

TUNNELLING ASIA' 2022

International Conference on Underground Space : The Need of the Day

27-28 June, 2022, Hotel ITC Maratha, Mumbai

&

Workshop on
Observational Approach
in Tunnelling: Evolvement,
Issues and Challenges

24-25 June, 2022, MMRDA Conference Hall, Mumbai

TAIYM Annual Tunnelling Conference on
Underground Space :
Challenges & Opportunities

28 June, 2022, Hotel ITC Maratha, Mumbai



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INVITATION



Tunnelling Asia' 2022, the biennial conference is being organized by Tunnelling Association of India (TAI) and the CBIP under the aegis of International Tunnelling and Underground Space Association (ITA) at Mumbai, the financial capital city of India. The organizers of this popular series event recognize the industry's fast evolution and advances in underground space engineering; the larger tunnel boring machines are only one example of such advances and progress. Other areas of

underground engineering have become highly sophisticated over the recent years. The conference is the industry's opportunity to share their knowledge, experiences besides the case studies describing the real world applications for the benefit of the participants and for the industry to continue on path of evolution.

On behalf of the Tunnelling Association of India, I take great pleasure in extending a cordial invitation to individuals, Regulatory Bodies, Govt. Departments, Tunnel Building Contractors and Consultants, Manufacturers, Technical Research Institutes, Universities and Funding Agencies, who are actively involved in the tunnel and underground construction, to participate in the exciting **Tunnelling Asia' 2022** conference being held on 27-28 June 2022 at Mumbai.

I also extend a cordial invitation to all the Member Nations of ITA and the agencies involved in tunnel and underground construction including planners, designers, geologist, construction firms, consultants, insurance agencies, equipment manufacturers to participate in the exhibition being organized on 27 - 28 June 2022 in conjunction with the Tunnelling Asia' 2022 conference at Mumbai. Since many underground structures are either under construction or being planned in this country, there is vast scope for concerned agencies to participate in these construction works and by taking part in the exhibition where they can demonstrate their capability either in providing services or equipment.

We look forward to welcoming you in Mumbai, and hope that your stay and experience here will be a memorable one.

(Mangu Singh)

President

Tunnelling Association of India &
Principal Chief Advisor
Delhi Metro Rail Corporation Ltd.

INVITATION



With almost no space available at ground, tunnelling has become an integral part of growing infrastructure which ultimately remains the key indicator of our fiscal growth in metro as also other State Capitals in India. Infrastructure development in different sectors such as metro rails, railways, highways, water supply and sewerage disposal, hydropower and transfer of water for irrigation require tunnelling.

Tunnelling for metro works is fast developing in the country. In the city of Mumbai, many underground activities are at presently going on for metro, water supply, highways and coastal projects, The Mumbai city will see such a big scale infrastructure intervention, spanning 33.5 km for Mumbai Metro Line 3, Surya Regional water supply scheme (7 km) and Mumbai Coastal Road project (7.7 km) with lot of geotechnical and construction challenges. We must keep ourselves abreast with the latest in this field of tunnel technology. A lot of advancements have been taken place in tunnel technology and underground space engineering. The large size tunnel boring machines are only one example of such advances and progress. Other areas of underground engineering have become highly sophisticated over the recent years. There will be a good opportunity to the professionals to share their knowledge, experiences besides the case studies describing the real-world applications for the benefit of the participants and for the industry to continue on path of evolution. Since many underground projects are being executed in the city of Mumbai, there is vast scope for tunnel and underground industry to participate in the aforesaid construction works and this conference would provide them an excellent opportunity to come in the fore front by taking part in the tabletop exhibition where they can demonstrate their capability either in providing services or equipment.

On behalf of the Mumbai Metro Rail Corporation Limited and Chairman of the Organizing Committee, I take great pleasure in extending a cordial invitation to professionals, planners and decision makers, designers, geologists, Metro authorities, Insurance agencies and Regulatory Bodies, Government Departments, Tunnel Building Contractors, Consultants, Manufacturers, Technical Research Institutes, Universities and Funding donor Agencies, who are actively involved in the tunnel and underground construction, to participate in the exciting workshop on The Conventional Tunnelling on 24th-25th June 2022 and Conference on Underground Space : The Need of the Day, on 27th-28th June 2022 in Mumbai.

