedam, NL

15.8 - Working Group 12 – Sprayed Concrete Use

NEW Animateur: Karl-Gunnar Holter (Norway), New Vice-Animateur: Alun Thomas (Denmark), Tutor: Giuseppe Lunardi (Italy)

Report presented by Eivind Grov

Animateur; Eivind Grøv (Norway)

Vice-animateur; Stefan Bernard (Australia)

Tutor; Giuseppe Lunardi (Italy)

Met Sunday 2.30pm to 6 pm in "Capri, and Monday.

38 participants & 19 (member) nations;

Australia, Austria, Bolivia, Brazil, Belgium, Canada, Chile, Denmark, France, Germany, India, Italy, Japan, Malaysia, Norway, Sweden, Switzerland, UK, UAE.

➤ **Current Activities, prioritised by the WG**

- Fiber-reinforced Sprayed Concrete
Document has been through an internal review, Peer review and is ready to go – internal disagreement on certain issues - cleared
- Permanent Sprayed Concrete Lining
This document is reported to be 80% on its way; a dedicated member of WG12 supports ITATech on this report
- Two previous initiatives; Sprayed Concrete Durability and Quality Control have been abandoned
- New initiatives discussed; In-service Performance of Sprayed Concrete, Shrinkage Control, Spraying-equipment, Panel Testing
- Critical Q – how to get people to say 'I am willing to take responsibility' for certain task? How to attract members to put down voluntarily based – unpaid - in WG-publications?

➤ **Election**

The animateur decided to step down from the position as he has been nominated for another post in the ITA-System.

An election was held; had two candidates for Animateur and two candidates for the Vice-Animateur. The result was:

The new Animateur:	Karl-Gunnar Holter (Norway)
The new V-Animateur:	Alun Thomas (Denmark)

➤ **Management plan of WG12**

Main purpose to activate members, encourage them to take on tasks on behalf of ITA and give them the credit for documents. A and VA to manage and facilitate. Document on Communication Structure /Architecture also been prepared

➤ **Nomination of participants to the Working Groups**

Of 38 participants 13 voting delegates – including 2 late incoming by e-mail and sms – continuity is important.

My strong message to all 78 member nations; please send in the nominations in due time and register your delegates at the Secretariat so that people joining the meeting can vote and receive all documentation prior to the meeting.

➤ **Final words of Eivind Grov as Animateur in WG 12**

The following legends have been Animateurs of WG 12:

Tomas Franzén
Knut Garshol
Tarcisio Celestino
Atsumu Ishida

Been a pleasure to serve as Tutor, as Animateur and as member of WG12 through 15 year with lots of enjoyable discussions

Good luck to the new team, best wishes for the continued life of WG12 and THANK YOU!

15.9 - Working Group 14 – Mechanized tunnelling

Animateur: Brian Fulcher (USA), Vice-Animateur: Karin Böppler (Germany), Tutor: Soren Eskesen (Denmark).

Report presented by Brian Fulcher.

➤ **Follo Line, Oslo – Anne Kathrine Kalager**

- Summary of the work
- Description of the challenges
- Work schedule and productivities
- Innovations and accomplishments

➤ **Hyperbaric Requirements – Donald Lamont**

- Summary document to a larger paper
- Useful guideline for less experienced
- Supplement for a large and more comprehensive published documents on hyperbaric requirements

➤ **Large TBM Tunnel in Japan – Kaz Imakura**

- Description of large TBM tunnels
- Complex underground connections
- Multiple concurrent contracts
- Innovative TBM docking requirements

➤ **Tunnel Spoil Controls – M. Marchionni**

- Changes to regulations for tunnel spoil
- Early planning and materials testing
- TBM operating controls
- Case studies and references

➤ **Working Group Meeting Dates and Data**

- WG 14 met on Sunday, 05 May 19 for the Primary Meeting
 - 46 persons attended
 - 9 Young Members attended
 - 20 countries were represented from the meeting attendees
 - 12 Member Nations had official delegates to WG 14
- WG 14 met on Monday, 06 May 19 for the Secondary Meeting
 - 10 persons attended
 - 2 Young Members attended
 - Meeting focus was WG 14 - Task Group 3: Tunnelling Innovations

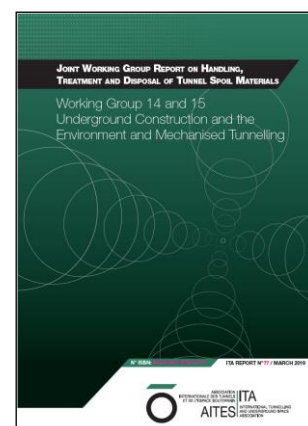
➤ **Working Group 14 –Task Groups: Focus and Schedule**

- WG 14 – Task Group 1 – Training Tunnel Personnel (4 persons)
 - Training outlines for Tunnel Supervisors and Operations staff
 - Training for engineering and technical staff
 - Review of existing published training programs
 - Equipment operation simulation and optimization
- WG 14 – Task Group 2 – TBM Specification Guidelines (13 persons)
 - Industry search and contract reviews
 - Review of published regulations and standards
 - Formation of checklists and recommendations
 - Lessons learned and staying ahead of technology
- WG 14 – Task Group 3 – TBM Tunnelling Innovations (14 persons)
 - Multipole concurrent options under study
 - Data management and consolidation will be the focus
 - Summary of data outputs and operations needs to be studied
 - Recommendations for field operations management
- WG 14 – Task Group 4 – TBM Tunnel Spoil Handling (12 persons)
 - Focused work products under study (renewed focus)
 - Potential Joint Venture opportunities with WG 15
 - Potential research input from University researchers
 - Further expansion of recently published documents

➤ **Published Report from WG 14+15**

This report on excavated spoil material from tunnels and underground caverns belongs to a set of reports from ITA's Working Group 15 - Underground Construction and the Environment.

It also benefits from the considerable reports and input from Working Group 14 – Mechanized Tunnelling.



Structure of the Report

- Opportunities
- Challenges
- Contractual Issues
- Recommendations and Check List
- Selected Case Studies

15.10 - Working Group 15 – Underground and Environment

Animateur: Cédric Thalmann (Switzerland), Vice-Animateur: Nikolai Bobylev (Russia), Tutor: Anna Lewandowska (Poland)

Report presented by Cédric Thalmann

➤ **WG-Members present at the meeting:**

Francesca Martelli	
Alessandro Boscaro	Italy
Vincenzo Perugini	
Ono Tomonori	
Kamikoshi Toshiki	Japan
Kosuke Kawata	
Mathias Jern	Sweden
Arthur Silver	USA

➤ **WG-Members excused for the meeting but without sending a deputy:**

Jacques Burdin	France
Jan Rohde	Norway
Donald Jonson	Sweden

➤ **WG-Members missing and without sending a deputy at the meeting:**

Georg Sadowski	Brazil
When Zhao	China
Andres Villaneda	Columbia
Ashraf Abu-Krishna	Egypt
Ilkka Vähäaho	Finland
Evgueny Kurbatskiy	Russia
Harald Wagner	Thailand
Ebuekir Aygar	Turkey

➤ **Nation Members missing in WG15:**

Germany	Spain
Belgium	Portugal
Canada	Singapore
Denmark	etc.

