



*Towards an
improved use
of underground
Space*

*In Consultative Status, Category II with the
United Nations Economic and Social Council
<http://www.ita-aites.org>*

Thirty-First Annual Meeting – Istanbul 2005

Press Release

The International Tunnelling Association held its thirty-first meeting in Istanbul from 7 to 12 May, in conjunction with the World Tunnel Congress 2005 "Underground space use – Analysis of the Past and Lessons for the Future" organised by ITA and the Turkish Road Association (TRA). The meetings were attended by representatives, delegates, observers and working group members from 43 of the 53 Member Nations of the Association.

MEMBER NATIONS REPRESENTED

South Africa, Germany, Saudi Arabia, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, China, Colombia, Korea, Denmark, Egypt, Spain, United States of America, Finland, France, Greece, Hungary, India, Indonesia, Iran, Israel, Italy, Japan, Morocco, Norway, The Netherlands, Poland, Portugal, Romania, United Kingdom, Russia, Singapore, Slovakia, Sweden, Switzerland, Czech Republic, Thailand, Turkey, Ukraine, Venezuela.

MEMBER NATIONS NOT REPRESENTED

Algeria, Chile, Croatia, Iceland, Lesotho, Malaysia, Mexico, New Zealand, Slovenia, Vietnam.

NEW EXECUTIVE COUNCIL

Members

H. Parker	USA	President	Until 2007
A. M. Muir Wood	United Kingdom	Honorary President	
A. Assis	Brazil	Past President	Until 2007
K. Ono	Japan	First Vice President	Until 2007
M. Knights	United Kingdom	Vice President	Until 2007
H. Wagner	Austria	Vice President	Until 2007
Y. Erdem	Turkey	Vice President	Until 2007
E. Grøv	Norway		Until 2007
F. Gruebl	Germany		Until 2007
Y. Leblais	France		Until 2007
M. Belenkiy	Russia		Until 2007
P. Grasso	Italy		Until 2008
W. Liu	China		Until 2008
I. Lee	Korea		Until 2006
F. Vuilleumier	Switzerland	Treasurer	Until 2007
C. Berenguier		Secretary General	Until 2008

Experts

S. Calinescu	Romania	Internal Auditor	Until 2006
J.P. Godard	France	Urban Problems - Underground Solutions	Until 2006

MEMBERSHIP

The Association has registered the membership of 14 new Affiliate Members (7 Corporate Members and 7 Individual Members); the total results to 53 Member Nations and 270 Affiliate Members (123 Corporate Members and 147 Individual Members) taking into account resignations.

COMMUNICATION

- **Tribune:** In 2005, the annual issue with focus on Turkey included the reports of 34 Member Nations, as well as the abstracts of the papers of the open session; for the first time a report of ITA Prime sponsors and supporters has been published and distributed at the occasion of the General Assembly.
- **ita@news:** In 2004 / 2005, six issues of the ita@news have been sent. The ita@news contents news from the association, the WGs, the Member Nations, the forthcoming events, the sister associations,... The ita@news is sent to 2,200 addresses and to the Member Nations and Affiliate Members.
- **Tunnelling and Underground Space Technology (TUST):** In year 2004, five issues of TUST were published, consisting 71 articles written by authors from 20 countries. A double-issue 19/4-5 containing the abstracts and a CD with the full papers of the WTC Congress in Singapore. In year 2005, six issues will be published with a special issue on Trenchless Technology as well as the papers of the open session of the WTC Congress in Istanbul.
- **Website:** The web site contains more than 500 html pages and 330 pdf documents representing around 4,000 printable pages. The number of hits has doubled with around 10,000 per month. New pages have been added such as safety, selected key lectures, @news and all the WG publications in TUST. The backend structure to enable to edit pages, especially from Member Nations, is now operational.

ITA OPEN SESSION ON MAJOR SUB SEA TUNNEL PROJECTS

The Open Session for the World Tunnel Conference in Istanbul focused the aspects of sub sea tunnels. Invited speakers presented interesting projects from around the world, Some projects are still in the early planning stage, some are due to start construction whilst some have been realised. The latter being particularly projects in the Nordic region. The presentations included projects as the Nusantara Tunnel, connecting Java and Sumatra, the Gibraltar Straits Tunnel between Europe and Africa, several projects in Russia including a crossing of the Nevelsky Strait, the Bering Strait and the La Perouse Strait between Sakhalin Island and Hokkaido Island in Japan. Finally, the Open Session included a comprehensive description of the Marmaray project. Altogether, 5 speakers presented different aspects of the project: Risk analysis and ground investigations, Consideration and Strategy behind Design & Construction Requirements, Marine Operations, the Bosphorus Crossing, Considerations and Strategies behind Design & Construction Requirements and The Marmaray Project and its Management