I look forward to welcoming you in Mumbai and hope that interaction on the different aspects of tunnelling during the two day deliberations will be a memorable one and shall be highly beneficial to all those associated with tunnelling industry.

(S.V.R. Srinivas, IAS)

Metropolitan Commissioner, MMRDA & Managing Director, MMRCL & Chairman of the Organizing Committee

INTRODUCTION

Underground construction has boomed in the last 10 years worldwide. This trend is due to several factors such as the growth of population of cities, demand for sustainable solutions, and the call for environmentally friendly solutions, coupled with advancement of technologies. The number and size of mega cities throughout the world and their associated needs for additional infrastructures has been increasing significantly. According to the United Nations, by 2030 over 41 megacities – each with population of over 10 million people – will exist worldwide. It is also expected that by 2030, 60.4 percent of the world's population will be living in cities. This trend demands sustainable, efficient, economical, and environmentally friendly infrastructure to reduce environmental impacts, enhance visual impact, and minimize surface disturbance. Infrastructure development on the surface has constraints due to limited availability of surface land area. Therefore, to meet these needs, the trend is towards underground development for transportation, transfer of water and waste water, storm protection, power, and other systems.

Underground development is becoming a necessity in different parts of the World. However, development underground is a challenge in itself. Besides, the geological constraints, it has to face the challenge of ensuring the safety of existing infrastructure. There have been significant engineering developments in tunnel technology and underground development in recent years. The need however is to have cost-effective environment friendly and technically sound underground development. To achieve this, we will have to keep pace with the technological advancement in the field of underground development.

With a view to provide information at international level of knowledge and experience gained in the large scale underground structures and tunnel projects for the benefit of future projects throughout the world, delegates will be provided with a unique opportunity through this conference to facilitate

exchange of views and ideas with professionals who have been actively involved in the success of the tunnel projects. A large number of experts are likely to participate to stimulate the debate on the challenges met and the lessons learnt, with the application of new practices and technologies. It is in this context that this International Conference "Tunnelling Asia' 2022", is being organised by Tunnelling Association of India, Central Board of Irrigation and Power (CBIP), Delhi Metro Rail Corporation Ltd. and Mumbai Metro Rail Corporation Ltd. jointly on 27-28 June 2022 at Mumbai which would be unique experience for the participants.

TOPICS

Sub Surface Planning, Investigation and Design Understanding the Geological and Geotechnical Conditions

- Aerial Survey, mapping and development of geological model
- Engineering Classification and Characterization of Rock Mass; Determination of In-situ Stresses for Underground Excavation;
- Analysis and design methodologies including effect of seismicity on the underground structure.
- Stabilization and Support System - Mapping of tunnel face and forecasting problems areas;
- Instrumentation and Monitoring, Back-analysis and Modelling Methodologies;
- Sustainable underground structures

Tunnel Construction Technologies and Equipment

- Innovation and emerging new technologies tunnel construction in excavation technologies; underground engineering materials and equipments
- Advance probing during tunnel excavation by different techniques

- Construction methodologies for tunnels including remedial measures for large collapses;
- New Developments – Experiences of rock support method – Rock bolting & Rock anchoring etc.
- Ground improvement in underground construction
Automation in tunnel construction, latest trends and innovative ideas with in tunnels innovate solution for sustainable society
- Cost optimization in tunnel construction – Assessment of new developments and cost saving in excavation, construction equipment, single shell lining system, spray applied water proofing membranes etc.

Risk Management, Contracts and Financial Aspects

- Contractual practices and the FIDIC Emerald Book
- Costing and contractual practices in Tunnel and Underground Works including aspects of Measurements and Payment;
- Risk analysis and sharing and Decision-making in Tunnel projects
- Insurer perspective
- Experience and Structure of Model Contract Document for EPC tunnel projects;
- Regulatory frame work and Policies in different countries

Environmental and Social Impact

- Environmental and Social Impact Assessment of Tunnel and Underground Works and their Norms and Methodologies;

