

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

**INTERNATIONAL TUNNELLING AND  
UNDERGROUND SPACE ASSOCIATION**

**Compte Rendu de la 35<sup>ème</sup> Assemblée Générale**

**BUDAPEST**

**24 – 27 mai 2009**

**Report of the 35<sup>th</sup> General Assembly**

**BUDAPEST**

**24 – 27 May 2009**

The 35<sup>th</sup> meeting of the General Assembly of the Member Nations of ITA was held in Budapest on 24 and 27 May 2009 under the presidency of Martin Knights (UK), assisted by the Executive Council Members (see encl. 1).

#### **VOTING REPRESENTATIVES**

South Africa	John CRUISE
Algeria	--
Germany	Roland LEUCKER
Saudi Arabia	--
Australia	Simon KNIGHT
Austria	Robert GALLER
Belgium	Jean-François THIMUS
Brazil	André ASSIS (Wednesday) and Tarcisio CELESTINO (Sunday)
Bulgaria	--
Canada	Dean BROX
Chile	--
China	Guo SHANYUN
Colombia	--
South Korea	Gye-Chun CHO
Croatia	Davorin KOLIC
Denmark	Jørgen HOLST
Egypt	Mohamed E. ABDELSALAM
Spain	Miguel FERNÁNDEZ-BOLLO
United States of America	Brenda M. BOHLKE
Finland	Pekka SÄRKKÄ
France	Alain BALAN
Greece	Georgios AGGISTALIS
Hungary	Zsolt BALOGH
India	V. K. NANDA (Sunday)
Indonesia	--
Iran	Mohammad Reza YAGHOOTI
Iceland	--
Israel	--
Italy	Enrico ARINI
Japan	Toshinori MIZUTANI
Kazakhstan	--
Lao DPR	-- (vote by correspondence)
Lesotho	--
Malaysia	-- (represented by Singapore)
Morocco	Asma ZELLAG
Mexico	--
Norway	Thor SKJEGGEDAL (Sunday) and Frode NILSEN (Wednesday)
Netherlands	Han ADMIRAAL
Peru	--
Poland	Anna SIEMINSKA-LEWANDOWSKA
Portugal	António PINTO DA CUNHA
Romania	Sorin CALINESCU
United Kingdom	Donald LAMONT (Sunday) and A. R. UMNEY (Wednesday)
Russia	Nikolai BULYCHEV
Singapore	Chun Nam OW
Slovakia	Robert TURANSKY
Slovenia	Jakob LIKAR
Sweden	Anders PETERSSON
Switzerland	Felix AMBERG
Czech Republic	Matous HILAR (Sunday) and Mil. NOVOTNY (Wednesday)
Thailand	Suchatvee SUWANSAWAT
Turkey	Yücel ERDEM
Ukraine	--
Venezuela	--
Vietnam	--

### ***Sunday 24 May 2009***

1. Opening speech
2. Memorial Sir Alan Muir Wood
3. Approval of the agenda
4. Approval of the minutes of the General Assembly 2008
5. Report of activity of the Executive Council – Comments from the Assembly
6. Report on the Training Session of 22-23 May 2009
7. Approval of new members
8. Report from the Auditor – Comments from the Assembly
9. Report of activity of the Member Nations – Comments from the Assembly
10. Communication from Sister International Organizations
11. Financial report 2008 – Comments and approval of the accounts
12. Preparation of the other decisions of the General Assembly on Wednesday 27 May 2009
  - 12.1 Presentation of the invitations received for the General Assembly 2012
  - 12.2 Modifications of the Statutes and the By-Laws

### ***Wednesday 27 May 2009***

13. Report of the Open Session on Tuesday 26 May 2009
14. Working Groups and Committees: Reports and projects of activity - Approval
15. Modification of the Statutes and the By-Laws
16. Appointment of the members of the Committee of Nomination
17. Appointment of the Auditor on the conformity of the actions of the Executive Council
18. Preparation of the General Assemblies 2010 and 2011
19. Draft budgets for 2009 and 2010
20. Choice of the place of the General Assembly 2012
21. Other business
22. Closing speech

## **A – ASSEMBLY ON SUNDAY 24 MAY**

### **1 – OPENING SPEECH**

The President Martin KNIGHTS welcomed the delegates of the 40 Member Nations represented and the representatives of the two sister associations PIARC and ISSMGE; he thanked the President Pal Kocsonya and all the members of the Hungarian Association for the preparation of the 35<sup>th</sup> annual meeting of ITA.

### **2 – MEMORIAL SIR ALAN MUIR WOOD**

The President introduced the celebration to Sir Alan Muir Wood. He insisted that Sir Alan has been very active even up to the end delivering conferences only few months before he passed away. He then gave the floor to the Secretary General, Claude Berenguier, who presented to Lady Winifred his tribute to Sir Alan Muir Wood, in the name of ITA. (See slideshow encl. 2)

*Dear Lady Winifred, (even if it is by proxy)*

*(Slide 1) I am sad to have to recall the memory of your husband, Sir Alan Marshal Muir-Wood, in front of this General Assembly of ITA.*

*I had never imagined for a single moment in 40 years exactly that I would have to do it one day, in any circumstances whatsoever!*

*The message of condolences that I have signed on ITA's website (slide 1 (2)) starts with these words: "ITA is orphan!". As a matter of fact, this is not a stylistic device: our association is actually orphan of Sir Alan:*

- *First of all, because he was his creator, his latest creator (slide 2: flag)*
- *Then, because Sir Alan has always accompanied the development of the Association and has played a part in all the significant progress:*
  - *The creation of the Affiliate Members,*
  - *The definition of the Strategy 2000,*
  - *The progress of the Working Groups and the creation of the Committees.*
- *And this, until his very last mail, dated November 2008*
- *Finally, because nearly all the Presidents who succeeded one another went to visit him to have his opinion on the progress of the Association.*

*Allow me, dear Lady Winifred, to recall with you some "good moments" spent together since 1969 and our first encounter as part of the Committee on Road Tunnels of PIARC, the World Road Association.*

- *1970 in Washington (slides 3 and 4): I did not have the privilege to be invited there but the conclusions of that Conference will have influenced our whole life!*
- *As well as yours, dear Lady Winnifred (Slide 5 Stockholm 1973)*
- *1974 in Oslo, the creation of ITA (slides 6 and 7), the only General Assembly of ITA that I have missed to this day!*
- *1976 in London (slide 8) through one of the first publications of ITA*
- *1979 in Wroclaw during the discussion on the entrance of Poland in ITA with all the Executive Members (slide 9)*
- *And in Atlanta (slide 10), with this famous pipe, at the General Assembly with Hans Christian Fischer and Bill Lucke*
- *1980 in Brussels with other friends, notably Gaston Claes (slide 11)*
- *1981 in Nice during the Executive meeting (slide 12) and during the General Assembly (slide 13)*
- *1981 in Sao Paulo with Dan Eisenstein (slide 14)*
- *1982 in Prague with Jaroslav Gran (slide 15)*

- 1983 under the presidency of Gunther Girnau (slide 16) with Lucien Lupiac and Jack Lemley
- 1986 in Florence at the inaugural party in an inn at the mountain with notably Victor Roisin (slides 17 and 18)
- 1987 in Melbourne (slide 19) and in Bratislava at a meeting of the Committee on Road Tunnels of PIARC (slide 20)
- 1990 with Professor Gao Quqing, the architect of the membership of China in ITA (sl. 21)
- 1990 in Japan on the occasion of unforgettable technical visits organised by Shinji Kiyoyama and with the participation of the Executive Council, and notably of Oscar Gavino and of Goichi Fukuchi (slides 22, 23 and 24)
- 1991 in London at an Executive meeting with Dan Eisenstein, Bruno Pigorini, Heinz Duddeck and Colin Kirkland (slide 25)
- 1999 in Oslo for the 25th Anniversary of ITA where we had the pleasure to gather nearly all the presidents of the Association (slides 26 and 27)
- 2001 in Milan (slide 28)
- 2002 in Sydney during his speech (slide 29) then with Andre Assis, Rodney Craig on one of the last photos at ITA of President Colin Kirkland (slide 30), as well as a wonderful photo of the whole Executive Council of that time (slide 31) and especially during a memorable discovery of deep Australia (slide 32)

*I have kept finally two pictures which, to my mind, illustrate well Sir Alan:*

- *The expert, attentive, but ready to reply to the question (slide 33) and never too far from a bunch of flowers even if, that time, there were not roses from Reading*
- *The orator, enthusiastic and convincing (slide 34)*

*As our friend Annica Nordmark wrote us:*

*“It is sad to realize that there is an end to everything, but a privilege to have been part of some of it”.*

*This will be my last word for today: I have been proud to share brief but intense moments of Sir Alan’s life and I am sad to realize that this time is gone!*

*Long life to ITA!*

*Long life to Lady Winifred!*

Then on behalf of ITA, Martin Knights gave to David Muir Wood the plaque of ITA as well as a memorial book prepared for the occasion. David Muir Wood thanked ITA in the name of all his family and specially his mother who could not be present due to a fall some days ago.

Martin Knights announced that the executive council in agreement with Sir Alan's family decided to establish an annual lecture in memory of Sir Alan. It will be the Muir Wood lecture. The first one will be given in Vancouver; the Executive proposed that Einar Broch, former ITA President, will be the first lecturer. Einar accepted and thanked ITA.

### **3 – APPROVAL OF THE AGENDA**

This year the notice, the agenda and the files were sent on 23 March to all 54 Member Nations.

The President presented the agenda sent on 23 March 2009; it was approved without amendments.

The President asked Harvey Parker to say some words at the memory of Thor Brekke. Harvey Parker reminded that Thor Brekke was a good friend of ITA, Professor at the University of Berkeley, California, past chairman of the US National Committee on tunnelling technology, member of the Norwegian Academy of Sciences and the Royal Swedish Academy of Sciences. Thor was the US representative to ITA, and therefore greeted and welcomed the ITA General Assembly in Atlanta in 1979.

#### **4 – APPROVAL OF THE MINUTES OF THE GENERAL ASSEMBLY 2008**

The minutes of the General Assembly 2008 were sent on 16 January 2009; they were approved without amendments.

#### **5 – REPORT OF ACTIVITY OF THE EXECUTIVE COUNCIL**

The President reminded that the report of activity was sent to the Member Nations on 23 March 2009 and asked for the comments from the Assembly. (Encl. 3)

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

- Functioning of the Executive Council, including new organisation of the Secretariat
- Strategy of the Association
- Relations with the Member Nations
- Development of the Contacts
- Development of the Affiliates
- Development of the "Prime Sponsors" and "Supporters"
- Relations with Sister International Associations
- Relations with the UN, the WB and with the EU
- Functioning of the Working Groups
- Functioning of ITA COSUF
- Functioning of ITA-CET
- Functioning of ITACUS
- Setting up of the Foundation training and Education on Tunnelling and Underground Space. Andre Assis presented the Foundation which aims at supporting the training actions of the Committee ITA-CET.

*ITA-CET activities have been booming and demanding in ITA. For this reason the ITA Executive Council has asked ITA-CET to look for alternatives to effectively run the education and training actions of our Association.*

*After studies of states of several organizations, consulting the ITA lawyers and discussions with Executive Council members, the creation of a foundation was proposed. The main reasons of a foundation are:*

- *Easy to receive money (donations) from companies, associations and other foundations,*
- *More flexible to run activities in time according to the demand,*
- *Finally and more important, not to bring any financial danger or risk to ITA.*

*The documents of the foundation were written in order to:*

- *Ensure the financial and administrative separation between the foundation and ITA,*
- *Guarantee the technical control of the foundation actions by ITA, keeping ITA CET inside ITA organization and also present in the Executive Board of the Foundation as well the presence of the WG-18 Animateur as Technical Director.*

*It is open to any discussions and comments from the Member Nations to integrate in the organization of the Foundation.*

- Functioning of the Task Forces
- Publications and Communication: website, *ita@news letter*, TUST, ITA report, annual TRIBUNE and ITA Position papers

No particular remarks were expressed from the Representatives of the Member Nations.

The report, supported by the delegates from Netherlands and from Australia, was unanimously approved.