TRAINING COURSE

The first Training Course for young professionals and students which was chaired by the WG 18 Animateur, Prof. D. Peila, and by Prof. A. Saglamer of Istanbul Technical University took place in the University; the works were opened by the Rector of ITU University and by ITA President. The course covered the most important aspects related with tunnel construction and relevant tunnel examples were presented and discussed. The course had a length of 3 days, 8 hours of lesson a day and it was attended by 84 students coming from 20 nations, mainly from Turkey (over 50). The didactic material developed by the various teachers will feed the section Training of ITA web site.

ITA TASK FORCE ON TUNNEL SECURITY

A meeting was held in Istanbul to continue the work ITA has done on this important but sensitive subject. It was concluded that it is very important for ITA to continue and strengthen its work on security. Various means and methods to accomplish this were discussed. It was decided that because of this sensitivity of the subject, that future work will be done using a secure means of communication.

ITA TASK FORCE UNDERGROUND WORLDWIDE CONSTRUCTION

One of the main goals of the ITA strategy is the information towards the general public. For this reason, our website was designed to include a main brand, called Underground Structures World Wide. In order to prepare information and fill it out, a task force inside the Executive Council was created. The web page on Underground Structures World Wide will be divided into three main types of information: 1)Why Go Underground – Reasons, social benefits, environmental impacts, sustainable development. 2)How Go Underground – Construction methods, equipments special and complementary services. 3) Use of the Underground Space – Functions.

ITA COMMITTEE ON SAFETY OF TUNNELS IN OPERATION

Chairman: A. Haack (ITA); Vice Chairman: D. Lacroix (PIARC); Tutor: C. Berenguier (ITA)

The general assembly 2005 followed the proposal of the Executive Council to create a "Committee on Safety of Tunnels in Operation". The initiative started from the 7 EU launched research projects and networks in consequence of severe fire accidents in European road tunnels during the last couple of years. The project represents about 100 institutions, research companies, academic institutes, owners and suppliers from all over Europe. The committee will be open for all interested bodies worldwide. Alfred Haack from ITA was appointed as Chairman and Didier Lacroix from PIARC as Vice Chairman.

NEXT ANNUAL MEETINGS

- Seoul, South Korea, from 22 to 27 April 2006, during the ITA-AITES WTC 2006 "Safety in the Underground space"
- Prague, Czech Republic, from 5 to 10 May 2007, during the ITA-AITES WTC 2007 "Underground Space-The 4th dimension of Metropolises"
- New Dehli, India, second half of September 2008, during the ITA-AITES WTC 2008.

WORKING GROUPS

WG2: "Research"

Animateur: E. Leca (France); Vice Animateur: Y. Takano (Japan); Tutor: H. Wagner (Austria)

The meetings were attended by 13 participants representing 12 member countries: Austria, China, Korea, Denmark, Spain, France, Netherlands, United Kingdom, Russia, Singapore, Czech Republic, Turkey. The recommendation on "Settlements induced by Tunnelling" is currently being reviewed and should be published in the second semester of the year. Two other documents are currently under preparation, on the "Strategy of Site Investigations" and "Monitoring and Control of Underground Works". A detailed review has been completed during the Istanbul meetings of the first document, and an action plan agreed for the production of the latter. The group will focus its activity over the coming year on the production of these documents, with the aim of reviewing the final drafts at the Seoul meeting.

WG3: "Contractual Practices in Underground Construction"

Animateur: A. Dix (Australia); Vice Animateur: M. Smith (Switzerland); Tutor: Y. Erdem (Turkey)

Height nations participated in the meeting: Australia, Egypt, France, Germany, Korea, Netherlands, Norway, Switzerland. WG-3 has committed to the development of a systematic web based tool to assist ITA visitors access information on contractual practices. WG-3 review of the ITIG insurance code concluded that the risk management practices were consistent with WG-3 contractual propositions and that the code could usefully be used as a framework or guideline for the joint development of agreed risk management practices on major projects between clients and insurers

WG5: "Health & Safety in Works"

Animateur: D. Lamont (United Kingdom); Vice Animateur: W. Chromy (Germany); Tutor: M. Belenkiy (Russia)

Nine member nations participated in the meeting: Austria, Canada, Germany, Norway, Portugal, Russia, Sweden, UK, USA. The revision of the "Guidelines for good occupational health and safety practice in tunnelling" has not progressed as quickly as intended and it is now hoped to have this document completed prior to the meeting in Seoul. A new project for a guidance document on "Rescue containers" was begun. A German version of the "Safety in Tunnelling" booklet which was completed on CD-rom last year has been printed and translations into Arabic, Russian and Portuguese are planned.