➤ **Next possible topics**

- Environmental impact of soil conditioning during mechanized tunnelling with EPB machines
 - Standard procedures for soil conditioning
 - Site specific risk assessment for remediation of contaminated soils

- Procedures to test the products and soil/additive mixture
- Standardization: assessment of conditioned soils during work
- Noise and vibration related to underground works
- Considering global environmental agenda in underground space planning
- **Next steps**
 - Table content with key words July 19
 - Questionnaires to WG and Nation Members August 19
 - Selection of the definitive subjects September 19
 - Submission for approval October 19
 - Project organisation (WG meeting) January 20
 - Long term programme?
 - Laboratory testing, data collecting, responsibilities, etc.
 - Documentation: recommendations and/or reports or publications?
 - Start with the work execution February 20
 - Progress report (at WTC 2020) May 21
 - Primary or final report (at WTC 2021) May 22

15.11 - Working Group 17 – Long tunnels at great depth

**Animateur : Magali Schivre (France), Vice-Animateur : Roberto Schuerch (Switzerland),
Tutor: Jenny (Jinxu) Yan (China)**

Report presented by: Magali Schivre

➤ **Activities since previous WTC**

- One intermediate meeting in BBT Brenner tunnel in October 2018, with 12 participants

➤ **Activities WTC 2019**

- 26 participants from 12 different countries: Italy, France, Switzerland, Germany, South Korea, Japan, The Netherlands, Sweden, Spain, USA, Norway and China.
- 16 active members of the WG17
- 2 meetings in Naples
- Presentations on projects and review of state of advancement of exiting project:
 - Brenner Base Tunnel (Austria / Italy)
 - Folloline (Norway)
 - South Korea long tunnels (South Korea)

➤ **Election of the new animator**

- New Animator: Magali SCHIVRE (FRANCE)
- Nomination of the vice-animator: Roberto SCHUERCH (SWITZERLAND)

Both have been elected with 13 votes of 13 official representatives of members nations

Many thanks to our dear animator Gerard SEINGRE for the excellent work provided during the last 12 years!

➤ **Work in progress**

- New report: “LOGISTICS ASPECTS FOR LONG & DEEP TUNNELS
- Working procedure: members splits in 4 Sub-tasks groups led by one responsible
 - Group 1 Constraints related with logistics Aspects
 - Group 2 Logistical activities to manage during construction

- Group 3 Owner aspects and Contracts issues
- Group 4 Constitution of a Database
- Next intermediate meetings “on-site”
 - TELT project, Italy-France
 - Ovit Tunnel, Turkey

**MANY THANKS TO ALL THE GROUP MEMBERS FOR THEIR INVOLVEMENT
AND CONTRIBUTION.**

15.12 - Working Group 19 – Conventional Tunnelling

**Animateur: Nasri Munfah (USA), Vice-Animateur: Robert Galler (Austria),
Tutor: Alexandre Gomes (Chile)**

Report presented by Nasri Munfah (USA)

WG 19 Leadership:

- Animateur: Nasri Munfah (USA)
- Vice Animateur : Robert Galler (Austria)
- Tutor: Alex Gomes (Australia)

Attendees: 25 members representing 17 member nations

Met on Sunday May 5th 14:00 to 18:00. No follow up meeting on Monday was needed

➤ Agenda of the Meeting

1. Introduction of members and Invitation to other members from under-represented nations
2. Progress Report No. 14 submitted to the ITA ExCo and outcome of the meeting with ExCo members
3. Presentations by WG members
4. Status of the report: “Guidelines for the Design and Implementation of Conventional Tunneling in Urban Setting”
5. Next Project of WG 19
6. Other business items
7. conclusions and action items

➤ Member Nation Presentations

1. “Recent Conventional Tunnelling Projects in Italy” - Giovanna Cassani (Italy)
2. “Conventional Tunnelling in Japan – Case Histories” - Jun Mitsuo (Japan)
3. “Norwegian Tunneling 2019 – Environment, Safety, Digitization” – Thor Skjeggedal (Norway)
4. “Recent Conventional Tunnelling Projects in the USA” – Vojtech Gall (USA)
5. “Challenges of Conventional Tunnelling at The ZaB (Zentrum am Berg – An) Underground Research Centre)” – Prof. Robert Galler (Austria)

➤ Status of WG 19 Report “Guidelines for the Design and Construction of Conventional Tunnelling in Urban Setting – 2nd Draft”

Table of Content

1. Introduction and Purpose of the Report
2. Specific Considerations of Geotechnical and Hydrological Investigations
3. Guidelines of Design Process and Design Considerations
4. Assessment of Ground Behaviour
5. Instrumentation and Monitoring Measures and the Development of Threshold Values
6. Ground Improvement Measures and Techniques Enabling Conventional Tunneling in Difficult Ground Conditions in Urban Areas
7. Pre-Support Measures
8. Potential Impact on Existing Facilities and Utilities/Services and the Development of Remedial and Corrective Measures
9. Use of Ground Classifications and Support Classes for Conventional Tunneling in Urban Areas
10. Implementation During Construction of Excavation Support Classes and Field Collaboration and Documentation
11. Risk Management and Design Robustness
12. Recommendations for Contractual Requirements
13. Case Histories

- Completion level 40% – 50%
- The second draft was discussed and Comments provided. Need to consolidate and focus the text
- Discussions of the topics and revision of the chapters – Additional Case Histories from various Countries
- Missing chapters/sections/case histories by end of June 2019
- On-line collaboration among participants and regular communications
- The final draft document will be issued and discussed in November 2019
- Final Report is planned to be issued in 2020 in conjunction with WTC 2020 in Kuala Lumpur
- A 10-minute Video Presentation – Needs Support

➤ **Proposed Next Project of WG 19**

- Five potential topics were discussed
- Selected Topic:
 - Guidelines for the Application of Waterproofing Systems in Conventional Tunnelling
 - Leader: V. Gall (USA)
 - Outline WTC 20 in Kuala Lumpur
 - 1st Draft WTC 2021 Copenhagen
 - Issue WTC 2022

15.13 - Working Group 20 – Urban Problems – Underground Solutions

Animateur: Wout Broere (The Netherlands), Vice-Animateur: Bruce Matheson (UK), Tutor: Olivier Vion (France)

Report presented by Wout Broere.