## **6 – MINUTES OF THE TRAINING SESSION ON 22 AND 23 MAY "RISK DURING CONSTRUCTION OF URBAN TUNNELS IN SOFT GROUND"**

Chaired by Markus Thewes, Executive Council Member, and coordinated by Daniele Peila, ITA WG 18 "Training" Animator; André Assis, ITA-CET President; Markus Thewes - ITA Executive Council.

About 100 participants attended the training course. 17 lectures were presented or co-presented by 24 lecturers from 10 countries. 9 lectures were contributed from various ITA Prime Sponsors; other lectures were prepared by distinguished Hungarian engineers, by ITA animators or by members of the ITA executive council. The high calibre of lecturers during two days gave a total of 12 hours of excellent presentations about conventional and mechanized tunnelling for tunnels in soft ground in urban areas. The lectures covered both the theoretical point of view and practical experience with relevant case histories. Engaged and lively discussions showed the high interest of the participants, to whom certificates of participation were handed out at the end of the course.

## **7 – APPROVAL OF NEW MEMBERS**

### ***7.1. Member Nations***

The Association registered the membership of one new Member Nation: LAO DPR.

The representative of Lao had sent the following message, which was read by the Executive Director at the General Assembly:

*ITA President and ITA families,*

*It is my great pleasure to send this message to all of you in the 35<sup>th</sup> General Assembly in Budapest, Hungary. It has been two months since the first underground construction and tunnelling seminar in Vientiane, Republic of Laos.*

*The Seminar titled "Awareness of Building Underground Structures for Sustainable Development" on 24<sup>th</sup> March, 2009, was a historic milestone in raising awareness among the participants on how underground space utilization can effectively improve the urban and rural area toward sustainable development in my country.*

*It was the Right time that the mentioned seminar was organized as there is a merge member of ongoing tunnelling and underground excavation works in Laos. It would not be possible without tremendous support from ITA and Thailand Underground and Tunnelling Group (TUTG).*

*That seminar was a very first step and a major encouragement for Laos to formally join their ITA society as the 55<sup>th</sup> member nation. We would like to thank ITA and TUTG for encouraging us to be a part of the family.*

*We wish ITA, all nation members and congress delegates for a very successful WTC2009 in Budapest and welcome all of you to visit Laos in near future.*

The number of Member Nations therefore reaches 55. (Encl. 4)

## **7.2. Affiliates**

### **7.2.1. Requests for membership**

#### a) Corporate Members: 10

233	ETA-Zenath	United Arab Emirates
234	Bekaert	France
235	Shanghai Underground Space Architectural Design & Research Institute	China
236	IBERINSA	Spain
237	China Railway Tunnel Group	China
238	Dolsar Engineering Ltd	Turkey
239	Aecom Ltd	Hong Kong
240	Egis Rail	France
241	HBI Haerter AG	Switzerland
242	Hoelscher Dewatering	Germany

#### b) Individual Members: 4

371	Mr. Vahed Ghiasi	Malaysia
372	Mr. Rajendra Chopra	India
373	Mr. Wern-Ping Chen	USA
374	Mr. Bruno Combe	France

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

### **7.2.2. Resignations**

#### a) Corporate Members: 3

071	Konoike Constructions	Japan
169	Hitachi Construction Machinery	Japan
204	Lemley International	USA

#### b) Individual Members: 4

278	Jacques Burdin	France
293	Bo Karlsson	Sweden
323	Sir Alan M. Muir Wood	United Kingdom
359	Raffaella Mellano	Italy

### **7.2.3. Exclusions**

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

#### a) Corporate Members: 3

066	Himal Hydro & General Constr. Ltd	Nepal
102	Sabbour Associates	Egypt
192	NATM	United Kingdom

#### b) Individual Members: 5

139	Peter Murphy	Hong Kong
295	Chung-In Lee	Korea
310	Swee Kin Lee	Malaysia
325	Hu Yuejun	China
335	Chung Kyungil	Korea

**7.2.4. The number of Affiliate Members therefore reaches 273 (Corporate: 151 – Individual: 122) (Encl. 5 and Encl. 6)**



### **7.3. ITA-COSUF**

#### **7.3.1. Requests for membership: 5**

63	Basler & Hofmann Slovakia Sro	Slovakia
64	MariMils Oy	Finland
65	Sund & Bealt Holding A/S	Denmark
66	OTA Engineering	Japan
67	Hungarian Tunnelling Association	Hungary

#### **7.3.2. Resignations: 5**

13	Centro Ricerche Fiat	Italy
14	Project Railplan	The Netherlands
16	Liberty Gastubrine Holland BV	The Netherlands
46	Adac	Germany
47	Dedale	France

The General Assembly did not present any remarks concerning the five additional organizations that have asked to become member of the Committee ITA-COSUF (Comité pour la Sécurité Opérationnelle des Ouvrages Souterrains); their candidature was approved as well as the resignation of five organizations. (Encl. 7)

### **7.4. ITA-CET**

The General Assembly did not present any remarks concerning the 23 organizations that have asked to become members of the Committee ITA-CET (Committee for Education and Training); their candidature was approved. (Encl. 8)

### **7.5. ITACUS**

#### **7.5.1. Requests for membership: 3**

1	Jian Zhao	Switzerland
2	Harvey Parker	USA
3	Monique Labbe	France

The General Assembly did not present any remarks concerning the three persons that have asked to become members of the Committee ITACUS (Committee on Underground Space); their candidature was approved.

## **8 – REPORT FROM THE AUDITOR ON THE CONFORMITY OF THE ACTIONS OF THE EXECUTIVE COUNCIL**

*As voted by the 2000 General Assembly, the Association decided to implement an action plan to reach the goals of the strategic scope of ITA becoming “the unquestioned leader of underground space”.*

*In 2007 a motion on the strategy adopted by the General Assembly reaffirmed the vision of the Association as “ITA, the Leader in Tunnelling and Underground Space” with four main directions of action.*

*Although only eight months passed since the last General Assembly, notable steps towards the achievement of the strategic goals were made as presented by the minutes of the Executive Council meetings and the extensive report prepared by the Secretary General for the General Assembly that outlines the progress registered.*

*In order to enlarge the geographical representation of the Association in terms of Member Nations, the Ex-Co pursued its contacts with seven out of the twenty potential new member nations actually in contact with ITA, which could become ITA members in a reasonable time, that is: Argentina, Byelorussia, United Arab Emirates, Ireland, Lao, Monaco and Serbia. Some new contacts have been established also with Jordan and future contacts are planned*

*with the Baltic States. Still no further progress was registered in the effort to promote the re-creation of a national group in New-Zealand. More efforts are needed to reach the proposed target of 3 new member nations until 2010.*

*Due to the short period of time since the last General Assembly the results of this action are still to be considered quite notable.*

*The Ex-Co followed on with planned actions for improving relations with all international organizations contributing to the Sustainable Development of Underground Space and specifically with the **UNITED NATIONS** with notable efforts from the part of H. Parker in the framework of the Committee on Sustainable Development and HABITAT. Regarding the perspective actions with the **EUROPEAN UNION** the Ex-Co decided to wait for the election of the new European Parliament and Commission in order to renew the contacts. Good results of the traditional joint professional cooperation continued also with all Sister Organizations.*

*As usual, the communication issues were always on every agenda of the Ex-Co meetings and visits were made in 12 countries, namely South-Africa, Saudi Arabia, Belgium, Canada, China, Colombia, Denmark, Spain, France, Poland, Singapore and Russia.*

*The Scientific, Technical and Training actions of the Associations have been continued through the various formats that are now in place: the three ITA Committees, ITA-COSUF, ITA-CET and ITACUS, the so called Task-Force groups and last but not least the traditional Working Groups of the Association. The reports of activity of all these bodies are regularly presented to the General Assembly.*

*The organizational aspects of the priority action plan were also pursued according to the schedule.*

*The consolidation of the Secretariat was carried on with constant effort an Executive Director was fully installed in office starting 1st of January and taking full responsibility since March. The necessary amendments to the Statutes and By-Laws have been prepared to accommodate the responsibilities of the General Secretary and the Executive Director.*

*The Ex-Co also looked for the proper way to promote the activity of ITA in relation with the Media and the General Public by the employment of a specialized Media Agency. As a first topic it was decided to advertise on Education and Training, the planning of modern tunnelling projects and promotion of ITA publications and reports.*

*Dissemination of information through the consecrated channels represented by the ITA website, the ita@news electronic newsletter, the annual issue of Tribune and the ITA Reports and Position Papers continued and the content of the website is going to have the much awaited "Underground World Wide Space" section added very soon.*

*As a measure of achievement of the main goals for implementing the renewed strategic plan a number of performance indicators was set by the Ex-Co for the period 2007-2010, in order to monitor the efficiency of our action plan in terms of membership drive, website audience, seminars and training courses and so on. Although no official results were presented for this year, the auditor took the precaution to evaluate some of the results, based on the information provided and is convinced that notable progress was made during the last 8 months, especially in terms of number of Corporate Members, Prime Sponsors, Training Courses and Seminars.*

*The Auditor would like also to draw the attention of the Ex-Co on the complementary actions needed to be undertaken in order to consolidate the relations of ITA with the new Member Nations inside our organization.*

*As a conclusion, the new strategy of the Association and the priority action plan is working as intended and the progress made up to now provides a good perspective for achieving the goals set by the General Assembly.*

*Internal Auditor: Sorin Calinescu, ROMANIA*

The Auditor insisted on the setting of a new strategy from 2010 to 2013 and on the fact that the year 2009-2010 will be mainly devoted to the boosting of the working groups activities.

The President thanked Sorin CALINESCU and reported that the Executive Council will examine the recommendations presented so as to follow them up in the best possible conditions.

The General Assembly unanimously approved the presented report.

## **9 – REPORT OF ACTIVITY OF THE MEMBER NATIONS**

Thirty Member Nations 2008 activity reports were published in the annual issue of TRIBUNE distributed in the bags of the participants to the Congress. One was received too late to be published but will be included in the website. All reports can still be sent to the secretariat to be published on ITA website.

The President reminded that the Executive Council is at the disposal of all, and in particular of the Member Nations that did not send any report in the past two years, to help them develop their activity.

### **a) South Africa:**

Tunnelling in South Africa is undertaken primarily in the mining industry, in which 1 000 km of flat tunnels and an equivalent amount of inclined tunnels in form of raises, winzes, overpasses and shafts are driven annually.

From the civil tunnelling point of view, there are currently two major projects under construction, namely the Ingula Pumped Storage Scheme and the Gautrain Rapid Transit System. As South Africa is a country, which does not have an abundant supply of water, power generation is by coal-fired power stations with negligible hydropower generation. However, we utilize a pumped storage facility to accommodate the daily fluctuations in power demand. The Ingula Pumped Storage System is the second such scheme for South Africa and a third is in the pipeline.

The section of the Gautrain Rapid Transit System between the airport and the hotel district of Johannesburg will be completed prior to the FIFA World Cup to be held in South Africa in 2010.

### **b) Germany:**

The German national ITA-Committee “DAUB” proposes to hold the WTC 2015 in Germany (Munich). The WTC would be held in connection with the well known STUVA-Conference which is held every second year in Germany normally end of November, beginning of December in uneven years. The STUVA-Conference then will be held in May as a unique event with WTC. Celebrating the WTC and GA in Germany in 2015 would be in a consecutive sequence:

- 1975: first annual meeting in Munich  
20 years later

- 1995: ITA-Conference and GA in Stuttgart, together with STUVA-Conference (ST-Conference was moved to May)  
20 years later
- 2015: WTC + GA in Munich (Germany)  
→ “Coming back to the roots”

The proposal is announced by DAUB and strongly supported by STUVA (German Research Association for Underground Transportation Facilities).

**c) Australia:**

The Australian Tunnelling Society would like to renew our invitation to hold the WTC in Sydney 2014. In response to the Global Financial Crisis the Federal Government of Australia and the Government of New Zealand have pledged very significant funds to infrastructure projects. We have major tunnelling projects including road, rail, storm water and desalination plants in Perth, Melbourne, Sydney, Brisbane and Auckland.

We are going to be very busy over the next few years up to and including 2014.

