

# ECC COLCORD

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***EMERGING  
STRONGER  
FROM THE CRISIS***

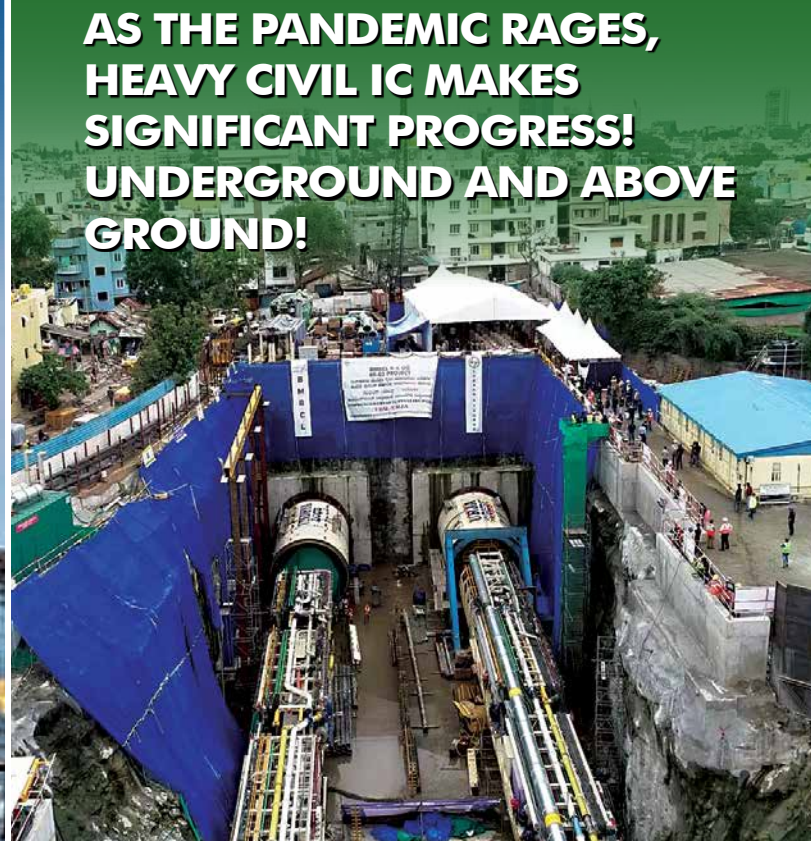
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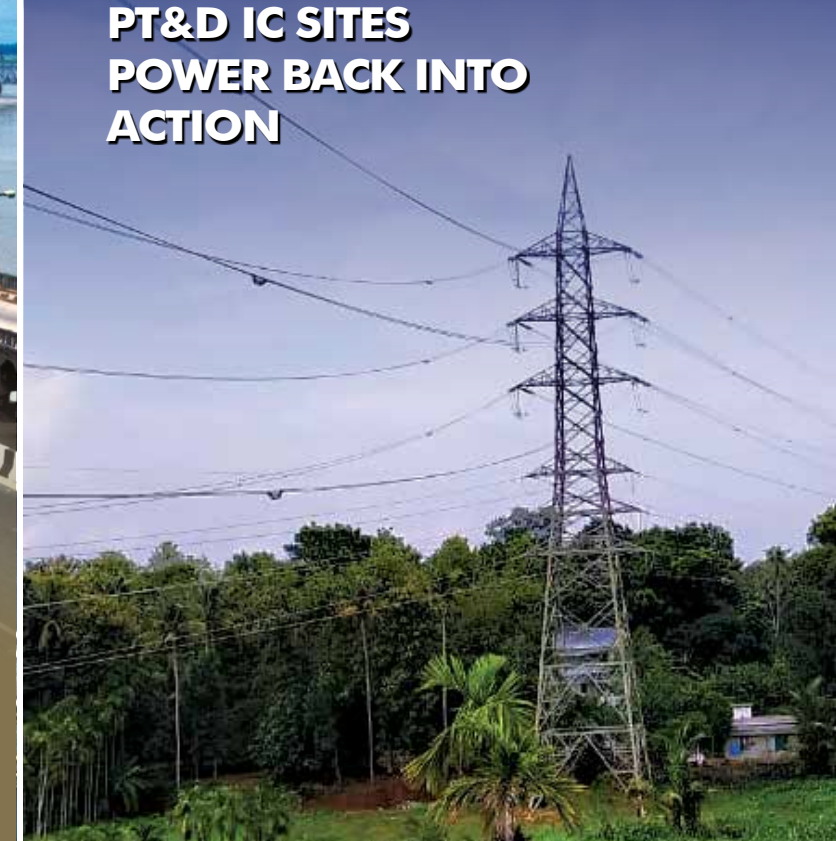
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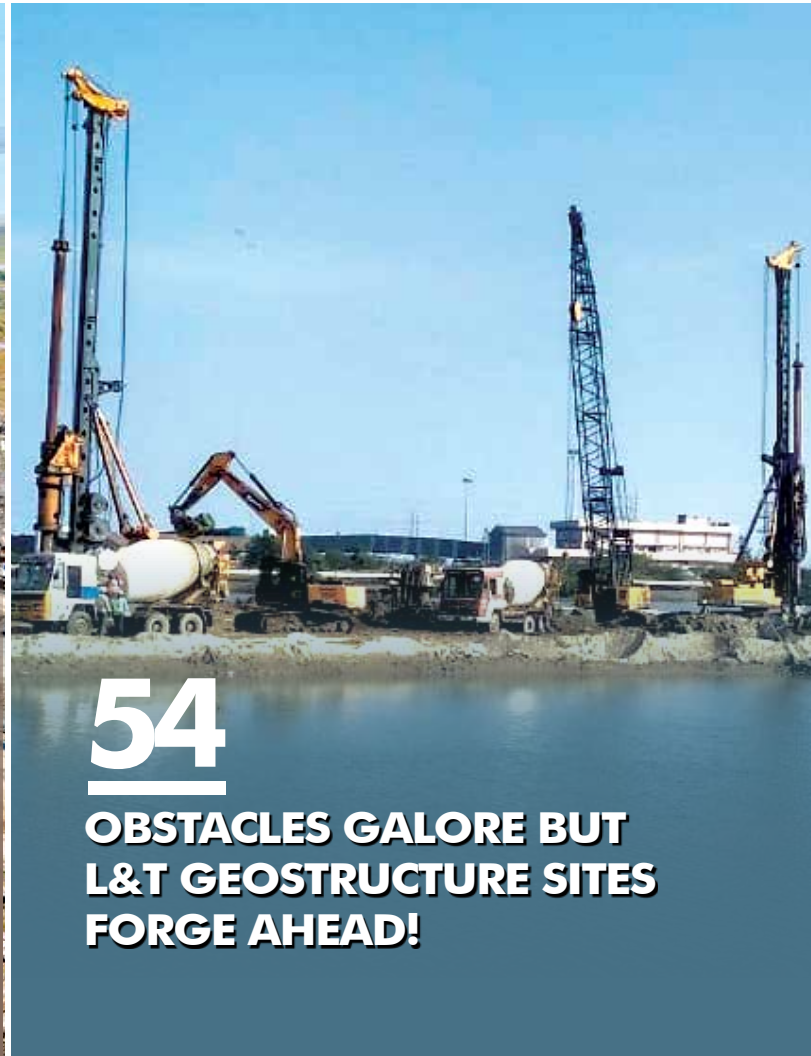
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**Acknowledgements**

Even as sites roared back to action, striving to overcome the plethora of challenges they faced on resumption, we are thankful to the Project Directors, Project Managers and their respective site teams for taking time out to share relevant details for us to put together this 'Back to Action' issue of ECC Concord. Having received the information, we had lots of clarifications, queries, and the like for which we thank our colleagues – the Executive Assistants – from across businesses who stood by us. Here they are in no particular order: Hema Chandrasekharan, Asha James, A L Nachiappan, Anirudh Bharadwaj, Kini Madhav Anant, P T Selvam, Akshara Asok, Saikerthana, Anila Manoharan, Murugan Paramguru, Moinudeen Akbar, Vineet, G Srinivas, Rajshekhar Pingala and several others! This issue is another triumph of our teamwork!

