



**Report On Training Session On Principles For Tunnel Design held on 20 & 21 April 2017 in PJ Hilton Hotel, Petaling Jaya, Malaysia**

by Dr Ooi Teik Aun

Dr Ooi Teik Aun is currently a committee member of Tunnelling and Underground Space Technical Division.

The 2-days training sessions on Principles for Tunnel Design was held on 20 & 21 April 2017 at the P J Hilton, Petaling Jaya, Selangor, Malaysia. The short course was organized as a Post Conference event of the SEACETUS 2017 held on 18 and 19 April 2017 with great success.

The training was organised by the Tunnelling & Underground Space Technical Division (TUSTD) of The Institution of Engineers, Malaysia (IEM) and the Foundation for Education on Training on Tunnelling and Underground Space Use (ITACET).

The training session is an introduction to the Principles of Tunnel Design process throughout a project cycle from planning, designing, construction and implementation of a tunnel or underground project with specific focus for Owners and Decision Makers, Consulting Engineers, Contractors and others with an interest in Tunnel Design activities.

The two days training sessions consist of four sessions namely Session 1: Introduction and Overview on Tunnel Design, Session 2: Choosing the Appropriate Construction Method during Design, Session 3: Design and Calculation Methods and Session 4: Specific aspects of tunnel design. The lectures were delivered by both ITA and SEA and Malaysian tunneling experts. The presence of esteemed overseas and Malaysian experts who shared their invaluable global and local experiences, insights and comments had added to the enrichment of IEM members and others in the engineering fraternity. Grateful thanks are due to the ITA Vice President Prof Jinxiu Yan, Dr. Noppadol Phienwej, Mr. Thorsten Tatzki, Mr. Gus Klados, Mr. Emmanuel Humbert, Mr. Alain Poloni, Mr. Senthilnath and Dr. Leo Suhaendi (who presented the Design Philosophy of Tunnels for KVMRT on behalf of Mr. Andreas Raedle) for dedicated their time to give the excellent lectures. As a professional institution dedicated to promote the science and profession of engineering and to facilitate the exchange of information and ideas related to it, IEM is indeed proud to be associated with the ITACET Foundation and hope that more courses can be organized in future in Malaysia. The training sessions attracted more than eighty registered participants. The event was a great success with about 66 participants who attended the training sessions delivered by eight (8) lecturers with their respective special expertise covering the following topics:

1. Design philosophy for KVMRT
2. Geologic and geomechanical survey
3. Settlement design

4. Specific parameters affecting design
5. Conventional tunnelling in hard rock
6. Conventional tunnelling in soft ground
7. Mechanized tunnelling (TBM and support systems)
8. Health and safety issues and impact on tunnel design
9. Rock engineering design
10. Analytical and numerical methods
11. Risk Management – Contractor’s perspective
12. Design of face pressure, soil conditioning and backfilling for TBM
13. Monitoring and control for conventional and mechanical tunnelling
14. Case study of a complex urban tunnel: Monaco
15. Case Study 1: SMART Design Experience
16. Case Study 2: Urban tunnelling in Singapore



Prof. Yan delivering her lecture on Monitoring and Control



Mr. Thorsten Tatzki delivering his lecture on Face Pressure



Mr. Emmanuel Humbert delivering his lecture



Mr. Gus Klados delivering his lecture



Mr. Alain Poloni delivering his lecture



Ir Dr Ooi Teik Aun presenting a token of appreciation to Mr. Senthilnath



A Group photo of the enthusiastic participants with some lecturers