Please consider Sydney, Australia as the host city for the WTC in 2014.

**d) Austria:**

In Austria three huge tunnelling projects are under preparation. The one is the Koralm-Tunnel with its length of 38 km. LOT1 which is called KAT1 (Koralmtunnel 1) has already started in December 2008.

The approval for the 57 km long Brenner Basetunnel was reached from the officials in Vienna. The construction of the exploratory tunnel was started.

The third huge tunnel project, which is under design at the moment, is the Semmering Basetunnel with an expected length of 27 km. So in the next three years three huge tunnel projects are expected to be under construction in Austria.

**e) Brazil:**

1. High speed train project : Brazil TAV
  - Links Rio / Sao Paolo
  - Interconnects the three main airports in Brazil (Galeao Rio, Guarulhos SP, Viracopos Campinas)
  - Length of 480 km; 130 km of tunnels (main ones in Rio – 12 km; Aramas mountain – 10 km, SP – 26 km)
  - Direct train is expected to connect the two main cities of Brazil (metropolis population of 130 million people) in 1h35
  - Bidding documents for a DBO concession should be released in October 2009
  - All specifications are written not to exclude any type of technology.
2. The Brazilian Tunnelling Committee is organizing a symposium to bring together engineers, environmentalists, lawyers and licensing agencies officials aiming at more rational arguments to the licensing process of underground works. This is a proactive step against the sometimes ill-fundamented defeat of underground works in public bearings.
3. The Brazilian Tunnelling Committee has succeeded to increase significantly the participation of its members in the World Tunnel Congress. The number of papers in proceedings has increased from zero in Agra to about 20 in Budapest.

f) **Canada:** Canada is experiencing a sharp increase in the number of tunnel projects; however Canada faces a serious shortage of tunnel constructions.

g) **China:** In April this year the largest tunnel in China, the 85 km long Dahuofang Water Tunnel was successfully holed through.

**h) Croatia**

The representative of Croatia greets the assembly on behalf of a new re-established ITA Croatia. Due to the new laws and former activities ITA Croatia has started more intensively with activities on promoting the use of underground space. These activities are already and will be even more supported in the future from two associations: Croatian Chamber of Civil Engineers and Croatian geotechnical society.

Underground projects in Croatia have been mostly dedicated to design and construction of tunnels on the new network of Croatian highways in last two decades. Recently some larger underground structures were built on round-about of the city of Rijeka (conventional with 280 m<sup>2</sup> face area as Pecine tunnel as well as on a highway to Dubrovnik).

New underground structures are presently in the design or preparation phase as: conceptual design for the Light Rail Zagreb project, new railway line Hungarian-border-Zagreb-Rijeka with the length of 300 km and several longer tunnels and underground structures of new hydro-power plants (as HPP Ombla: completely underground HPP near to Durbovnik and HPP Dubrovnik II with 14 km and 7 m diameter water supply tunnel)

In order to promote the use of underground space the Croatian Tunnelling Association is organizing seminars on the occasion of General Assembly of Croatian Civil Engineers that takes place in the middle of June each year. This year it will be organized in Opatija, on the Adriatic coast, on June 18-20, 2009, and will have also lectures from guests from Austria, Hungary, Czech Republic and France on underground structure activities in their countries.

This occasion will also be used for the promotion of the first book on conventional tunnelling in Croatian language. This book has been started from the first Croatian ITA representative Prof. Hudec who unfortunately died in 2004. It will be published as a two language book (Croatian/English).

Finally the specific symposium EuRock 2009 will take place in Dubrovnik/Cavtat, Southern Croatia at the end of October 2009.

**i) Egypt:**

The Egyptian Tunnelling Society ETS is continuing to provide a forum of nearly monthly presentation on tunnelling, underground projects and specific technical underground subjects especially those related to soft soil.

During last year, it held 10 forums focusing on what is dealt with Cairo Metro line No. 3 which is under construction now. The first phase of the line is 4.5 km long with five underground stations the rate of progress is now 60% and scheduled to be inaugurated by October 2011. Phase 2 is 7.2 km long with four underground stations has been awarded to contractors and work will start on next July scheduled to be finished by the end of 2013. Phase 3 & 4 of this line are under design study by a consortium of consultants.

Line 4 phase 1 of length 18 km, eleven stations, is under study; hopefully construction works to start by mid of 2011. Two new road tunnels under the Suez Canal one South of the city of Port-Said and the other opposite to the city of Ismaelia are planned and now under study. Apart from the technical role of ETS in developing the use of underground spaces in Egypt, it is also following the progress of all the mentioned projects.

**j) United States of America:**

Brenda Bohlke, US representative and Chair of the Underground Construction Association, gave a summary of that tunnelling industry and market in the United States as being in a state of high demand with numerous major ongoing and upcoming tunnelling and underground construction projects throughout the United States. Tunnel across the US totals over \$50 Billion at the current time, with over \$20 Billion programmed in New York alone, \$20 Billion in Seattle with tunnels under construction for light rail transit, Brightwater sewer, and the Alaskan Way Viaduct Replacement tunnel. Other major programs exist in LA, San Francisco, Washington, DC, the Port of Miami, Boston, and Pittsburgh. The Combined sewer overflow program and new water conveyance tunnels make up a large portion of the works in many States.

Two most recent projects of note are the announcement of the Alaskan Way Viaduct Replacement Tunnel to be constructed in Seattle to replace a two mile (3 km) segment of the existing viaduct along the downtown waterfront. This will be the largest bored tunnel using pressure face machine, with outside diameters on the order of 16 m. This is a fast track project with a completion date of 2015. Local stakeholders along the waterfront were instrumental in demonstrating the value of placing the highway underground through the dense urban segment of the SR 99 highway. The second important project announced in January was the Hudson express tunnels or Access to the Regional Core (ARC tunnel) which is the second rail tunnel crossing the Hudson River to supplement the commuter and intercity rail. These first of tunnels are now out for bid.

Thirdly, the Port of Miami highway tunnel contract award has been restarted.

Brenda also paid tribute to Dr. Thor L. Brekke, Professor Emeritus at the University of California Berkeley. Originally from Norway, Dr. Brekke was responsible for building one of the finest curricula in the U.S. in tunnelling and underground construction which produced many of today's U.S. industry's leaders. A memorial symposium was held in his honour at the University of California, Berkeley on May 7th and a new scholarship has been established in Thor's name.

Brenda will step down as Chair of UCA in June as Mr. David Klug assumes the position of Chair for two years. Brenda Bohlke will serve as Past Chair for two years, and was nominated and approved as the standing U.S. Representative to the ITA General Assembly by the Executive Council of the UCA in January 2009.

**k) Finland:** "Highlights and Finland" is the Bulletin 1 at WTC 2011, which you can find in your registration package. It contains several reports on recent ongoing and future tunnelling projects in Finland, which you can get acquainted within two years.

**l) France:**

The representative of AFTES started in expressing his happiness to be present at the General Assembly as new President of AFTES.

The programme of AFTES rests on three leading ideas:

The first idea is a major one as it is a reinforced action for the promotion of the social and environmental usefulness of the subsurface. This action rests on the project of Great Paris.

This project, in a few words, is a link by a 130-km automatic metro to connect the areas of activity:

- 1 scientific and research area in the South of Paris
- 2 areas of activities in La Defense to the West and Marne la Vallée to the East
- 2 airport areas in Roissy to the North and in Orly to the South
- 1 maritime area in Le Havre

Most of this daily transport link will naturally be underground.

Beyond this infrastructure, a vertical dense urbanization will be accompanied with underground transversal connexions as well as underground spaces such as the creation of a new station to welcome the high-speed links to the East and the North of Europe.

This 35-billion-euro project is politically supported by the President. It will be carried out over 30 years and should start before 2012.

Naturally, the involvement of AFTES materializes when they meet the Ministry in charge of Great Paris and the political authorities of the Ile-de-France Region.

Monique Labhe, the Vice-President of AFMB and President of the Underground Space Committee, will have the pleasure to share this Parisian adventure as part of ITACUS.

The second idea is a better insertion in research and training with the creation of a Master Tunnels and Underground Spaces. Richard Kastner, professor emeritus of INSA of Lyon and Vice-President of AFTES, will keep you informed about its implementation.

The third idea is the internationalization of our action in achieving a bilingual version of our journal "Tunnels et Ouvrages Souterrains".

**m) Greece:**

The 680 km Egnatia Odos Motorway will open its full length by June 2009. It includes 45 twin tunnels of a total length almost 100 km.

Some major tunnelling projects are underway in Greece nowadays. The Athens metro extension lines of a total length equal to 40 km are under tender and construction procedures. The 9.1 km metro line in Thessaloniki – Northern Greece is under construction and 5 km extension has been tendered.

In Thessaloniki ring-road, 20 three lane twin road tunnels of a length almost 12 km are under design.

Six major PPP projects are being implemented all over Greece. These include the construction of twin road tunnels of a length almost 70 km (single bore).

Almost 30 km (single bore) railway tunnels are under construction.

Almost 25 hydraulic tunnels, including dam complexes are under construction.

Finally, the Greek Tunnelling Society has decided to be a candidate to host the 2013 ITA conference and the 39<sup>th</sup> General Assembly.

**n) Iran**

Tunnels and underground spaces are the main infrastructures in Iran, especially since 1990. They constructed especially for water, power plants, freeways and railway, telecommunications, urban underground spaces and metro purposes. In the coming year it is planned to construct more than 200 km of tunnels in the country.

From 18-20 May, the 8<sup>th</sup> Iranian Tunnelling Conference organised by the Iranian Tunnelling Association (IRTA) and held in Tarbiat Modares University in Tehran. More than 500 participants attended the conference. 131 papers were submitted to the conference from which 87 papers were accepted by the scientific committee.

In the opening Ceremony of the conference, the Minister of Energy, Mr. Parviz Fatah, addressed the role of underground spaces on health and safety of infrastructures, especially in Tehran Metropolitan area, and highlighted the importance of the training for young professionals. In this Ceremony the Deputy Mayor, M. Doniamali presented upcoming plan for construction of the ring roads in Tehran Metropolitan area with tunnels.

ITA delegates, Prof. Harald Wagner and Mr. Piergiorgio Grasso, presented lectures on Risk management in general and in particular cases. The ITA Secretary General also delivered the message from the ITA President, Mr. M. Knights, and briefly addressed the ITA actions in the field of Risk and of Training.

The conference program included:

- 1) 87 papers (30 orally and 57 by poster) were presented on different aspects: geology-geotechnics, design and stability analysis, mechanized tunnelling, management and risk analysis, urban tunnels and managerial and contractual issues.
- 2) A full day workshop, by Prof. Harald Wagner, on different aspects of Tunnelling from NATM to mechanized Tunnelling and also Contract and Risk management. The workshop gathered up to 80 participants.
- 3) Exhibition on tunnelling held in the 1500 m<sup>2</sup> area in which up to 40 companies from Iranian and overseas tunnelling industry including participation of the ITA industry members, especially Alwag, Amberg, D2 Consult, Geodata, Herrenknecht and Lovat.
- 4) Technical panels in contractual matters, mechanized tunnelling and urban tunnels. In these panels technical aspects of large constructed tunnels such as recently constructed 45 km Ghmorud tunnels is presented and discussed.

**o) Italy**

In Italy there are many metro tunnels under construction. Particularly in Rome where two EPB machines are already working and two more will start in a short time.

Relevant is the highway connection between Bologna-Florence where tunnelling with gas problems are under construction.

Finally, with reference to educational aspects, in November will start the VII edition of the Tunnelling and TBM post graduate master course, endorsed by ITA/AITES and all the delegates are welcomed to spread this information in their countries.

**p) Japan**

The construction of the long urban tunnel of the Central Circular Shikagana Route Tokyo Metropolitan Expressway has just started. The Shikagana Route will be 90% underground with a tunnel of 84% length. It will be one of the world's longest road tunnel excavated by a single shield machine. It will be completed in 2013.



**q) Morocco**

AMTES has the pleasure to announce that its underground activity is developing in Morocco. A tunnel is in construction at the level of the motorway link between Marrakech and Agadir.

Other tunnels are planned for the tramway of Casablanca.