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**S. N. SUBRAHMANYAN**  
Chief Executive Officer & Managing Director, Larsen & Toubro

Dear colleagues,

Winning two of the largest packages (C-4 & C-6) of the Bullet Train project that constitutes about 60+% of the project are certainly the brightest spots for us in a particularly tough two quarters. This huge High Speed Rail project is certainly an inflection point in the revival of India's infrastructure economy with tremendous potential to positively impact the entire eco-system: create jobs, give a leg up to the beleaguered SMEs and MSMEs and boost the manufacturing and construction sectors. It should help jumpstart our economy, drive confidence that is presently lacking and turn around sentiments all of which augur well for our nation's concerted effort to return to business as usual.

to Think Big, scale up our potential individually and collectively to forge ahead. These are not new to us, but will be a challenge, nevertheless.

### First time right

We will have to get it 'First Time Right' which is also the theme for the Quality Month of November. There is no denying that we need to diligently innovate, automate, digitalize, and optimize to cut wastages, arrest cost leakages, and enhance efficiencies that will depend on the Quality of our work and the Speed with which we can get it done. More than anything else, we have a

fear of infections. It is obvious that having lost almost two months, the back log is huge, the asking rate extremely steep. There is a refreshing acknowledgment and recognition of this new reality and an urgency and aggression to make up lost ground. We cannot afford to let up this pressure. We need to continue to drive progress by addressing each problem, getting into its minutest details to solve. We must continue to chase cash and revenue will surely follow, our focus must be unwaveringly to invoice regularly and collect aggressively.

### Find opportunity in crisis

There is opportunity in every crisis. One huge gain from what has transpired over the past few months is the greater realization and



**The pandemic situation forced us out of our comfort zones to rethink and recalibrate ourselves, but the result has been encouraging and hugely beneficial for the organization.**

adoption of mechanization, automation and digitalization across systems and processes. Perhaps, the pandemic situation forced us out of our comfort zones to rethink and recalibrate ourselves, but the result has been encouraging and hugely beneficial for the organization. Railway projects have taken advantage of traffic blocks to push progress; road projects have achieved milestones quicker because of the lack of vehicular traffic; several projects have gained ground with the help of clients to function through the lockdowns and get deliveries through special channels. We collectively thought differently and therefore succeeded against odds.

Having raised the bar, we must stay committed to inculcate and nurture a culture of constantly questioning status quo, of flawless delivery, of unquestionable and non-negotiable quality and safety standards.

**Having raised the bar, we must stay committed to inculcate and nurture a culture of constantly questioning status quo, of flawless delivery, of unquestionable and non-negotiable quality and safety standards.**

### Keep Safety as top priority

Safety has been our weak spot for a while. We just cannot allow it to remain so. There have been enough and more discussions, brainstorming and planning. It is time for that effort to translate into action on ground. Our safety record has been chequered to say the least. We need to adopt an attitude of Zero Tolerance to anything unsafe across the board, from Board Room to project site. That is the only way we can achieve our objective of Zero Harm. Fatalities and injuries affect not just one person, but the livelihood of entire families. If we, as an organization, accept that reality, safety should ideally become muscle memory.

COVID-19 has not gone anywhere but we have learnt to live with it and yet perform. As they always say, tough situations do not last; tough people do. The present situation has yet again revealed how uniquely adaptive we are. We need to continue in the same vein because challenges are many and time is woefully short.

**Drive progress. Collect cash. Keep performing.**

All the best!



**Drive progress.  
Collect cash.  
Keep performing.**

### A test of our skills

Of course, as an organization, we should celebrate this great win! Kudos to all the contract and planning teams across ICs who spent several days and sleepless nights putting together our various bids. All of you deserve a huge pat on the back. At the same time, we should be cognizant of the fact that considering the size, scale and complexity of this mandate (cumulatively for about INR 32,000 Crores), it is the biggest EPC order awarded in the country till date that is definitely going to test our capability to build to Speed & Scale. The project will demand an extremely refined level of project conception, planning, management, and execution. It will force us



**We need to diligently innovate, automate, digitalize, and optimize to cut wastages, arrest cost leakages, and enhance efficiencies that will depend on the Quality of our work and the Speed with which we can get it done.**

huge commitment to our client who has reposed their faith in us to deliver so we cannot afford or tolerate any laxness.

The paradigm has shifted such that the world is no more saying, "Because of the pandemic" but instead, "Despite the pandemic". In this issue of ECC Concord, we have presented how projects, both big and not-so-big, in India and overseas, across ICs and businesses, have re-oriented, realigned, refocused and recast their strategies and plans to overcome the issues of labour migration, supply chain disruptions, client push-backs to adopt the new normal of virtual interactions and, of course, the overwhelming

**The project will demand an extremely refined level of project conception, planning, management, and execution. It will force us to Think Big, scale up our potential individually and collectively to forge ahead.**





## B&F SITES RISE TO COVID-19 CHALLENGES!

**P**roject Manager Girish P Kumar, RAMCO Kolimigundla project, constructing a 8000 TPD Greenfield cement plant, had just begun to feel good about achieving about 15000 cum of concrete and 1000 MT of fabrication work monthly with a strong workforce of nearly 1800 when the pandemic struck. Overnight, Girish had new priorities and a new normal to contend with. For starters, his workforce slipped to a mere 200, with equipment left to idle.

“Our first step was to reconstruct our workforce by transporting migrant workmen back to our site,” says Girish, “by liaising with district collectors and other Government officials. Initially, we succeeded to identify and mobilise 650 workmen in just 20 days after the lockdown with whom we cast a major pour of 2000 cum, the cluster’s first significant pour.” Girish revels in his team’s achievement. Despite the restrictions on movement of workmen from other states, the site managed to bring back about 1500 workmen. To make up



“Initially, we succeeded to identify and mobilise 650 workmen in just 20 days after the lockdown with whom we cast a major pour of 2000 cum, the cluster’s first significant pour.”

