



## ITA-CET

### Committee on Education and Training

# Newsletter

## December 2014

### IN THIS ISSUE

## Seasons greetings and message from the chairman



Dear friends,

I am delighted to present the first of what I hope will be many newsletters from the ITA-CET Committee on Education and Training in the future. As we are approaching the end of another highly active year, this first newsletter is an opportunity to look back on the Committee's achievements in 2014.

Several actions have been undertaken to achieve the 10 goals identified in the roadmap that ITA has established for the ITA-CET Committee.

Firstly, with the change of chairmanship on the 19th September 2013, we set up 4 activity groups within the ITA-CET Committee, led by Michel Deffayet, Volker Wetzig, Georg Anagnostou and Fulvio Tonon (see activity group reports on page 4).

Assisted by Claude Berenguier (the Secretary General), Bérénice Moreau (the technical secretary) and Kristen Drouard (the administrative secretary), they are striving to make communication, education and training in the field of underground engineering more attractive.

For the moment the ITA-CET Committee has 43 corporate members, mostly universities, from 25 different countries. However, the balance between "academic" members (33) and "industry" members (10) is improving. Furthermore, over 120 experts constitute the lecturer database within the Committee's different fields of activity.

To date, the ITA-CET Committee has prepared a portfolio of 17 different training activities, which cover a broad range of topics. This portfolio will be widened in 2015

Within the reporting period of 2014, numerous underground training events have been organized and for the year 2015, a number of training events are already under preparation (see page 3 for more details).

Last, but not least, we are trying to strengthen the relationship with the other ITA Committees (ITA-COSUF, ITACUS and ITAtech) as well as with PIARC. The Memorandum of Understanding established between ITA and PIARC in 2005 has notably helped to formalize collaboration.

If you have any needs in underground construction training and education, either on a professional or on a university level, please feel free to get in touch with us. We are open to request! Come and join us!

Finally, on behalf of all the ITA-CET Committee Steering Board members, I would like to wish you all a very healthy, happy and successful 2015!

Rober Galler – ITA-CET Chairman

### ITA education and training strategy

A reminder of ITA's goals in the field of education and training (page 2)

### The ITA-CET Committee web site gets a makeover!

In an aim to better promote the ITA-CET Committee's activities, the Committee's web site has been improved. (page 2).

### News on training events

We take a look at how training sessions are developed and organized and the roles of the ITA-CET Committee and the ITACET Foundation (page 3)

### Lecturer database update

Following a questionnaire sent to potential lecturers, the database will be updated (page 3)

### Activity group reports

The four ITA-CET Committee activity group leaders give a rundown of the work carried out over the last year (page 4)

### ITA course endorsement update

We provide a reminder of the different types of courses endorsed by ITA (page 5)

### FOR MORE INFORMATION

<http://www.ita-aites.org/en/wg-committees/committees/ita-cet>

[ita-cet.secretariat@developpement-durable.gouv.fr](mailto:ita-cet.secretariat@developpement-durable.gouv.fr)

# ITA education and training strategy

by Claude Berenguier

During the 40<sup>th</sup> ITA General Assembly in Iguassu Falls, in May 2014, the ITA Executive Council presented the ITA Strategic Plan 2014-2016.

The overall strategic goals of ITA were presented for this period, goal number four being to “encourage further knowledge sharing through education and training”.

The ITA Strategic Plan identifies seven specific actions within this goal which will be undertaken by the ITA-CET Committee:

- Support member nations through training and workshops;
- Organize and develop a regional ITA-CET correspondents network;

- Improve and expand the lecturer data base and topics portfolio;
- Implement training for professionals and industry;
- Create and develop a university network;
- Implement e-learning / webinars;
- Communicate outside and inside on ITA-CET Committee activities.

These actions will notably be implemented through the work of the four ITA-CET Committee activity groups (see page 6) and through the implementation of an ITA-CET Committee communication plan (newsletter, upgrading of web site, leaflets and flyers etc.)

Within the scope of these actions, the ITA-CET Committee will also strengthen its relationship with the other ITA Committees (ITA-COSUF, ITACUS and ITAtech) and the Working Groups to ensure that education and training reflect the current best practice in technology, specifications and methodologies.



