

Safety versus Economics

Cost-efficiency of tunnel safety measures

Workshop organized by ITA COSUF,
in cooperation with the National Italian Committee
of PIARC, under the auspices
of the Italian Higher Council of Public Works

Organizer



COMMITTEE ON
OPERATIONAL
SAFETY OF
UNDERGROUND
FACILITIES

ITA International Tunneling and
underground space Association

In cooperation



Under the auspices of



*Consiglio Superiore
dei Lavori Pubblici*

22 June 2012, CNR Building - Marconi Room - Piazza Aldo Moro 7 - Rome



A correct understanding and a suitable management of risks related to tunnel operation are key for the safety of the users and the safeguard of the infrastructure and the environment. While various incidents may happen, major events are possible even though with a very low probability. Managing safety requires that Authorities, Administrations, rail and road Operators make choices and

investments after assessing risks in a scientific and realistic way.

The financial crisis of the late 2000s resulted in the collapse of large financial institutions, the bailing out of banks by national governments and downturns in stock markets around the world. Because of this, infrastructure owners are facing a decrease in budgets which may hamper the continual process of improving the operational safety of tunnels.

Thanks to new knowledge, competences and technologies, it is more and more possible to predict phenomena and adopt new technologies and cost-efficient countermeasures when building new infrastructures and refurbishing existing ones. Critical choices have to be made to find an optimal balance between prevention of incidents and mitigation of their consequences, to define the most cost-effective measures to meet the operational and safety goals, and also while organizing and running operation and maintenance. These choices cannot be only technical, but must take full account of the economic constraints. Whereas it is certainly not acceptable that measures needed to reduce risks are not implemented for only budgetary reasons, neither is it acceptable that during the current period of increasing limitations on public budgets, resources are wasted where there is no plausible risk to be prevented.



- The workshop is aimed at all those who wish to understand the current trends and cutting edge evolution on decision-making for safety in road, rail and metro tunnels. It will cover information and training of users and emergency personnel, cost-efficient operation and refurbishments as well as new knowledge on fire design.
- Top officers of the Italian Administration will introduce and conclude the workshop. International experts from around the world will bring their views and take part in the debates.
- The workshop will offer attendees a platform to exchange ideas with leading international experts in the field, meet old friends and make new contacts.

- ITA COSUF wish to thank the Italian National Council for Scientific Research (CNR) for hosting the event in its premises.
- Full English-Italian simultaneous translation (and vice-versa) will be available.
- Due to the size of the room, the number of participants is limited to 95 people. Seats will be allocated on a first registered/first served basis and registration will be acknowledged. It is recommended to register by 15 June using the instructions which will be posted on the ITA COSUF website: <http://cosuf.ita-aites.org>



Final programme

8:30 – 9:30 **ITA COSUF General Assembly**
(Intended for ITA COSUF members but open to all)

9:30 – 10:00 **Registration and welcome coffee**

Session 1: Opening

10:00 – 10:15 **1.1 Welcome addresses by the Italian hosting parties**
Franco Karrer, chairman of the Higher Council for Public Works
Pietro Ciucci, chairman of the National Board of PIARC

10:15 – 10:25 **1.2 Opening speech by ITA COSUF chairman**
Didier Lacroix, Centre d'Etudes des Tunnels (CETU), France

10:25 – 10:45 **1.3 Keynote address No. 1: Climate change and safety of underground infrastructures: the Bangkok Metro during 2011 Severe Flooding and Proposed Underground Structures for Better and Resilient Bangkok**
Zaw Zaw Aye, Seafoo, Thailand

10:45 – 11:05 **1.4 Keynote address No. 2: Point of view of the (re-)insurers**
Hartmut Reiner, Munich Re, Germany

11:05 – 11:20 **1.5 Discussion**
Chaired by Felix Amberg, Amberg Engineering Ltd, Hagerbach Test Gallery Ltd, Switzerland

11:20 – 11:40 **Refreshment break**

Session 2: Human behaviour and emergency response

11:40 – 12:00	2.1 Tackling risk No. 1: information campaigns to impact on human factor <i>Roberto Arditi, SINA, Italy</i>
12:00 – 12:20	2.2 Training HGV drivers for safe behaviour in tunnels: PIARC recommendations and implementation in France <i>Marc Tesson, Centre d'Etudes des Tunnels (CETU), France</i>
12:20 – 12:40	2.3 The training tunnel facility of Sorreley: design and plans for the joint training of emergency staff <i>Salvatore Coriale, Fabio Giovinazzo, fire brigade of Valle d'Aosta Region, Italy</i>
12:40 – 13:00	2.4 Discussion <i>Chaired by Niels-Peter Hoj, Hoj Consulting, Switzerland</i>
13:00 – 14:30	Lunch

Session 3: Cost-efficient operation and refurbishments

14:30 – 14:50	3.1 Refurbishment of the 44 year old Amsterdam IJ tunnel <i>Bart Duijvestijn, ARCADIS, Netherlands</i>
14:50 – 15:10	3.2 Safety improvement of existing rail tunnels – the viewpoint of the tunnel operator <i>Jan Dirk Chabot, Swiss Federal Railways SBB, Switzerland</i>

15:10 – 15:30

3.3 Discussion

Chaired by Ornella Segnalini, President of the Italian Administrative Authority for Road Tunnels

Session 4: Cost-efficient fire design of tunnels

15:30 – 15:50

4.1 Evolution of ANAS tunnel design standards according to national and EU provisions: cost-benefit and safety

Antonio Valente, ANAS, Italy

15:50 – 16:10

4.2 Fire design of tunnel lining segments

*Alberto Meda, University of Rome Tor Vergata, Italy
Niels-Peter Hoj, Hoj Consulting, Switzerland*

16:10 – 16:30

4.3 Discussion

Chaired by Fabio Dattilo, Italian Ministry of the Interior

ITA COSUF Award delivery and conclusions

16:30 – 16:35

5.1 Delivery of ITA COSUF Award 2012 by ITA COSUF Chairman

16:35 – 16:55

5.2 Latest advance of research on tunnel fire dynamics

*Ying Zhen Li, SP Technical Research Institute, Sweden,
winner of the ITA COSUF Award 2012*

16:55 – 17:00

5.3 Conclusions and closing remarks

*Barbara Marinali, deputy head of cabinet of the Italian Minister of Transport, and
General Manager for Roads
Didier Lacroix, ITA COSUF chairman*



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