**Girish P Kumar**  
Project Manager,  
RAMCO Cement Plant, Kolimigundla

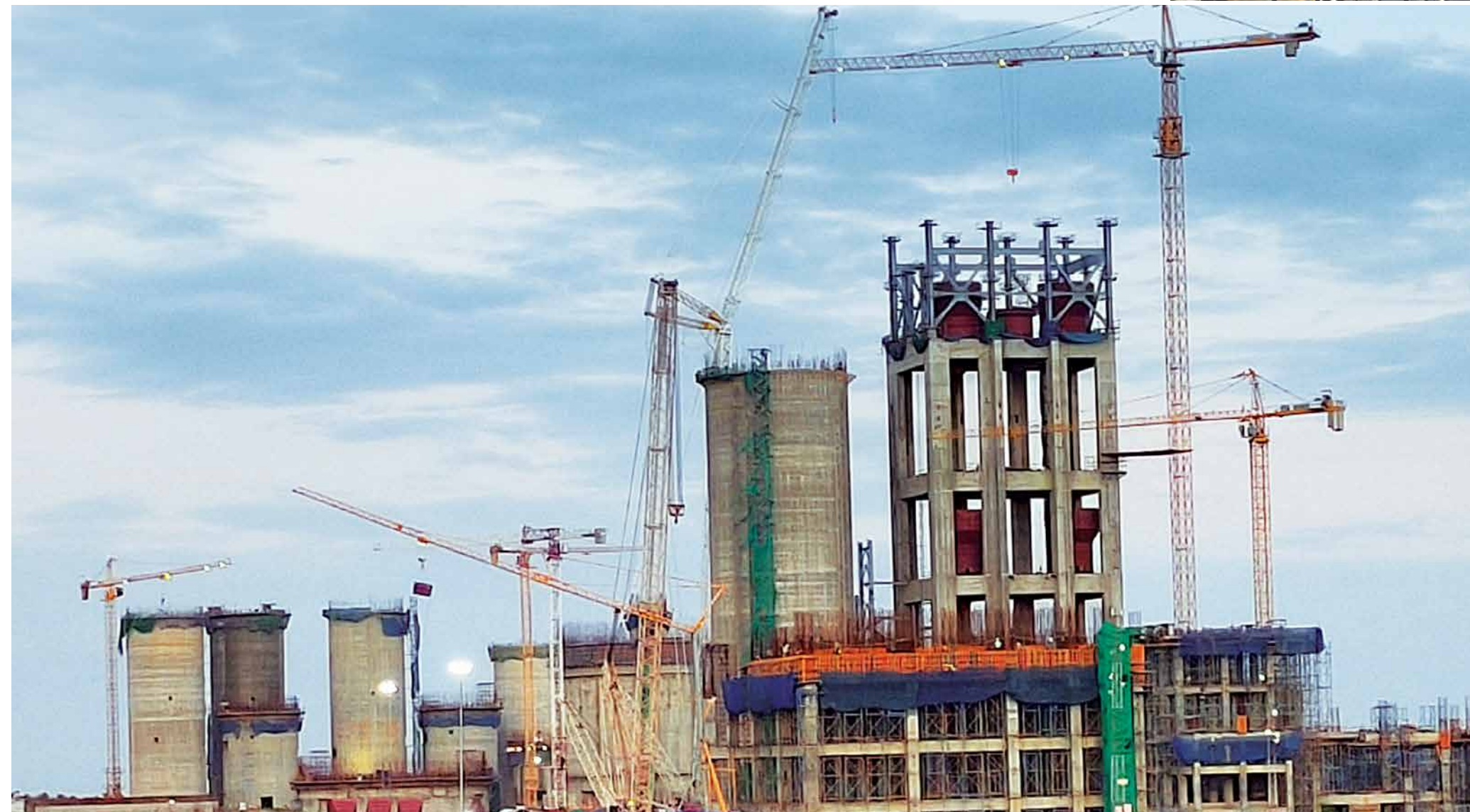
for lost time and meet the customer’s requirements, the workmen camp was expanded, and a night shift introduced. “All said and done, we are back in the thick of action,” Girish energetically confirms.

## 200 to 5,400 in just 3 months!

At the India International Convention Centre (IICC), Dwarka, the pandemic demanded a delicate balance: protecting the health of workmen, demonstrating compliance with



India International Convention Centre, Dwarka



RAMCO Kolimigundla



“Our plan worked. Within three months, we had close to 4,000 workmen at site and currently we have touched 5,400.”

**V. Ramesh**  
Project Director,  
India International Convention Centre,  
Dwarka

local regulations, managing client and supplier expectations and synergising with internal teams—all the while achieving productivity and project milestones. After making steady progress till end February by completing 65%+ of the project with a workforce of 4500, work ground to halt from 21<sup>st</sup> March. Soon, only 150-200 labour remained at site.

Unlock 1 gave IICC’s Project Director, V. Ramesh the opportunity to return to action but could not have achieved

much with his thin workforce. “With HQ’s support, we drew up a detailed plan to mobilize workmen from almost every Indian state,” he says, with separate task teams networking with each state. “We even deputed some of our people to travel to places to liaise with local authorities for permissions, do the paperwork, arrange for buses or train tickets and ensure their safe transit to site.” Meanwhile, the site administration team (Accounts, Time Office) got busy getting the site ready to accommodate this influx of new workmen following all the SOPs. “Our plan worked,” Ramesh shares a thumbs up. “Within three months, we had close to 4,000 workmen at site and currently we have touched 5,400,” signalling the removal of a huge roadblock for progress.

Ramesh enjoyed the support of the structural steel erection and fabrication teams who maintained continuity of work at site even under a restricted working environment during the lockdown. Several employees moved temporarily to company provided accommodations near the site to avoid unnecessary travel. The Architecture



“We closely coordinated with subcontractors located in various states to arrange buses, train tickets for workmen followed by the due diligence of identity verification.”

**Parwez Ahmad Khan**  
Assistant Manager – IR,  
India International Convention Centre,  
Dwarka

and Design teams continued to work from home successfully getting a huge quantum of design and documentation approvals by effectively coordinating with the PMC and the client.

Ramesh is delighted that his mega project is back on track for the numbers are showing. “Since resumption of

operations in June, we have completed 6000 MT structural steel erection, 20,000 cum RCC work, nearly 2,500 sqm of dry wall partition work, 4,500 sqm of roof sheeting, 10,000+ sqm of ducting, 3,000+ rmt of ICT containment work and 15,000+ rmt of conduiting work. Of course, we still have miles to go,” he smiles and dives straight back into his work.

The success of project sites in their effort to re-mobilize labour depends to a large extent on their equation with the subcontractors as Assistant Manager – IR, Parwez Ahmad Khan at the IICC Project at Dwarka in New Delhi, shares. “We closely coordinated with subcontractors located in various states to arrange buses, train tickets for workmen followed by the due diligence of identity verification,” praising the digital solution, WISA, in making new workmen inductions easy and efficient.



India International Convention Centre, Dwarka

With only two trains operating from Bihar and West Bengal, the task to restore his workmen strength for Project Manager, G Suresh at the Prestige Finsbury Park project in Bengaluru was an onerous one. “Being a new site, we had very few workmen in hand, but my team collectively rose to the occasion and we mobilized 700 workmen in just two months.” Apart from proactive mobilization, Suresh’s was the first B&F project to initiate Pool Test for workmen. They actively developed vendors to ensure timely procurement of materials and ensure smooth progress of work.

Workmen mobilization and retention had been massive challenges for Project Head, Rana Dhar at the Assam Cancer Care Foundation project at Dibrugarh right from the beginning of the project. “We had mobilized 120 workmen from Bihar, West Bengal and Jharkhand just before the lockdown. Retaining them during and after the lockdown was a major task,”



Assam Cancer Care Foundation Hospital, Dibrugarh

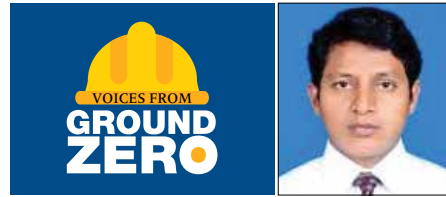


“Being a new site, we had very few workmen in hand, but my team collectively rose to the occasion and we mobilized 700 workmen in just two months.”

**G Suresh**  
Project Manager,  
Prestige Finsbury Park, Bengaluru



Pool testing for COVID at Prestige Finsbury Park



“ We also had a critical task to complete casting the hospital raft before the severe Assam monsoon set in that stretches from April all the way to October. Else, we stood to lose a good 3-4 months in dewatering alone. ”

**Rana Dhar**  
Project Head,  
Assam Cancer Care Foundation Hospital,  
Dibrugarh

he says, furrowing his eyebrows in worry. “We also had a critical task to complete casting the hospital raft before the severe Assam monsoon set in that stretches from April all the way to October. Else, we stood to lose a good 3-4 months in dewatering alone.” Realizing the gravity of the situation, Rana approached the client and received the District Collector’s permission to resume minor construction works like shuttering and reinforcement from April 2<sup>nd</sup> with reduced manpower scattered across the site, though strictly adhering to all the SOPs. “Initially it was difficult to manage the workmen, but we supported them and they, in turn, reciprocated. The district administration supported us by arranging passes for vehicles to deliver cement, steel and



Chennai International Airport

bulk material in time and ultimately, we completed casting the raft on 13<sup>th</sup> May,” his tone signalling a huge triumph both for himself and his team.



Initially it was difficult to manage the workmen, but we supported them and they, in turn, reciprocated. The district administration supported us by arranging passes for vehicles to deliver cement, steel and bulk material in time and ultimately, we completed casting the raft on 13<sup>th</sup> May.