Image courtesy of ITACET Foundation

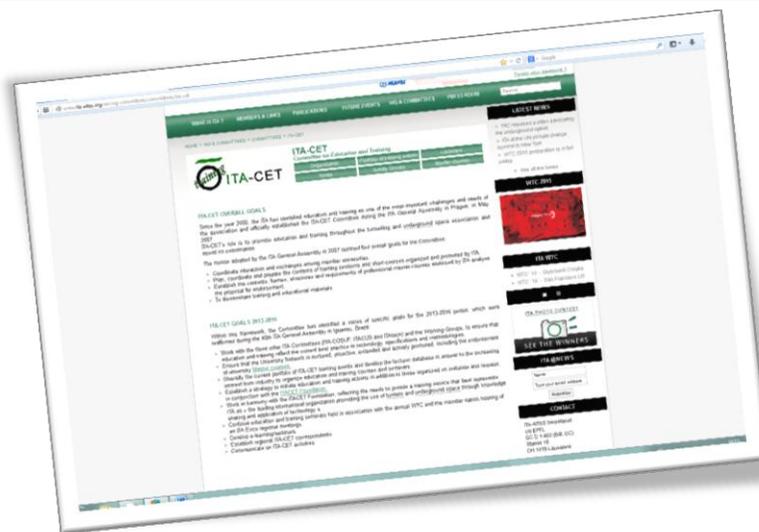
ITA-CET Committee Steering Board members during the training session in Iguassu

# The ITA-CET Committee web-site gets a makeover!

by Kristen Drouard

As part of its communication plan and with the aim of better promoting the ITA-CET Committee's activities, the Committee has given its web site a make-over. Although the overall format of the site remains the same, so as to be consistent with the other ITA Committee sites, its content has been enriched and will be further improved over the coming months.

The homepage now provides a reminder of the purpose of the ITA-CET Committee and outlines the goals for the period 2013-2016.



Information on the Steering Board members is provided on the “Organization” page and visitors can download the full Committee members list and membership form.

The full portfolio of training session programmes developed by the ITA-CET Committee is provided through a link to the ITACET Foundation web site.

Visitors will be provided with regular updates on the work of the four activity groups and a “News” section will provide the latest information on ITA-CET Committee meetings, interactions with other ITA Committees, training sessions and new additions to the portfolio, etc.

# News on training events

by Bérénice Moreau and Claude Berenguer

Since 2009, 39 ITA training events on various tunnel-related topics have taken place all over the world, gathering more than 4000 participants!

These training events would not be possible without the close collaboration that has been established over recent years between the ITA-CET Committee and the [ITACET Foundation](#). We take this opportunity to provide a reminder of the different roles of each of these bodies and the work undertaken to date.

The ITA-CET Committee was created in 2007, with the objective of promoting and assisting the coordination of education and training throughout the tunnel and underground space industry. The Committee notably plans, coordinates and prepares the contents of training sessions and short-courses. It is also responsible for choosing the lecturers for each event.

The Committee has developed a portfolio of training sessions, covering a broad range of tunnel-related topics. To date, the portfolio contains 17 topics:

- Conventional tunnelling
- Mechanized tunnelling
- Immersed tunnels
- Tunnel design
- Risk management
- Site investigation
- Monitoring and control in tunnelling
- Software application in tunnelling
- Innovations in tunnelling
- Health and safety during construction
- Underground space use
- Planning, construction and operation of common utility tunnels
- Management of (user) safety in underground facilities
- Maintenance and operation in road tunnels
- Maintenance and repair of tunnels
- Sprayed concrete
- Waterproofing.

For each topic, the Committee has prepared a draft programme which can be adjusted to meet individual requirements. In this respect, the training sessions provided are tailor-made.

This portfolio will be widened in 2015 to include other topics such as "Ground improvement for tunnelling", "Numerical simulation" and "Life cycle assessment".

The ITACET Foundation was created in 2009 following a decision by the ITA General

Assembly. A non-profit organization, its main objective is to encourage the education and the professional training of specialists in underground space use, especially in emerging countries

The Foundation is the financial and organizational entity that makes training events possible. It deals with all the logistic aspects of training sessions with the client (budget, travel and accommodation for lecturers, editing etc).

