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**TOP TUNNEL CONSTRUCTION**  
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11th Annual Conference

# TUNNEL CONSTRUCTION IN INDIA

A VIRTUAL CONFERENCE

Experience & Challenges; New Technologies & Opportunities

July 8-9, 2020

Organisers:



Sponsors so far:\*



\*Sponsorship slots are available

## MEET THE PROJECT DEVELOPERS



# TUNNEL CONSTRUCTION IN INDIA

## Mission

- Tunnel development in the country is driven by investments in the metro rail, railway, roads and highways, hydropower, underground crude oil storage, and water and sewerage segments. Over the past few years, the size of tunnelling projects has witnessed a substantial increase. A number of landmark and challenging tunnel construction projects are under execution - the Katra-Banihal railway line in Jammu & Kashmir (with a total tunnel length of 163 km), the Kaleshwaram Lift Irrigation Scheme (with a total tunnel length of 203 km) and the 33.5 km Mumbai Metro Line 3, as well as the Mumbai-Ahmedabad high-speed rail project (7 km undersea tunnel).
- With regard to tunnel construction techniques and technologies, the tunnel boring machine (TBM) and the New Austrian tunnelling method (NATM) are gaining traction for tunnelling activities in urban areas. Another advanced method that is seeing increasing acceptance is micro-tunnelling. Nevertheless, conventional techniques such as the drill and blast method continue to play a dominant role in the execution of tunnel construction projects.
- There is an increased demand for high-tech equipment as geological complexities are the biggest challenge in tunnelling projects. Meanwhile, navigation systems, computerised jumbos and advanced drilling systems are being deployed for precision and better monitoring. New materials are also being deployed to improve the durability and strength of tunnels.
- However, the outbreak of the Covid-19 pandemic has put a halt on the ongoing and planned projects across the country. Bids are being postponed, announced/approved projects are on hold and factors such as shortages of raw materials and labour are delaying the ongoing projects.
- Going forward, the tunnelling segment is expected to offer huge opportunities, given the large pipeline of tunnel projects. However, the contractors and implementing agencies need to devise new strategies to fast-track project implementation. Also, new and advanced technologies and digital solutions for project monitoring and execution with minimum human interference will need to be deployed for improving efficiency in operations.
- **The mission of this conference is to discuss the trends, developments and key challenges, identify the potential strategies to fast-track implementation, and highlight the near- and medium-term outlook and opportunities for the tunnelling segment in India. The conference will provide a platform to showcase noteworthy projects, best practices as well as the recent innovations in technology and equipment.**

## Target Audience

The conference is targeted at top and middle-level managers from:

- Project Developers
- Metro Rail Operators
- Consultants and Design Service Providers
- Hydro Power Developers
- Technology Providers (TBMs, excavator, drill rigs, cranes, loaders, roadheaders, shotcrete machines, etc)
- EPC Contractors
- Indian Railways
- Urban Local Bodies
- Irrigation Companies
- Water & Sewage System Developers
- Etc.

