

INSIGHT

AFCONS

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Shapoorji Pallonji
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UNDER-WATER
INDIA'S
FIRST
METRO FACILITY



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METRO FACILITY

A Dream Fulfilled

Honourable PM Shri Narendra Modi inaugurates India's first under-water Metro facility at Kolkata

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Teamwork and Innovation

Dear Afconians,

Isn't it amazing how life can surprise us with second chances? I truly believe that we're always given the time and opportunities to make things right. It might sound a bit philosophical, but I'm a firm believer that with genuine effort, we can turn our weaknesses into strengths and transform half-hearted attempts into real successes. It all boils down to our determination and how much we truly desire our goals.

I am struck by this strain of thought thinking about how valiantly we have pulled off various technologically challenging projects over the years. It's incredible how we've overcome seemingly insurmountable obstacles along the way. That's why I was overjoyed when the East-West Metro was commissioned, in Kolkata, earlier this year. Only those who've closely followed the project understand the struggles caused by delays, often due to political disputes. Yet, witnessing the project's successful completion, with India's first under-river Metro tunnels and the nation's deepest Metro station, fills me with pride. Despite the hurdles, including the disruption caused by the Covid-19 pandemic, we managed to accomplish remarkable feats like constructing the country's deepest ventilation-cum-evacuation shaft etc. It's a testament to sheer perseverance and determination to achieve our goals, no matter the challenges we face along the way.

We have registered decent topline growth and sustained profitability in the last financial year. Last year we witnessed completion of several landmark projects – the Chenab Bridge, Samruddhi Package-14, Agalega, KRCL Bridges, etc. In terms of business procurement, winning a big-size and prestigious HSR project – C2 undersea rail tunnel was a worthy achievement for us. Though the overall order booking was somewhat muted, the ongoing year offers brighter prospects. From second quarter of current financial year onwards, healthy business procurement is likely after general elections.

The new financial year is expected to provide new opportunities and give us several occasions to showcase our capabilities. I expect a much higher sense of purpose

and commitment from all of you. Teamwork between project sites and HO has been crucial for our success and we have to foster a culture of collaboration and innovation. Site teams must revisit their strategies to accelerate execution and look for inventive ways to finish projects on time or ahead of schedule.

Let's draw inspiration from the various achievements celebrated in the newsletter and aim for excellence together.



KRISHNAMURTHY SUBRAMANIAN

PM inaugurates Agra Metro project

Honourable Prime Minister of India Shri Narendra Modi virtually inaugurated the priority corridor of the Agra Metro Rail Project on March 6, 2024. Honourable Chief Minister of Uttar Pradesh, Shri Yogi Adityanath flagged off the Agra Metro from the Taj Mahal Metro Station. Afcons - SAM India Consortium has completed the AGCC-02 Package of this project which includes 3.45km of underground tunnelling including seven stations.



Railway Min visits HSR C2 Package

Honourable Minister for Railways, Communications, Electronics and Information Technology, Government of India, Shri Ashwini Vaishnaw, visited the Mumbai-Ahmedabad High Speed Rail C-2 Package at Shaft 2 location in Vikhroli, Mumbai on February 23, 2024. Mr Krishnamurthy Subramanian, Executive Vice Chairman of Afcons, Mr S Paramasivan, Managing Director, and Mr R Anantakumar, Director, Operations, welcomed the minister.



EVC visits IIT Kanpur

Mr Krishnamurthy Subramanian, Executive Vice Chairman of Afcons, delivered an insightful lecture to students at IIT Kanpur on April 10, 2024. Mr Subramanian spoke on the topic "Transforming Self and Organisation: Seven Mantras". He delved into topics concerning both personal and organisational growth, enriching the audience with his knowledge and expertise. The lecture was organised by the IIT Kanpur as part of its Mr Devendra Shukla Distinguished Lecture Series in Civil Engineering.

