



ASSOCIATION  
INTERNATIONALE DES TUNNELS  
ET DE L'ESPACE SOUTERRAIN

AITES

ITA

INTERNATIONAL TUNNELLING  
AND UNDERGROUND SPACE  
ASSOCIATION

# MEMBER NATION ACTIVITY REPORT 2016

## **Finnish Tunnelling Association – MTR - FTA**



**Maanalaisten Tilojen Rakentamisyhdistys  
Finnish Tunnelling Association**



ASSOCIATION  
INTERNATIONALE DES TUNNELS  
ET DE L'ESPACE SOUTERRAIN

**AITES**

**ITA**

INTERNATIONAL TUNNELLING  
AND UNDERGROUND SPACE  
ASSOCIATION

## **Finnish Tunnelling Association - MTR - FTA**

- ✓ Independent association
- ✓ Founded in 1974
- ✓ 66 Individual Associate Members
- ✓ 28 Corporate Affiliate Members
- ✓ Annual fees and conferences as a main source of income





ASSOCIATION  
INTERNATIONALE DES TUNNELS  
ET DE L'ESPACE SOUTERRAIN

**AITES**

**ITA**

INTERNATIONAL TUNNELLING  
AND UNDERGROUND SPACE  
ASSOCIATION

## **Main activities in 2016:**

- ✓ Future Cities underground –seminar and Three-Dimensional Real Estate Creation –seminar
- ✓ Participating into work of FISE Qualification of Professionals in Building, HVAC and Real Estate Sector in Finland
- Applied and received the host of Nordic Grouting Symposium 2019
- 4 Scholarships for students active in studies, working life as well as position of trust



ASSOCIATION  
INTERNATIONALE DES TUNNELS  
ET DE L'ESPACE SOUTERRAIN

ITA  
AITES

INTERNATIONAL TUNNELLING  
AND UNDERGROUND SPACE  
ASSOCIATION

## Main activities in 2016:

- ✓ Meeting with ITA Board 23. September 2016 in Finland
- ✓ New website [www.mtry.fi](http://www.mtry.fi)



Group photo ITA Board and FTA Board



ASSOCIATION  
INTERNATIONALE DES TUNNELS  
ET DE L'ESPACE SOUTERRAIN

AITES

ITA

INTERNATIONAL TUNNELLING  
AND UNDERGROUND SPACE  
ASSOCIATION

# FTA Correspondents in ITA Working Groups

2 - Research: Ilkka Vähäaho (correspondent)

3 - Contractual practices in underground construction: Bjarne Liljestrand

5 - Health and safety in works: Ilkka Vähäaho (correspondent)

6 - Maintenance and repair of underground structures: Erkki Palonen (Posiva)

9 - Seismic effects: Ilkka Vähäaho (correspondent)

11 - Immersed and floating tunnels: Ilkka Vähäaho (Helsingin kaupunki)

12 - Splayed concrete use: Janne Lehto (Normet)

14 - Mechanisation of excavation: Ilkka Vähäaho (correspondent)

15 - Underground and environment: Ilkka Vähäaho (correspondent)

17 - Long tunnels in great depth: Ilkka Vähäaho (correspondent)

19 - Conventional tunnelling: Tommi Halonen (Forcit)

20 - Urban problems – underground solutions: Ilkka Vähäaho (Helsingin kaupunki)

21 - Life Cycle Asset Management: Timo Saanio (SROY)

ITA-YMG - Young Member Group: Jari Airaksinen.





ASSOCIATION  
INTERNATIONALE DES TUNNELS  
ET DE L'ESPACE SOUTERRAIN

ITA  
AITES

INTERNATIONAL TUNNELLING  
AND UNDERGROUND SPACE  
ASSOCIATION

# Underground Works:

## Blomimäki Underground wastewater treatment plant

The treatment plant will process the wastewater of 400,000 residents (2020)

By 2040: 150,000 m<sup>3</sup> of wastewater will flow through the new treatment plant daily



(<https://www.hsy.fi/en/experts/water-services/wastewater-treatment-plants/blominmaki/Pages/default.aspx>)



ASSOCIATION  
INTERNATIONALE DES TUNNELS  
ET DE L'ESPACE SOUTERRAIN

ITA  
AITES

INTERNATIONAL TUNNELLING  
AND UNDERGROUND SPACE  
ASSOCIATION

# Underground Works:

## Tampere bypass tunnel Rantatunneli

Based on the alliance model, where the customer, designers and the contractor form a joint project organization. 2.3 km long twin tube highway tunnel (445 000 m<sup>3</sup>)

Around 1,000 man-years of work cost 180 Million euros, opened on 15.11.2016, six months before scheduled. Awarded by RIL - Finnish Association of Civil Engineers.