WG6: "Maintenance and Repair of Tunnels"

Animateur: H. Russell (USA); New Vice Animateur: R. van den Bosch (The Netherlands); Tutor: W. Liu (China)

The meeting was attended by members from 12 nations They were Belgium, Egypt, France, Finland, Germany, Japan, Korea, Netherlands, Sweden, Switzerland Turkey, United Kingdom and United States. The Working Group reviewed the final approved draft of our Document *Guidelines for Structural Fire Resistance for Road Tunnels*, a joint document with the World Road Association (PIARC). This document provides guidelines for better protection of road tunnels in the event of a severe fire. In addition to the review of the document Presentations were made by Mr. Phillipe-Alexis Kaplan of Belgium on the latest state-of-the-art of chemical grouts for leak control in tunnels. Mr. Henry Russell of the United States of America presented a comparison on the performance of various types of fireproofing for tunnels. Mr. Jean-Stephane Didier of France presented a program outlining the latest developments in tunnel inspection in France. The Working Group began work on *Guidelines for Structural Fire Resistance for Mass Transit Systems*. Dr. Martin Muncke of Germany stepped down as Vice Animateur and Mr. Rene van den Bosch of Netherlands was elected as Vice Animateur.

WG11: "Immersed & Floating Tunnels"

New Animateur: Ch. Ingerslev (USA); Vice Animateur: J. Baber (United Kingdom); Tutor: Y. Leblais (France)

The meeting was attended by members 16 from 8 nations: France, Japan, Korea, Netherlands, Norway, Sweden, UK, USA. Information was exchanged on new projects and developments around the world. Four presentations were given, namely on construction work of the Bosphorus tunnel, on joints of very large flexibility, on leakage repair and on how to present educative information effectively. It was decided to go ahead with publication of short reports on ITA's website. Jan Saveur stopped down as animateur. The new animateur is Christian Ingerslev.

WG12: "Shotcrete Use"

New Animateur: T. Celestino (Brazil); Vice Animateur: A. Ishida (Japan); Tutor: E. Grov (Norway)

The meeting was attended by members from 11 nations: Brazil, Czech Republic, Finland, France, Greece, Japan, Korea, Luxembourg, Norway, Sweden, Switzerland. Four tasks were presented: (1) The state of the Art Report on the Shotcrete will be edited and ready for release in September, (2) A preliminary list of sprayable mortar for fire protection, (3) Nozzlemen certification; the final report will include further information from different countries, (4)

Overview report on synthetic fibers for shotcrete reinforcement; the report will also include a test program to be conducted by the WG.

WG14: "Mechanization of Excavation"

Animateur: K. Fukumoto (Japan); Vice Animateur: F. Amberg (Switzerland); Tutor: K. Ono (Japan)

Nine member nations participated in the meeting: Canada, Germany, Italy, Japan, Netherlands, Norway, Spain, Switzerland, USA. "TBM Glossary" has been extended to Chinese and Italian, and the English-French-German-Japanese-Chinese-Italian version is posted on the ITA website, which will help authors of scientific papers in tunnelling. It will be extended to Spanish and Korean in the near future. Definitions and/or explanations of "TBM Glossary" in French and English have been completed and will be posted on the ITA website.

It is decided that since the standards and manuals are so much different by the countries, a reference book will be made to list up related references of the mechanised tunnelling from member nations rather than writing a new "ITA recommendation of mechanised tunnelling". It is determined that WG-14's next tasks will be to establish the mission of WG-14 and to make a list of remarkable mechanised tunnelling projects with assessments added by WG-14. The information of challenging, successful, and troublesome projects will be gathered with a contact person's list including owners, contractors, consultants and machine manufacturers. The special team is formed to propose "the mission of WG-14" with WG members' approval. Also, three subgroups are formed and subgroup leaders are nominated to create a list of remarkable mechanised tunnelling projects. Completion of the list is expected by December 2005 with our members' unlimited efforts.

