Symposium on Innovation & Challenges in Asian Tunnelling 2015 (SICAT 2015)

2nd – 3rd September 2015       8.30 A.M. – 6.00 P.M.       Raffles City Convention Centre

Greetings from Tunnelling and Underground Construction Society (Singapore)! 

Held across two days, this symposium aims to share valuable experiences gained from recent underground infrastructural projects in Singapore and other Asian countries such as Malaysia, Thailand, Korea and China. Eight excellent keynote lectures will be delivered by well-regarded experts from all over Asia in their respective fields. There will also be twelve excellent presentations in Specialist Suppliers and Manufacturers who will showcase their latest technologies at their exhibition booths during the symposium. This is definitely a chance not to be missed!

Keynote Speakers

Sim Wee Meng
Senior Group Director
Land Transport Authority

Some of the immediate challenges are the urgent need to build up teams of experience tunnelling Professionals, look into innovative ways of working and tunnelling in densely built-up areas, understanding and managing the environmental challenges and to improve safety and welfare standards within the industry. With the worldwide demand for TBMs and underground plants and equipment, there is also a need to ensure the quality of the equipment and plants are not compromised. These challenges faced may be overcome with the aid of state of the art technology and innovative solutions, which will be addressed in the presentation.

Ralf Winterberg
Group Chief Engineer
Elasto Plastic Concrete

Macro synthetic fibre reinforced concrete (MSFRC) has reached maturity as an engineering technology and is widely used in all forms of tunnel linings. Many advantage over steel reinforcement have established a strong position in the marketplace. This presentation seeks to introduce the capability of MSFRC in tunnel linings with a focus on their long-term performance.

Oskar Sigl
Managing Director
Geoconsult Asia Singapore Pte Ltd

Approach to innovative solutions in challenging tunnelling situations, presented on the examples of mined passenger linkway in shallow soft ground, deep TBM tunnelling in rock with very tight alignment radius and prediction of TBM advance rates.

Zhu He Hua
Director
Tongji University

The presentation will include the integrated technologies from construction to maintenance for metro underground structure, such as data standard, data base, 3D modeling and visualization, system development and applications in China.

Blaise Pearce
Director
MRT Corporation Sdn Bhd

The presentation will briefly explain the project scope and report the current works progress status. The performance of the tunnelling activities will be presented together with an explanation of the adopted approach to management of engineering risks and some case examples of mitigation measures implemented. The presentation will end with an overview of the future six MRT lines within the Klang Valley.

Seung Ryull Kim
President & CEO
ECSO Consultant and Engineers Company

The intended purpose of lecture is to provide a holistic view of design and construction technologies to create the underground spaces for the construction of Seoul Subway Networks. It then subsequently addresses the experience of how the underground space could be mobilized positively to contribute to sustainable growth of a City of Seoul which has experienced such a rapid and condensed expansion, particularly during the short period of times.

Nick Shirlaw
Consultant
Golder Associates (Singapore) Pte Ltd

Pressurised TBMs control the ground by applying a face pressure. The basis for face pressure calculations as used in Hong Kong will be reviewed. Generally, the calculations give a slightly conservative result; and there is some scope for fine-tuning. Options for reducing the face pressure will be outlined.

Bob Moncrieff
Managing Director
Rona Consulting Co., Ltd

This paper describes a challenging section of bored tunnelling where the new Namma Metro passes below the mainline Bangalore Railway Station. Cover to the new tunnels is generally less than one tunnel diameter, and widely varying mixed faces that included weathered rock, residual soil and made ground were encountered. The twin bores pass under 23 live tracks and a number of platforms.

Supporting Organisation:

TUCSS Secretariat @ 3 Liang Seah Street #02-11 Liang Seah Place Singapore 189022
Tel: 6336 2328  Fax: 6336 2583  Email: tucss@cma.sg  Website: www.tucss.org.sg
This presentation shares the safety journey which started with the conception of the Safety Pledge. Everyone involved in the project; the 3Cs – client, consultants and contractors, pledge to work together as a family in embracing safety. With everyone taking ownership of safety, numerous safety initiatives have been successfully implemented in this project.

Chris Holdsworth
Managing Director
Earth Support Pte Ltd.

Why Slurry ??

Use of TBM Slurry where EPB is unsuitable due to prevailing changing ground conditions.

Slurry can be modified for changing ground conditions as required.

Bill Jordan
Business Development
Advanced Marine Pte Ltd.

This presentation will review the current state of Compressed Air Works related to CHI for TBM’s in tunnelling. Risks associated with CAW, and some common sense guidelines for selection of equipment, procedures and personnel will be discussed. An examination of the current legislation and requirements, as well as a review of potential options for working deeper or more safely based on some overseas projects will be highlighted.