## Previous Participants

The organisations that have participated in our previous conferences on "Tunnel Construction in India" include Aarvee Associates | Adcos | AECOM | AF Colenco | Afcons | Aker | Aldesa | Amberg | Ambuja Cements | Alcolfine Micro Materials | Atkins | Atlas Copco | Bajaj Allianz | Bangalore Metro Rail Corporation | BeKaert | Border Roads Organisation | Cads Software | Chicago Pneumatic Construction Equipment | CH2M Hill | Chennai Metro Rail | CMRL | COWI | Dassault | DFCCIL | Delhi Jal Board | Dextra India | DMRC | Draeger Safety India | DRDO | DSI | Bridgecon | Duraflex | Dywidag | Egis | ES Ein Shemer Rubber | Essar Power | Essel InfraProjects | Eurostar Engineering | FOGTEC | Gammon | Gates India | Geoconsult | Geo Constech | Geodata | Giersten Tunnel | GMR | GMW | GR InfraProjects | Grenix Project | GVK Group | Halten | HCC | Herrenknecht | Hill International | Hitachi Zosen | HPPCL | Hochtief | HPRIDC | IL&FS Transportation Networks | JLF Asia | IRB Infrastructure | Ircan International | Isolux Corsan | ITD Cementation | ITNL | J&K SPDC | J Square | Jaipur Metro | Jal India | JCB India | Jindal power | Jindal Steel | JMC Projects | JSW Infrastructure | K Rajagopalan & Co | Kalpan Hydro | Kalpataru Power Transmission | Kameng Dam Hydro Power | KEC International | Kolkata Metro Rail Corporation | Kross Air Distribution Systems | Konkan Railway Corporation | Krishna Hydro Projects | KSK Dillbin Hydro Power | Kutch Railways | Larsen & Toubro | Lahmeyer | Lanco | Leighton | L&T | Laviosa India | Leica Geosystems | Lombardi | Louis Berger | Lucknow Metro Rail Corporation | Mallcom | Marti India | MBL Infrastructures | MC Bauchemie | Mekaster | MIT | Mitsui | Modern Road Makers | Monnet Projects | Mumbai Metro | Mumbai Rail Vikas Corporation | Mumbai Metropolitan Region Development Authority | Municipal Corporation of Greater Mumbai | Nagarjuna Construction Company | National Academy of Railways | Newkem | NHAI | NHIDCL | NHPC | National High Speed Rail Corporation | Nina Concrete | NIS Marketing | Normet | North East Frontier Railway | Northern Railway | NTPC | OBO Betterman | Outokompu | Patel Engineering | Poyry | Pratibha Industries | Precision Drawell | Promat India | Punj Lloyd | PWD | Rail Vikas Nigam | Railway Board | Ramboll | RDSO | Reinforced Earth India | Renesco | Rex Polyextrusion | RITES | Robbins | RVNL | Sammon Infracorp | Sandvik | Savronik Sistem | SERING Ingegneria | SEW Infrastructure | Sika India | SImplex Infrastructure | SJVN | SMC India | SMEC | SMS Infrastructure | SNC Lavalin Engineering | Spectrum | Star Drilling | Sterling Wilson | Sunil Chemicals | SUCG Infrastructure | Systemair India | Systra MVA Consulting | TAM Construction Chemicals | TCE | Telcon | Telegra DOO | Terratec | THDC | Tata Power | Tata Projects | Tej Engineering | Totem Infra | Tractors India | Transstroy India | TROX India | Tvastar Engineering | Uniquist Infra | Unity InfraProjects | Ultra Tech Cement | Vayam Technologies | Vijay Nirman Company | Welspun | etc.

## Previous Speakers

- Ashwani Bhide, Mumbai Metropolitan Regional Development Authority
- Saibaba Ankala, Indian Railways
- R.B Bamble, Municipal Corporation of Greater Mumbai
- Purnachandra Bhawe, Afcons
- Arindom Chakrabort, NHPC
- D.P. Deshmukh, Mumbai Metro Rail Corporation
- S.K. Dharmadhikari, NHAI
- R.N. Dwivedi, Chennai Metro Rail Corporation
- Ashish Gupta, Gammon
- N.C. Karmali, Kolkata Metro Rail Corporation
- A.H. Khan, Mumbai Metro, L&T Construction
- Dr Florian Krenn, Geoconsult India
- Satish Kumar Sharma, HCC
- R.R. Kumar and Abhijeet Chaudhary, Mumbai Metro Rail Corporation
- R. Rajendra Kumar, Afcons Infrastructure
- Stephen Lowry, Delhi Metro Rail Corporation
- Parikshit Mehra, Border Roads Organisation
- G.B. Nagendra, Konkan Railway Corporation
- Ram Gopal Saini and Sushil Kumar Gupta, Mega Metro Engineering
- C.Sankaralingam, L&T Construction
- Ashwani Saxena, Jaipur Metro Rail Corporation
- Vijay Sharma and Sandeep Gupta, USBRL Project, Northern Railway
- U.P. Singh, NHRCL
- Hari Singh, Northeast Frontier Railway
- Dr D. V. Subrahmanyam, Rail Vikas Nigam
- Sunilkumar Vishwakarma, Tata Projects

## AGENDA/STRUCTURE

### CONSTRUCTION EXPERIENCE, NEW REQUIREMENTS & CHALLENGES

#### TRENDS, DEVELOPMENTS AND OUTLOOK

- ❖ What have been the key trends and developments in the tunnelling sector?
- ❖ What are the potential challenges in light of Covid-19 (in terms of implementation delays, shortage of labour and raw materials, etc.)?
- ❖ What are the new and emerging opportunities and future outlook?

