



Shapoorji Pallonji
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AFCONS

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INSIGHT

breakthrough

RUSH

Numerous TBM breakthroughs by Afcons illuminate Diwali celebrations nationwide

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May the good times endure

Dear Afconians,
Shubh Deepawali!

I trust you all had a fantastic festive season and it may not be surprising if the festive spirit is still shining brightly within each of you. I hope you had a chance to celebrate with your family and friends. In the middle of our busy schedules, we all find ourselves eagerly waiting for these cherished moments. And if this sentiment resonates with you, know that you're not alone.

Looking at it from an organisational standpoint, we have had a notable year leading up to the festivities so far. Our Metro projects across the country have seen numerous TBM breakthroughs, with the one in Bangalore's underground metro being particularly noteworthy. The achievement of TBM Rudra marks a significant milestone, and you'll find the details in the newsletter. In addition to this, we have had a decent order booking so far, which further bolsters our order book. So, I must say that the momentum continues!

Embracing the festive spirit, we have had the privilege to receive a flurry of both organisational and individual awards. This highlights the vigour and adaptability that courses through our organisation. And it points towards a workforce that is not only robust but also deeply motivated and exceptionally successful. This brings me great joy.

As we head towards the last quarter of the year, it is essential that we now focus our energy and efforts on maximising our productivity and achieving all the targets we have set for the year, including turnover, profit, and order booking. I hold hope that this exuberance persists and our journey of success knows no ebb. There's much to strive for, learn, and refine as we advance together as an organisation.

May the good times endure.



K SUBRAMANIAN

MAKING HEADLINES

HCI Pranay Verma commends progress at B'desh road projects

On July 24, 2023, His Excellency, Mr Pranay Verma, the Honourable High Commissioner of India in Bangladesh, conducted a comprehensive review of our three Bangladesh Road Projects. During the visits, Mr Verma expressed satisfaction with the progress achieved thus far. Joining him on the visits were Mr ABM Amin Ullah Nuri, the Honourable Secretary of the Roads and Highways Department in Bangladesh, and dedicated site teams.



A tryst with G20 media delegation

On August 21, 2023, the Shapoorji Pallonji Group (SP Group) welcomed a media delegation representing G20 nations to Mumbai. The event was initiated by the Ministry of External Affairs, Govt of India, as part of a familiarisation programme. A total of 27 distinguished journalists and editors from 15 nations participated, immersing themselves in a comprehensive overview of the SP Group and its capabilities. Subsequently, the guests embarked on a brief tour of various Group companies, gaining exposure to their innovative initiatives.



Rajasthan CM initiates Jaipur Metro project expansion

On September 21, 2023, the Honourable Chief Minister of Rajasthan, Shri Ashok Gehlot, laid the foundation stone for Phase-1C of the Jaipur Metro Project. This phase entails the extension of the metro line from Badi Chaupar to Transport Nagar. Afcons will be constructing twin tunnels, an underground station at Ramganj Chaupar, Cut and Cover Tunnel Box, along with the underground ramp works for Phase-1C.



HCI Pradip Kumar Yadav visits Liberia project

His Excellency, Mr Pradip Kumar Yadav, the Honourable High Commissioner of India to Liberia, visited our Material Handling Erection project on August 18-19, 2023. The visit was graciously hosted by the Afcons team, led by Project Director Mr Ganesan Kaliappan.



EDITORIAL

Bhakti Prasad, C Krishnakumari, Bivabasu Kumar

OFFICE ADDRESS

Afcons House, 16, Shah Industrial Estate, Veera Desai Road, Azadnagar, Andheri (W), Mumbai - 400 053, Maharashtra, India.

Tel No: +91-22-67191000 | **Fax:** +91-22-2673 0047/ 2673 0026

Website: www.afcons.com | **CIN No:** U45200MH1976PLC019335

THE AMAZING JOURNEY OF TBM RUDRA

COVER STORY

It is one of those Tunnel Boring Machine (TBM) tunnelling stories that has become big enough to fascinate even people who don't normally follow the construction sector. At 11am on October 26, 2023, TBM Rudra completed its last and Afcons' final breakthrough in Phase-II, Line-6 underground corridor of Bangalore Metro. There was so much that was uplifting about the breakthrough at Langford Town Station. TBM Rudra completed its heroic journey in Bangalore and left behind many unforgettable memories. It became part of an engineering team that performed like the most obdurate fighter tasked with crafting an underground conduit beset with booby traps which remained hidden from the human eye.