Takayuki Matsumoto
Deputy Project Manager
Shimizu Corporation

This project includes the long distance water transfer tunnel project which links the state of Pahang and Selangor in Malaysia. the challenges in long-distance tunnelling (with TBM drives up to 11.6km length) in order to achieve high-speed TBM excavation under hard rock conditions with high overburden, adverse geological conditions and heavy water ingress are discussed. The TBMs have to excavate through granite rock with uniaxial compressive strength of 150-200 MPa.

Gan Cheng Chian
Technical Manager
Bekaert Maccafferrí Underground Solutions

Steel fibre reinforced concrete (SFRC) has been used in Singapore underground projects since the 1990’s. The majority of SFRC applications in underground projects in Singapore has largely been in sprayed concrete for tunnel or cavern linings. SFRC to concrete can today be found in all the cable tunnel projects in Singapore. In 2011, SFRC was finally adopted for use in precast segmental tunnel linings by the Land Transport Authority for Contract 933 on the Downtown Line. And in 2013, almost 10kms of precast segmental tunnel linings was specified using SFRC in Thomson Line for Contract T206 and T207.

Hiroshi Ogura
General Manager
SEIKEN Co., Ltd

This presentation outlines the Ground Freezing technology by SEIKEN Co.,Ltd which is the most well-known Ground Freezing Specialist Contractor from Japan. Background of Ground Freezing, theory, technologies and construction method with the case example in Japan will be introduced in the presentation.

Roger Story
Technical & Risk Manager
Dragages Hong Kong Ltd

The Liangtang / Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works Contract 2 project includes dual 4.8km long tunnels constructed using conventional excavation techniques and a 1.41m diameter TBM. Due to alignment constraints a section of the tunnels has an enlarged span to accommodate sight-line requirements. To achieve the project programme the TBM will be launched as early as possible and a section of TBM tunnel will be subsequently be enlarged. Advanced construction method studies were essential to minimise the associated risks.

Kenny Lo
Head of Infrastructure
BASF

This presentation will highlight a series of new innovative solutions and approach to the underground construction. New chemical, material and application technology pertaining to sprayed concrete, waterproofing, concrete additive and placement method will pave the way for more productive, efficient and safer tunneling in the future.
Exhibitors with Presentation

**Basler & Hofmann Singapore Pte Ltd**

Speaker : Martin Schaefer  
Title of Presentation : Watertight Segment Design – Proven Workability

**Herrenknecht Asia Headquarters Pte Ltd**

Speaker : Duhme Ruben  
Title of Presentation : Practical Implications for successful Excavation Management Systems

**TAC Pacific Pte Ltd**

Speaker : Satoru Yamauchi  
Title of Presentation : TBA

**Amp Control**

Speaker : Andrew Cockbain and Lippman Lee  
Title of Presentation : Tunnelsafe – Integrated Safety Systems

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**REGISTRATION DETAILS**

Members* : $600  
TUCSS/ACES/BCA/GeoSS/LTA/SRMEG

Non-Members : $700

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**POINTS AWARDED**

PDU : 14  
STU : 12
Held across two days, this symposium aims to share valuable experiences gained from recent underground infrastructural projects in Singapore and other Asian countries such as Malaysia, Thailand, Korea and China. Eight excellent keynote lectures will be delivered by well-regarded experts from all over Asia in their respective fields. There will also be twelve excellent presentations in Specialist Suppliers and Manufacturers who will showcase their latest technologies at their exhibition booths during the symposium. This is definitely a chance not to be missed!

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Angus Maxwell
CEO
Maxwell Geosystems

As the amount of data increases on tunnelling projects, the need for effective management systems becomes more apparent. It is no longer possible to manually process and combine information fast enough without compromising effectiveness. Recently, systems have evolved into one stop shop; data delivery from the cloud streams everything into one management system for a project. A transparent system allows data to be easily accessible to the whole chain-of-command, thus allowing users to develop the systems in new directions. The paper will review historical development and describe delivery modes in several Asian countries.

Heiko Wannick
Senior Underwriter Construction Munich Re

For years tunnelling projects were plagued by serious accidents which triggered substantial payouts from the insurance industry. Back in the early 2000s, it was difficult to secure sufficient insurance capacity for major projects. The “Code of Practice for Risk Management of Tunnel Works” was subsequently introduced as a joint effort between tunnel and insurance industries. A decade down the line this presentation tries to answer the question whether refined risk management practices have changed the standards in the tunnel industry.

Ian Brown
Managing Director
Marsh (Hong Kong) Limited

An insight on the critical risk exposures, trends and recent claims for underground projects, and how to reduce the total cost of risk through utilising effective risk management; demonstrating that pro-active risk management and early involvement of an industry-focused risk advisor improves the understanding of associated risks, allows informed decisions about financial aspects of project risk and requirements for insurance to be made.

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