#### CONTRACTORS' PERSPECTIVE: CONTRACTING PRACTICES AND UNADDRESSED ISSUES

- ❖ What has been the experience of contractors? What are the key lessons learnt?
- ❖ What are the biggest issues and challenges? How are they being addressed?
- ❖ What specific steps are being taken to fast-track construction work post-lockdown? What are some of the relief measures announced by the government?
- ❖ What is the short-term outlook for the tunnelling segment?

#### DESIGN, ENGINEERING AND PROJECT MANAGEMENT

- ❖ What are the design and engineering practices being followed? What are the new and emerging requirements?
- ❖ What are the technological advancements and innovations in this field?
- ❖ What are some of the best practices and noteworthy projects? What lessons can be learnt from the experience of these projects?

#### CHALLENGES AND RISKS IN HIMALAYAN AND WESTERN GHATS

- ❖ What has been the experience in tunnel construction in geographically difficult locations?
- ❖ What are the challenges associated with the planning, design and construction of long-span tunnels? How are these being addressed?
- ❖ What are some of the noteworthy projects? What can be learnt from them?

#### FOCUS ON CONSTRUCTION MATERIALS

- ❖ What are the new and emerging material requirements for tunnel construction (steel, cement, anchors, explosives, girders, admixtures, etc.)?
- ❖ What are the new options and innovations (shotcrete material, fibre and rock reinforcement, geosynthetics, etc.)?
- ❖ What are some of the key initiatives in this space? What were the associated cost savings?

#### FOCUS ON MEP SYSTEMS (POWER SUPPLY, TUNNEL VENTILATION, LIGHTING, FIRE FIGHTING, TRAFFIC MANAGEMENT, ETC.)

- ❖ What are the new and emerging requirements for MEP systems?
- ❖ What are the recent trends and advancements in this field?
- ❖ What are some of the noteworthy initiatives? What are the challenges and lessons learnt?

### EXPERIENCE SO FAR, NOTEWORTHY PROJECTS & UPCOMING OPPORTUNITIES

#### RAIL TUNNELS

- ❖ What has been the experience with rail tunnel construction?
- ❖ What are the techniques/methods currently deployed for construction? What are the new trends and advancements in this field?
- ❖ What are some of the noteworthy projects? What are the key lessons learnt?
- ❖ What has been the impact of COVID-19 on project delivery and implementation? What strategies are being considered to fast-track implementation?

#### ROAD TUNNELS

- ❖ What has been the experience in rail tunnel construction?
- ❖ What are the techniques/methods currently deployed for construction? What are the new trends and advancements in this field?
- ❖ What are some of the noteworthy projects? What are the key lessons learnt?
- ❖ What has been the impact of Covid-19 on project delivery and implementation? What strategies are being considered to fast-track implementation?

#### METRO RAIL TUNNELS

- ❖ What has been the experience in metro rail tunnel construction?
- ❖ What are the techniques/methods currently deployed for construction? What are the new trends and advancements in this field?
- ❖ What are some of the noteworthy projects? What are the key lessons learnt from their experience?
- ❖ What has been the impact of Covid-19 on project delivery and implementation? What strategies are being considered to fast-track implementation?

#### HYDRO TUNNELS

- ❖ What has been the experience in hydro tunnel construction?
- ❖ What are the techniques/methods currently deployed for construction? What are the new trends and advancements in this field?
- ❖ What are some of the noteworthy projects? What are the key lessons learnt from their experience?
- ❖ What has been the impact of Covid-19 on project delivery and implementation? What strategies are being considered to fast-track implementation?