This fruitful collaboration between the two organizations has enabled numerous underground training sessions to be held within the current reporting period of 2014: Utility Tunnels (Riyadh), Tunnelling in Urban Areas (Hanoi), Mechanized Tunnelling and Risk management (Shanghai), Tunnels for Energy (Iguassu), Mechanized Tunnelling (Mexico), Conventional Tunnelling (Sao Paulo).

The evaluation forms received indicate that they have been successful, but of course there is always room for improvement and we will strive to do our best for future events!

For the year 2015, a number of training courses are already under preparation, in Turin, Kuala Lumpur, Santiago, Shanghai, Turkey, Dubrovnik and Argentina.

See you at one of the upcoming training activities around the globe!

# Lecturer database update

by Kristen Drouard

The success of the training sessions prepared by the ITA-CET Committee and organized by the ITACET Foundation relies on our carefully selected lecturers who are willing to grant us their time and share their expert knowledge.

In order to maintain and further develop the portfolio of training sessions and ensure that the Committee still disposes of sufficient lecturers for each topic, a questionnaire was sent to members of the lecturer database at the beginning of September.

This questionnaire invited lecturers to:

- Confirm their continued interest in lecturing in ITA-CET training sessions;
- Provide a one-page summary of the contents of each topic that they would be interested in lecturing on;
- Provide an up-to-date short biography with information on professional background, qualifications and languages spoken;
- Suggest any new topics that they would like to see developed in the training session portfolio.

116 lecturers were contacted in total, corresponding to those who responded to the ITA-CET Committee's initial call for lecturers in 2009.

The majority of those who replied have already participated in past lectures and confirmed that they remain available as a lecturer if required. Several others, who have not yet had a chance to take part in a training session, reaffirmed their interest in lecturing on specific topics.

Several suggestions for new training session topics have been made by the respondents. The Committee Steering Board will examine if and how these topics can be integrated into the training session portfolio.

Readers are reminded that they are welcome to request being considered as an ITA-CET lecturer. To do so, they should download and complete the lecturer card on the ITA-CET web site and forward it by e-mail to the ITA-CET Committee secretariat.

# Activity group reports

by Michel Deffayet, Volker Wetzig, Georg Anagnostou and Fulvio Tonon

The last year has seen the kick-off of activities for the four ITA-CET activity groups:

- AG 1: Training and education for ITA member nations
- AG 2: Training and education for professionals
- AG 3: University network
- AG 4: Development of E-learning and other didactic materials

We take a look at the work carried out over the last year and activities planned for 2015.

## AG 1: Training and education for ITA member nations



Michel Deffayet: AG1 leader

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

Activity group 1 is responsible for relations with the member nations and therefore it engages prior discussions, identifies requirements so as to identify the topic of the training session and prepares the detailed programme in collaboration with the requesting nation.

The activity group is striving to improve this entire process, notably through several objectives:

- Guarantee high quality training sessions, both in terms of programme content and choice of lecturers. Systematic evaluations of the training sessions

provide useful information that will enable us to progress;

- Diversify the session contents so as to take better account of the requirements of all stakeholders, tunnel owners, project managers and contractors, decision-makers and industry;
- Strengthen links with the national associations involved, in particular by establishing privileged relations with a network of correspondents who will provide regional liaison and support;
- Provide improved communication with ITA member associations on ITA-CET Committee activities and on all issues relating to education and training. Numerous vectors of communication can be envisaged.

Although the Committee mainly focuses on training sessions for emerging countries, the role of AG 1 is also to propose programmes adapted to countries that already have sound knowledge on tunnels.

With this in mind, the portfolio will notably be widened to include specific topics such as Numerical simulation, Life cycle assessment and other innovative subjects.

## AG 2: Training and education for professionals



Volker Wetzig: AG2 leader

Construction of tunnels and other underground structures requires skilled persons. There have been significant developments in equipment and materials over the last few years, which need trained and qualified persons for their handling and operation.