- Sunday meeting with 18 representatives from 10 countries : the Netherlands, UK, Switzerland, Japan, USA, Poland, Russia, France, Italy, Brazil
- Monday workshop on research opportunities with 31 persons
- **How can underground space help cities to develop sustainably and become more resilient?**

What are the resilience issues that need to be addressed?

- Climate change
- Sea level rise
- Flooding
- Hurricanes
- Earthquake
- Tsunami
- Congestion
- Pollution
- Social unrest, terrorism
- Blackouts, loss of utilities

Current Examples

- Rotterdam car park
- SMART tunnel
- Climespace
- Sponge parking

➤ **The Goal**

A document that addresses examples and ideas of how the use of underground space can influence resilience

➤ **Progress**

- Created a short Terms of Reference for this document
- Split the final report in 3 sections:
 - First a paper aimed at explaining the topic and presenting short descriptions of events and exemplary projects to show realized solutions.
 - A second paper is to include also what mistakes have been made in this respect. This means addressing failing components and identifying solutions that have missed the point.
 - The 3rd and last paper will highlight the possibilities to adapt existing systems to increase resilience and how to increase resilience in new systems.
- Extended discussion on topics to be included 3 groups detailing aspects of the first paper:
 - Environmental impacts and natural disasters
 - Human influenced factors and urban planning
 - Value proposition

➤ **Presentation on Istanbul Metro**

- Metro and infrastructural projects
- Urban context
- Free up surface space
- Increase resilience
 - Rain infiltration
 - Flooding
 - Earthquakes

➤ **Joint position paper on underground space research needs**

- Joint workshop with WG2, WG22, COB (NL)
- Common themes with CEDR & EIM:

- Infrastructure optimally meeting end user needs
 - Infrastructure meeting environmental and social sustainability needs
 - Infrastructure achieving added value from digitalisation
 - Required professional competences
- Aims identified:
- Availability is key
 - Digitalisation to meet societal needs
 - Adding value is a must

15.14 - Working Group 21 – Life Cycle Asset Management

Animateur: Martin Muncke (Austria), Vice-Animateur: Laetitia d'Aloia-Schwartzentruber (France), Tutor: Felix Amberg (Switzerland)

Report presented by Martin Muncke.

Report I

- 10 colleagues (from AT, CH, FR, GE, IT, JP, NL and US) met here in Naples in one meeting to discuss the items of the working group. In the list of nominees of ITA secretariat 18 people were listed, only 9 of them were attending (including 1 in proxy) and 1 former participant, not nominated.
- The main focus of this WG will still be the preparation of guidelines for the owners of tunnels to support the “Life Cycle Asset Management”. Unfortunately, there was no development in this preparation. Only 2 persons are continuously attending the meetings since the beginning.
- The questionnaire was updated by the Vice-Animateur and was distributed to the member nations by the secretariat. We got 6 answers from Turkey, Iran, Finland, Germany, the Netherlands and France. We got additional questions from Norway and other countries but no full answered questionnaire. With these 6 answers it is not possible to create a good basis. We will check if we can explain some of the questions in a better way and ask some colleagues directly.

Report II

- Germany presented the new DAUB report “Recommendations for the Determination of Lifecycle Costs for Road Tunnels” just published in English version and available on the DAUB website (www.daub-ita.de)
- It was once more a discussion about the goal of the guideline. Unfortunately, only a few owners have really addressed their needs.
- COB from the Netherlands presented a project to get research funding for tunnels in Europe. This was accepted by the most important owners of road and rail tunnels. Maybe we can get some results also from them.

Recommendations for the Determination
of Lifecycle Costs for Road Tunnels



Deutscher Ausschuss für unterirdisches Bauen e. V.
German Tunneling Committee (ITA-AITES)

Report III

- We had also a discussion about the next general steps for this working group. According to the By-Laws, it is a decision of the group and the decision was clearly to continue. So we will continue.
- We, especially myself, have to thank very much our tutor Mr Felix Amberg who had always the right words for us in supporting the work. It's a pity that he will retire from this supporting position.

- Next year there will be also according to the current By-Laws an election of the animateur, maybe a new one.
- This concludes the report.

15.15 –Working Group 22 – Information modelling in tunnelling

Animateur: Jurij Karlovsek (Australia), Vice-Animateur: Paolo Cucino (Italy), Tutor: Lars Babendererde (Germany), Sub Group Leads: Jenny Chu (WG 3 / WG 22 link).

Report presented by Jurij Karlovsek.

The Animator remembered Dr Gabrielle Eccher, who has passed away and was one of the key co-founders of WG 22.

➤ **Sunday - 5th May**

- 2:00 Welcome and reflection
- 2:10 Presentation No 1 – MN Germany (Mr Heinz Ehrbar)
- 2:35 Presentation No 2 – MN France (Dr Nataliya Dias)
- 3:00 Presentation No 3 – MN China (Prof Zhang Dongmei)
- 3:30 Break
- 4:00 Presentation No 4 – European vision paper (Ms Karin de Haas)
- 4:10 Document overview and Chapter 9 presentation (Mr Jan Thoren)
- 4:30 buildingSMART (Ms Magdalena Stelzer & Mr Philipp Dohmen)
- 4:50 Employers Information Requirements for tunnelling clients (Mr Marko Žibert)
- 5:00 Discussion and Action for 2019/2020 (All participates)
- 5:30 Day closure

➤ **Monday - 6th May**

- 2:00 Presentation – MN Norway (Ms Sara Karoline Hegge)
- 2:10 Presentation – MN Sweden (Mr Mats Svensson)
- 2:20 Interactive presentation - MN Switzerland (Use Case Database)
- 3:15 Break
- 3:30 Interactive presentation – MN UK and New Zealand (3D Geology Modelling)
- 4:30 Discussion and decide on the plan for 2019/2020
- 5:30 Day Closure and Pizza again