#### IRRIGATION, WATER AND SEWAGE TUNNELS

- ❖ What has been the experience with irrigation, water and sewage tunnel construction?
- ❖ What are the techniques/methods currently being deployed for construction? What are the new trends and advancements in this field?
- ❖ What are some of the noteworthy projects? What are the key lessons learnt from their experience?
- ❖ What has been the impact of Covid-19 on project delivery and implementation? What strategies are being considered to fast-track implementation?

### EMERGING TECHNOLOGY AND EQUIPMENT REQUIREMENTS

#### NEW AUSTRIAN TUNNELING METHOD

- ❖ What has been the experience with NATM? What are its specific features (in terms of cost per km, equipment, material and manpower requirements, etc.)?
- ❖ What are the key considerations in the selection of NATM technology? What are the emerging trends and advancements in this field?
- ❖ What are the key issues and challenges? What is the future outlook?

#### TUNNEL BORING MACHINE TECHNOLOGY

- ❖ What has been the experience with tunnel boring machine technology?
- ❖ What are its specific features (cost per km, equipment, material and manpower requirements, etc.)?
- ❖ What are the key considerations in the selection of TBM technology? What are the emerging trends and advancements in this field?
- ❖ What are the key issues and challenges? What is the future outlook?

#### TRENCHLESS TECHNOLOGIES: MICRO TUNNELLING AND HORIZONTAL DIRECTIONAL DRILLING

- ❖ What has been the experience with trenchless technologies? What are its specific features (in terms of cost per km, equipment, material and manpower requirements, etc.)?
- ❖ What are the key considerations in the selection of the microtunnelling technology? What are the emerging trends and advancements in this field?
- ❖ What are the key issues and challenges? What is the future outlook?

#### FOCUS ON EQUIPMENT (EXCAVATOR, DRILL RIGS, CRANES, LOADERS, ROADHEADERS, SHOTCRETE MACHINES, ETC.)

- ❖ What are the emerging trends and advancements in the equipment segment?
- ❖ How is the industry gearing up to meet the emerging equipment requirements for tunnel construction post Covid-19?
- ❖ What have been the biggest challenges? How are they being addressed?

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## What differentiates our conferences

- The agenda is developed by our researchers who track the sector round the year. It is thus relevant and topical. It is not driven by a particular organisation and does not have a particular slant.
- The speakers are professionals and experts involved in the sector, not a mix of ambassadors, ministers, celebrities and business owners.
- There is adequate time for a Q&A session with each speaker. These are not "hit and run" speeches.
- The representation is from across the country, as is the case even at our physical conferences.
- Each stakeholder group - policymakers, developers, financiers consultants and relevant NGOs - is represented at our conferences.
- The sessions begin and end on time.
- The moderators merely ask the questions. The stars are the speakers themselves.
- The conferences do not just comprise panels and speeches. They provide a good mix of expert presentations and case histories, and panel discussions.
- The delegates are professionals who are vested in the sector, and not a motley crew assembled through social media.
- The participants at each conference will receive a concise report outlining the key facts, trends and issues in the sector.
- A recap of the conference will also be made available to reinforce the key takeaways.

## Registration Fee

	INR	GST@18%	Total INR	Total USD
1 Delegate	9,000	1,620	10,620	USD 148
2 - 3 Delegates	15,000	2,700	17,700	USD 246
4 - 5 Delegates	21,000	3,780	24,780	USD 344
6 - 9 Delegates	27,000	4,860	31,860	USD 443
10 - 20 Delegates	33,000	5,940	38,940	USD 541

- GST @18 per cent is applicable on the registration fee.
- Registration will be confirmed on receipt of the payment.
- To register online, please log on to <https://indiainfrastructure.com/events/11th-annual-conference-tunnel-construction-in-india/>

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## Organisers

The conference is being organised by **India Infrastructure Publishing**, the leading provider of information on the infrastructure sectors through magazines, newsletters, reports and conferences. The company publishes **Indian Infrastructure** and **Power Line** magazines, and a series of reports, including **Tunnelling in India**, **Hydro Power in India**, **Urban Rail in India**, **Road Development in India**, and **Railways in India**.