The scheduled high-speed rail link between Rabat and Tanger will have at least two tunnels.

AMTES received the ITA members at the beginning of May to develop the training activity, and a seminar is planned in November 2009 concerning boring methods.

**r) The Netherlands**

The A2 Maastricht project in the South of the Netherlands is reaching its final stages of the tender procedure. Two consortia are left in the procedure after the third withdrew its bid due to the financial crisis. The tender board expected to announce its award decision mid June.

Under the shipping canal between Terneuzen in the Netherlands and Ghent in Belgium near Sluiskil a motorway tunnel is planned. The tunnel with a length of approximately 1 000 meters will be bored under the canal. An invitation to bid is expected in the autumn of 2009 and the tender process will be a competitive dialogue procedure.

**s) Poland**

Mrs Anna Lewandowska, the President of the Polish group since 2008, was introduced to the Assembly. She is a professor at the Ecole Polytechnique (Technical University) of Warsaw, at the Faculty of Civil Engineering, at the Institut des Ponts et Chaussées (School of Civil Engineering), and heads the geotechnic and tunnelling department in which she teaches.

Warsaw is choosing the consortium which will build the central section of the second line of its metro (length 6, 3 km with 7 stations). The "design and build" contract should be signed in June. This section of metro should be operational within 48 months.

**t) Portugal**

Because of the economic crisis and the costs of energy, Portugal has decided again to go underground:

- a) For the reinforcement of water power production, building new power plants dam hydraulic circuits.
- b) For fighting unemployment by investing in subway extensions and road and railway tunnels.

Finally, for the first time, a group of Portuguese consultants and constructors are jointly presented in the Technical Exhibition during an ITA Congress.

**u) Romania** The National Conference of the Romanian Tunnelling Association will be held in Hateg between 1<sup>st</sup> and 3<sup>rd</sup> October, 2009.

**v) United Kingdom** The annual BTS design & construction course will be held from 15-19 June 2009. Details are to be found on BTS website: [www.britishtunnelling.org.uk](http://www.britishtunnelling.org.uk)

**w) Singapore**

The Tunnelling and Underground Construction Society, Singapore (TUCSS) will be bidding for the rights to host World Tunnel Congress 2014. They have received tremendous support from the Ministry of transport and the backing of the Singapore Tourism Board.

Both the soon-to-be completed Marina Bay Sands Integrated Resort at the new financial district in Marina Bay area and Resorts World at the rejuvenated island of Sentosa, have been identified as potential venues to host the Congress and they have both expressed their support of our endeavour. Either one of the two Resorts will serve as excellent venue not only to showcase the WTC, but also offering excellent facilities for work and play.

The utilization space in Singapore is growing at an unprecedented pace. Despite the current world financial turmoil and credit crunch, the Singapore Government's aim of delivering a high quality and affordable land transport system remains intact. The Land Transport Masterplan of Singapore revealed last year calls for \$35 billion to be spent on infrastructure over the next 10 years. By 2020, Singapore will have about 280 km route length railway lines almost double the current 142 km.

The 3 km Circle Line, currently under construction in 5 stages, will open in phases, starting with Stage 3 (Bartley to Marymount) on May 28 2009, 4 days from now. The rest of the line is expected to open progressively from 2010. The Downtown Line, a 40km fully underground line with 33 stations, costing \$12 billion, has started construction.

Marina Coastal Expressway: Singapore is investing heavily on its road infrastructure program as well, the latest being the Marina Coastal Expressway, which connects the recently opened Kallang Paya Lebar Expressway. Construction of the dual 5-lane carriageway has begun this year at a cost of \$2.5 billion and is scheduled for opening in 2013.

TUCSS has been actively serving its growing membership and participating in the promotion of tunnelling with its counterparts in the neighbouring countries through both organizing and attending regional conferences, training courses and seminars. TUCSS will be supporting Malaysia as a co-organizer of an International Conference to be held in Kuala Lumpur in 2011. Also at the same time TUCSS have pledged their support to the International No Dig 2010, an event organized by the International Society of Trenchless Technology, to be held in Singapore. TUCSS is agreeable to support BASF in organizing the BASF TBM Conference 2009 in Singapore from 4 to 6 November.

In terms of underground infrastructure works, Singapore is literally in the process of transforming itself. It is a city state that is making the best use of what a little land she has. With so much underground work going on concurrently now and so much ahead of us what better place is there to host a prestigious event? The Singaporeans are extremely enthusiastic and very proud of their own coined phrase Uniquely Singapore!

**x) Slovakia**

This year two highway projects will start (in public-private partnership), 52 km long and 75 km long with 10 two-tube tunnels (about 20 km long).

**y) Slovenia**

The representative from Slovenia invites participants to come to Ljubljana in September 16-18 2009 and participate on the 9<sup>th</sup> International Symposium on tunnel construction and underground structures. He points out that Ljubljana has a good climate and has a lot of beautiful places.

**z) Switzerland:** The Swiss group, STS, is considering organizing the WTC 2013 in Geneva as it would coincide with the 40<sup>th</sup> anniversary of STS.

**aa) Czech Republic:** the Czech Tunnelling Association would like to invite all ITA member nations to Prague in June 2010; there will take place the 11<sup>th</sup> International Conference “Underground Constructions Prague 2010”. Its main topics are transport and city tunnels.

Abstracts of papers can be sent via [www.ita-aites.cz](http://www.ita-aites.cz) till 30<sup>th</sup> June, 2009. Other parts of technical programs are technical exhibition, poster section and excursion.

**bb) Thailand**

Thailand is in the process of bringing back the Indonesian National Group to be the active member of ITA. In early May 2009, TUTG invited the Directors of Jakarta Metro Authority for a visit to Bangkok MRTA underground Line.

The detailed design of Patong Beach Access Tunnel in the resort Island of Phuket has just started. The road tunnel will be about 2 km long and will permit a more environmental and safe access to the world famous Patong Beach. Currently, the access is via steep road over a high hill.

## **10 – COMMUNICATIONS FROM GUEST SISTER ORGANIZATIONS**

**a) World Road Association (PIARC)**

**Willy De Lathauwer** thanked ITA for having invited the World Road Association to participate in its General Assembly. This proves the continuous symbol of the excellent relations between the two associations for over 30 years.

As announced by the President of the Committee of Exploitation of Road Tunnels in Agra, PIARC is in the preparation stage of the 23<sup>rd</sup> World Road Congress that will be held in Mexico City from 25 to 30 September 2011.

This Congress will be directed toward four strategic themes, amongst which the theme "Safety of the Road System" combines the activities of the Committee.

This Committee includes different categories of members, essentially appointed by the governments of member countries, and ITA is represented there as associate member.

Since the General Assembly in Agra, the Committee met in Montreal in October 2008 and in Madrid in May 2009. The next meetings are planned in September in Auckland, New Zealand, then in Colombia, in Russia and in China. The Working Groups meet independently from the meetings of the Committee, according to their own needs.

The Committee also pursued its launch in the field of seminars in developing countries or countries in transition: a first one will probably take place in Colombia, and a second one in China. Some workshops are also planned in New Zealand and in St-Petersburg.

It was reminded that PIARC has formed in the present cycle five working groups:

WG 1: Exploitation of Tunnels

WG 2: Safety of Tunnels

WG 3: Behaviour of the users

WG 4: Air Quality, fires and ventilation

WG 5: Management of knowledge

This last working group should lead in the next few years to the publication of a "PIARC Handbook of Tunnels", gathering the updated knowledge and recommendations that have been prepared during the last cycles by the Committee and its Working Groups.

The reports of these working groups, traditionally published under the form of books, are now only available on the site of the Association, from which they can be downloaded free of charge.

The following reports, prepared during the previous cycle, have been published since ITA Congress in Agra:

- "Recommendations for the owners and the operators of urban road tunnels"
- "Human factors and safety in road tunnels from the users' point of view"

Concerning the relations between the two Associations, it was reminded that the agreement of cooperation dates from 2005 and determines the respective fields of activity. In accordance with this agreement, some bilateral meetings are held annually; the latest one was held in Paris on 20 February 2009. It was manifested, among other things, in the structure of ITA-COSUF, the report of which will be made on Wednesday.

It will also be manifested in certain chapters of the Congress in Mexico City: 25–30 September 2011, therefore long enough after the General Assembly of Helsinki so that all ITA representatives may participate.

The slideshow presented is enclosed (Encl. 9)

## **b) International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE)**

**Pedro Seco e Pinto**, President of ISSMGE, presented the Society:

ISSMGE has 18 153 members coming from 84 countries in the whole world.

ISSMGE wants to play an important role helping the geotechnical community to explore the best ways for research, design, construction and assessment of geotechnical structures safety in order to reach the expectations and targets of our Society during the third Millennium.

Through its 24 Technical Committees and its Conferences ISSMGE has the responsibility to interact with the Society. Very recognisable topics, such as: transportation, environmental, geo hazards, preservation of historic sites, education, professional practice and safety evaluation are a good opportunity.

**The role of technical committees (TC):** The TCs are the spine of ISSMGE, a forum of discussion contributing for the advancement of knowledge in geotechnical engineering.

The TCs should disseminate their work, during ISSMGE Conferences, e.g. a Workshop, or Satellite conference.

At the end of each tenure each Committee should produce an ISSMGE bulletin.

Creation of JTCs ISSMGE, ISRM and IAEG on Landslides, Geo-Engineering Data, Professional Practice, Education and Training, Ancient Monuments, Soft Rocks and Indurated Soils.

### **Task Forces:**

TF1 - Geo-Engineering Resources/Education

TF2 - ISSMGE Industrial Liaison and Professional Practice

TF3 - Role and Format of ISSMGE Conferences

TF4 - Communications, Information and Information Technology

### **International Conferences on Environmental Geotechnics:**

1 <sup>st</sup> ICEG Alberta – Canada	July 10-15, 1994	190 papers and 300 delegates
2 <sup>nd</sup> ICEG Osaka – Japan	November 5-8, 1996	205 papers and 550 delegates
3 <sup>rd</sup> ICEG Lisbon - Portugal	September 7-11, 1998	165 papers and 300 delegates
4 <sup>th</sup> ICEG Rio de Janeiro – Brazil	August 11-15, 2002	155 papers and 220 delegates
5 <sup>th</sup> ICEG Cardiff - U K	June 26-30, 2006	194 papers and 310 delegates
6 <sup>th</sup> ICEG New Delhi – India	November 2010	

### **Regional and International Conferences for Young Geotechnical Engineers:**

2008 Bangalore – India - 6<sup>th</sup> AYGEC  
2006 Adelaide – Australia - 7<sup>th</sup> AYGEC  
2008 Gyor - Hungary – 19<sup>th</sup> EYGEC  
2007 Tunis - Tunisia – 2<sup>nd</sup> AYGEC  
2009 Cordoba – Argentina - 1st SAYGEC  
2000 Southampton – UK – 1<sup>st</sup> IYGEC  
2003 Mamaia – Romania – 2<sup>nd</sup> IYGEC  
2005 Osaka – Japan – 3<sup>rd</sup> IYGEC  
2009 Alexandria - Egypt - 4<sup>th</sup> IYGEC

### **Touring Lectures - International ISSMGE Seminars:**

- To address a topic selected by the Host Society
- To address the interests of practitioner engineers
- To attract young geotechnical engineers
- To incorporate a good mix of routine and modern soil mechanics and to cover case histories
- To allocate after each lecture a period for discussions, in order to stimulate questions and to share experiences from the participants
- To have a strong local support and organization and by preference in the native language (English, French or Spanish)
- To have the support of Industry
- 2 days of lectures delivered by 4 international experts appointed by the coordinator
- In the 3rd day (optional) a technical visit can be organized
- The Host Society should also propose 2-3 lecturers including 1-2 lecturers from Industry
- All the written versions of the lectures should be sent to the Host Society with 2 months in advance in order to be prepared a proceedings volume to be distributed to all participants
- The first Touring Lectures took place in Lagos, 2001 and the second one in St. Petersburg, in 2004
- In 2006 in Chile, in Paraguay and Tunisia
- In 2007 Touring Lectures took place in Asia: in Vietnam, Indonesia, China and Sri Lanka; in Europe: in Albania and in Croatia; in South America: in Costa Rica and El Salvador
- In 2008 in Nigeria, in Ecuador, in Pakistan and Macedonia
- In 2009 in Cambodia, Lao, Myanmar, Hungary, Ghana and Mozambique.