Ventilation, Lighting and Fire Safety in Tunnels

- Tunnel ventilation system and Fire Safety arrangement and measures in Tunnels and Transport;
- Challenges & issues in the Fire Protection: Detection & Suppression
- Behaviour aspects of tunnel fires and evacuations
- Lighting, LED technology, signaling or acoustic e.g. routing, on-board units
- Health and Safety - Use of compressed air in mechanised tunnelling – Case study

Case studies

INDUSTRY SPECIAL ASPECTS

Following Tunnel and Underground special aspects will also be covered in the special session on industries aspects by the sponsor organisations during the conference

EXCAVATION :

1. Mechanised Tunnelling Equipment

Tunnel Boring Machines : Case Histories for tunneling in Urban areas

Rock Mechanics to Drill and Blast

2. Roadheaders : Use of road header in tunnel and underground construction

3. Innovation in Concrete Pumps, Formwork, Ventilation Fan and Instruments for Underground Construction

4. Materials : Innovation in materials, segments and shotcrete

5. Waterproofing : Modern Approaches to Tunnel Water Proofing

WHO SHOULD ATTEND?

The conference will be of interest to Tunnel Designer & Operators, Engineers, Geologists, Regulatory Bodies, Government Departments, Tunnel Building Contractors & Consultants, Suppliers of Products & Services for Tunnelling Construction, Fire Authorities dealing with Infrastructure Tunnels, Technical and Research Institutes, Universities dealing with Tunnelling, Organization & Associations active in the Tunnelling World Instruments manufactures and Funding Agencies.

CALL FOR PAPERS/CASE STUDIES

The papers/case studies on the subject are invited. Intending authors may send full text of paper(s)/case study(ies) as per the guidelines/instructions given below so as to reach the Conference Secretariat by **30th May 2022**. The papers/case studies accepted for presentation will be notified immediately thereafter. Only original contributions that have not been published or presented at any other conference/symposium/seminar are acceptable, otherwise the paper will not be considered. The full length paper will be reviewed by the Technical Committee for oral and poster during the conference presentations.

GUIDELINES FOR PREPARATION OF PAPERS/CASE STUDIES

Please refer Website : [http:// www.tai.org.in](http://www.tai.org.in)

SCHEDULE

- Submission of Full Text of Papers **30th May 2022**

OFFICIAL LANGUAGE

The official language of the Conference is English.

DATE & VENUE

The conference is proposed to be held in 27-28 June 2022, Hotel ITC Maratha, Mumbai.

REGISTRATION

The registration fee payable by the delegates, including authors of papers, for participation in the conference is as follows:

Countries	Delegate/ Author	Research Student	Accompanying Person
India	Rs. 20,000*	Rs. 10,000*	Rs. 10,000*
Others	US\$ 700*	US\$ 350*	US\$ 350*

* GST extra @ 18%. GST No. : 07AAAAA8324J2ZT

10% discount will be given to Members of CBIP, TAI and ISRM (India)

WORKSHOP ON OBSERVATIONAL APPROACH IN TUNNELLING: EVOLVEMENT, ISSUES AND CHALLENGES (24-25, June 2022)

The objective of this workshop is to update the knowledge of tunnelling professionals, i.e., Engineers, Geologists and tunnel technician to understand the various issues & challenges being faced during investigations, design, construction and how they can be overcome.

TOPICS

Introduction of NATM and Investigation

- The NATM History, background, principles, Observational Approach, Development with time
- Geological and geotechnical investigations
- Rock Mass Classification

Tunnel Design Aspects

- Design Philosophies
- Design Stages in NATM Tunnelling

Contract Documents, Tender and Award

- Contract Forms
- Tender Documents
- Contract Award

Risk Management, Observational Approach

- What are the risks?
- Observational Approach in NATM
- Observational Approach in TBM
- Instrumentation, Data Management

Tools to Handle Problems, Documentation

- Advance Protection Tools
- Geological and Geotechnical Documentation

Case Studies

Date & Venue: 24–25 June 2022, at MMRDA Conference Hall, Mumbai

Faculty : National and International Resource Speakers having vast experience on the Tunnel Design and construction will be delivering lectures. The CD containing the Power Point Presentation made by experts will be given to the participants of the Workshop.

REGISTRATION

The registration fee payable by the participants, including, for participation in the workshop is as follows:

Delegate/ Author	Research Student
Rs. 15,000*	Rs. 7,500*

* GST extra @ 18%. GST No. : 07AAAAA8324J2ZT

10% discount will be given to Members of CBIP, TAI and ISRM (India).