**Rana Dhar**  
Project Head, Assam Cancer Care Foundation Hospital, Dibrugarh



“ We had initially mobilized 1306 workmen in 64 days in 36 buses. By July end, we had 950 workmen and, by August end, 1860. ”

**Anup Chulliyil**  
Project Manager,  
Chennai International Airport

### Airport projects take off

At the BIAL site, a charged team of Kaliyan S, Hemant Kumar Jaluka, Narendra Mutalik Desai, Vijaykumar Muthukumar, Ganesh Kannan, Murali K and Sai Sundar HV worked overtime to reshape their resource mobilization strategies and operating procedures, to emerge stronger and spur positive change in the heat of the pandemic. Their days were action-packed, liaising with government

officials, conducting pool COVID tests for every group of 5 people before deployment, working closely with the railway department to mobilize workmen from Bihar, Jharkhand, West Bengal, Odisha and arranging nearly 2200 bus and train tickets till August, thanks to which they have managed to improve their workmen strength to 3250 by September.

With buses reaching workmen safely to site, Project Manager, Anup Chulliyil’s workmen mobilisation effort has been a runaway success. “We had initially mobilized 1306 workmen in 64 days in 36 buses,” he shares. “By July end, we had 950 workmen and, by August end, 1860.” The above measures implemented by the site EHS and Admin teams not only prevented the spread of the pandemic at site, but also furthered the progress of the project and boosted the morale of the workers and staff.

A B&F project that was among the first off the blocks with the Unlock was the MVDC Cheyyar project that resumed operations on 27<sup>th</sup> April



Bengaluru International Airport Limited



“ We liaised with government officials and conducted pool COVID tests for every group of 5 people before deployment. We worked closely with the railway department to mobilize workmen from Bihar, Jharkhand, West Bengal, Odisha and arranged nearly 2200 bus and train tickets till August, thanks to which we improved the workmen strength to 3250 by September. ”

**Shivarajayadevappa Kubsad**  
Project Director,  
Bengaluru International Airport Limited, T2



**“We communicated with our key supply chain stakeholders on volumes and changes to new volume demands for the next few quarters to ensure that work proceeds smoothly.”**

**Malhari Naik**  
Project Manager,  
LTR Powai, Mumbai

thanks to some forward thinking. During the lockdown itself, the project team led by Project Manager, Raghuraman Sadagopan, mobilized local workmen and trained them to perform activities like pitching, shuttering, reinforcement tying and more. “Not only did we manage to keep the project progressing by executing some critical activities as per the client requirements but have also given these locals a means of livelihood during these difficult times,” shares a satisfied Raghuraman.

### Bolstering supply-chain resilience

With supply chains disrupted, project teams have been scrambling to restore distribution lines with specially created task forces. Undoubtedly, the problem has been magnified for projects dependent on global sourcing like the LTR Powai project. Located in Mumbai, Project Manager, Malhari Naik had the additional threat of the oncoming monsoon that traditionally disrupts work big time. Working with purpose, they set up a temporary inventory recovery and evaluation process, pursuing



LTR Powai



**“Not only did we manage to keep the project progressing by executing some critical activities as per the client requirements but have also given these locals a means of livelihood during these difficult times.”**

**Raghuraman Sadagopan**  
Project Manager,  
MVDC Cheyyar Project

alternative sourcing strategies. “We communicated with our key supply chain stakeholders on volumes and changes to new volume demands for the next few quarters to ensure that work proceeds smoothly.” When the lockdown was announced, finishing, structural steel, MEP, façade, and interior works were in progress. The task before Malhari and his team was to resume operations smoothly without the services of adequate number of skilled workmen. “We worked jointly with all NSC agencies to mobilize workmen while internally, we re-prioritized our

**“We worked jointly with all NSC agencies to mobilize workmen while internally, we re-prioritized our work as per the available resources at the appropriate work fronts.”**

**Malhari Naik**  
Project Manager,  
LTR Powai, Mumbai

work as per the available resources at the appropriate work fronts,” says Malhari, who has successfully moved the needle of progress at his site.

Other project teams are actively reviewing their supply chains for vulnerabilities and fortifying themselves by building inventories, identifying backup distribution channels, or alternate sources of supply.

### Investing in skills and technology to operate in the next normal

It is always critical to balance performance and health, more so in these turbulent times. Some project teams however found the time opportune to upskill the workforce by imparting training on new tools, technologies, and operating procedures. Focussing on digital transformation, virtual training sessions for employees were conducted on the latest digital technologies through 7 webinars with 1700 participants and 250+ virtual safety audits to ensure that safety remained the top priority.

Before this pandemic, digital solutions drove construction efficiency, timely completion, and profitability of projects. The post COVID-19 world is already seeing a fresh push for digital transformation to address the specific challenges posed by the pandemic. Time is of the essence and as project teams up the ante to make up lost ground, technology, prefab, pre-cast, volumetric and modular construction will be their allies to build faster, more economically and with improved productivity. As for now, though, the Phoenix has risen from the ashes of COVID-19! ■



# AS THE PANDEMIC RAGES, HEAVY CIVIL IC MAKES SIGNIFICANT PROGRESS! UNDERGROUND AND ABOVE GROUND!

On July 30<sup>th</sup>, 2020, the Hon'ble Chief Minister of Karnataka launched the Tunnel Boring Machine (TBM) 'Urja', at the Bangalore Metro project – Phase 2, that was the first one to be launched in the project. Since then, 'Urja' has been steadily digging its way from the Cantonment Station towards the Shivajinagar Station to build a 2.884 km long tunnel. The going has not been easy by any stretch of imagination as the team encountered hard granite rock in the first 300 m stretch that has necessitated the cutter disks to be frequently changed. A second TBM, 'Vindhya' assembled in a record time of 26 days by the project team without much help from the Chinese manufacturer, was launched by the Executive Director, Bangalore Metro Rail Corporation Limited (BMRC) on September 24<sup>th</sup> after successfully completing Site Acceptance Tests (SATs). Presently, with both TBMs hard at work, Project Manager, Sridharan Srinivasan, RT 03 project, and his team are also hard at work!





Tunnelling work in progress at Bangalore Metro - RT 03



**“We did it without outside help!”**

Collectively, we had very little experience in TBM commissioning and zero experience in this type of Slurry TBMs, but we took it on as a challenge and our young team of bright engineers were able to pull it off!

**Sridharan Srinivasan**  
Project Manager, BMRCL RT-03

Manufactured by the Chinese company, CRCHI, the assembly, commissioning, SATs and driving 'Urja and 'Vindhya' for the first 500 m were to be supervised by the manufacturers. However, with travel restrictions due to COVID-19 and the growing anti-China sentiment fomenting in the country, the Chinese engineers could not make it. With pressure mounting from the client to start the critical tunnelling works, Sridharan and team took it upon themselves to get the TBMs rolling, albeit with some virtual guidance from the manufacturer. “Collectively, we had very little experience in TBM commissioning and zero experience

that had executed similar works about the challenges and pitfalls they had faced. Planning Manager, S Vignesh, who played a stellar role in the process adds, “we had microplanning sessions during the lockdown so that every team member was clear about his role.” Well prepared, the team got cracking the day the relaxations were announced and have not looked back since.

### Handling a different kind of TBM

Although L&T has successfully executed tunnelling in the past using either EPB (Earth Pressure Balance) or Hard Rock TBMs, the Slurry TBMs being used to suit Bengaluru's geological conditions were a new kettle of fish for Project Manager, Vivek Maruti Pai at the RT 02 project. “Due to geological constraints, the excavation of the shaft was becoming too difficult,” shares Vivek, “forcing us to use an umbilical system to launch 'Avni' which is more complicated both in assembly and operation.” Vivek is, however, all praise for his team who rose to the occasion, that included one Chinese engineer. “We succeeded only due to our strong will power, appetite to learn new things and deep commitment helped by our experience in TBM launching and operations.”



“We had microplanning sessions during the lockdown so that every team member was clear about his role.”

**S Vignesh**  
Planning Manager, BMRCL RT-03

in this type of Slurry TBMs,” remarks Sridharan, “but we took it on as a challenge and our young team of bright engineers were able to pull it off!”