➤ **DAUB recommendation on “BIM in Tunnelling”**

Preamble

1. General constraints
2. BIM basics
3. Design preparation
4. Design
5. Construction preparation
6. Construction

7. Operation
8. Outlook
9. Glossary
10. References
11. Appendix 1
12. Appendix 2

- **Publication “Digitalisation in Norwegian tunnelling” available at nff.no**
- **Local Policy**
 - By the end of 2018, 19 provinces and cities has released more than 40 policies and standards related to BIM technology.
 - The application of BIM in building and infrastructure projects has been dramatically promoted.
- **The ITA Contractual Framework Checklist for Subsurface Construction Contracts**
 - 2nd Edition
 - ITA - Working Group 3 “Contractual Practices”
 - WG 22- BIM
 - WG 22 and WG 3, workshop WTC 2018, 23 April, Dubai
 - BIM paragraphs - Chapter 9
 - On-line meetings and off-line work during 2018 / 2019
 - Contributors (second edition)
 - The revision of the first edition and the preparation of this second edition was led by a subgroup including Gonçalo Diniz Viiera (Portugal, lead), Jenny Chu (New Zealand), Davide Fabbri (Switzerland) and Matthias Neuenschwander (Switzerland, Animateur WG 3)
 - Chapter 9 on BIM was developed with the help of Jurij Karlovsek (Australia, Animateur WG 22) and Jan Thoren (Sweden, WG 22).
- **European vision paper, why this paper? (Karin de Haas, Director COB)**
 - Infrastructure is essential for the prosperity of Europe, especially in the peripheral areas and the TEN-network. The position of tunnels in these networks is extremely important.
 - As important nodes, often without alternatives, their availability is crucial for the economic heartbeat of the European network.
 - With this paper as a starting point we want to influence the research and innovation agenda of Europe. We believe tunnels deserve to be on the priority-list.
 - We deserve European attention and European funding.
- **Use case management platform; Bauen Digital Schweiz (Magdalena Stelzer, Digital Expert Amberg)**
 - The “Use Case Management Infrastructure” describes central BIM / VDC use cases, which considers planning, construction and operation of infrastructure constructions. The use cases make clear demands on the participants in each project phase and specifies what information must be provided, when, in what detail and by which discipline. The use cases are focused on international applications and are available in English.

15.16 - New Working Group 23 – Design and construction of shafts

Animateur: Siamak Hashemi (Iran), Vice-Animateur: Joe Lux (Australia)

Report presented by Siamak Hashemi.

- First meeting was held after GA
16 individuals from 8 countries participated.
- A presentation was given about history of shaft usage in mines and construction was given
- Individuals briefly mentioned their experiences regarding shaft design / construction
- The activity proposal for WG was reviewed and discussed
- For the first year it was decided to:
 - establish the correct terminology and nomenclature for shaft design and construction by providing suitable definitions for relevant items.
 - Provide suitable classification for shafts based on their geometry / application / construction method for a more uniform understanding of the design and construction implications
 - based on the above some general design guidelines for site investigations / design / construction can be prepared in future activities of WG
 - Interaction with other work groups to collaborate on issues of common interest will follow
 - holding webinars 2 or 3 times a year (first session to be held in July 2019)
 - Holding a workshop / conference on shafts (within 12 to 18 months)
 - Whatsapp discussion group created
 - Mailing list will be updated

After the presentation, the General Assembly officially approved the creation of the WG23 “Design and Construction of Shafts” as well as the nomination of the 1st animateur Siamak Hashemi (Iran), and the 1st vice-animateur: Joe Lux (Australia)

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

Chair: Max Wietek (Switzerland), Vice-Chair: Eric Premat (France), Tutor: Felix Amberg (Switzerland)

ITA COSUF report 2018

- Steering Board changes
 - New chairman: Maximilian Wietek, ILF
 - New vice chairman: Eric Premat, CETU
 - Thanks to Roland Leucker, STUVA, for his efforts during the last years as a chairman and for being still available as a tutor.
 - Retirements: Johan Bosch, RWS, and Les Fielding, LBA, both of them strong part of the Tunnel Safety Officer Forum success story.

- New in the SB (active since 2017, elected at ITA GA 2018) is Peter Kole, RWS, and he has taken the lead of AG4 for the Tunnel Safety Officers.

ITA COSUF short report 2018

- Three important public events plus internal meetings
 - The **5th European Road Tunnel Safety Officers Forum** held in Madrid, Spain, in May 2018 on the topic “From historical events to future trends”.
 - The joint **PIARC and COSUF conference on “Road Tunnel Operations and Safety”** that took place in October 2018 in Lyon, France.
 - Meetings of the Steering Board and AGs took place as well as the ITA COSUF General Assembly, where Lei Jiang, RISE, received the ITA COSUF Award 2018.
 - The public **“Workshop on New Energy Carriers (NEC) in underground transportation facilities”** organized in February 2019 in Utrecht, The Netherlands. Strong links to PIARC and good representation of the PIARC Technical Committee D5 including the NEC Expert Group meeting.
- Publications: During the last 12 months, two publications have been prepared:
 - **“Current practice on cross passage design to support safety in rail and metro tunnels”**, a report of AG2 and to be published during WTC2019, Naples.
 - The second one is the White Paper on **“New hazards and risks due to NEC vehicles accessing underground transportation facilities”**, being in preparation by AG3.

ITA COSUF 2018 in a nutshell

74 members
 4 Activity Groups
 3 Workshops/conferences (2 days)
 3 SB meetings, 3 AG meetings
 1 General Assembly
 2 Newsletters, 2 Publications
 1 Award

... join the experts of underground operational safety!

www.ita-cosuf.org

15.18 – Committee Itacus – ITA Committee on underground space

Co-Chairs: Han Admiraal (Netherlands) and Antonia Cornaro (Switzerland), Tutor: Chungsik Yoo (Korea) - Report presented by Han Admiraal

There is a very old law of physics that runs along the lines of "what goes up, must come down". Yet in economics, we believe in infinite growth. We believe that so much we have come to rely on it, we accept it as a given constant.

So, here we are again. At the WTC, the World Tunnel Congress. These past days I've heard again how long our tunnels are. "We are building the longest tunnel on earth" it sounded during the opening ceremony. "We are building a rail line with the most tunnels above 1000 metres in the world" I heard. "Our diameter is larger than anything build up to now". Somehow, we have this persistent belief that we are living in an era of unlimited wealth, of unlimited growth and unlimited resources.

Speakers pointed out to us that we need to contribute to improving liveability. This was a marked difference with previous congresses. And I applaud the organisers for having the foresight to invite speakers that encourage us to look forward. ITACUS truly enjoyed working with you helping to shape the programme and the various AAA on-site and off-site events. The session I hosted today was unlike anyone I experienced at a WTC. I think archaeology, architecture and art should remain part of our programme.

I've heard the word sustainable and sustainability being used in more presentations than ever. We need to build sustainable, we need to be sustainable, yet no one questioned whether in 20 years we will still be building tunnels, whether in 20 years there will still be a need for tunnels. Sustainability can never ever be linked to business as usual. Sustainability is a disruptor; it means we need to change, in our thinking and in our actions.