MD honoured in UAE

Mr S Paramasivan, Managing Director, Afcons, chaired a session and delivered the keynote address on "Deciphering New Sustainable & Inclusive Growth Models" at the 2024 UAE Global Convention in Abu Dhabi, on March 5, 2024, organised by the Institute of Directors, India. His Highness Sheikh Nahayan Bin Mubarak Al Nahayan, Honourable Cabinet Member and Minister of Tolerance and Coexistence, Govt of UAE was the Chief Guest for the event. His Excellency, Mr Sunjay Sudhir, Ambassador of India to UAE, was the Guest of Honour. Mr Paramasivan was also honoured with an appreciation award by the Institute of Directors on the occasion.

EDITORIAL

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A DREAM FULFILLED

The East-West Metro makes history, linking Kolkata and Howrah through India's first underwater tunnels — fulfilling Sir Harley Dalrymple-Hay's 1921 vision, a century later, writes BIVABASU KUMAR

The name of Sir Harley Dalrymple-Hay may not readily come to the minds of Kolkatans or Indians at large. However, over a century ago (1921), this visionary engineer, born in West Bengal's Birbhum district, dreamt of an underwater railway for the City of Joy. Regrettably, his ambitious project never saw the light of day.

A municipal councillor had then observed that the best approach would be to have an overhead railway connectivity given the costs involved. Concerns were also raised about whether building a tunnel under the Hooghly might face obstacles due to Kolkata's "alluvial, clayey, and lazy" soil. Although the concerns about the hydrogeological conditions at that time still hold true today, the long-standing dream of constructing an

KOLKATA: When the first Metro rail officially crossed the Hooghly river on March 6, 2024 via the underwater tunnels, linking the vibrant east (Kolkata) to the bustling west (Howrah), in West Bengal, a British engineer of Indian origin would likely have smiled down from the heavens.

underwater tunnel beneath the Hooghly has finally been realised.

"The East West Metro is very unique being the first underwater Metro railway in India, that too, under the mighty and pious river Hooghly (or the Ganges as it is called in many parts of West Bengal). The idea was contemplated long back in 1921, but the dream has finally come true now in 2024, after more than 100 years. The tunnel passes deep under the Hooghly river, under century-old and dilapidated buildings, navigates the crowded and densely populated areas of Howrah and Kolkata before merging at Esplanade, another busy and crowded business hub of Kolkata city. Afcons has completed the project safely and to our satisfaction," said VK Srivastava, Managing Director of Kolkata Metro Rail Corporation Limited (KMRCL).

This East-West connectivity via the Metro route marks a watershed moment for Kolkata. Inaugurated by the honourable Prime Minister Shri Narendra Modi, it not only involves the innovative inclusion of the underwater tunnels, but also enriches the city's legacy as the first in the country to embrace this mass rapid transit system in 1984. At that time, it was India's first and Asia's fifth Metro facility.

Coincidentally, Afcons had played a pivotal role in tunnelling for Kolkata's North-South Metro in the 1980s, employing a specialised blade shield technique. Four decades later, the company made a return to Kolkata, this time to spearhead the construction of three

underground stations and the nation's first underwater transportation facility.

"This is by far one of the most memorable and challenging Metro projects that Afcons has executed in over a decade. There were numerous challenges from dispute over change in alignment, ownership issues etc. But eventually the state judiciary and the people of Kolkata backed this project, including proactive client support to complete the job on time. I am proud of the entire team that had played a worthy role to overcome all the challenges and displayed the finest skills of TBM tunnelling under river Hooghly, poor geology, and congested topography," mentioned S Paramasivan, Managing Director of Afcons.

The project had its ups and downs, dealing with tricky soil and stops and starts because of external issues. It wasn't easy, but in the end, everything turned out okay, just like the saying goes, "all's well that ends well".

Besides the underwater tunnels, which are the showstoppers for the East-West Metro, the stretch from Howrah Maidan to Esplanade also comprises the country's deepest Metro station and the deepest ventilation-cum-escape shaft of the country.