TBM Rudra is one of the three TBMs that spearheaded Afcons' 5.6 km underground tunnelling venture from launching shaft south of Dairy Circle to Vellara Shaft near Rashtriya Military School. Over the span of two years, TBM Rudra, alongside its counterparts — TBM Vamika and TBM Varada — notched up multiple breakthroughs, yet the final one held a special significance. Almost a year ago, Rudra had faced a formidable hurdle in the form of an unexpected entanglement of medical waste, animal fossils, implant wastes, tyres, confectionery, and tobacco covers from the 80s. The colossal machine had found itself ensnared between Dairy Circle and Lakkasandra Stations at a depth of 15m from surface and for a stretch of 70m. This unforeseen setback impacted the project timeline by nearly six months. But it also provided a test for Afcons' engineers to surmount a challenge posed by an ancient, forgotten quarry hidden from human eyes.

D Murugadasan, Vice President, Afcons, said, "The drive of TBM Rudra was the most challenging and I must say that BMRL and Afcons engineers displayed perseverance and innovation in overcoming the challenge. Rudra's triumph over adversity serves as an inspiration for future tunnelling endeavours worldwide."

Like an obdurate fighter, man and machine combined to craft an underground conduit beset with booby traps in Bangalore's Phase-II, Line-6 underground Metro, writes Bivabasu Kumar



Scan the code to experience the breakthrough moment and learn more about TBM Rudra's journey

“We mined through a mixed phase of soil and hard rock. The stretch between Dairy Circle and Lakksandra is densely populated, and the tunnel alignment passed below human settlements and commercial buildings. Despite mining carefully, Rudra suddenly got stuck. A detailed investigation over and above the initial geotechnical data provided to us revealed that the place used to be a quarry which got filled up over several decades and became a dump yard of garbage mixed with medical waste. We realised that unless a robust solution could be found this could prove to be the end of the project. After detailed investigation, brainstorming sessions and with cooperation from locals, we began probe drilling with additional soil investigation to assess the extent of the quarry. We trained our focus solely on ensuring stability of the tunnel tube during the operational stage without disturbing the existing structures on top,” Murugadasan added.

The Afcons team constructed a curtain RCC Wall which was anchored to the bottom rock at 18m depth from the ground level with



special piling methodology and carefully replaced the garbage with lean concrete on the dodgy tunnel alignment. The curtain wall acted as a protective barrier for the tunnel tube during construction and also during operational stages.

“This kind of innovation is done for the first time in TBM tunnelling and I am happy to state that it prevented further delay in the overall project progress. Tunnelling in Bangalore’s complex geology is a challenge in itself. But when faced with such sudden and unforeseen surprises, man and machine are helpless. But the quick turnaround time with a foolproof solution to get the project back on track was a significant achievement,” Murugadasan said.

TBM Rudra achieved an average productivity of 120 running metre per month with a peak production of 200 running metre per month.

TBM RUDRA STATS

NO OF BREAKTHROUGHS 3		
TRAVEL DISTANCE 2081M	NO OF RING ERECTION 1485	NO OF DAYS 518
NO OF CUTTER HEAD INTERVENTIONS		122

OTHER CHALLENGES

Tunnelling under 3-layer traffic

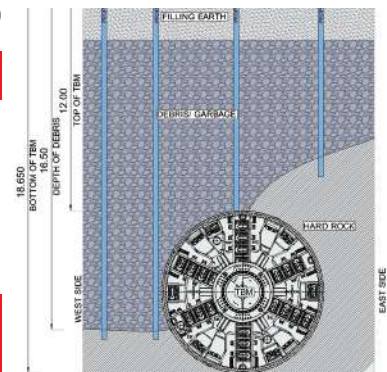
TBM Rudra successfully mined below a flyover, road, and an underpass at the same time at Dairy Circle Junction. The drive was extremely critical so as not to disturb the flow of moving traffic.