And there is more reason than ever to think deep about this. This week saw the release of a report by the United Nations that highlights how species are becoming extinct because of the way humankind is causing ecosystems to change or cease altogether. We are depleting the Earth of its resources at an alarming rate. This is not due to climate change caused by global heating that only adds another dimension.

Ladies and gentlemen, science is proving to us that we are rapidly approaching the boundaries of our existence. We are overshooting our ecological ceiling and falling short in terms of the social foundation. Radical change is required.

It was in 2014 during the WTC in Iguassu in Brazil that I challenged this association. I challenged the industry to come up with innovations. Now, five years later, I'm happy to say that the industry has responded. The Swiss Centre for Applied Underground Technologies aims at doing what is so much needed. SCAUT signed an agreement with ITACUS during this WTC. They are now an official industry partner of the new ITACUS Next Level Programme. A programme aimed at industry, aimed at developing and prototyping new solutions and stimulating upscaling these solutions. For us, this is a very exciting development as we move to demonstrate what we preach. Before the end of May, we will be applying for taking part in Expo 2020 in Dubai next year. An ideal platform to show the world the versatility of underground space such as underground green farming as an initiative for food security.

This is the action I talked about in Iguassu. This is what we need to enable humankind to survive. The coming years are not about making a profit. They are about ensuring there is a future for making profits. This is a message that unfortunately, up to now has only been understood by few. But companies like Unilever, Philips and Siemens are contributing like SCAUT to finding solutions that help us enter a new era. An era that is markedly different from our past. An era that is about living in harmony with our planet. An era that calls for a circular economy, for reaching the global goals for sustainable development, an era where we all strive to live inside the doughnut that economist Kate Raworth proposes, the doughnut as a symbol for no longer overshooting the ecological ceiling and falling short on the social foundation of our society.

It is these three principles that ITACUS has taken up as the basis for its future work. Not meeting these principles means we are contributing to the destruction of our planet and those who live on it. That may sound harsh; nevertheless, it is not less true. We often talk about a duty of care; it is this duty of care that we all have as individuals. And even if we can't control everything, we can influence. We can influence by example, and I predict that those companies that lead by example will survive whilst companies that continue with business as usual, will cease to exist.

This planet has taken millions of years to create energy resources for humankind. Yet those resources have been depleted by us in as little as 200 years. That is the scale at which we are depleting this planet of its natural resources, and at the same time, we are poisoning its atmosphere with our emissions. It is the scale that makes us sometimes wonder if any of our actions will really make a

difference. At the end of training Antonia and I gave at the ITACET training on stakeholder management and communication, I quoted Margaret Mead: "Never doubt that a small group of thoughtful, committed citizens' can change the world; indeed, it is the only thing that ever has". It underlines that change is not something that others bring about, it is something we as individuals can do, and we as an association can do.

ITACUS can proudly say that apart from the next level programme, we now have five activity groups. When reporting on progress, one of our AG leaders used the word 'baby steps'. Small steps, sometimes not very stable, sometimes with the result of falling and getting back on your feet and trying again. Like a small child learning to walk. But that is exactly where we are now. It is a metaphor used by Kate Raworth. We can't change everything at once. We don't know what works and what not. But we need to take baby steps if we are to move forward. We need to sometimes land with a bump to find out this didn't quite work. But we can show tenacity by moving on because we believe in what we are doing, we believe that we can contribute to the challenges the world is facing.

That was also of the outcomes of the ITACUS manifesto workshop so brilliantly led by Marilu Melo and Loretta von der Tann. The enthusiasm and engagement of the people that are forming our Think Deep groups is based on just that. On the belief that urban underground spaces can really make a difference and contribute to the needs of cities but also deliver benefits hitherto unknown.

Let me introduce our team and our activity groups.

- AG1: Young Professionals Think Deep Programme led by Petr Salak
- AG2: Urban Sustainability led by Chrysothemis Paraskevopoulou
- AG3: Urban Resilience led by Per Tengborg
- AG4: Think Deep National Actions Programme led by Abidemi Agwor
- AG5: Urban Integration led by Marilu Melo

We are a great team eager to promote the ITACUS strategy, which also includes the Next Level Programme I already spoke about. We have our own Young Talent Ambassador in Rosanne Verloop and a Scientific Ambassador in prof. Youssef Diab.

Ladies and gentlemen, ITACUS has embraced the three principles I mentioned earlier and on which the development of underground space, including tunnelling, should be based. Future projects should not only be needs based; they should be contribution driven. Each project needs to demonstrate how it contributes to these principles. These are strong principles, and they guide us in how we can make a world of difference.

My message would be that the only congresses worth visiting in future are those that embrace the same principles. Congresses that think about what to do with the food we didn't eat, that totally ban the use of plastics, and that leave a legacy in planting trees to offset the carbon footprint we inevitably place when visiting these congresses. If we start applying some simple principles, if we use part of the proceeds of these congresses to do our bit by planting trees, we may not save the world, but we are at least demonstrating we care.

This association is one that has huge relevance for its members. But we also need to have relevance for the world. These are not my words but were the words spoken by the governance committee a couple of years ago. By leaving a legacy, we show our relevance.

Before I wrap-up I would like to recognize the support ITACUS received over these past years from Chungsik Yoo, our tutor, and Tarcisio Celestino, our president. Gentlemen, I thank you on behalf of our team for your support, and we do hope to keep on meeting you in the future.

Ladies and gentlemen, in conclusion.

Now more than ever, we can show that we are relevant. Ask yourself what you can do today to make a difference.

Embrace the principles I mentioned, ensure that future events are green events that leave a legacy and as an industry organise yourselves like SCAUT and join the Next Level program.

Not next year or the year after but today before the sun sets. The sun will be setting in the future long after we have gone, let's make sure it remains shining on humankind and let's stop contributing to our extinction but work on humankind's survival.

For the sake of our children, our children's children and our children's children's children.

15.19 – ITAtech Committee

Chair: Nick Chittenden (UAE), Tutor: Soren Eskesen (Denmark) – Report presented by Nick Chittenden.

➤ **General**

- 2018 into 2019 has been a time of consolidation
- Finish the activities already started. Publish two reports at WTC 2019
 - Controlled Vibrations in Drill and Blast tunnelling
 - Guideline of best practice for Rebuilt TBMs
- Promoting those that have been recently completed.
- Five activity groups three of which also contain a number of sub-activity groups.
- Eight active Sub-AGs from the total of 11 identified.
- Following the physical meeting at the WTC 2018 we have held 4 web meetings. The next physical meeting is at WTC2019 in Naples.
- Active cooperation with ITA Working Groups in particular providing the ITAtech representative for the CEN standardization work and in Working Group 12 for Permanent Sprayed Concrete.
- A brief review by the TBM manufacturers showed that the ITAtech documents are widely used in some regions and completely unknown in others.
- Engagement with ITA essential to promote the good work of the past and motivate activities in the future.