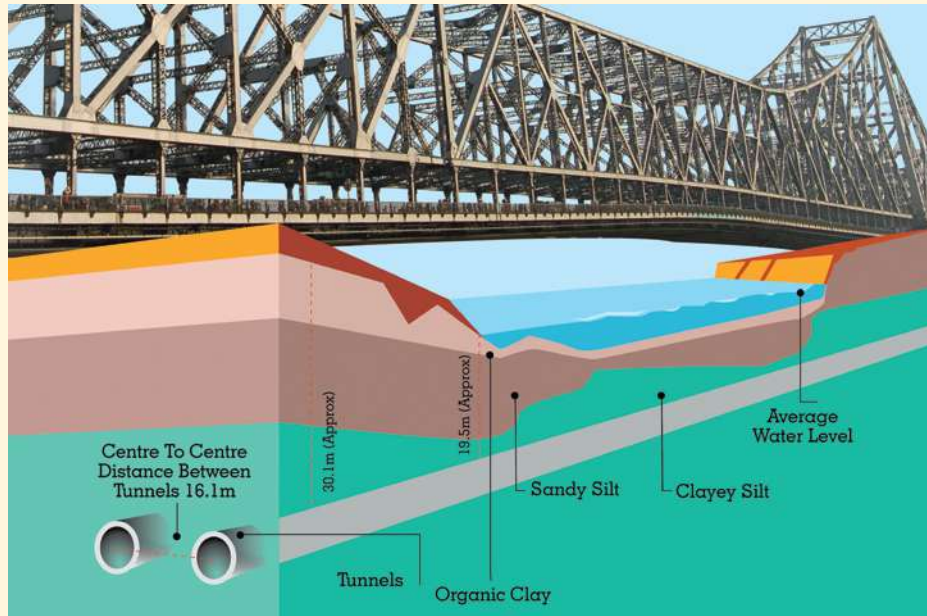
Deepest Metro Station

This Howrah Metro station goes as deep as 30m below the surface and is located adjacent to one of the busiest railway hubs of India — the Howrah Station. Constructed using the top-down methodology, it proudly holds the record for the country's deepest Diaphragm Wall, reaching an impressive depth of 55m. The station features five distinct slabs: the roof slab, upper concourse, mechanical slab, lower concourse, and base slab. Its thoughtful design facilitates seamless connections to old and new complex of the Howrah Station through four entrances at the surface level and two entrances through underground subway at concourse level. "Through hydrographic survey followed by geotechnical investigation, it was identified that the most suitable pathway for the underwater tunnel would be at 37m depth from the ground level along the Hooghly river stretch. Careful geotechnical studies and design stipulations further suggested the crown of the tunnel should be, at least, 13m below the riverbed. To ensure seamless integration, the Howrah Metro Station

had to be strategically adjusted to a level where the tunnels could effortlessly navigate the river stretch with minimal undulation. This adjustment required a deeper excavation, resulting in the station's increased depth of 30m," explained for the East-West Metro project.

First Underwater Tunnels

Sir Harley Dalrymple-Hay's dream of a railway tunnel under the Hooghly river has come true after a hundred years. Back then, lack of money and concerns about the tricky Gangetic geology stopped the idea. Although the challenge of soft riverbed



deposits caused some problems, today's advanced engineering successfully overcame nature's hurdles, making the dream a reality.

"Under-river tunnelling has been done globally, with varying degrees of success and challenges. The process involves extensive investigations, case studies, meticulous planning, design considerations, allied preventive measures and logistical arrangements before venturing into the river, especially in delta areas with alluvial deposits. However, what separates this project from the others in India is the persistent high water table in the entire stretch. The geology of the region is unpredictable and variable in nature with a settlement-prone sensitive topography," mentioned Paramasivan, the Managing Director of Afcons.

Before the Tunnel Boring Machine (TBM) plunged into the Hooghly, various scenarios were considered for developing the under-river tunnelling protocol. It included careful consideration of tunnel flooding, leakage scenarios, geology, unforeseen events, non-stop boring, and having a self-sufficient crew.

"We had minutely and carefully planned the undercover tunnelling. We virtually converted our TBM into a submarine by taking into account all possible leakage/ water ingress scenarios drawing experience from previous tunnel flooding cases globally. We also put in place contingency measures to avoid leakages and flash flooding," Biswas said.