That is easier said than done for Sridharan and team had several brainstorming sessions with domain experts to understand the sequencing and risks involved at each stage, reached out to other project teams

Some smart recruitment of TBM staff with the expertise in handling Slurry TBMs also helped. “We were in touch with the team from CRCHI digitally for clarifications regarding critical issues, successfully completed the SATs and commissioned 'Avni' on August 28<sup>th</sup> 2020,” exults an extremely pleased Planning Manager, Vinayak Gaonkar, recalling the sleepless nights he had to endure. Their second TBM, 'Lavi' is being assembled and should get to work soon.



Completion of TBM tunnelling at Ahmedabad Metro



“ Though we started with only 80 workmen, by July, we had reached 70% of our strength and by August we have even surpassed pre-COVID numbers.”

**Chandan Rai**  
Planning Manager, GMRC – UG-2

“Though we started with only 80 workmen, by July, we had reached 70% of our strength and by August we have even surpassed pre-COVID numbers,” informs Planning Manager, Chandan Rai. Considering the priority of tunnelling works, the team flew in 100 workmen from Odisha while another 250 were mobilized from the states of Bihar, Jharkhand, West Bengal, and Uttar Pradesh.

All across sites, as part of SOP, new workmen are initially accommodated in separate buildings until certified ‘safe’, constantly educated about the precautionary measures to be taken, symptomatic cases immediately referred to company-hired Doctors or hospitals, number of vehicles increased for transportation, all premises regularly and thoroughly fumigated and sanitized. Sridharan, in fact, had to shift some 170 of his workmen to five other hostels, hotels and quarantine centres following protests from local residents.

### Focus on progress

At 10:57 am on August 13<sup>th</sup> 2020 Yadavalli’s team achieved a tunnel breakthrough of TBM S-71 between the Gheekanta and Shahpur stations. “With this, we completed the scope of west bound tunnelling covering 3.2 km from the launching shaft at Kalupur to Shahpur Station with a peak progress



“ Cost of labour has gone up, lead time for material procurement has increased that is impacting progress, there has been a shortage of oxygen cylinders required for underground construction activities and of course, maintaining social distancing has been a pain.”

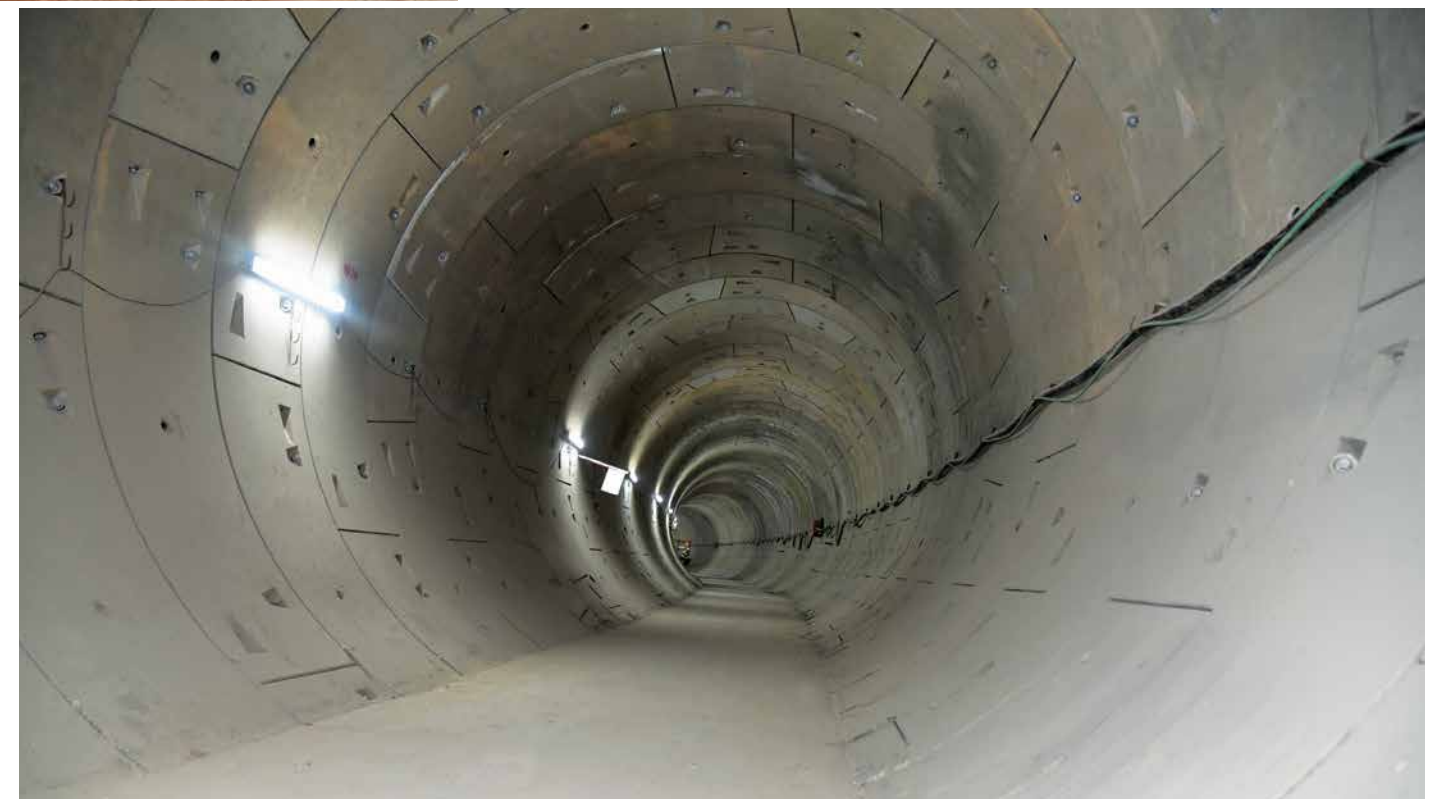
**Vivek Maruti Pai**  
Project Manager, BMRCL RT-02

### The goings and comings of migrant labour

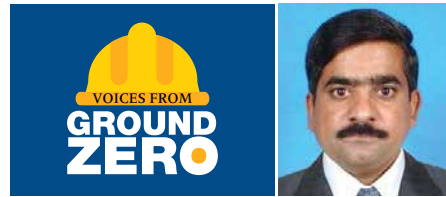
Both Sridharan and Vivek will readily agree that Bengaluru’s treacherous underground conditions and overground traffic have been relatively easier to handle than the challenges posed by the pandemic. Labour mobilization has been their toughest nut to crack. “Our TBM assembly had to be suspended because of rising positive cases,” shares Vivek with a shake of his head. “Cost of labour has gone up, lead time for material procurement has increased that is impacting progress, there has been a shortage of oxygen cylinders required for underground construction activities and of course, maintaining social distancing has been a pain.” His smile is equally painful.

With their domestic and international procurement plans hit for a six, Vignesh and his team immediately re-grouped. “We planned our material schedule in advance, expanded our vendor base by identifying multiple vendors from various cities and markets, created a dashboard with major markets in proximity to Bengaluru and monitored material dispatch status daily, ever ready to change if anything was looking risky.”

Over to the west, labour has been giving Project Manager, Yadavalli V N S Sarma a headache too at the GMRC UG-2 project in Ahmedabad though after the relaxation of restrictions, the team commenced work on all available fronts and have completed major activities like tunnelling and base rafts for two stations.



Section of tunnel at Ahmedabad Metro



**“We completed the scope of west bound tunnelling covering 3.2 km from the launching shaft at Kalupur to Shahpur Station with a peak progress of 322 RMT per month.”**

**Yadavalli V N S Sarma**  
Project Manager, GMRC – UG-2



of 322 RMT per month,” shares an enthusiastic Sarma. A fortnight later on August 28th 2020, they achieved another breakthrough for TBM S-72, touching a peak progress of 40.8 RMT in a single day and 669.6 RMT by both the TBMs together for August, a sterling performance that even won the appreciation of the Hon’ble Chief Minister of Gujarat who congratulated the team with a personal tweet!