### **International Conferences:**

The geotechnics torch from Cambridge in 1936, where took place the 1<sup>st</sup> International Conference of Soil Mechanics and Foundations Engineering, has already crossed the following cities: Rotterdam, Zurich, London, Paris, Montreal, Mexico, Moscow, Tokyo, Stockholm, S. Francisco, Rio de Janeiro, New Deli, Hamburg, Istanbul and Osaka, with a periodicity of four years, and will reach Alexandria for the 17<sup>th</sup> International Conference of Soil Mechanics and Geotechnical Engineering in 5-9 October 2009.

### **Regional Conferences:**

2011 (May) - Hong Kong - XIV ARCSMGE - China  
2011 (June, 13-16) - Maputo - XV ARCSMGE - Mozambique  
2011 (September, 13-18) - Athens - XV ECSMGE - Greece

2011 (October, 2-6) - Toronto - XIV PCSMGE - Canada

2011 (November, 8-11) – Melbourne - XI ANZSMGE - Australia

### **Agreement ISSMGE-ITA:**

The President of ISSMGE expressed on behalf of the ISSMGE his satisfaction to sign an agreement with ITA. And he added that this will give the opportunity for a mutual participation in Council meetings, to organize joint Technical Sessions, to prepare reports of common interest to be promoted by the websites, to work together in Technical Committees, namely ISSMGE TC 28- Underground Structures.

The current key word is co-operation and so ISSMGE has already agreements of co-operation with International Association of Engineering Geology (IAEG), International Society for Rock Mechanics (ISRM), International Geosynthetics Society (IGS) and International Union of Geological Societies (IUGS).

He wished to ITA members the best success in their professional and family lives and ended his speech with:

*"Last but not least I would like to address to all delegates a word of praise and gratitude for your contributions and a message of hope that this Council will allow us to develop a feeling of universal responsibility and with the joint co-operation of Decision-Makers, General Public, Researchers, Professors, Designers and Contractors to create the ambition to serve better our Society, quoting Julia Carney memorable lines*

*“Little drops of water, little grains of Sand,  
Make the mighty ocean and the pleasant Land.  
So the little minutes, humble though They be,  
Make the mighty ages of eternity”*

## **11 – FINANCIAL REPORT 2008**

### ***11.1. Closing of the Accounts 2008 - Report from the Auditor***

The closing accounts for the year 2008 were sent to the Member Nations along with the notice to the General Assembly. (Encl. 10)

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

The Treasurer commented on the documents.

### ***11.2. Approval of the accounts***

The report, supported by the delegates of Switzerland, United Kingdom and Romania, was unanimously approved.

The General Assembly unanimously gave their quitus/approval to the Executive Council and notably to the Treasurer and to the Secretary General for the financial situation and the management for 2008.

## **12 – PREPARATION OF THE OTHER DECISIONS OF THE GENERAL ASSEMBLY ON WEDNESDAY**

### ***12.1. Presentation of the invitations received for the General Assembly 2012***

Two candidatures were received in due time from China and from Thailand.

The representatives from China and from Thailand presented the candidature of their country for the organisation of the annual meeting and of the General Assembly 2012.

The corresponding decision will be made at the Assembly on Wednesday 27 May.

### ***12.2 Modifications of the Statutes and the By-Laws***

Due to the new position of an Executive Director, Statutes and By-Laws have to be modified. Modifications concern the replacement of Secretary General by Executive Director when appropriate and therefore precisions on the role of the Secretary General.

The Netherlands propose a revision of the highlighted sentence: "He shall **oversee** the organization of the Secretariat."

It is noted that in French it is: "Il sera garant de l'organisation du secrétariat", and the translation in English shall be revised.

The corresponding decision will be made at the Assembly on Wednesday 27 May.

The President closed the first part of the General Assembly and invited the delegates to meet again on Wednesday 27 May 2009 at 9 am.

## **B – ASSEMBLY ON WEDNESDAY 27 MAY**

The President opened the second session of the General Assembly.

### **13 – REPORT OF THE OPEN SESSION HELD ON TUESDAY 26 MAY – TITLE: "PLANNING OF MODERN TUNNEL PROJECTS IN URBAN AREA"**

The Session was introduced by Piergiorgio Grasso and coordinated by P. Grasso and E. Grov.

Eight challenges and extremely interesting projects were presented so as to stress the need from one side of the potential of underground space and on the other side the need for proper planning and the stakeholders' consensus. The concept is without vision, and long and interactive efforts in communicating project to obtain not the approval but the support of the stakeholders the challenge solutions cannot be implemented.

Presentations were made by: Amanda Elioff, Animateur of WG 20 on "Modern Tunnel Planning – A U.S. Perspective"; Gusztav Klados on "The Smart project in Malaysia"; Pablo Bueno on "Madrid Metro and M30 Project"; Vähäadho Ilkka / "Underground (UG) – Master Plan of Helsinki" and Gu Xin / "Master Plan of Shenzhen (China) on Master plan for the utilisation of the Underground"; Keith Tsang on "Deep Sewage Tunnels in Hong Kong"; Harvey Parker on "A new tunnel in Seattle to replace the aging and earthquake-damaged viaduct along the waterfront".

Good planning and stakeholders' consensus play a key role in the success of underground projects.

The underground solution is often the optimum solution for satisfying the demands of human mobility, infrastructures, utility connection and enhanced wellbeing, but it is a limited resource and should be exploited with vision, sustainable cost/effective and adequately supported solutions. This is the effective message communicated by the different experiences and projects, often incorporating innovative technical solutions, presented and debated in the session.

The presentations are available on the ITA web site (<http://www.ita-aites.org/cms/ita-aites-home/publications/ita-wtc-open-sessions/planning-modern-tunnels.html>).

### **14 – WORKING GROUPS AND COMMITTEES: REPORT AND PROJECT OF ACTIVITY**

**14.1 - ITA-COSUF:** Chairman: Felix Amberg (Switzerland), Vice-Chairman: Didier Lacroix (France), Tutor: Claude Bérenguier – Report presented by the Chairman:

The core of ITA-COSUF is the three "Activity Groups (AG)":

- AG 1: Interaction with European and International activities
- AG 2: Regulation and best practice
- AG 3: Research and new findings

Through these AG the following activities have been developed in the last months:

- ITA-COSUF Workshop, 2 - 3 September, Prague, "Emerging Technologies for Safety and Security in Underground Infrastructures"
- ITA-COSUF sponsored workshop, 20 November, Frankfurt, "New energy carriers in tunnels and underground facilities"

beside two Steering Boards and two Activity Groups meetings. A special emphasis should be put on the report "Survey of existing regulations and recognised recommendations (rail, metro, and road)", which can be downloaded from the ITA-COSUF website.



For the coming months the following activities will be carried out:

- Forum for Road Tunnel Safety Officers: Safety Officers introduced by EU Directive 2004/54/EC; ITA-COSUF will organise and run jointly with the EU "European Forum of Road Tunnel Safety Officers". Date: 4- 5.11 in Lyon at CETU
- ITA-COSUF Workshop on: "Safety Challenges" on 5.11.2009 in Lyon at CETU
- Sponsoring of an ITA - COSUF Award for outstanding activities and to support dedicated work of students within the scope of ITA-COSUF
- Training courses within ITA-CET
- Specialised technical workshop co-organised with ISTSS (Int. Seminar of Tunnel Safety and Security) 17- 19 March 2010

ITA COSUF has currently 60 members coming from 17 countries. The next General Assembly will be held in Frankfurt, together with a Workshop on 18 March 2010.

**14.2. – ITA-CET:** Chairman: Andre Assis (Brazil), Tutor: Claude Bérenguer – Report presented by the Chairman:

The ITA Committee on Education and Training (ITA-CET) has held two meeting since Agra, India, one in Frankfurt, Germany, in December 2008 and the other one, a joint-meeting with the ITA Working Group 18 (WG-18 Training), on 25 May, on the occasion of the ITA WTC 2009, in Budapest, Hungary.

The Frankfurt meeting was attended by twelve participants, from eight countries (Austria, Brazil, Germany, Italy, Romania, Switzerland, UK and USA) and devoted to presentations on the needs of training in the tunnelling industry, on the professional master courses on tunnelling endorsed by ITA, on the experience of training professionals and on future developments and innovations in tunnelling industry. Furthermore, the ITA-CET organization was discussed and also future actions of the committee.

The Budapest meeting had 28 participants, from sixteen different countries (Austria, Belgium, Brazil, China, Denmark, Germany, Greece, Italy, Japan, Korea, Norway, Spain, Switzerland, Turkey, UK and USA). The meeting started by reporting the main points of the WG-18 meeting, which decided to work in full harmony with the Committee, having unique joint-meetings from now on. WG-18 will devote their effort in identifying needs of training in the ITA Member Nations as well study modern tools for training that could fit the ITA-CET needs. Then, administrative and organizational matters have been discussed, in particular, the creation of a Foundation. Members were informed that this Foundation would be administrative and financially independent of the ITA, but at the same time, the Foundation must have a strong technical input of ITA in preparing contents for the education and training actions, as well in selecting and providing lecturers, mostly chosen inside the university and company networks of ITA-CET. Finally the currently actions of the Committee were discussed.

So far, ITA-CET has endorsed four master professional courses, two at international level (Politecnico Torino, Italy and EPFL, Switzerland) and two at national level (University of Madrid & AETOS, Spain and University of Athens, Greece). The University of Texas (Austin, USA) has asked for endorsement, and other two proposals are expected soon. Four contents for short-courses (15 h) were already prepared and are under evaluation of their respective Working Groups (Risk Management - WG-02; Sprayed Concrete - WG-12; Mechanised Tunnelling - WG-14; Conventional Tunnelling - WG-19). Other contents for short-courses are under preparation in connection with the ITA Working Groups, such as Health and Safety during Construction (WG-05), Maintenance (WG-06), Immersed Tunnels (WG-11), Waterproofing (WGs-11, 12 and 14), Why Go Underground (WGs-15 and 20, and ITA-CUS) and Safety during Operation (ITA-COSUF). Presently, ITA-CET has 40 members, from 24 different countries.

**14.3. – ITACUS:** President: Han ADMIRAAL (Netherlands), Vice-President: Ray STERLING (USA), Tutor: Harvey PARKER (USA) – Report presented by ...:

The ITACUS Steering board met twice in 2008, in Amsterdam and in Monaco, and twice in 2009, in Budapest and in Shenzhen late in 2009.

The main activities will meet in:

- Membership drive, general awareness on ITACUS
- Preparing three white papers
- Making contact with other organizations
- Organizing Open Meetings both within and outside ITA

The **membership drive** is now available in printed form, or as download on ITACUS webpage on ITA website: [www.itacus.ita-aites.org](http://www.itacus.ita-aites.org) ([itacus@ita-aites.org](mailto:itacus@ita-aites.org)).

**White Papers:** the first of the three White Papers on "Underground Space: Q&A" aims at explaining to decision makers the benefits of underground space use and attempt to raise the general awareness regarding the use of underground space.

**First contacts:**

- IFHP (International Federation for Housing and Planning)  
Meeting between ITACUS Chair and IFHP Secretary-General
- IFME (International Federation of Municipal Engineers)  
First contact made by Ilkka Vahahoo; will consider further cooperation during their August meeting
- ISUFT (International Society for Underground Freight Transportation)  
Professor Qian Qihu will act as liaison between ITACUS and ISUFT
- ISOCARP (International Society of City and Regional Planners)  
Tutor met Secretary-General of ISOCARP
- Sustainable Cities Program of Cambridge University  
Tutor has made first contact

**Other identified organizations to contact:**

- Sustainable Use of Underground Space (SUUS/JTC5)
- American Planning Association
- International New Town Institute
- International Urban Development Association (INTA-AIVN)

**Special relationships:**

- ACUUS
- ITACUS Steering Board will meet during the next ACUUS World Conference in Shenzhen in November
- Joint Open Meeting will be setup to discuss the second ITACUS White Paper on Planning of Underground Space

The identification of contacts continues.