"The tunnel was 13m beneath the riverbed (the riverbed is about 26m from the ground). There was a chance of running into things like lost anchors or ship wreckage. To avoid surprises, we did four boreholes in the river to study the soil. Fortunately, there were no surprises," Biswas added.



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S PARAMASIVAN,
MD, AFCONS

SCAN QR CODE
FOR FULL STORY



On February 20, 2024, honourable Prime Minister Shri Narendra Modi marked a historic moment with the inauguration of a new 48-kilometer railway line connecting Banihal-Khari-Sumber-Sangaldan, a pivotal section of the expansive Udhampur-Srinagar-Baramulla Rail Link (USBRL) project. This development holds immense significance as it greatly enhances all-weather connectivity across the remote and far-flung areas of Jammu and Kashmir (J&K).

A standout feature of this new rail line is Tunnel T49, which stands as India's longest transportation tunnel at an impressive 12.77 Km. Situated within the Dharam-Quazigund section, this tunnel serves as a critical link in the Banihal-Udhampur corridor. Afcons has played a significant role in constructing more than 60% of Tunnel T49B, covering a distance of nearly 7.6 Km, in addition to an escape tunnel of equal length, two adits, 20 cross passages, and the Arpinchala Station Yard, among other essential structures.

The construction of Tunnel T49 was no small feat, as it involved navigating



PM INAUGURATES INDIA'S LONGEST TRANSPORTATION TUNNEL



through rugged mountainous terrain and the rocky peaks of the Pir Panjal ranges. This accomplishment not only showcases India's engineering prowess but also underscores the ability to overcome complex challenges such as gravity issues and ensuring adequate ventilation over such a vast distance. Moreover, encountering multiple cavity formations due to the tunnel's alignment passing through various fault zones added to the

engineering complexity.

The USBRL project is a testament to the government's vision of establishing robust, all-weather connectivity to seamlessly integrate Jammu and Kashmir with the rest of the country. During the inauguration, Prime Minister Modi expressed his optimism about a future where people can travel across India by train, starting from Kashmir.

In addition to Tunnel T49, the inauguration also included the unveiling of

three out of the 16 unique steel bridges integral to the USBRL initiative (Bridge no 85, 87, and 88). Looking ahead, the remaining 13 bridges and the iconic Chenab Railway Bridge, a remarkable engineering marvel of the USBRL project, are set to be inaugurated soon, marking further progress in this ambitious railway project.

The successful implementation of the USBRL project promises a multitude of benefits, including all-weather connectivity, enhanced environmental sustainability, and a substantial boost to the overall economic development of the region. The USBRL project stands as a promise of progress and prosperity, transcending generational boundaries and positively impacting the lives of the people of J&K who call it their home.

A solid slab feat in B'lore



On March 17, 2024, Afconians in Bangalore elevated Metro project achieved an impressive feat. A solid slab spanning 124m with a 52m curvature radius and a width of 15.1m, was installed at Central Silk Board

Junction, which is one of the busiest intersections in Bangalore city. The activity broke traditional norms. Its construction required continuous concrete pouring for an impressive 38 hours, using substantial materials like M60 grade

concrete, reinforcement steel, and prestressing HT strands, supported by H Frame, structural steel, and shuttering.

Overcoming the challenge of heavy traffic flow at the junction was not an easy task. The team worked tirelessly, managing all aspects, including staging and supporting arrangements amid live traffic.

Efficient planning, vigilant site monitoring, adherence to lean construction principles, and seamless coordination with stakeholders ensured the concrete pouring was completed within 38 consecutive hours, beating

the planned 42-hour timeframe. The Central Silk Board Junction is a vital lifeline for commuters across the city and beyond. Its transformation, including new loops and ramps as part of Reach-5 of the Bangalore Metro Rail Project, showcases the collaborative efforts of engineers, administration, and stakeholders to ease traffic congestion and boost infrastructure.