Umbrella grouting at Aala Masjid

Since the Aala Masjid was located very close to the location where TBM Rudra got stuck, the team acted pre-emptively to ensure the masjid area was fortified in advance to avoid any untoward incident. After additional soil investigation umbrella grouting was done to stabilise the foundation of the masjid structure and to ensure a smooth drive of the TBM

Mining under Rajakaluve

TBM Rudra and TBM Vamika negotiated another tricky geology at Rajakaluve. The mining was completed with minimum overburden of 2.8m. The TBMs mined through a sandy and contaminated area.



Wah Taj!

Engineering magic enables flawless tunnelling near Taj Mahal in Agra

When TBM Shivaji Maharaj achieved its first breakthrough in Agra, it was a special moment.

The project team had neat engineering magic up their sleeves to achieve the seemingly impossible. The tunnelling, which faced serious questions even before it began, was completed seven days ahead of schedule in the vicinity of the iconic Taj Mahal, with limited working area, uniquely shallow overburden, while managing huge influx of tourists and people.

To successfully execute TBM launching and operations in an extremely confined area, a unique strategy was deployed. The TBM was lowered on the downline side instead of upline. Subsequently, the TBM

was shifted sideways to the upline side. Once the side shifting process was complete, the site team devised an innovative solution to eliminate the need for casting pedestals. This saved significant time as well as cost, and ensured timely completion. TBM backup gantries were strategically positioned on the roof slab of the Taj Mahal Metro Station. These backup gantries were intricately connected to the main TBM shield through umbilical cords. During the conversion from the initial drive to the main drive, the backup gantries were lowered into the tunnel. This strategic manoeuvre enhanced the overall productivity and efficiency of work.

This tunnelling also encountered an unusually shallow overburden of just 3.7m, which is one of the lowest in Indian Metro tunnelling. With that in consideration, while navigating under one of the busiest areas of the city and near the iconic Taj Mahal, managing



ground settlement was critical. To achieve this, the team utilised TAM grouting for ground stabilisation. The team then created slurry panels and strategically placed them adjacent to the headwall of the tunnel for a seamless breakthrough. This helped in structural stability and integrity of the tunnel and the surrounding area.

The entire tunnelling, right from

the TBM launch to retrieval, was done with extreme precision and unique solutions to overcome space and technical challenges. This milestone will be etched as another TBM tunnelling innovation forever.



Chairman honours Afconians for exemplary long-term service



Mr K Subramanian being felicitated for 20 years' service



Mr S Paramasivan being felicitated for 20 years' service



Mr Satish Paretkar being felicitated for 15 years' service



Ms Bhakti Prasad being felicitated for 20 years' service



Mr V Manivannan being felicitated for 20 years' service

Mr Shapoor Mistry, Chairman, Shapoorji Pallonji Group, paid a heartfelt tribute to Afconians for their outstanding dedication and vital role in the organisation's progress. The prestigious event took place during the 47th Annual General Meeting on August 4, 2023, in the presence of the esteemed Board of Directors. Among the honourees were Mr K Subramanian, Executive Vice Chairman; Mr S Paramasivan, Managing Director; Mr V Manivannan, Director (CPE); Ms Bhakti Prasad, Director (HR); and Mr Satish G Paretkar, Director (UG & Hydro), alongside others. This occasion honours Afconians who have completed a decade or more of service, acknowledging their remarkable contribution and unwavering commitment.



Srinivasa Setu opens for traffic

Honourable Chief Minister of Andhra Pradesh, Shri YS Jagan Mohan Reddy, inaugurated the remaining stretch of Srinivasa Setu flyover for the public on September 18, 2023, in Tirupati. The 7km-long elevated expressway,

constructed by Afcons, is built to ensure seamless connectivity for people visiting the temple town. Terming it as a historic moment, he said the expressway is an engineering marvel that will reduce traffic woes of residents and pilgrims. Afcons' team, led by Mr R Anantakumar, Director (Operations) & Urban Infra BU Head, was present on the occasion.