TAIYM Annual Tunnelling Conference
28 June, 2022, Hotel ITC Maratha, Mumbai



Underground Space: Challenges and Opportunities for young tunnellers in India

- o Challenges and opportunities in design, construction, manufacturing and in contracts and project management.

Registration Fee : Rs. 5000*

*GST @ 18%. GST No. : 07AAAAA8324J2ZT

EXHIBITION - (27-28 June 2022)

Exhibition Stall of 2m x 2m will be provided to the sponsors organisations at the venue of the Conference. The exhibition will provide a scope to present the new technologies, materials and mechanisms including software. Participants will enjoy sufficient time and opportunity to inspect the exhibition, and exhibitors will have an excellent opportunity of accessing a large number of potential buyers/decision makers each day. This opportunity will be allotted on first-cum-first served basis.

The Charges for one stall will be Rs. 2.50 lacs + GST.

Silver Sponsor and Supporter can also avail this opportunity by making additional payment of Rs. 50,000/- + GST.

ADVERTISEMENT OPPORTUNITIES

A limited space will be made available on first-come-first-served basis, for coloured advertisement to the organizations, involved in the concerned field, in the proceedings volume of the Conference. The interested organizations are required to send the CD of the advertisement material in Coreldraw software or in PDF format, in A4 size along with payments as detailed below:

Inner Pages	2nd & 3rd Cover	Back Cover
INR 30,000*	INR 50,000*	INR 75,000*

* GST @ 18%. GST No. : 07AAAAA8324J2ZT

SPONSORSHIP

The Conference will provide an excellent opportunity to national and international organizations; central / state government organizations, public sector undertakings, industrial organizations, equipment manufacturers, entrepreneurs, financial and funding institutions, consulting and construction organizations to publicize themselves by being Platinum / Golden / Silver sponsors or Supporter of the Conference. The sponsorship fees payable and benefits are mentioned below. Interested organizations may communicate their willingness to the Conference Secretariat.

SPONSORSHIP OPPORTUNITIES

Entitlement	Levels						
	Platinum	Golden	Silver	Supporter	Kit Sponsor	Lunch Sponsor	Dinner Sponsor
	INR 10.00 lacs	INR 5.00 lacs	INR 3.00 lacs	INR 2.00 lacs	INR 3.00 lacs	INR 3.00 lacs	INR 5.00 lacs
Logo on the Backdrop	✓	✓	✓	✓	✓	✓	✓
Complimentary Delegates	15	6	4	2	2	4	6
Audio Visual Presentation (in minutes)	15	10	–	–	–	–	10
Distribution of catalogues	✓	✓	✓	✓	✓	✓	✓
Table Top display facility	✓	✓	–	–	–	–	✓
Advertisements (in page/s)	Two	Two	One	Half	Half	One	Two
Display of name during lunch hours	–	–	–	–	–	✓	–
Display of name during Dinner hours	–	–	–	–	–	–	✓
Name & Logo in the inner flap of the Kit	–	–	–	–	✓	–	–

PAYMENT

All payments are to be made by the following methods:

The fee can be paid by cheque to be drawn in favour of “Adhering Committee of International Tunnelling Association (India)” or by bank transfer to the following account:

Beneficiary Details

- Name of Bank: Canara Bank, Delhi Diplomatic Enclave, 7/48, Malcha Marg, Chanakyapuri, New Delhi 110021
- Account No. 0157101031496 • MICR Code No. 110015007 • Account Holder Name: “ADHERING COMM OF ITA”
- IFSC Code: CNRB0000157 • Swift Code: CNRBINBDFS

Bank charges if any, must be borne by the organisation/participants and should not be deducted from the amount remitted to the Conference Secretariat.

Conference Secretariat

Secretary General, Tunnelling Association of India

Malcha Marg, Chanakyapuri, New Delhi - 110 021, India Phone : 91-11-2611 5984 / 2611 6567 Ext. 113; Fax : 91-11-2611 6347

Contact Person : Mr. Sunil Sharma (Mobile No 91-9811299136) / Ms. Kalpana Adhikari

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