(<http://www2.liikennevirasto.fi/rantatunneli/en/#.WSV76GxPpPY/Pages/default.aspx>)





ASSOCIATION  
INTERNATIONALE DES TUNNELS  
ET DE L'ESPACE SOUTERRAIN

ITA  
AITES

INTERNATIONAL TUNNELLING  
AND UNDERGROUND SPACE  
ASSOCIATION

# Underground Works:

## Helsinki Metro Western Extension to Espoo

Helsinki metro will be extended to the west in two phases: 8 + 5 new stations. The first phase will be ready in autumn 2017. The metro will operate on a rail line of 21 kilometers underground in two parallel tunnels. In addition to the stations, a total of 23 shafts will be built for pressure equalization, ventilation and smoke extraction. The shafts will also be used as emergency exits.



(<https://www.lansimetro.fi/en/home/>)







ASSOCIATION  
INTERNATIONALE DES TUNNELIERS  
ET DE L'ESPACE SOUTERRAIN

ITA  
AITES

INTERNATIONAL TUNNELLING  
AND UNDERGROUND SPACE  
ASSOCIATION

# Underground Works: The Helsinki Olympic Stadium

- ✓ Modernization and renewal project
- ✓ 2016 - 2019
- ✓ Total excavation volume 145 000 m<sup>3</sup> including underground tunnel



([www.stadion.fi](http://www.stadion.fi))



ASSOCIATION  
INTERNATIONALE DES TUNNELS  
ET DE L'ESPACE SOUTERRAIN

ITA  
AITES

ITA

INTERNATIONAL TUNNELLING  
AND UNDERGROUND SPACE  
ASSOCIATION

# Underground Works:

## Helsinki – Tallinn tunnel

Two consortia have been appointed to study the feasibility of the FinEst Link proposal to build a 92 km under-sea railway tunnel linking Finland and Estonia.

Previous preliminary estimates have put the cost of the tunnel at between €9bn and €13bn.





ASSOCIATION  
INTERNATIONALE DES TUNNELS  
ET DE L'ESPACE SOUTERRAIN

AITES

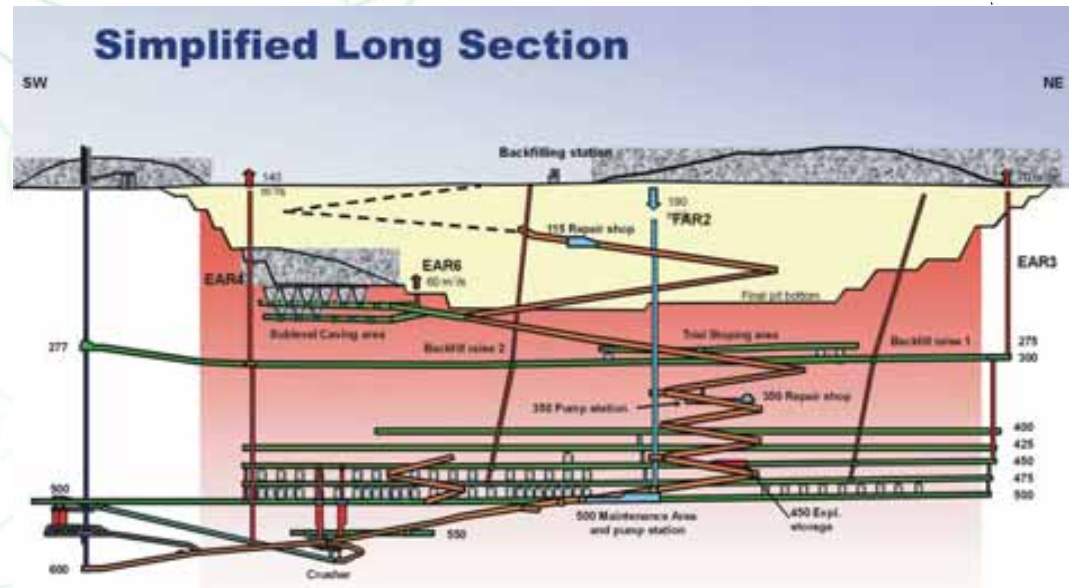
ITA

INTERNATIONAL TUNNELLING  
AND UNDERGROUND SPACE  
ASSOCIATION

# Underground Works:

## Mining tunnels excavation in 2016

- ✓ Outokumpu Kemi mine, 11 km
- ✓ Agnico Eagle Kittilä Mine, 13 km





ASSOCIATION  
INTERNATIONALE DES TUNNELS  
ET DE L'ESPACE SOUTERRAIN

**AITES**

**ITA**

INTERNATIONAL TUNNELLING  
AND UNDERGROUND SPACE  
ASSOCIATION

## **Future Activities of MTR - FTA:**

- ✓ Influencing the legislation of Three-Dimensional Real Estate Creation
- ✓ Update of Finnish Bedrock Stress Field Data -thesis
- ✓ Hosting Nordic Grouting Symposium 2019
- ✓ Scholarships for students
- ✓ Seminars in Finland
- ✓ Participating into work of FISE Qualification of Professionals in Building, HVAC and Real Estate Sector in Finland