Final breakthrough at RRTS PKG-8

TBM Sudarshan 8.2 achieved the sixth and final breakthrough of Delhi-Meerut RRTS Package-8 on July 25, 2023. The excavation for this drive began on March 20, 2023, at Bhaisali Station, and, was completed at Begumpul Station (Downline).

The five breakthroughs were recorded in the package between October 2022 and June 2023. A total of 7.1km tunnelling was completed on time with three TBMs. The team faced numerous challenges, including the 33-year-old Begumpul Bridge, Kali Nala, residential buildings, and heritage structures, but it safely navigated through this stretch.



An inspirational odyssey by TBM Vamika

With its flawless precision and an inspirational drive, TBM Vamika has ignited passion among engineers in Bangalore Metro. The Tunnel Boring Machine has left an indelible mark by achieving its ultimate breakthrough at Langford Station. Guided by brilliant engineering minds, Vamika adeptly navigated 2078 metres through the demanding geological landscape of Bangalore in a mere 555 days. Throughout its historic journey, Vamika encountered 143 cutter head interventions and accomplished three tunnel breakthroughs.



TBM Shivaji achieves first breakthrough

Afcons-SAM India Consortium team achieved a significant milestone in Agra Metro project when TBM Shivaji Maharaj (TBM-3) completed its first breakthrough seven days ahead of schedule. The TBM started its journey at Taj Mahal Station launching shaft on August 21, 2023, and completed the tunnelling at Taj Cut & Cover retrieval shaft on October 1, 2023. In the entire tunnelling of 228m, the TBM passed under the bustling vicinity of Taj Mahal, intricately navigating through this stretch while ensuring minimal disruption to locals. Additionally, the tunnelling was done with a low overburden measuring only 3.7m.

Special HSE programme at RRTS PKG-8

A training programme for site supervisors and foremen was organised on August 1, 2023, at Delhi-Meerut RRTS PKG-8. The training was conducted by Mr Sudhir More, GM, HSE, to educate the attendees about the safe implementation of tasks being performed at project sites.

AWARDS & APPRECIATIONS

National CSR Leadership Award for Afcons



Afcons won the National CSR Leadership Award for Industries in Water Sector at the National CSR Leadership Awards 2023. The award was received by Mr Ramana Reddy Boyalla, Dy

General Manager, Operations, on behalf of Afcons at a ceremony, in Bengaluru, on September 15, 2023.

State Level OHS&E Awards 2023. The project team has been recognised for its exemplary achievement in developing and implementing the most effective management system and procedures in OHS&E in 2022.

National OHS Award for RRTS PKG-8

The Delhi-Meerut RRTS PKG-8 has been awarded Gold Runner Up in Construction and Infrastructure at the 5th ICC National Occupational Health and Safety Awards 2023. The awards recognise unwavering commitment

towards Occupational Health & Safety by organisations and projects. The awards were organised by Indian Chamber of Commerce on September 22, 2023, in Kolkata.

15 Million Safe Man Hours at RRTS PKG-8

The Delhi-Meerut RRTS PKG-8 has achieved 15 Million Safe Man Hours without Lost Time Injury, as on August 30, 2023. National Capital Region Transport Corporation Limited (NCRTC) awarded a certificate of appreciation to Afcons for this milestone.

5 Million Safe Man Hours at Mokama Rail Bridge Project

IRCON International Ltd has issued a certificate of appreciation to Afcons for achieving 5 Million Safe Man Hours without Lost Time Injury at Mokama Rail Bridge project in Bihar.



OHSE Excellence Award for Mokama Bridge

Mokama Rail Bridge Project has been awarded a certificate of appreciation by the World Safety Organisation in India

Photography Contest

Congratulations to all brilliant photographers of Afcons for making HandPICed 2023 a huge success. We had a very intense competition this year too. Here are the winners of this edition.

1st

AGAM SINGH,
CENTRAL
WORKSHOP,
BUTIBORI



2nd

VISHVA SHARMA,
PANDOH BYPASS -
TAKOLI PROJECT



3rd

**VIJAYSINGH
H MORE,**
HEAD OFFICE



3rd

VISHAL B PATIL,
BANGALORE
UG METRO



Freedom fervour

Afconians across the globe marked Independence Day with joyful celebrations. The sites organised various programmes to foster the spirit of this special occasion, and the tricolour was soaring high at all places. Here are glimpses...