➤ **Structure**

- Investigation – less active
- Lining and Waterproofing overlaps with support
- Data management (BIM) not really a subset of monitoring but rather the other way around
- To complete the tunnel life cycle, we need also to consider repair and maintenance

➤ **AG Excavation**

- **Rebuilt Equipment**

- Publication of the 1st revision on ITAtech report N°5 “Rebuild” for the WTC 2019
- Support to WG and CEN for the coordination of health and safety related topics of the document with WG5

- **Mechanized Excavation**

- Rock support for mechanized excavation with Design AG for review.

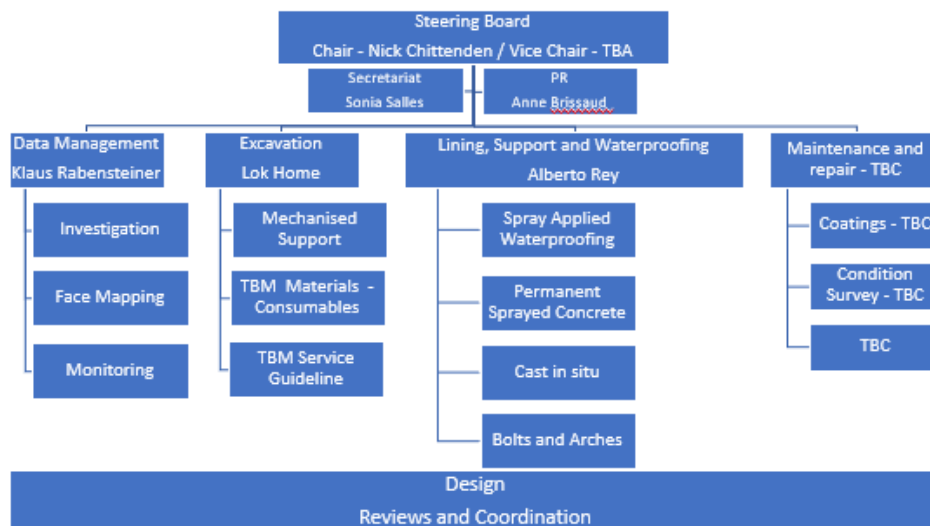
- Approved new sub AG – TBM Service Guideline
- Next steps - soft ground tunnels and standardizing the testing soil conditioning and annular grout.
- **Quality Drill & Blast -**
 - The document “Practical approach for controlling the blasting vibration and optimizing advance in urban tunnelling. “finalized for publication at WTC 2019.
- **AG Monitoring**
 - **Effective Data Management**
 - no updates
 - **Face Mapping**
 - Actively working on a recommendation document
 - Sub AG is discussing with external sources and bringing the knowledge together within ITAtech
 - **Needs link to BIM and Investigations**
- **AG Support**
 - **Fiber Reinforced Concrete Precast Segments (FRCPS)**
 - A press release and promotion plan for this guideline has been requested from ITA. No further actions planned at the moment.
 - **Bolts and Arches**
 - Update is with WG 19 however little action due to personal issues.
 - **Sprayed concrete for permanent works**
 - Update of the document for review in WG 12 at WTC 2019. Next milestone would be the final document during 2019.
 - **Proposed new sub AG for Cast in Situ linings – Methods and materials**
- **AG Lining & Waterproofing**
 - **Sprayed Membranes**
 - Foundation Training slide pack for sprayed membranes to be published in WTC Naples
 - Revision of the published “best practice guidance on spray applied waterproofing membranes” relating to chemical testing and design guidance.
 - Discussions and knowledge sharing on integral waterproofing solutions for sprayed concrete with WG 12
- **AG Investigation**
 - The AG has completed a guideline for geophysical methods including a recommendation for the tendering of described investigation systems for today's tunnelling projects.

- Critical to future work should be the link to effective data management in the monitoring AG
- Guidelines for clients on the recommended approach to site investigations.

➤ AG Design

- **Reviews in progress**
 - Permanent Sprayed Concrete for Ground Support
- **Reviews completed**
 - Practical approach for controlling blasting vibration and optimizing advance in urban tunneling.
 - Geophysical Ahead Investigation Methods
 - Guideline for good practice of fibre reinforced precast segment
- **Communication with WG to identify topics where practical guidelines and development work is required for designers in the tunnelling industry.**

➤ Future Structure



15.20 – Committee ITA-CET

Chair: Robert Galler (Austria), Vice-Chair: Michel Deffayet (France), Tutor: Eric Leca (France) - Report presented by Michel Deffayet:

➤ Reminder of the Committee's missions

- Develop training sessions/seminars for ITA Member Nations and Industry
- Assist ITA Member Nations in setting up Master courses in the field of tunnelling and underground space
- Develop a University network to exchange ideas and improve communication between higher education institutions.

An extraordinary material coming from the Industry members, from academic research, from WG and committees' productions and reports, from experts

➤ **Training events since WTC 2018**

- 5 Member Nations have collaborated with the ITA-CET Committee and ITACET Foundation to organise training events

Argentina

Topic: The Management of User Safety in Underground Railway Facilities

Participants: 90

Partner: ITACOSUF

Italy / France and TELT

Topic: Sharing Experience on the Construction of Long Tunnels at Great Depth

Participants: 100

Partner: WG 17

Kenya

Topic: Underground Space Use and Tunnel Project Management

Participants: 76

Partner: ITACUS

Nepal

Topic: The Operation and Maintenance of Hydro Tunnels

Participants: 123

Italy

- Tunneling 4.0: Information Technology for Underground Works (WTC 2019)
 - Communication and Stakeholder Engagement (WTC 2019)
- Participants : 70/35
- Partner : ITAYM

➤ **Number of trainees**

Over the last year 400 students and professionals have benefited from training - Thanks to these Member Nations, experts and ITA partners.