The accomplishment exhibits superior engineering capabilities and a dedication to driving progress in the country's growth and development.

NEWS



SuccessFactors kicks off!

The IT and HR teams at Afcons have successfully integrated SAP SuccessFactors for recruitment and onboarding processes, marking another significant milestone in Afcons' SAP journey. Mr Sandeep Desai, Head of the Information and Business Process Group, officially launched the new system on April 9, 2024, at Afcons HO. The event was attended by the dedicated teams from IT and HR who worked tirelessly to achieve this milestone along with our implementing partners. Managing Director Mr S Paramasivan congratulated the teams for this achievement and hoped that SuccessFactors will play a defining role in a digital transformation within the organisation and pointed towards simplification through digitisation as the motto of the organisation.

EVC visits Kanpur UG Metro project

Executive Vice Chairman Mr Krishnamurthy Subramanian visited Kanpur UG Metro project on April 11, 2024. Mr Monu Govil, Project Manager along with other HODs from the project team, welcomed him at the site. Mr Govil gave a presentation about the project and progress of work. EVC motivated the entire team with his words of encouragement and encouraged them to innovate and pursue individual as well as organisational growth.



Chotte Scientists 2024

The Chotte Scientists Programme, hosted by the SP Group companies and Afcons, completed its third year this year. Thirteen Afconians along with members from SP Group companies joined hands to become mentors for the tribal children at Matoshree Yamunabai Limaye Adivasi Ashramshala in Padsare, Raigad. The corporate volunteering programme held in February 2024, celebrated the joy of experimenting and learning, making waves of change.

SCAN QR CODE TO WATCH THE VIDEO OF THIS AMAZING INITIATIVE



First breakthrough at Kanpur

Afcons achieved a significant milestone in Kanpur UG Metro Project when TBM Azad completed its first breakthrough on March 28, 2024. The TBM started its tunnelling journey at Kanpur Central Station launching shaft on October 10, 2023, and completed tunnelling at Naya Ganj Retrieval Shaft. Within a distance of 1243m, the TBM encountered various challenges such as removal and replacement of old borewells, navigating under dilapidated buildings, and space constraint near Kanpur Central Station. But the project team successfully overcame all the hurdles to complete the tunnelling on time.



AWARDS & APPRECIATIONS

Employee Choice Award

Afcons won the AmbitionBox Employee Choice Award 2024, ranking among top 3 construction companies in 'Mid-Sized Companies category'. The ranking was based on the ratings given by employees. The awards recognise companies prioritising employee well-being and promoting a supportive workplace culture.

Bridges of glory

Afcons has taken home multiple honours at the Indian Institution of Bridge Engineers (IIBE) Awards, showcasing excellence in bridge construction across the country's diverse landscapes.

- Aesthetic Bridges including Foot over Bridges - Tirupati Elevated Corridor & Smart City Project
- Innovative Repairs & Rehabilitation of Bridges - Rehabilitation of MG Setu
- Superstructure other than Prestressed Concrete - Double

Decker Viaduct in Nagpur Metro

- Superstructure other than Prestressed Concrete - Bridge 39 from KRCL Bridges project
- Special Bridges including Cable Supported & Arch Bridges - Chenab Railway Bridge

IEI Industry Excellence Award

Afcons received IEI Industry Excellence (Platinum) Award 2023 for outstanding performance with high order of business excellence at the 38th Indian Engineering Congress organised by The Institution of Engineers



(India). IEI Industry Excellence Award has been instituted to

recognise engineering industry leaders for their innovation, excellence in engineering operations & services, and their capacity to sustain excellence in a competitive manner.

Top Safe Contractor Award

The National Capital Region Transport Corporation (NCRTC) has awarded the Delhi-Meerut RRTS PKG-8 as Best Safe Contractor Award in 2023. The award titled 'Best Safety Standards Maintained by Contractor in 2023' was received by the project team.

5 Golden Stars Award for RRTS PKG-8

The National Safety Council has awarded 5 Golden Stars Award for the RRTS PKG-8. This is the first construction project in India to bag the award. It recognises the exceptional excellence and performance in Occupational, Health and Safety Management System.