Engineer's Day

Afconians at HO and sites celebrated Engineer's Day this year with various activities and competitions to mark the occasion. Several events such as Paper Presentation, Model Making, Poem writing, Quiz contest, photography contests were organised to celebrate this special day in honour of Sir Mokshagundam Visvesvaraya.



IT-ME begins in Afcons



IT-ME (Made Easy), a brand-new initiative by Information & Business Process group, was launched on September 1, 2023. Executive Vice Chairman Mr K

Subramanian launched the initiative in the presence of Ms Bhakti Prasad, Director - HR, and Mr Sandeep Desai, Head - Information & Business Process. Mr Deepak Jhaveri, a renowned Microsoft consultant and trainer, conducted the first session. These sessions will help Afconians in enhancing their efficiency in using various IT products.

HR CORNER

Primavera Training was held at HO, and Project Management Training was conducted in Delhi for Project Managers.

CPE Trainings on Preventive & Predictive Maintenance, Crushing Equipment, Operation & Maintenance of TBM, Hydraulic Drilling Jumbo, SAP PM Module, Operation & Maintenance of Jack-up Platforms and Barges were conducted online.

Training on Electrical System Installation was conducted online. A training on Electrical Control System of Batching Plants was conducted in Chennai.

General Management Training programmes on Advanced Excel, Internal Auditor Course (ISO 9001:2015), Statutory Compliance under Labour Laws, and ISO 9001 Quality Management Systems were conducted at HO and sites.

Trainees Induction programme for GTEs, Junior Management Development Programme, and MTE MIS Functional Induction were conducted at HO.

NEW PROJECTS

Metro project in Jaipur

Jaipur Metro Rail Corporation Limited has awarded Afcons a design and construction project of twin tunnel and underground station in Jaipur Metro Phase-1C in Rajasthan.

Water supply project in MP

Afcons has bagged turnkey project of Indrasagar-I Multi-Village Scheme from Madhya Pradesh Jal Nigam Maryadit, Govt. of Madhya Pradesh.

Road project in Bihar

The Bihar State Road Development Corporation has awarded Afcons a project to construct a 4.3km-long, 4-lane road along the Mithapur-Sipara-Mahuli-Punpun Railway line, in Bihar.

NEW JOINEES

Mr Ganesh Chatterjee has joined as Dy General Manager (Projects) for water supply project in Jabalpur, Madhya Pradesh.

Mr Swapan Kumar Mohanty has joined as Joint General Manager (Project) for Mumbai-Ahmedabad High Speed Rail project.

Awards



METRO RAIL CONTRACTOR OF THE YEAR

Afcons won the Metro Rail Contractor of the Year Award at the 13th Construction Week India Awards 2023. The award was given at a ceremony held in Mumbai on September 13, 2023. Mr MK Ajayakumar, Executive Vice President, Operations, and, Mr Tarun Frinderlal Rekhraj, Jt General Manager, Urban Infrastructure BU, collected the award on behalf of Afcons.

National Project Excellence Award for Chenab Bridge

The Chenab Railway Bridge won the National Project Excellence Award at the Project Management Associates (PMA) National Awards 2023. The award was received by Mr Ajit Kumar, General Manager, CMEG, from Mr Tushar Trivedi, Regional Manager (West) of PMA. The Chenab bridge is the world's highest single-arch railway bridge, in J&K, India.



Afcons earns top PRCI honours

Afcons extended its winning streak at the 2023 Public Relations Council of India (PRCI) awards. This year, we are proud recipients of awards in the esteemed Chanakya Awards as well as the Corporate Collateral Awards categories.



Chanakya Award for Afcons: Best Infrastructure Company of the Year

Chanakya Award for Mr Bivabasu Kumar: PR for Positive Impact on Water Management

Platinum Award in Corporate Film

Crystal Award in Digital Newsletter

Gold in Media Relations

Silver in House Journal



ALERTS

Scan the code to visit Afcons' YouTube channel and stay tuned with the latest videos