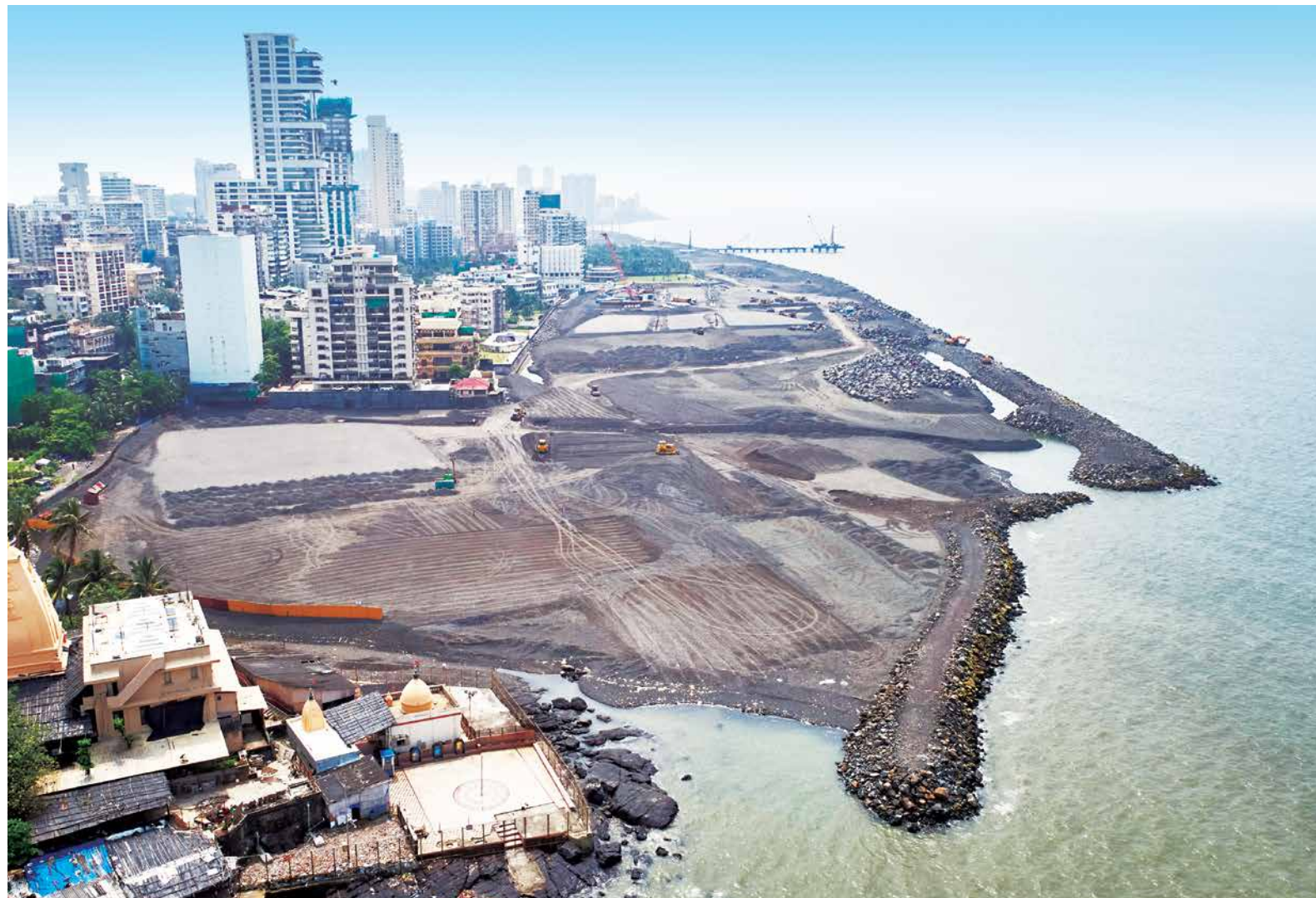
“This is also the first time that we have executed tunnelling off our own steam,” shares Yadavalli proudly. Works for both the Gheekanta and Shahpur underground stations have been completed till the base slab and the team is now carrying out cross passage construction and first stage concreting in the tunnel. “We are proceeding with activities like constructing the UPE wall, platform slab, columns, internal station structures, entry and exit points,” he updates. “Box pushing works are also going ahead full steam from the arrival shaft to Shahpur station.”

“A major gain from the lockdown was that we were saved of the infamous traffic of Bengaluru,” quips Vivek, “being able to carry out road diversion works at all the three stations and

successfully handed them over to the traffic police after restoration.” By completing the necessary decking required for subways, the team has made up precious time. Normally, subways are planned after completing the station box but by taking up this activity earlier, the team can complete both station and subway works together.

### Significant headway above ground too

Both packages of the Mumbai Coastal Road project contend with working in the heart of South Mumbai and right in



Reclamation works in Mumbai Coastal Road Project - Package 1



**“On 21<sup>st</sup> May, we received 26,600 MT of material which was a record for a single day which we broke on 29<sup>th</sup> June, receiving 36,000 MT. During May, we achieved a reclamation footprint of 45,000 sqm and by the third week of July, we had mobilized 200 workmen.”**

**Rakesh Sisodia**  
Project Manager, MCRP Package 1

36,000 MT. During May, we achieved a reclamation footprint of 45,000 sqm and by the third week of July, we had mobilized 200 workmen.” Total workmen strength has since grown to 500 although labour mobilization and supply chain disruptions are perennial pain points for Rakesh and team.

“Coming to terms with the pandemic gets harder with each passing day,” he sighs, “with the pressure of completing the sea wall and armour protection big challenges before the arrival of the monsoon.” The site has taken all necessary action such as premium rates for reported workmen for a particular



the heart of a red-hot COVID-19 zone. The project hardly had a lockdown, maintaining progress at the behest of the client, Municipal Corporation of Greater Mumbai, albeit with several restrictions. Project Manager, Rakesh Sisodia of Package 1 reels off some of his team’s key achievements. “On 21<sup>st</sup> May, we received 26,600 MT of material which was a record for a single day which we broke on 29<sup>th</sup> June, receiving

affected duration and reassured subcontractors about their facilities both at sites and labour camps to combat COVID-19. “Everyone wanted to supply reclamation materials as it was easier to bring in tippers and dump on the seabed but what we wanted more urgently were armour stones of the required size and specified quality for the sea wall,” shares Planning Manager, K Jayesh. Trade of goods, supply of



*Aerial view of TBM Launching Shaft at MCRP Package - 4*

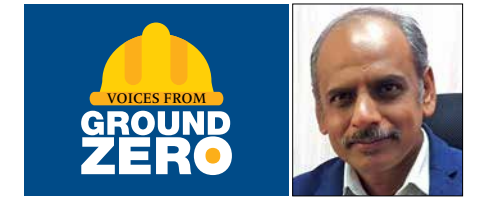
major construction materials and resource procurement are proceeding in high gear though, as Rakesh, points out, work on the interchange bridge took time due to issues in material supply and labour.

For Project Manager, Sandeep Singh at MCRP Package 4, one bothersome issue has been to appease the high society who reside in the vicinity of his site. They had issues with the number of workmen entering and leaving the site every day and hence the team had to strictly maintain social distancing. "They even filed petitions with the Bombay High Court for us working during the lockdown but thanks to the intervention of our client, we could continue," recalls Sandeep. "We kept



our focus and continued with the works on several fronts with a motivated workforce and full vendor support."

In every crisis lies an opportunity and Planning Manager, Utkarsh Bhakare was quick to seize it. "The material supply for seawall and reclamation material increased with dumpers able to complete multiple trips on the empty roads while the supply of concrete for the outfall works eased out as the RMC plants provided as per site requirement since they were operating on special permissions only for Coastal Road Works. Also, because of the absence of traffic, we could make traffic diversions on Marine Drive for Cut & Cover



**"We have successfully completed 53% of the reclamation works as also the construction of the launching shaft for the tunnel drive. We have also started to assemble the TBM."**

**Sandeep Singh**  
Project Manager, MCRP Package - 4

**The TBM from China landed at the Mumbai Port during the lockdown and with perfect coordination it was brought to site in 6 days against the normal 15!**



*Precast Segment Casting Yard at MCRP Package - 4*

construction." The TBM from China landed at the Mumbai Port during this period and with perfect coordination, it was brought to site in 6 days against the normal 15!