Interested parties can join ITACUS on LinkedIn ([www.linkedin.com](http://www.linkedin.com)).

**Open Meeting:** the first ITACUS Open Meeting which was held in Budapest on Tuesday 26 May 2009 on the subject of Underground Space Planning was a success.

**14.4 - WG 2 – Research:** Animator: Eric Leca (France), Vice-Animator: Chung Sik Yoo (South Korea), Tutor: Soren Eskesen (Denmark) - Report presented by the Animator:

The Group met on Sunday May 24 and Monday May 25. The meetings were attended by 14 participants representing eleven member countries: Korea, Denmark, Spain, United States, Czech Republic, South Africa, Italy, China, Netherlands, United Kingdom, and Thailand.

The activity of WG2 since the Agra meeting has focused on the preparation of three recommendations:

- "Strategy for site investigations of tunnelling projects";
- "Monitoring & Control of Underground Works";
- "Risk Management".

During the first meeting on May 24, a detailed review was completed on the final draft document on "Monitoring & Control of Conventional Tunnelling" that had been revised since the Agra meeting. The group finally approved the document which will be submitted to the Executive Council for review.

A collaborative effort has been initiated with the International Society of Rock Mechanics (ISRM), in connection with the preparation of the document for "Strategy for site investigations of tunnelling projects" which is underway. An outline of the scope of cooperation will be available for review in the coming year.

A reference presentation that would assist in bringing into practice the Risk Management approach described in the "Guidelines for Tunnelling Risk Assessment" issued by WG2 in 2004 had been prepared since the Agra meeting and was used during the pre-conference training course session held on May 22. Data collection works in relation to case histories of the implementation of risk management principles are still in progress since the Agra meeting. A summary of collected case histories of projects where the risk management procedures have been successfully implemented will be produced and included in the reference manual which is under preparation by WG2.

The second meeting held on May 25 mainly focused on discussing future fields that could be investigated as part of the activities of WG2. An initiative on "High Performance Concrete for Durable Conventional and Segmental Tunnel Lining" has been proposed. It was agreed that an outline of the new initiative will be distributed for review by the end of September 2009. Also discussed was the possibility of "Assessment of Pipeline Damage Associated with Tunnelling induced Settlements" as a future topic.

**14.5. – WG 3 – Contractual Practices:** Animator: Arnold Dix (Australia), Vice-Animator: Martin Smith (Switzerland), Tutor: Martin Knights - Report presented by the Animator:

Working Group 3 met for two afternoons and had a lively discussion surrounding core contractual issues and their challenges in underground construction.

The meetings were attended by eleven Member Nations being – Thailand, United Kingdom, Germany, Japan, Switzerland, Italy, Egypt, Slovak Republic, USA, Austria and Australia. They were joined by their Tutor Mr Martin Knights of the UK.

Over the two days of meetings their document to provide leadership and guidance on making decision for contracts in underground projects was completed. Due to the valuable contributions of the existing and new members substantial redrafting of the document occurred.

The document does not specify how contracts must deal with issues – instead it focuses upon the issues which must – in ITA's opinion - be dealt with in all successful underground construction projects.

Working Group 19 has agreed to review the framework document. Following WG19's review it is proposed that the next task for the Working Group will be to use the framework document as the basis to critically review the FIDIC and Swiss Standard contracts currently in the market.

WG3 also reviewed the book “Recommended Contract Practices for Underground Construction” sponsored by the Underground Construction Association of the Society for Mining, Metallurgy and Exploration USA and edited by Bill Edgerton of 2008. ITA contractual practices group congratulates the UCA & SMME on an excellent publication consistent with and complimentary to the ITA's objectives of promoting the sustainable development of underground space.

The group is willing to work cooperatively with other Working Groups by reviewing contractually related documents that they are currently preparing and invite other groups to forward their documents to them for such review.

In making this invitation it is prudent to advise that this working group is not a "legal" body as I am the only one lawyer. WG3 sees itself not as a legal adviser – it sets performance requirements for the lawyers.

**14.6. – WG 5 – Health and Safety:** Animator: Donald Lamont (United Kingdom), Vice-Animator: Martin Vogel (Switzerland), Tutor: Vitaly Umnov (Russia) – Report presented by Leslie Pakianathan, a member of the group:

Working Group 5, "Health and Safety in Works", met once during the 2009 ITA General Assembly in Budapest.

In total, eleven members representing eight countries attended this year – Germany, Norway, Portugal, Russia, Switzerland, Singapore, UK and the USA. This was a lively and productive meeting.

#### ***ITA Booklet - Safety in Tunnelling***

WG5 continued with the update and review of the content of this booklet and is on programme to complete this task at its meeting in Vancouver next year. Financial assistance with the artwork has been promised by the BG Bau in Germany. Some funding may also be required from ITA.

The booklet is currently available in 9 languages. WG5 regrets that Hungary did not accept its invitation to translate the booklet for this year's World Tunnel Congress. WG5 seeks the agreement of the Executive Council in requesting Member Nations hosting the WTC in future years, to translate the booklet into their language, for publication at the WTC.

#### ***Guidelines for Good Occupational Health and Safety Practice in Tunnelling***

WG5 was pleased to note that this document has now been published on the ITA website as "ITA Report No 1".

#### ***Guidance on the safe use of temporary ventilation ducting in tunnels***

This was a major work item for 2009. Two revisions of this document were circulated by e-mail for comment prior to the meeting in Budapest. A further review of the document was undertaken at our meeting in Budapest and a draft final text was agreed. A small amount of additional text relating to references to standards remains to be added, but WG5 members undertook to provide that text within a few weeks. Thereafter the completed text will be circulated to WG5 members for final approval before being sent to the Secretariat.

### ***Training courses – Health and Safety content***

WG5 was concerned to note that yet again the Training course held prior to the WTC did not include a lecture on occupational health and safety in tunnel construction.

There are now three categories of training course which ITA endorses or supports:

- the 2-day course run immediately prior to the WTC;
- proposed 2-day courses on a range of topics to be run under the auspices of ITA-CET and
- ITA endorsed master degree courses.

WG5 seeks Executive Council agreement that each should include content on relevant occupational health and safety matters.

WG5 completed its discussions on a list of relevant health and safety topics for submission to the secretariat and agreed to advise and support ITA and ITA-CET over the inclusion and delivery of appropriate H&S content for future ITA sponsored or endorsed courses.

**14.7. – WG 6 – Maintenance and Repair:** Animator: Henry A. Russell (USA), Vice-Animator: René van den Bosch (Netherlands), Tutor: Weining Liu (China) – Report presented by the Animator:

The Working Group met on Sunday 24 May 2009. The meetings were attended by eight representatives from 10 member nations, they were: Austria, Canada, China, Denmark, Germany, Hungary, Netherlands, Norway, Japan, and the United States of America.

The Working Group discussed the progress of the draft of the work on the development of *Guidelines for Structural Fire Resistance for Rail Tunnels*. This document is an adaptation of our recent work on Guidelines for Structural Fire resistance for Road Tunnels, which is on the ITA web site. This work required the inclusion of specific elements unique to a passenger rail systems and the modifications time / temperature curves for heat release from fires in a passenger rail system. The Working Group believes that this is an important document to develop since there is very little information available on the subject. The Working Group has submitted a draft of the document to the Executive Council for review.

The Working Group is pleased to announce that the National Fire Protection Association, in their document, *NFPA 502, Standard for Road Tunnels, Bridges, and other limited Access Highways, 2008 Edition* has adopted our Guidelines and recommendations for structural fire protection for tunnel structures. This is a significant acknowledgement of the work performed by the Association and in particular of the member nations who participated in the development of the Guidelines.

Presentation was made to the Group by Mr. Van Den Bosch, of Netherlands, describing recent TNO tests on the performance of Concrete liners exposed to high heat release rates from a fire. Ms. Haug of Norway provided a report on a recent highway tunnel fire in Norway. The Animateur presented a technical discussion on the use of spray concrete for emergency work performed on the Boston metro system in the USA.

The Group wishes to invite any members of the Association who would like to participate in the development of this report to contact the Working Group members or myself.

**14.8. – WG 11 – Immersed and Floating Tunnels:** Animator: Christian Ingerslev (USA), Vice-Animator: Jonathan Baber (United Kingdom), Tutor: Yann Leblais (France) – Report presented by the Animator:

The Working Group met on Sunday 24<sup>th</sup> May 2009. The meeting was attended by fourteen participants from ten countries, namely Canada, China, Denmark, France, Germany, Norway, Sweden, The Netherlands, United Kingdom and United States. Apologies were received from Finland. A second meeting was held the following day with sixteen participants (four of whom were new).

To better represent immersed tunnel knowledge world-wide, the Working Group would like to recruit members from unrepresented countries such as Brazil, India, Japan, Mexico, Portugal, and Russia as well as new younger members.

Attendees reported on projects in their countries and with which they were involved. Project sheets were requested for these. PowerPoint presentations were made on Bjørvika (Oslo, Norway), Busan-Geoje (Korea), Söderström (Stockholm, Sweden) and Bosphorus (Istanbul, Turkey). There was considerable discussion during these presentations. The Working Group is working on sections for an “Owners Guide” (General Principles) as reported last year. Discussion followed to determine progress on those sections drafted during the past year and it is intended that these will be submitted to ITA for uploading (public access) by about the end of June, marked draft as necessary. As further comments are received, these sections can always be updated. It was agreed that active links between sections would be highly desirable, especially from the Glossary of Terms. An effort will be made to draft those remaining sections identified last year before the Vancouver congress. Additional sections were suggested for which authors will be identified:

- Environmental issues, mitigation and relative cost. Assistance by an environmentalist would be needed
- The need for a video clip or PowerPoint presentation showing the immersion process
- The need to have a section on Health and Safety, integrated with that Working Group
- A section on project management and how an immersed tunnel project should be organized. The best experts should be brought onboard as early as possible. This includes the marine operator
- Fire protection

Other future tasks for the Working Group were identified. It is hoped to make progress on these tasks before the next congress:

- The need to agree factors of safety with the basis for how they are determined (e.g. statistical or deterministic) and critical load combinations for design of immersed tunnels, and factors of safety against buoyancy
- The possibility of putting together a 2-day course on immersed tunnels
- A directory of typical photos
- A list with links to published papers, both inside and outside ITA

Immersed floating tunnels are coming one step nearer to reality in Norway. There was discussion about the proposed project, including some discussion on floodgates. The existing catalogue of utility tunnels has been broken up into individual tunnel files for uploading to the web site in a format to match that of the transportation tunnels.

**14.9. – WG 12 – Shotcrete Use:** Animator: Tarcisio Celestino (Brazil), Vice-Animator: Atsumu Ishida (Japan), Tutor: Eivind Grov (Norway) – Report presented by the Animator:

Presents : Tarcisio Celestino\*\* (Brazil - Animateur), Atsumu Ishida\*\* (Japan - Vice animateur), Eivind Grov\* (Norway - tutor), Thomas Aquinas\*\* (Korea), Anders Ansell\*\* (Sweden), Tony Boniface\*\* (South Africa), Roman Bretzv # (Slovakia), Anuthep Chaovanakit\* (Thailand), Enrico Dalnegro\* (Italy), Marcel Garnier\* (France), Christine Hauck\*\* (Norway), Matous Hilar\*\* (Czech République), Sae-Jin Kim\*\* (Korea), Odd-Bjorn Kleven\*\* (Norway), Catherine Larive\*\* (France), Julien Legoux\*\* (France), Tom Melby\* (Switzerland), Leiv Pedersen\* (Norway), Wenge Qiu\* (China), Andrew Ridout\* (United Kingdom), Jouko Ritola\* (Finland), Benoit De Rivaz\*\* (France), Richard Schulkins\* (Singapore), Alun Thomas\* (Hungary), Pierre-Francois Tissot\*\* (Spain), Jianyu Wang\* (China), Volker Wetzig\*\* (Switzerland), Ralf Winterberg\*\* (Italy), Song Ye\* (China).  
(\* present on 24th, \*\* 24th and 25th, # 25th)

### **Evaluation on fibre-reinforced sprayed concrete**

The Group has agreed on the concrete type to be used, the types and number of tests with short duration load. Discussions are still going on about the long duration load tests. A European Standard about this type of tests is intended to be released soon. This may be one point for interaction with WG 2 on Research.