WG15: "Underground Works and the Environment"

New Animateur: J. K. G. Rohde (Norway); New Vice Animateur: J. Y. Kaneshiro (USA); Tutor: H. Parker (USA)

The Working Group meeting was attended by 9 representatives from 8 Member Nations: France, Japan, Norway, Russia, South Africa, Sweden, UK, USA. The meeting reviewed the final draft report on Environmental and Sustainable Reasons for going Underground which will now be finalised. The meeting heard two presentations on projects with water problems which have affected the environment. The second report on environmental constraints and problems will be drafted later in the year. Future topics will be related to groundwater and based on good practice and case histories. J. Rohde (Norway) was elected the new Animateur and J. Kaneshiro (USA) as Vice Animateur.

WG16: "Quality"

Animateur: C. Oggeri (Italy); New Vice Animateur: Alex Sagy (Israel); Tutor: M. Knights (UK)

The group registered the participation of five members from Israel, Italy, Japan and Korea. A short meeting between the tutors and the animateurs of WG2, WG3 and WG16 also took place to coordinate common activities in the field of definition of existing code of practices for a reduction of claims due to not suitable procedures, both technical and contractual. The activities of the group are now aimed to the preparation of didactical material, a comprehensive poster and the redaction of a new draft regarding the links between assessed technical construction procedures, methods of control, verification of performances, all addressed to the better knowledge of claims and failures and their reduction in tunnelling activity.

WG17: "Long Tunnels at Great Depth"

Animateur: P. Grasso (Italy); Vice Animateur: M Shimokawachi (Japan); Tutor: F. Vuilleumier (Switzerland)

The meeting was attended by 12 members from 9 different countries: China, France, Indonesia, Italy, Japan, Korea, Norway, Sweden and Switzerland. The meeting focused on 3 aspects: review of the activities in the past year, presentation of relevant case histories, and discussion of outline of the Group's next report on long hydraulic tunnel at great depth. The outline prepared for the group's second report on long hydraulics tunnel where presented and it was agreed how to review its first report under the recent experiences discussed.

WG18: "Training"

Animateur: D. Peila (Italy); Vice Animateur: N. Chittenden (Switzerland); Tutor: F. Gruebl (Germany)

The meeting was attended by 9 members coming from China, South Korea, France, Italy, Japan, Singapore, Germany Switzerland and The Netherlands. The work carried out after Singapore meeting: the first ITA Training Course and the organization of the new edition of the Post-Graduate Master Course endorsed by ITA were discussed and analysed. France delegate presented a didactic tool for teaching purposes which is now available on the web and the WG members analysed the teaching material prepared by WG 5 and which was sent to the animateur. The WG members agree that both products are valuable tools for teaching purposes and recommend a diffusion of them through ITA web site. Finally the future work programme was analysed and it was decided that the next tasks of the group will be: the preparation of a standard list of subjects which should be provided by Universities for a good preparation of a tunnelling engineer, and the preparation of some power point presentations of relevant examples of tunnels to be put in ITA web site.

WG19: "Conventional Tunnelling"

Animateur: H. Ehrbar (Switzerland); Vice Animateur: R. Galler (Austria); Tutor: A. Assis (Brazil)

The WG 19 had two meetings. In both meetings ITA's Past President, Professor André Assis, supported the work of WG 19. 20 delegates representing 13 nations (Austria, Brazil, Czech Republic, Germany, Greece, Israel, Italy, Japan, Korea, Portugal, Switzerland, Turkey, USA) were discussing the second draft of ITA WG 19 Report on conventional tunnelling. The ITA WG 19 report shall be addressed as a state of the art report to engineers who are not specialists in



conventional tunnelling and to decision makers in client's organizations. In both sessions interesting discussion on the structure of the report and the contents were held. All the necessary decisions for the follow up of the work could be taken, with the aim to finalize the report until the World Tunnel Congress 2006 at Seoul. A next meeting is planned in November 2005 around the STUVA-Congress at Leipzig, where the 3rd draft of the ITA WG 19 Report will be discussed.

WG20: "Urban Problems, Underground Solutions"

Animateur: S. Nelson (USA); Vice Animateurs: M. Thewes (Germany) and J. Nishi (ACUUS); Tutor: J. P. Godard (France)

15 attendees from 7 countries (Czech Republic, Germany, Iran, Japan, Korea, Netherlands, USA) worked on the objective of building a comprehensive database of worldwide examples for unique underground solutions to typical urban problems. The goal of the Working Group is to publish a report on how the subsurface has been used effectively around the world to solve urban problems. The report will be directed to planners and politicians to provide creative and efficient ideas for the solution of urban problems and will serve as a decision aid. Future work will include an analysis of lessons learned regarding the long-term experience with "soft" indirect benefits such as increases in attractiveness, visitor spending and property values. The Working Group is seeking further contributions of innovative underground solutions based on a revised questionnaire, which was prepared at the meeting.