"We have successfully completed 53% of the reclamation works as also the construction of the launching shaft for the tunnel drive," ticks off Sandeep. "We have also started to assemble the TBM."

Even as the pandemic rages and the number of positive cases in the country keep rising alarmingly, our hardy foot soldiers across sites are manfully pressing on to make up for lost time and here is wishing them all the best and all the support the rest of the organization can provide. ■

# TI IC CONTINUES TO CONTRIBUTE TO NATION-BUILDING IN THE FACE OF THE PANDEMIC!

With tensions brewing at the borders with the Chinese, logistics of the Defence Forces have assumed vital importance. The 1.0006 km long major bridge over the river Teesta being constructed by the Ghoshpukur-Salsalabari Road Project (GSRP) team of RREC (TI IC) was to serve as a vital and only link to the North Eastern States and provide easy connectivity to the Hansimara Indian Air Force base. Apart from this national and strategic significance, the completion of the bridge was important for Project Manager, Niloy Mukherjee, to achieve his challenging Q4 target and move towards completing and handing over his project.



## Stopped in their tracks

COVID-19 and the national lockdown from end-March 2020 stopped progress in its tracks. “We had already completed 76.45% of the project with only some finishing works and the activities from our Q1 plan pending were slope and embankment protection works, constructing median and shoulder drains, fixing metal crash barriers and guardrails,” Niloy recalls grimly. There was also the threat of a long, severe monsoon during which the river is usually aggressive and unpredictable.

However, unfazed by these setbacks, the team quickly reorganized themselves and formulated detailed alternative plans to resume operations as the customer, National Highways

Authority of India (NHAI), indicated a possible relaxation of the lockdown by end-April. “To start with, our EHS & HR teams along with the site leadership drew up a comprehensive SOP that was shared with all our employees, workmen, and other stakeholders,” informs Planning Manager, Aneesh Sharma. Training sessions were scheduled for the workmen prior to resumption, a system for stringent screening and monitoring finalized, personal protective and sanitizing equipment procured, and quarantine and isolation facilities arranged at site. Shifts were reworked with one-hour gaps to ensure that groups did not meet or mingle, and workmen were constantly counselled about the pandemic, its symptoms, the various precautions to be taken.



Section of the East-West Corridor of Ghoshpukur-Salsalabari Road Project

“In consultation with the HQ admin team and the local administration, we decided to engage locally available workmen,” says Aneesh, “who were thoroughly screened and tested before starting work.” Another step they took was to bring back some of the skilled labour in groups considering the capacity of the quarantine centres. These workmen underwent 7 – 14 days in quarantine before re-joining after the mandatory screening and checking. The team’s concerted efforts won them a Certificate of Appreciation from NHAI. While the engineers worked in allocated shifts, the fresh workmen were trained on the job. Niloy agrees that the onus was much greater on the team to work faster and safely. “The work was closely monitored through several video calls with our site supervisors. Every machine, every workspace, every employee was screened, tested, sanitized, and checked at regular



Flyover at Ghoshpukur



“The work was closely monitored through several video calls with our site supervisors. Every machine, every workspace, every employee was screened, tested, sanitized, and checked at regular intervals.”

**Niloy Mukherjee**  
Project Manager,  
Ghoshpukur-Salsalabari Road Project

## Getting back into the swing of things

“We got a lucky break when the government announced a relaxation in the lockdown restrictions which

was followed by a NHAI circular that activities could resume on April 20<sup>th</sup>,” says a relieved Niloy. “We resumed operations the very next day following our stringent action plan and SOPs.”

Almost immediately, they encountered their first roadblock: lack of labour. From an initial strength of about 900 workmen at site, 300 decided to return to their hometowns as soon as the lockdown was announced. The 600 who chose to remain were well looked after but with the relaxation of travel restrictions, 250 left immediately and the site was forced to resume operations with a meagre strength of 350 workmen. With a mountain to climb and the threat of the approaching monsoon looming, the team did not waste any time ruing about the situation but developed alternate plans to mobilize labour.



“In consultation with the HQ admin team and the local administration, we decided to engage locally available workmen, who were thoroughly screened and tested before starting work.”

**Aneesh Kumar Sharma**  
Planning Manager,  
Ghoshpukur-Salsalabari Road Project

intervals. We also encouraged employees to use digital platforms as much as possible to reduce physical contact and thereby the threat of infections.”



Pavement Quality Concreting at the Mumbai Nagpur Expressway Project



Reinforcement tying work at the Mumbai Nagpur Expressway Project



“We had to mobilize a whole new set of workmen for the months of May and June, but thanks to the untiring efforts of the HR and time office teams, we mobilized 1,400 new workmen from across states.”

**Rongali Srinivas**  
Project Manager,  
Mumbai Nagpur Expressway Project  
– Package 10

The bridge was completed before the first rains much to the satisfaction of NHA and India's Defence Forces though Niloy, Aneesh and team cannot afford to relax as they have new mountains to climb before delivering their project.

Over at the Mumbai Nagpur Expressway Project – Package 10, the team successfully procured permissions from the District authorities to conditionally resume operations on April 4<sup>th</sup> itself. Project Manager, Rongali Srinivas's team got to work in earnest, though labour proved to be their major stumbling block too. Although many chose to stay put at the site during the lockdown, several left as soon as the relaxations were announced. “We had to mobilize a whole new set of workmen for the months of May and June,” Rongali shakes his head, “but



Section of Mumbai - Nagpur Expressway Project



“We have been strictly following all the Government instructions and advisories which is why, touch wood, we have not had a single positive COVID case in our labour camps.”

**Abhinav Agarwal**  
Planning Manager,  
Mumbai Nagpur Expressway Project  
– Package 10

thanks to the untiring efforts of the HR and time office teams, we mobilized 1,400 new workmen from across states.” Closely coordinating with the sub-contractors and the State authorities, they successfully brought back some workmen and put them to work after the requisite quarantining, medical check-ups and screenings. Planning Manager, Abhinav Agarwal chips in, “We have been strictly following all the Government instructions and advisories which is why, touch wood, we have not had a single positive COVID case in our labour camps.”

Rongali had to catch up on lost time as well as complete work to the extent possible before the monsoons broke. “We rescheduled our plans and concentrated more on precast activities like girder casting, RE and boundary wall panels. We did finishing



road activities like mechanical works, shoulder filling, slope dressing, toe drains and median drains wherever the road top was completed." He has reason to smile because the team has achieved 93% of targeted invoicing and are now gunning to complete the project before the scheduled completion date.



**“ In July, we started a new activity – PQC – and completed a length of 1.62 km of the 8-lane carriage way. ”**  
**Kamal Kishore Singh**  
*Project Manager, Mumbai Vadodara Expressway*

Re-commencing work on April 21<sup>st</sup> with the available work force, the team at the Mumbai Vadodara Expressway project was able to execute concreting activities to the tune of 5,600 cum in May and 16,200 cum in June involving structural concrete, precast concrete, DLC and the like. "In July, we started a new activity – PQC – and completed a length of 1.62 km of the 8-lane carriage way", says Project Manager, Kamal Kishore Singh who along with Planning Head, Shashikanta Tripathy are glad that all the planned work has been completed without compromising on the cash flow.