On a national and regional level, several approaches have been established to meet training and education requirements in the

field of underground construction. Even though the tunnelling industry is a global business, training and education concepts do not reflect this.

The ITA-CET AG 2 is promoting a training and education concept which takes into account existing national and regional training centres and provides a scheme for mutual recognition of training courses, based on a common standard.

The training and education of all professionals (from blue collar workers to foremen, supervisors and engineers) will be fully traceable. Additional training required for a certain activity can easily be defined and will be useful for the personal long-term training and education plan.

The group's aims will be achieved through:

- Endorsement of education and training courses of existing organizations to guarantee the same level of content;
- Providing courses at the request of contractors or tunnel owners;
- Introducing an international ITA-CET training pass (ITP).

The international ITA-CET training pass (ITP) that records all endorsed and attended courses enables contractors and suppliers of equipment and material to assess the capabilities of workers. The ITP distinguishes the level of education (worker, foreman, supervisor) and the content of training (basics, simulator training, Praxis training). Training and education is a step-by-step process which leads to a practical and theoretical exam, to be documented in the ITP.

## AG 3: University network



Georgios Anagnostou: AG3 leader

Activity group 3 aims to improve communication, exchange of ideas and coordination of the institutions offering Bologna Grade Type C tunnelling courses, by establishing a university network.

The network consists of active professors and lecturers offering courses in underground construction, analysis and design within the BSc, MSc or engineering diploma curricula of their universities or within Master of Advanced Studies programmes (MAS). International Grade Type A courses and National Grade Type B courses are the subject of AG 1 "Training and education for member nations".

Actions conducted to achieve the Activity group's goals include:

- Establishing a database on tunnelling courses (syllabus, didactic methods, duration, credit points);
- Organizing regular meetings between tunnelling professors to exchange opinions on course contents and didactic methods;

- Organizing student exchanges including PhD students;
- Developing lecturer exchange possibilities;
- Setting up possible awards for Master and PhD theses.

### AG 4: Development of E-learning and other didactic materials



Fulvio Tonon: AG 4 leader

In addition to further developing traditional face-to-face training sessions, the ITA-CET Committee is looking into the possibility of

developing short courses through e-learning and notably via webinars. This task is undertaken by Activity group 4.

Webinars are widely acknowledged as a convenient, efficient and low-cost training solution for addressing an international audience. In view of the ever-increasing demand for ITA training sessions, it is clear that the potential audience is large.

To date, the activity group has conducted a review of what is done or planned by other organizations that conduct both webinars and traditional courses. This review has confirmed that both forms of training have their merits and can run side by side.

The ITA-CET Committee is in the process of determining the assets and resources necessary to effectively run webinars.

## ITA course endorsement update

by Bérénice Moreau

The ITA-CET Committee is responsible for the endorsement of all education and training courses on behalf of the ITA. Training courses can be professional Master courses or short courses on both tunnelling and underground space.

Concerning Master courses proposed by universities, the ITA currently endorses three international postgraduate Masters (Master of Advanced Studies – MAS) and one national undergraduate Master (Master in Science – Msc):

- MAS in Tunnelling at the Swiss Federal Institute of Technology in Lausanne (Ecole Polytechnique Fédérale de Lausanne, EPFL). This Master has unfortunately been postponed until the appointment of a new head of the Rock Mechanics Laboratory.



Master students Lyon 2013-2014

- MAS in Tunnelling and Tunnel Boring Machines at Politecnico Torino, Italy, which is running this year with 15 students.
- MAS in Tunnelling and Underground Space co-organized by ENTPE and INSA Lyon, France, in partnership with AFTES and the CETU. This Master is currently running with 12 students.
- Msc in Tunnelling and Underground Space at Warwick University, United Kingdom, endorsed and supported by the BTS. This Master is running with 23 students (16 are doing the Master full-time over one year and 8 part-time over two years).

Other Masters have applied for ITA endorsement and a decision will be made during the course of the next ITA-CET Committee meetings. Among them is the

Master in Tunnels and Underground Works at the University of Madrid, Spain.

The ITACET Foundation has provided its contribution to these different Masters by awarding a grant to several students.



Graduation ceremony for Master students in Turin, December 2014