Mr Ramesh Jha wins Best CFO title

Mr Ramesh Jha, CFO, Afcons, won the Best CFO in Infrastructure Sector Award at the 2nd Vibrant Bharat CFO Summit & Awards 2024, organised by ASSOCHAM.

Twin Safety Awards for RRTS PKG-8

The Delhi-Meerut RRTS PKG-8 project won two awards at the National Safety Council of India (NSCI) Safety Awards 2023. The project won the Safety Shield Award and the Five Golden Stars Award for its landmark achievement of excellence in safety. This is the first construction project in India to bag both accolades.



Safety Week celebrations

Afconians across India celebrated 53rd National Safety Week in the first week of March. The occasion was marked by several safety awareness events and initiatives at various sites and HO such as safety quizzes, drawing competitions, health camps, safety trainings etc.

At HO, the Safety Council launched 'e-PTW Management' app which will be used at all project sites. Additionally, 'Senior Management HSE Inspection'

app was also launched, exclusively for Senior Management to improve their site inspection experience. Mr Krishnamurthy Subramanian, Executive Vice Chairman, Mr S Paramasivan, Managing Director, Mr V Manivannan, Director – CPE, Mr R Anantakumar, Director – Urban Infrastructure BU, and Mr Ashwini Kumar, Director – Oil & Gas BU, were present on the occasion.

Here are some glimpses of the events.

IOSH Managing Safety Certification Course in Afcons



As part of Afcons' strategic initiatives to enhance HSE competence, IOSH Managing Safety (IOSH-UK) certification course was conducted for Senior Management personnel of Afcons. The participants included people

from different sites as well as HO. The programme, which started in September 2023, was conducted in 5 batches and concluded in March 2024.

More than 75 Afconians were trained in this period. Safety

experts from British Safety Council were present to train all the participants. This course aims at enabling the senior management to effectively review control measures for various risks prevailing at sites, and ensure zero accidents.



HR CORNER

◆ Civil Training programme on Equipment Management for civil engineers was conducted at HO.

◆ CPE and Electrical Trainings on Operation & Maintenance of Pilling Rig, Preventive & Predictive Maintenance, Operation & Maintenance

of Engines, Material Handling Equipment & Cranes, Electrical System Installation at site, Operation & Maintenance of TBM, HT & LT Switchgears Troubleshooting and Maintenance, Variable Frequency Drive Operation / Maintenance and Troubleshooting

and Installation, Troubleshooting and Maintenance of RMS system were held at HO and various sites.

◆ General Management Training programme Statutory Compliance under Labour Laws was conducted at HO.

◆ Soft Skills Trainings on Effective Communication, and Managing People At Work were conducted at HO.

◆ Junior Management Development Programme and Middle Management Development Programme were conducted at HO.

Awards



MOST OUTSTANDING GLOBAL MIKE AWARD

For six consecutive years, Afcons has been recognised with the Global Most Innovative Knowledge Enterprise (MIKE) award. This year, the international jury, comprising 32 distinguished academicians and practitioners, has bestowed upon Afcons the esteemed title of the "Most Outstanding Global MIKE Award 2023". This recognition is only given to select companies that have demonstrated outstanding innovation and knowledge excellence.



Top Innovative Company

Afcons was recognised as one of the Top 50 Innovative Companies of the Year at the CII Industrial Innovation Awards 2023. This award is aimed at identifying and celebrating innovative Indian enterprises across industry segments and sectors.



Build India Infra Award

Afcons' East-West Metro project, which features India's first under-river Metro facility and the country's deepest Metro station at Kolkata, won the inaugural Build India Infra Award in the Innovation category in the Metro sector.



Dual success at CIDC Awards

Afcons won two awards at the 15th CIDC Vishwakarma Awards in New Delhi on April 4, 2024. The Nagpur Metro Reach-2 project won the award in the Best Construction Projects category, while the Delhi Metro DC-05 won in the Construction Health, Safety, and Environment category.



ALERTS

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