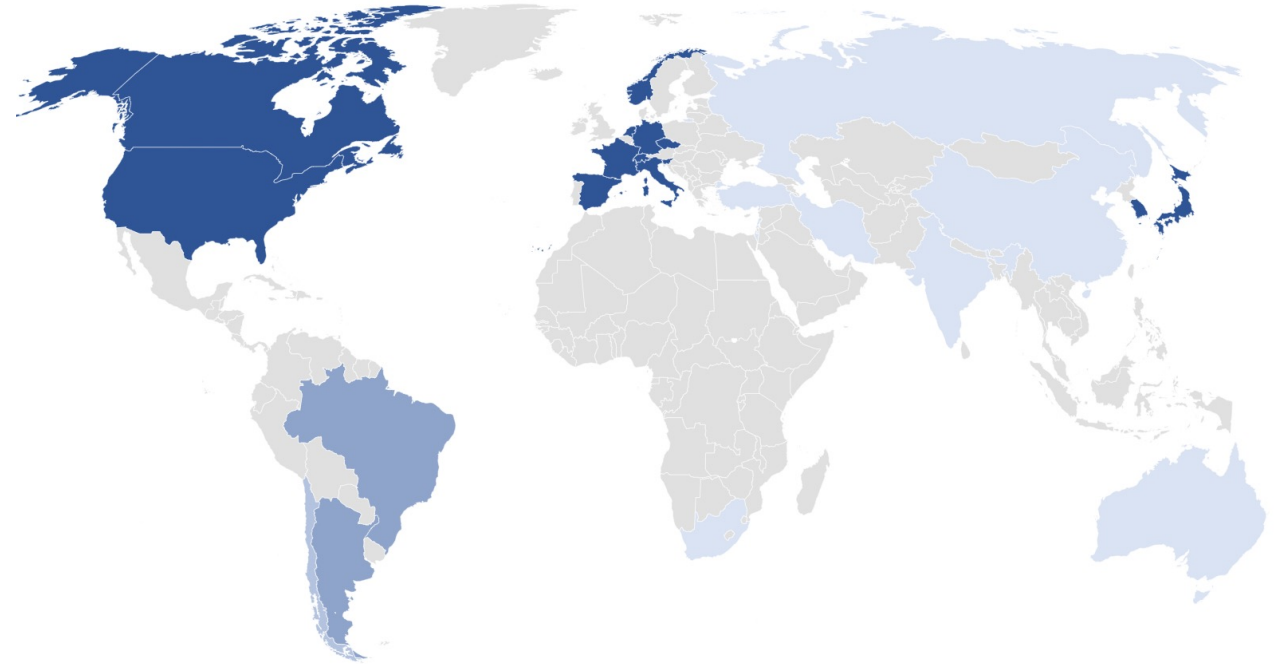


Working Group 17

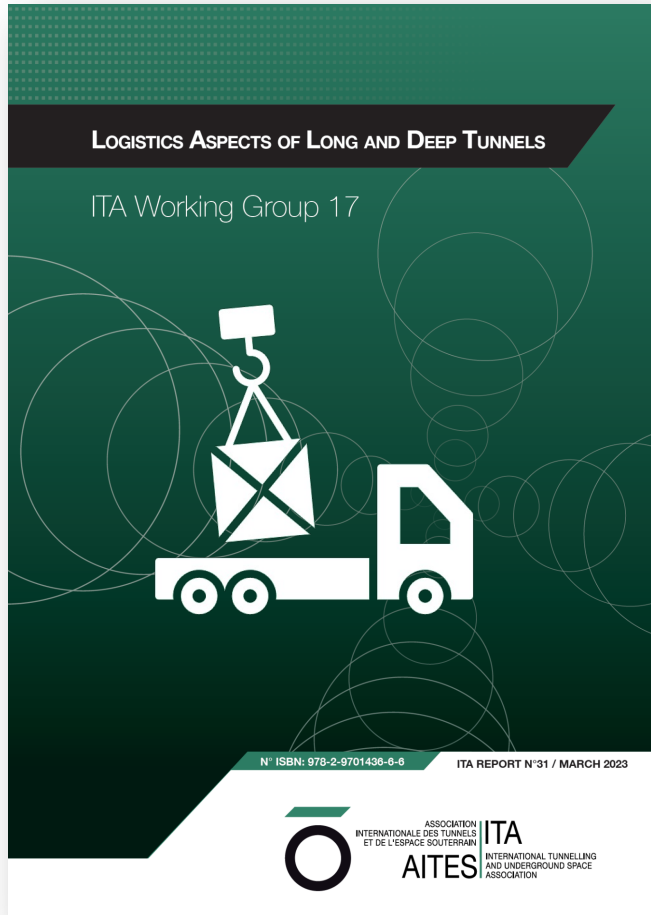
LONG TUNNELS AT GREAT DEPTH

18 participants from 13 different countries: Canada, Czech, France, Germany, Italy, Japan, South Korea, Netherland, Norway, Slovenia, Spain, Sweden, Switzerland, USA



2 meetings in ATHENS

We are missing representatives from countries with experience in very deep tunnels !