### **State of the art report**

The state of the art report is already available on the ITA web site. Although the report has photos and illustrations, more photos and illustrations were collected from several member nations for a new version of ITA report. About 30 new illustrations are collected and will be submitted to ITA for publication.

### **Nozzleman Certification**

C. Larive summarized the paper she presented in the Southern Africa Conference on certification schemes around the world. The subject of the paper was “Why and How to Certify Sprayed Concrete Nozzle Operators?” The main idea is that the quality of sprayed concrete is so dependent on the skill of the nozzle operators that certified nozzle operators should be required in tender documents exactly as certified welders are required for steel construction. The paper presents the main characteristics of all the available or developing certification schemes run by independent certification in different countries.

### **Sprayed concrete curing and durability**

Tony Boniface presented the report of the task which was the subject of a publication at the recent South African Symposium on Sprayed Concrete (SC). Long term durability of SC is not only dependent on selecting the appropriate materials, but also on the standard of workmanship employed in its placing. All the effort of ensuring appropriate materials selection for SC can be nullified if the end product lacks homogeneity; has voids or laminations, and is highly permeable. A lot of generic and project specific R&D work has been done on appropriate materials selection. A lot less work appears to have been done in establishing simple routine testing of the quality of the end product.

Boiled Absorption (BA) and Volume of Permeable Voids (VPV) testing in accordance with ASTM C 642-06 is widely used in North America and South Africa for this purpose.

An associated matter is the proper curing of SC. This can not only improve the potential durability of the end product but it can also reduce its in place cost. The relatively new concept of ‘internal curing’ may provide a trouble free method of ensuring this.

A discussion paper has been prepared with a view to the WG publishing recommendations on these associated topics.

## **Glossary**

Ralf Winterberg announced that the glossary of sprayed concrete related terms has been prepared in 12 languages. The thirteenth (Chinese) will be added in two months, when the file will be made available to the Executive Council.

## **Durability and curing**

Sprayed concrete (SC) is increasingly being regarded as a permanent form of concrete, and permanence implies the need for long term durability. In the case of SC this is not only dependent on selecting the appropriate materials in designing the mix, but also on the standard of workmanship employed in its placing. All the effort of ensuring appropriate materials selection for SC can be nullified if the end product lacks homogeneity; has voids or laminations, and is highly permeable. A lot of generic and project specific R&D work has been done on appropriate materials selection. A lot less work appears to have been done in establishing simple routine testing of the quality of the end product.

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An associated matter is the proper curing of SC. This cannot only improve the potential durability of the end product but it can also reduce its in place cost. The relatively new concept of 'internal curing' may provide a trouble free method of ensuring this.

A discussion paper has been prepared with a view to the WG publishing recommendations on these associated topics.

**14.10. – WG 14 – Mechanization:** Animator: Lars Babendererde (Germany), Vice-Animator: Felix Amberg (Switzerland), Tutor: Katsuji Fukumoto (Japan) - Report presented by the Animator:

The meeting was attended by 17 Participants from 10 countries.

### ***Pro- and Con-List Mechanized Tunnelling*** (LB 30.06)

The Animator thanked again Arnulf Hansen for his contribution in submitting the list to the WG. The list has been extended and sent for comments by the other members in 2008. It is posted onto the WG document exchange room. No comments have been received prior to the WTC 2009. The members accepted the list during the WG meeting.

The document will be submitted to the Executive Committee for integration into the WG website and will be publicly available as a basis document for project development.

### ***List of Challenging Projects***

The Animator explained the development on the document after the meeting in Agra.

A guidance list for project selection have been elaborated and sent out to the members for comment. At the same time the country representatives were approached for new proposals. During this meeting the criteria were extensively discussed and a final version accepted to handle the current project list. For completeness it has to be mentioned that this list is not an absolute fixed stipulation. If necessary, the specifications might be corrected during the WG annual meetings.

The format of the documents will be slightly adjusted to facilitate the project submission.

The present members announced to forward further projects for enclosure in this list.

It is agreed that the list will be forwarded for integration onto the WG web page as soon as possible.



Adjustment of the submission format: LB, 30.06.2009

Submission of new projects to WG: All, 31.07.2009

Submission of document to Executive Council: LB 30.08.2009

### ***Publication Library*** (Prof J. Zhao)

Prof. Zhao offered a publication library on TBM projects to the WG for integration into the web page.

It would enable visitors to search with keywords for specific project characteristics. The database would offer then a selection of about 400 publication titles which match the keywords. The titles themselves would not be available as there would be some conflict with the publishing rights. But it would be mentioned where to find the publication.

The WG accepted and the offer and thanked Prof. Zhao for the support. As well the WG is pleased to learn that there is still the possibility of engaging Mr. Rafael Rojas to support the WG endeavours.

### ***Future work in WG***

As the working group is moving to have the above mentioned documents submitted for enclosure onto the WG webpage, discussion was initiated if and what to do next.

After a lively discussion it was agreed to elaborate two types of documents in the next future:

- General information document which gives an overview on the basics in mechanised tunnelling. This document should work as a basis document for the involved parties in early project phases. A good orientation would as well be a comparable document elaborated by the Conventional Tunnelling WG.
- A more specific collection of slightly more detailed leaflets, dealing with the actual TBM operation. Topics could be for example pre-grouting, face support, compressed air, etc. A rough description would illustrate the problems and the options in each of the topics. At the end this could be a compilation of leaflets demonstrating regular problems and give technical explanation to a limited technical level.

Members expressed doubts about the leaflets since the typical “clients” of the ITA WG web page would be more thankful for general documents. The Animator will propose a content list for the general document. (LB, 30.06.2009)

### ***Project Presentation of Alaskan Way Viaduct, Seattle***

Mr. John Reilly presented during the Monday meeting the project in Seattle to initiate interest among the construction community and especially for interested international working contractors.

### ***ITA-CET Foundation***

The topic is to execute training courses for interested parties, independent to the ITA meetings. It will cooperate with the WGs to adjust the training program and as well to appoint the speakers. The Animator informed the WG about the recent meeting in Zürich, where the content for a two day course has been elaborated. As the contents will be adjusted to the actual requirements of a possible client of ITA-CET Foundation, no further action was required.

***14.11. – WG 15 – Environment:*** Animator: Jan Rohde (Norway), Vice-Animator: Jon Kaneshiro (USA), Tutor: In-Mo Lee (South Korea) - Report presented by the Animator:

The Working Group met on two occasions and was attended by 9 representatives from seven Member Nations – United Kingdom, Italy, Japan, Korea, China, United States, and Norway.

The Working Group's report on "Environmental and Sustainable Development Reasons for Going Underground" was reviewed. The report incorporates the comments from the Executive Committee and the ITA President. Two plates had to be removed and new plates were being obtained directly from the Owner. Some additional very small changes were made by the Working Group to more fully capture the ITA President's recommendations. These changes will be coordinated with the author, ex-Animateur, in June. The report will then be ready for Executive Committee final review in July 2009. Although the results of the draft report were presented in the technical sessions in Singapore in 2004, when approved by Ex-Com, the Working Group is willing to present formally the report in the Open Session in Vancouver April 2010.

The goals of the working group and our future goals as they relate to environmental and social impact are to communicate the following:

- Environmental advantages and opportunities by going underground
- Environmental challenges by going underground
- Environmental recommendations and guidelines when going underground

The meeting had six presentations: one from Italy on the topic of environmental problems related to muck disposal on 7 projects. The second presentation was from the USA on 4 projects with construction vibration issues, 3 projects with muck disposal issues, and 3 projects with ventilation issues. The third presentation was from Japan discussing environmental impacts of tunnels and how they are being handled throughout the world, including road ventilation, portal aesthetics, and confined space issues in Europe, USA, and Japan. The fourth was a presentation from Norway on environmental issues plus extracts from the handbook by the Norwegian Road Authority on the formal basis for planning of tunnels and consideration of the local environment. The fifth presentation was from the UK on portal issues for road tunnels. The sixth presentation was from China about environmental issues related to groundwater withdrawal from tunnel construction.

The WG prepared a questionnaire to address these challenges and sustainable environmental solutions, which will be sent to the ITA Secretariat in June with a requested reply date to the member nations by end of September 2009. The goal will be to have at least one case history from each member nation demonstrating the challenges, constraints, risks and solutions. The compilation of the case histories will be prepared by the end of February and circulated to the core WG members for comment by end of March and discussion and editing in Vancouver. The aim will be to prepare a draft final report by April 2011 for the ITA Ex-Com.

The WG will interface with all other WG on related issues.

**14.12. – WG 17 – Long tunnels at great depth:** Animator: Gérard Seingre (Switzerland), Vice-Animator: Minoru Shimokawachi (Japan – could not attend), Tutor: Piergiorgio Grasso (Italy) - Report presented by the Animator:

The meeting was attended by 20 members from 10 different countries: China, France, Iran, Italy, Korea, Norway, Slovenia, Sweden, Switzerland and Thailand.

Ten of the attendees were former members to the working group.

At the Agra meeting of last year, it was decided to focus on case histories at the Budapest meeting. 4 presentations were given:

- The refurbishments of the Karavanke Road Tunnel at the border of Slovenia and Austria;
- Long tunnels under construction in China;
- The adit of St-Martin-la-Porte at the Lyon-Turin-Base tunnel in France;
- Risk estimation model applied on a hydraulic tunnel in north of Sweden.

A proposal of minor changes and complements on the updated WG report “Long Tunnel at great Depth” has been sent by the French member just before the meeting. The changes are necessary due to the recent evolution of the safety rules in Europe. The proposal was discussed during the meeting and partly accepted.

Some pictures will be added to improve the report quality and legibility. It was not possible to finish this job on time as previous in Agra and the group members were asked to prepare and send them shortly.

The Animator has proposed to continue to focus on case histories for the next meeting in Vancouver on the Sunday 16 May 2010.

**14.13. – WG 18 – Training:** Animator: Daniele Peila (Italy), New Vice-Animator: Han Admiraal (Netherlands), Tutor: Markus Thewes (Germany) - Report presented by the Animator:

Ten representatives coming from the following countries Belgium, Brazil, Czech Republic, France, Germany, Italy, UK, USA and The Netherlands attended the meeting.

The discussion was focused on the relationship of WG with ITA-CET and on the future activities of the group itself.

The group members has agreed that many of the goals for which the WG was started have been achieved: (I give to you the most important examples) the training courses before the WTC, endorsement of Master Course procedure and guidelines, creation of a network of university professors involved in tunnelling teaching.

While it was agreed that it remains to develop the training of professionals.

Furthermore there is the never ending activity to provide a help to the other working groups for preparation of teaching material.

It was highlighted by many members of the WG that the ITA-CET has now the possibility to give lectures for many training actions.

On the other hand WG18 must remain active, at least for a transition period, to act as a link between the ITA Member Nations and the ITA-CET and to help the working groups to prepare their material.

Under this frame WG 18 main task will be to collect both the training needs coming from the Member Nations and to highlight if there is the need of new teaching tools. A good example was presented by the France delegate.

During the transition period during the WTC WG 18 and ITA-CET will organize a joint meeting that will take place only at Monday Afternoon to allow the participants to attend to the meeting of the other WGs.

During the transition period (the WG members agreed that can last for 2-3 years) the activities of the WG will be always more integrated with the ITA-CET activities and after this transition period it will be decided how to act and how to finally merge the WG activities with ITA CET.

The WG members suggested also that ITA-CET should take into account the need that also workers should be qualified in the sector of safety and of specific works such as shotcrete installations as an example.

Finally the group asked H. Admiraal to go on acting as the Vice-Animator of the group and he accepted.

**14.14. – WG 19 – Conventional Tunnelling:** Animator: Heinz Ehrbar (Switzerland); Vice Animator: Robert Galler (Austria), Tutor: François Vuilleumier (Switzerland) - Report presented by the Animator:

The WG 19 had one meeting during the ITA World Tunnel Congress 2009 at Budapest.