➤ **Collaborations under discussion**

- Nigeria - The Main Processes in a project management
- India - Use of Fibre-reinforced Concrete in Pre-cast Segments
- Chili - Mechanized Tunnelling and Shafts
- Mexico - Sustainable Underground Space Use
- Colombia - Mechanized Tunnelling
- Thailand - Contractual Practices
- Malaysia - Innovations in Tunnelling: Geotechnical Engineering and Project Management (WTC 2020)

- **4 new 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 4.0**
 - 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
 - **Communication**
 - **Operation and Maintenance of Hydro Tunnels**
 - **Fibre-reinforced Concrete**
 - Under preparation:
 - Data science
 - Estimation of tunnel costs

- **Contact us to organise an event!**
 - Tailor-made events to meet the specific requirements of Member Nations
 - Can be organised within the scope of a national conference or as a separate event

- **Training for professionals and industry**
 - Meeting with industry representatives during WTC Naples
 - Continuing collaboration with EFNARC (nozzleman scheme update)
 - Exchanges with Colorado School of Mines on a programme for an EPBM operator training scheme

- **University network**
 - ITA-CET meeting of European University Professors and PhD students
Turin - December 2019

- **ITA-endorsed Master courses**
 - Specialized Master's in Tunnels and Tunnel Boring Machines, Politecnico di Torino, Italy

- MSc in Tunnelling and Underground Space, Warwick University, UK
- Specialized Master's in Tunnelling and Underground Structures, ENTPE/INSA, Lyon, France
- Master's in Tunnels and Underground Works, AETOS, Madrid, Spain
- Master's in Tunnelling and Underground Works, UNAM, Mexico

Request for ITA endorsement of Master's in Tunnel Engineering at Politecnico di Milano, Italy – under review

➤ **E-learning**

- Production of video lessons based on content of recent WG publications (under discussion with WG animateurs)
- First pilot video produced on the topic of EPB Tunnelling in Cohesionless Soil

15.21 – ITA Young Members Group

Chair: New Keith Bannerman (Australia), Vice-chair: Jasmin Amberg (Switzerland). Report presented by Keith Bannerman. Tutors: Alexandre Gomes (Chili) and Ruth Haug (Norway).

➤ **Presentation of the Steering Committee 2019-2020**

Chair - Keith Bannermann

Vice-Chair - Jasmin Amberg

Steering Board Members:

Chrysothemis Paraskevopoulou

Nicolas Ziv

Jekaterina Jonsson

Giuseppe Maria Gaspari

Sandeep Nirmal

➤ **ITA YM Goals**

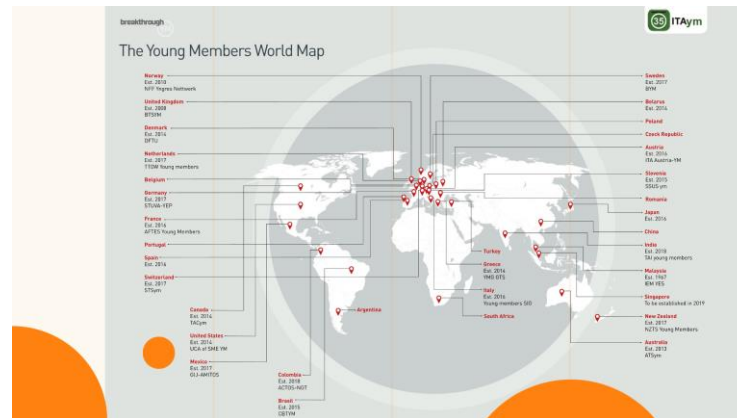
1. **Collaboration:** Encourage collaboration across borders and across languages
2. **Connection:** Develop an active connected global network of young tunnellers
3. **Development:** Grow the ITAYM participants to be the future of the ITA
4. **Integration:** Further the integration of ITAYM within ITA WGs and committees

➤ **5th Edition of Breakthrough**

The team continue to showcase YM activities in our annual publication



➤ The Young Members World Map



- **Integration with ITA-CET to drive training initiatives to develop the next generation of tunnellers**
- **ITAYM into the future**
 - Points of discussion:
 - Continuing to engage member nations to develop YM groups
 - Supporting YM groups
 - Providing communication from YM member nations to ITA Exco

16 – PREPARATION OF THE GENERAL ASSEMBLIES 2020 AND 2021

16.1 – Assembly 2020

Dr. Teik Aun Ooi presented the progress of the preparation of the Congress 2020 in Kuala Lumpur (Malaysia). This presentation did not give rise to any remarks from the Member Nations. **(See Encl. 21).**

16.2 - Assembly 2021

Mr Søren Eskesen presented the progress of the preparation of the Congress 2021 in Copenhagen (Denmark); this presentation did not give rise to any remarks from the Member Nations. **(Encl. 22)**

17 – MODIFICATION OF THE STATUTES AND THE BY LAWS

Taking into account the discussion held during the 1st part of the GA as well as some issues raised by Member Nations, the Executive Council decide to propose to modify this year only compulsory changes and 2 more changes unanimously agreed by the Member Nations.

It concerns the following modifications:

- **Statutes: 6.6 - Nationality of the Treasurer** (request from the fiscal administration of Geneva).
 - *In order to fulfil the requirements of the fiscal administration of the Republic and Canton of Geneva, the Treasurer shall be of Swiss nationality.*

- **Statutes Chapter X - Auditing Council** – In addition to the proposed text, the Member Nations after discussion decided that the Auditing Council should be composed of 3 members, 2 being elected by the General Assembly among candidates proposed by the Member nations, the third being chosen by the 2 elected members. It has been reminded that the position inside the Auditing Council are occupied by persons working on a voluntary basis, this has to be the also the case for the third member of the auditing Council

Auditing Council

- *The auditing council examines the activity of the Executive Council and its conformance with the Statutes and By Laws, as well as reviewing governance, ethics and conduct of the Association.*
 - *This council shall report annually to the General Assembly on the activity of the ExCo and on the Governance, Ethics and Conduct.*
The Governance, Ethics and Conduct is checked upon the compliance manual of code of Ethics and Conduct prepared by the World Association of Non-Governmental Organizations (latest revision, listed as Appendix 2 of ITA By-Laws).
 - *The auditing council shall be composed of 3 persons, two persons elected by the General Assembly outside the countries represented in the ExCo, and one person external to the ITA appointed at the discretion of the two elected members. – The third person will work for this office on a voluntary basis as the other two members.*
 - *The members of the Auditing Council are to be elected for a term of two years and can be renewed up to two times.*
 - *The Auditing Council members shall not have been part of the ExCo within the 3 years prior to being elected as auditor.*
- **Statutes 13.2 – Dissolution** (request from the fiscal administration of Geneva)
 - *If the association is dissolved (other than for the purposes of reconstruction of, or amalgamation with, an organisation containing provisions similar to those contained in this section) and if after the satisfaction of all debts and liabilities, any assets remain, such assets shall be given or transferred to some other institution or institutions having aims similar to those of the association and containing provisions similar to those contained in this section. furthermore, the beneficiary institution(s) shall be tax exempted in Switzerland. in the absence of an appropriate and relevant institution, these assets shall be given to a charitable organisation(s).*
 - **By Laws 2.2 – Auditing Council**
 - *The General Assembly of the Association shall elect two persons to be part of the auditing council following requirements detailed in the Statutes. Candidatures made by Member Nations shall be sent to the Secretariat at least 3 months ahead of the date of the General Assembly.*
 - *each year the auditing council shall present its report in front of the General Assembly.*
 - **By Laws 6.8 - term of office for WG Animateurs and Vice Animateurs**
 - *The term of office of the Animateur and of the Vice Animateur is 3 years. after this an election shall be organised inside the working group to choose the animateur and/or vice*

animateur. an Animateur/Vice Animateur may be elected for a maximum of 3 consecutive terms i.e. 9 years. in the event that after 9 years, there is no candidate for the Animateur/Vice Animateur position there should be a vote to determine if the working group should continue. this will require ratification by exco. in the event of the working group continuing then the current Animateur/Vice Animateur may be re-elected for a fourth term.