GOAL

Guide Owners and Designers to understand complexity & impact
 Help them to address key aspects from early design phase

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INTERNATIONAL DATABASE – OWNER'S POINT OF VIEW

FREJUS TUNNEL		GUADARRAMA		LOS CONDORES – Hydro Power Plant	
MAIN PROJECT CHARACTERISTICS		MAIN PROJECT CHARACTERISTICS		MAIN PROJECT CHARACTERISTICS	
Country	France - Italy	International Project	YES	Project LENGTH	13 km
Owner	SFTRF- SITAF	Type of Owner	Public	Country	Chile
Engineers	SYSTRA (Mandatory) SWS SEA	Contractors	RAZEL-BEC (Mandatory) -BILFINGER BE	Owner	ENEL
Contractors	RAZEL-BEC (Mandatory) -BILFINGER BE	Contractors	RAZEL-BEC (Mandatory) -BILFINGER BE	Engineers	ENEL (Mandatory)
Cost of the project (civil works)	960 Million €	Contractors	RAZEL-BEC (Mandatory) -BILFINGER BE	Contractors	Envolva Construcción (Civil works), Voith (Equipment works)
Initial date of the project	2002 ?	Contractors	RAZEL-BEC (Mandatory) -BILFINGER BE	Contractors	Envolva Construcción (Civil works), Voith (Equipment works)
Starting date of construction	2008	Contractors	RAZEL-BEC (Mandatory) -BILFINGER BE	Contractors	Envolva Construcción (Civil works), Voith (Equipment works)
Current status of the project	On hold	Contractors	RAZEL-BEC (Mandatory) -BILFINGER BE	Contractors	Envolva Construcción (Civil works), Voith (Equipment works)
Main reason for the chosen lots definition	Two lots	Contractors	RAZEL-BEC (Mandatory) -BILFINGER BE	Contractors	Envolva Construcción (Civil works), Voith (Equipment works)
Number of constructions Lots	Two lots	Contractors	RAZEL-BEC (Mandatory) -BILFINGER BE	Contractors	Envolva Construcción (Civil works), Voith (Equipment works)
Type of contract	Design - Bid - Build	Contractors	RAZEL-BEC (Mandatory) -BILFINGER BE	Contractors	Envolva Construcción (Civil works), Voith (Equipment works)
Time & Cost management	Conventional - Bill of Quantities	Contractors	RAZEL-BEC (Mandatory) -BILFINGER BE	Contractors	Envolva Construcción (Civil works), Voith (Equipment works)
Level of definition of underground logistics	RAMIFICATION of logistic structures	Contractors	RAZEL-BEC (Mandatory) -BILFINGER BE	Contractors	Envolva Construcción (Civil works), Voith (Equipment works)
Does a difference exist between the type of contract adopted for the main construction works and the preliminary one, if any ?	NO	Contractors	RAZEL-BEC (Mandatory) -BILFINGER BE	Contractors	Envolva Construcción (Civil works), Voith (Equipment works)
ACCEPTANCE and INTEGRATION OF THE PROJECT		Contractors	RAZEL-BEC (Mandatory) -BILFINGER BE	Contractors	Envolva Construcción (Civil works), Voith (Equipment works)
DISPOSAL SITES	number and volume of disposal sites	Contractors	RAZEL-BEC (Mandatory) -BILFINGER BE	Contractors	Envolva Construcción (Civil works), Voith (Equipment works)
CONTRACTOR'S CAMPS	The location of the contractor camp was defined before tendering the construction works?	Contractors	RAZEL-BEC (Mandatory) -BILFINGER BE	Contractors	Envolva Construcción (Civil works), Voith (Equipment works)
Type of contract	Design - Bid - Build for the 2 Lots	Contractors	RAZEL-BEC (Mandatory) -BILFINGER BE	Contractors	Envolva Construcción (Civil works), Voith (Equipment works)
Time & Cost management	TBM - Lump sum	Contractors	RAZEL-BEC (Mandatory) -BILFINGER BE	Contractors	Envolva Construcción (Civil works), Voith (Equipment works)

WHAT'S NEXT ?

NEW WG17 THEME

Mitigation of major safety risks during long & deep tunnel construction

Difficulty of ensuring worker safety increases with long and deep tunnels, especially if there is only one access and if the diameter decreases

**Accessibility?
Diameter vs length ?**

**Dealing with high water pressure ?
Or with rockburst ?**

Feedback from real and recent cases

**with WG5
cooperation
&
specialists
from rescue
teams ?**



**MANY THANKS TO ALL THE GROUP MEMBERS FOR
THEIR INVOLVEMENT AND CONTRIBUTION**



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