18 participants representing 9 nations attended the meeting of the working group on Sunday afternoon.

The activities of the working group since the last World Tunnel Congress at Agra concerned the finalisation of the general report on conventional tunnelling.

The aim to publish this first basic paper of the working group 19 before the WTC 2009 could be achieved. The general report on conventional tunnelling is now ready and published on the internet. The animator could hand out some hard copies of the report to the members of the working group.

The actual projects of the working group 19 are the elaboration of guidelines for special contractual aspects of conventional tunnelling and guidelines on monitoring in conventional tunnelling.

During the meeting at Budapest three presentations were given from the United States, Austria and Switzerland.

#### ***Presentation of the US***

Nasri Munfah and Vojtech Gall gave a general overview on conventional tunnelling in the United States based on a paper they sent to WG members before. In the second part of their presentation they highlighted especially the contractual aspects, the risk management, the types of contract models and the methods used for claim avoidance and dispute resolution.

The presentation was followed by a broad discussion.

#### ***Presentation of Austria***

The Co-Animator of the working group, Robert Galler gave an overview over the Austrian way of payment of the excavation costs. Austrian contracts for underground work are normally unit price contracts.

He showed in detail the definition of the excavation classes using the Austrian classification matrix

#### ***Presentation of Switzerland***

Heinz Ehrbar showed the Swiss approach for the payment of the excavation and for the evaluation of the construction time.

The typical contract in Switzerland for underground construction with conventional tunnelling is also the unit price contract.

The working group members discussed also the two presentations from Austria and Switzerland. They concluded that there are differences in the details, but that the general way of thinking is quite similar according to all three presentations.

The working group members agreed to the working schedule for next two years.

In a first priority the guidelines on special aspects of conventional tunnelling will be elaborated. The member nations are kindly invited to send their contributions to the Animator by the end of this year. It's the aim of the working group to have a first draft of the guidelines on contractual aspects for the next meeting at Vancouver.

The future work will be done in cooperation with the working group 3, "Contractual practices".

According to the decisions already made at Agra the following topics will be discussed in the future:

- Risk sharing in conventional tunnelling
- Contract models
- Special items (overbreak, time for excavation)
- Responsibilities (site organisation)
- Evaluation of the construction time
- Evaluation of costs
- Dispute resolution

Contributions from the member nations for the next meeting at Vancouver should be sent to the animator until end of 2009.

**14.15. – WG 20 – Urban Problems – Underground Solutions:** Animator: Amanda Elioff (USA), Vice-Animator: Wout Broere (Netherlands) and Vice-Animator: Junji Nishi (ACUUS); Tutor: Harvey Parker (USA) - Report presented by the Animator:

Working Group 20 with the topic “Urban Problems – Underground Solutions” met twice on Sunday and Monday. The meeting was well attended with 20 participants from 12 countries: Australia, Finland, France, Japan, Netherlands, Thailand, China, Italy, Canada, Hungary, UK and the USA.

The group leadership remained as before:

- Animator: Amanda Elioff, USA
- Vice-animator: Wout Broere, Netherlands
- Vice-animator: Junji Nishi, Japan (representative of ACUUS, not present, excused)
- Tutor from the Executive Council: Harvey Parker, USA

As reported previously, the WG-report will be directed to planners and decision makers to provide creative and efficient ideas for the solution of urban problems and will serve as a decision aid. The focus of this product will be somewhat less on technical details but more on strategic aspects of urban planning, may they be of social, economical, ecological or aesthetical background.

The group progressed towards its objective of creating an overview of the typical challenges of urban city planning and the solutions which are offered by the underground space. The fifth draft of the working group's first product (a report on urban problems, underground solutions, and key decision factors) was reviewed among the group. The action items that originated from the Agra meeting were reviewed and responsibilities were reaffirmed. New items were added.

Included as an appendix to the report, will be a collection of 20 to 25 worldwide case history examples that will provide illustrations of notable underground solutions to urban problems. Projects for these case histories were reviewed for a comprehensive overview of underground solutions. Additional projects were identified and responsibilities for providing additional case histories were assigned. Since the meeting in Agra a number of projects have been formatted in a uniform presentation format.

The meeting also included presentations on the Rome Metro Extension and the Alaskan Way Viaduct replacement.

The Animator attended the ITACUS steering committee meeting.

#### **14.16 New Working Group**

ITA Member Nation China proposed to re-start the work of ITA working group "Seismic Effect on Tunnel". China will specify the programme by the Executive Council so that they can continue the setting up of this Working Group. This request was supported by the United States of America. (See enclosed letter from China – encl. 11)

#### ***14.17 ITA activities at the United Nations Organisation***

Presentation made by Harvey Parker:

*ITA continued our very good relations as an NGO with the United Nations. This year ITA Past President, Harvey Parker, was a member of the organizing committee for a Conference on Sustainable Urbanization in the Information Age.*

*This conference was held in the UN Headquarters, Chamber of ECOSOC, on 13 May 2009. It was jointly organized by the Global Alliance on Information Communication & Technology (ICT) for Development (GAID) and UN-Habitat together with the American Institute of Architects (AIA), the Regional Planning Association (RPA) and several private firms and organizations including the International Tunnelling and Underground Space Association (ITA). This event represented another successful step in ITA's goal to reach planners and decision makers and to present the benefits of the underground to the general public outside of our industry.*

*During the event, about 200 participants from diverse countries (US, UK, Australia, Spain, Canada, South Africa, The Netherlands, etc.), associated with CSOs, academic institutions, professional associations and private sector firms participated in lively discussions about the challenges of harnessing urbanization in sustainable ways, addressing issues of infrastructure, urban planning, governance, citizens engagement and applications of ICT.*

*Presentations made by panellists and discussed and analyzed by respondents helped raise the key issues. ITA Past President, Harvey Parker, served as one of the respondents and briefed the audience on importance of underground space to health, quality of life and the environment and the urgent need for planners to plan their underground space with the same degree of consideration as is done for surface planning. A handout was distributed to the audience making the following points:*

- 1) Society is not sustainable without infrastructure such as water, wastewater, roads, rail, transit, energy/power, utilities, communications, etc. Efforts to achieve sustainability must include action to provide all types of infrastructure at the ground surface and underground. ITA's approach to the United Nations has always been to promote basic infrastructure first whether on the surface or underground.*
- 2) However, it is impossible, especially in major cities, to provide all the necessary infrastructures at the ground surface. Very often the best infrastructure is provided by tunnels and underground space.*
- 3) Tunnels bring clean water in and they take wastewater out promoting health and sustainability worldwide and they are needed for developing countries and mega cities (MDG 6). All over the world, water and wastewater tunnels significantly improve health, quality of life, the environment, and sustainable development. Tunnels and underground space work for decades/centuries with minimum maintenance resulting in lower life-cycle costs.*
- 4) Society benefits greatly because of tunnels, microtunnels, and underground space for public use, business, transportation, utilities, and bulk storage of water, fuel, and other goods. They allow more efficient use of the ground surface for more noble purposes (MDG 7) multiplying the utilization and value of the land.*
- 5) Underground space use is generally energy efficient and conserves energy, thus promoting sustainable development and it is an ally in the fight against global warming (MDG 7).*
- 6) Tunnels and Underground Space are investments, not costs.*

7) *It is urgent to become aware of the benefits of underground space and to plan the underground space use of your region or city with the same degree of consideration as is done for surface planning. Otherwise, the enormous potential sustainable development benefits of underground space could be lost.*

*It was agreed that a similar conference will be held again next year, which will be the 3<sup>rd</sup> in the series.*

*ITA is developing a special page for our outreach through the UN which will be up on our website soon. It will also contain the full set of slides from a workshop ITA organized with the UN in December, 2007 on the subject of: "The Use of Underground Space as an Unexpected Solution for Promoting Sustainable Development"*

## **15 – MODIFICATION OF THE STATUTES AND THE BY-LAWS**

The proposals of amendments made by the Executive Council have all been accepted except an amendment made by the Netherlands concerning article 6.6.

The Statutes, art. 6.6 "*Secretary General*", reads as follows:

"The Secretary General shall be appointed by the General Assembly of the Association, his appointment being renewable at intervals of not less than three years. *He shall provide governance in the administrative affairs of the Secretariat.* He shall report annually, and at such other times as the General Assembly may direct, giving any necessary explanations."

The GA has ratified the fact that considering the Association is based in Lausanne the master language is French.

The President said there would be a general clean up of the translations of statutes and the by-laws during the next few months and the Executive Council will have inconsistencies corrected as requested by The Netherlands. These corrections will have to be approved by the General Assembly in Vancouver.

## **16 – APPOINTMENT OF THE MEMBERS OF THE COMMITTEE OF NOMINATION**

In compliance with the procedures adopted at the General Assembly in 1993, the committee is in charge of preparing the future elections.

Due to the death of Sir Alan Muir Wood, the Executive Council proposes that the Committee of Nomination should be composed of the President, the Past President and the former President.

Therefore, for the year 2009-2010, it is composed of: Martin Knights, Harvey Parker and Andre Assis.

The President of the Committee is the Past President Harvey Parker.

## **17 – APPOINTMENT OF THE AUDITOR ON THE CONFORMITY OF THE ACTIONS OF THE EXECUTIVE COUNCIL**

The General Assembly unanimously confirmed the choice of S. CALINESCU proposed by the Romanian Committee for the year 2009.

## **18 – PREPARATION OF THE ASSEMBLIES 2010 AND 2011**

### **a) Assembly 2010**

Dean Brox presented the progress of the preparation of the Congress 2010 in Vancouver; as well as a short film; this presentation did not give rise to any remarks from the Member Nations.

### **b) Assembly 2011**

Pekka Särkkä presented the progress of the preparation of the Congress 2011 in Helsinki; this presentation did not give rise to any remarks from the Member Nations.

## **19 - BUDGET: DRAFT BUDGETS FOR 2009 AND 2010**

- a) The draft budget for 2009 and 2010 (encl. 12), sent to the members with the invitation to the General Assembly, were presented and commented by the Treasurer.
- b) The General Assembly unanimously approved the draft budget for 2009. The draft budget for 2010 has been presented and discussed by the General Assembly. It is a trend that will be adjusted.

## **20 – CHOICE FOR THE PLACE OF THE GENERAL ASSEMBLY 2012**

The votes of the Member Nations present or represented gave Thailand as the winner of the election.

So Thailand will organise the Congress and the General Assembly of the Member Nations in May 2012 in Bangkok.

The President thanked warmly the two delegates, Jenny Yan for China and Vince Suwansawat for Thailand and congratulated them for their excellent presentation of their respective candidatures.

## **21 – OTHER BUSINESS**

- a) The President reported that the next plenary meetings of the Executive Council will be held in:
  - September 2009, Plenary meeting in Zagreb (Croatia);
  - December 2009, Plenary meeting in Hamburg (Germany);
  - Feb/March 2010, Plenary meeting in South America (tbd);
  - May 2010, in Vancouver (Canada) at the occasion of the General Assembly

Other ad hoc meetings will be organised according to the offers of the Member Nations. One is already planned in Riyadh (Saudi Arabia) in December 2009 at the occasion of a seminar.

- b) The press release will be available in the middle of the afternoon at the Secretariat.

## **22 – CLOSING SPEECH**

The President Martin KNIGHTS concluded the Assembly in stressing that to his opinion the ITA made much progress during the week and that ITA was proving that it can adapt to change and evolve in accordance with the wishes of its members.

Nevertheless, ITA need more Supporters and Corporate members; the Sponsors are important and some will be deciding whether to renew this next year and thus will be an important decision for them in the current world financial climate.



The President was particularly pleased that the working groups were now publishing reports. He promised also that the Executive Council would draft a strategy for the incoming elected Executive council that commences in May 2010 post Vancouver.

For his final year as President, Martin Knights hopes to achieve most of the 2007 strategic aims by May 2010.

He reminded the Member Nations that they should consider nominating a candidate for the Executive Council in 2010.

Finally he thanked the Hungarian Tunnelling Association for having been excellent hosts at the WTC and for the arrangements for the General Assembly.

**The President**

**The Executive Director**

**Martin Knights**

**Olivier Vion**