18 – MODIFICATION OF THE SUBSCRIPTION FEES AMOUNT

The modifications of the subscription fees are approved.

- Member Nations, from 2020 on:
 - Category I: 1 275 EUR instead of 1 200 EUR
 - Category II: 900 EUR instead of 850 EUR
 - Category III: 500 EUR remains unchanged
- Corporate Affiliate Members, from July 1st, 2019, on: 900 EUR instead of 850 EUR
- Individual Affiliate Members, from July 1st, 2019, on: 155 EUR instead of 150 EUR
- To note the change from category III to category II: Azerbaijan, Equateur and Vietnam change from category II to category I: Argentina and Indonesia and change from category I to category II: Finland and Greece.

19 –APPOINTMENT OF THE AUDITOR BOARD MEMBERS / ELECTION OF THE 2 AUDITOR COUNCIL MEMBERS

As the modification of Chapter X has been approved, it is necessary to appoint 2 members of the Auditing Council

The secretariat received in due time following valid candidacies:

- Eivind Grov (Norway)
- Damian McGirr (United Kingdom)

Both candidatures are approved by the General Assembly. The 2 candidates are now Members of the Auditing Council for a 2-year term 2019-2021.

20 – APPROVAL OF THE 2019-2020 BUDGET

The budget for 2019 (**Encl. 23**), sent to the Member Nations with the invitation to the General Assembly, was presented and commented by the Treasurer.

Revenues:

	2019 - 2020 Budget	
Cotisations	169 000 €	Subscriptions
Sponsoring	315 000 €	Sponsoring
Redevances WTC	200 000 €	WTC fees
Awards	180 000 €	Awards
Autres	90 500 €	Others
Produits financiers	500 €	Financial products
TOTAL	955 000 €	TOTAL

Budget 2019-2020

Expenditures

	2019 – 2020 Budget	
Secrétariat	429 000€	Secretariat
Communication	162 500 €	Communication
Awards	165 000 €	Awards
Comités	175 000 €	Committees
Groupes de travail	10 000 €	Working Groups
Autres dépenses	5 000 €	Other expenditures
TOTAL	946 500 €	TOTAL

Budget 2019-2020

Balance

	2019 - 2020 Budget	
Recettes	955 000 €	Revenues
Dépenses	946 500€	Expenditures
TOTAL	8 500 €	TOTAL

Budget 2019 - 2020

➤ **Revenues:**

- 1 additional PS (now 17)
- WTC Fees in line with WTC 2019 budget prepared by the SIG WTC 2019 OC
- ITAtech revenues coming from Industry dinner (65 k€)

➤ **Expenditures:**

- Control of costs of personnel
- Stabilization of communication costs
- Donation to the ITACET Foundation (20 000€)

The budget is approved by the General Assembly

21 – DRAFT BUDGET 2020-2021

The draft budget for 2020-2021 (**Encl. 24**) also sent with the invitation to the General Assembly, was shortly commented by the Treasurer.

Revenues

	2020 - 2021 Draft Budget	
Cotisations	176 000 €	Subscriptions
Sponsoring	335 000 €	Sponsoring
Redevances WTC	170 000 €	WTC fees
Awards	180 000 €	Awards
Autres	90 500€	Others
Produits financiers	500 €	Financial products
TOTAL	952 000 €	TOTAL

Expenditures

	2020 – 2021 Draft Budget	
Secrétariat	424 000 €	Secretariat
Communication	171 500 €	Communication
Awards	165 000 €	Awards
Comités	175 000 €	Committees
Groupes de travail	10 000 €	Working Groups
Autres dépenses	5 000 €	Other expenditures
TOTAL	950 500 €	TOTAL

Draft Budget 2020-2021 Balance

	2020 - 2021 Draft Budget	
Recettes	952 000 €	Revenues
Dépenses	950 500 €	Expenditures
TOTAL	1 500 €	TOTAL

22 - CHOICE OF THE PLACE FOR THE GENERAL ASSEMBLY 2022

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

- | | |
|-----------------|----------------------------|
| • Jairo Pascoal | Delegate from Brazil |
| • Ron Tluczek | Delegate from South Africa |

b) **Voting delegates:**

Presents or represented: 62

Votes by proxies: 9 (Albania, Costa Rica, Kenya, North Macedonia, Montenegro, Myanmar, Peru, Serbia, Vietnam)

Absolute majority is: 32

It is reminded that an absolute majority is needed.

c) The votes gave following results:

- | | |
|--------|----------|
| India | 24 votes |
| Mexico | 38 votes |

Mexico will organize the World Tunnel Congress and the General Assembly of the Member Nations Mexico, from May 2 to 9, 2022, in Cancun.

23 – OTHER BUSINESS

Taking into account the discussion held during the 1st part of the GA, Norway proposed a new wording for its proposal of an external audit / evaluation.

The ITA has grown extensively in the past ten years and it is important to ensure that the organisation adapts and adjusts to these changes and remains dynamic and fit for purpose. It is proposed that the GA agrees to undertake a one-time external review. This review should include the operation, organisation and governance of the ITA, to identify opportunities for improvements and efficiencies that could be developed to further strengthen the work that the ITA currently undertakes. Of equal importance is to reassure the ITA ExCo that they are in full compliance with the regulatory guidelines of a non-government organization (NGO).

It is proposed that the ExCo undertakes a process to appoint external consultant via a formal tender selection process for this review of the operation, organisation and governance of ITA.

This proposal is accepted, and the General Assembly ask the Executive Council to implement this audit / evaluation with a maximum cost of 60 k€.

24 – CLOSING ADDRESS

The President Tarcisio B. Celestino declared the 45th General Assembly officially closed. (Slides of the GA: **Encl. 25**).

The President

The Executive Director

Tarcisio Celestino

Olivier Vion