ITA and the Use of Urban Underground Space

Claude Berenguier, Secretary General
Presentation on behalf of ITA
Sao Paulo Round Table - 24 June 2008
Why Go Underground?

Variety of the underground infrastructure in a city
Why Go Underground?

Central Artery-Boston (USA)

« City traffic tunnels clear vehicles from surface streets, traffic noise is reduced, air becomes less polluted and the surface street areas may partially be used for other purposes »

Round Table– Sao Paulo – June 24th, 2008
Towards an improved use of underground space

Why Go Underground?

Stuttgart Main Station

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Why Go Underground?

Berlin Main Station

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Why Go Underground?

Car park at the square Estienne d’Orves in Marseilles (France)

Situation «before» and «after» the construction of the underground car park

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Why Go Underground?

ALIGNMENT OF SMART

Klang river Holding basin

No storms & flood events

Most storms

Only in major storms

Stormwater alignment (9.7km)
Stormwater & motorway alignment (3km)
Congested area

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Some typical urban problems:

- Architectural quality of urban environment
- Service quality of urban environment
- Safety and Security of urban environment
- Time savings in public and freight transport
- Noise and Pollution levels
- Protection for natural hazards
- Valuable surface space
- Open trench works

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and some solutions:

- Underground Transport: Road, Rail, Pedestrian, Energy, Pipelines, Sewers, Water, Flood,..
- Underground Housing and Parking
- Underground Manufacturing and Storage
- Underground Shopping, Recreative and Service areas
Some Key Issues for underground solutions:

• Overall planning
• Cultural heritage
• Fundings – Lifecycle cost
• Environment
• Safety and Security
• Case histories
Towards an improved use of underground space

« Underground Space
The Fourth dimension of Metropolises »
- Underground city design and planning of construction
- Geotechnical survey and improvement of ground mass
- Research, development and design in built-up areas
- Urban tunnelling and its monitoring
- Underground built from surface in built-up areas
- Concrete in underground construction
- Management of risks and accidents during construction
- Tunnel equipment: fire and operational safety
- Maintenance of historical underground constructions
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3 Committees and 12 Working Groups

• Committee on Operational Safety of Underground facilities

• Committee on Education and Training

• Committee on Underground Space

• Research
• Contractual practices
• Health & safety in works
• Maintenance & repair
• Immersed & floating tunnels
• Use of shotcrete
• Mechanised tunnelling
• Underground works & environment
• Long tunnels at great depth
• Training
• Conventional Tunnelling
• Urban Underground solutions
ITA Working Group 20
Urban Problems – Underground Solutions

• Animateur: Markus THEWES – Germany
• Vice-Animateurs:
  - Gerard ARENDS – Netherlands
  - Junji NISHI – Japan
• Tutor : Harvey PARKER - USA
Create an overview of:

- the typical challenges of Urban city planning
- The sustainable solutions offered by the Underground Space
First report under preparation for 2008:

• Key Urban Problems
• Innovative and Sustainable solutions offered by the Underground Space
• Most important factors within the decision making progress for such solutions

➢ Through Worldwide Case Histories
ITA – CUS Committee on Underground Space

Launching in Amsterdam 30 January 2008
during the International Symposium “Think Deep”

President: Han ADMIRAAL
Vice-President: Ray STERLING
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ITA and TRAINING

ITA-CET Committee on Education and Training
(University Network)

Chairman: Andre ASSIS (Brazil)
- Short Courses for Young Professionnals
- ITA Master Courses
- Training Material from the Working Groups results
- Regional Workshops

WG 18

Chairman: Daniele PEILA (Italy)
- Didactic presentation of the WG results on the ITA Website

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UN-ITA Workshop on Underground Space Use in Developing Countries ("Group of 77")
New-York - 14 December 2007

Tunnels and Underground Space Use for:
- Clean and waste water
- Energy efficiency and conservation
- Foods and Goods storage in rural areas in harsh climates
- Public Use and bulk storage in Mega cities
- Safety during natural and manmade Hazards including Earthquakes
- Multiple Use of Lands and Preservation of world heritage sites

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The City and its Underground Challenge
Towards an improved use of underground space

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AGRA (India)
22-25 Septembre

« Underground Facilities for Better Environment and Safety »