### Back on the rails

Completing the Gulaothi Yard Depot was a huge ask for the CP 303 project



**“ Despite all the challenges posed by the pandemic, we completed the depot in true L&T style and successfully unloaded 7,000 MT of rails. ”**  
**Vikram Kohli**  
*Project Manager - CP 303 Project*

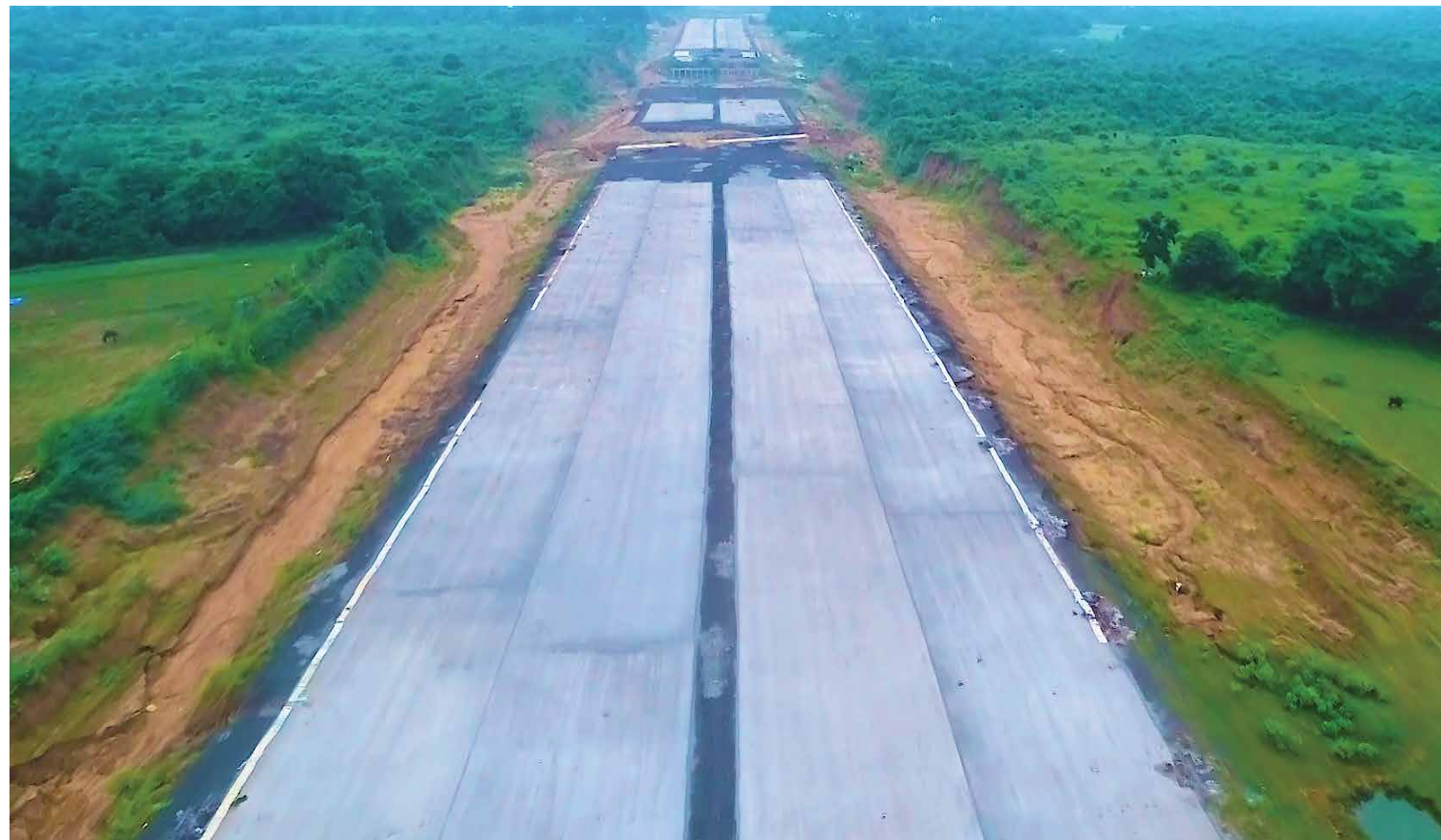
team being the only depot of its kind across all DFCCIL projects where rails can be received directly through rail racks. Project Manager, Vikram Kohli, is delighted with his team. "Despite all the challenges posed by the pandemic, we



**“ COVID-19 disrupted our operations significantly. However, we have been able to overcome the challenges and resume work by May. Things have gradually returned to normal and our team is confident of achieving our targets. ”**  
**R K Bansal**  
*Head – Road & Runways BU*

he signs off, his attention already on to his next task.

"Keeping project sites safe and functioning in high gear from a stalled situation have been extremely challenging," remarks R K Bansal, Head – Road & Runways BU, with a grimace. "We all talk of the new normal but implementing it with the workmen at site has been really tough as it is completely out of their character to wear masks, keep distance, maintain cleanliness and the like. Getting labour has been very difficult and mobilizing skilled labour even more so. A lot of the labour being mobilized these days is raw who need to be thoroughly trained before they start contributing meaningfully. At the same time, speedy progress is imperative. We have finally managed to reach 100% labour strength at all our project sites. COVID-19 disrupted our operations significantly. However, we have been able to overcome the challenges and resume work by May. Things have gradually returned to normal and our team is confident of achieving our targets," he rounds off with a refreshing air of positivity. ■



Completed section of the Mumbai - Vadodara Road

**“ We were able to ramp up operations and achieved 90% peak progress in May and did even better at 110% in June compared to last year. ”**  
**Vikram Kohli**  
*Project Manager - CP 303 Project*

completed the depot in true L&T style and successfully unloaded 7,000 MT of rails."

There was, however, no escaping the vexing labour issue even as they resumed operations on May 6<sup>th</sup> following all the mandatory SOPs. Increasing their labour strength from 200 to 750 by June 15<sup>th</sup> and enhancing the earthwork teams are triumphs for

Planning Manager, Mayank Varshney. Most of the works are machine-oriented that are outsourced to subcontractors on a back-to-back basis though re-mobilizing them post the lockdown has been an uphill task. Ensuring continuous supply of bulk materials has been another challenge as all inter-state movement was prohibited. "We had to procure special passes from the district administration and the Railways to keep things moving," Mayank explains.

Vikram's broad smile says that all their effort was worth it. "We were able to ramp up operations and achieved 90% peak progress in May and did even better at 110% in June compared to last year." Rapid progress has translated into better invoicing resulting in improved collections. "We have followed our CEO & MD's advice to chase cash,"



## PT&D IC SITES POWER BACK INTO ACTION

For a business spread across geographies, PT&D had stepped up the momentum early on across the Middle East where project operations continued with partial restrictions. In Africa and India, action began after the unlock with the breaking down of work processes, taking up of feasible fronts and following the SOPs to achieve the immediate milestones. PT&D's digital prowess gave it the edge to address many of their pandemic-caused workplace challenges; innovative construction methods, safety initiatives and value engineering further helped to up the ante. It is interesting how a multi-pronged work approach paved the way for projects across various businesses to succeed in their back-to-work endeavours.

## A three-in-one project

Having set a steady pace at the 400 kV Morepule B–Orapa–Mawana project in Botswana, Project Director, Nicholas van der Mescht, was in the thick of action with the tower parts reaching different areas of the alignment. “There are 3 projects in the roll out for L&T across Phase 1 and 2 schemes. A 400 kV transmission line from Morepule B to Orapa, another 400 kV line from Orapa to Maun and a 400/220/132 kV substation at Mawana,” he briefs. Between 2<sup>nd</sup> and 16<sup>th</sup> March, the team had received 155 tower parts after which the level 5 lockdown was announced. “Processed steel, a vital material for our execution, was held up in South Africa while at sites there was a line of other essentials to be ticked such as safeguarding plant & machinery across the alignment,

arranging accommodation and essentials for about 220 expat workmen based at our camps to ensure their well-being.”

“We had planned to add to our workforce in early January, well before the lockdown,” indicates Nicholas, “Workmen were already recruited and awaiting emergency work permits from Botswana but the pandemic prevented the process.” However, when site operations resumed on 25th May, Nicholas and team had set their priorities right to step on the pedal. “Our immediate focus was to commission the 220 kV Lethalakane to Orapa 17 km line as most of the major works like guy fittings and stringing had been completed before the lockdown. We immediately mobilised the crew at this section and achieved the milestone on 31st July.”



Tower erection at 400 kV Morepule B–Orapa–Mawana Project, Botswana



Stringing works across the 400 kV Morepule B–Orapa–Mawana Project, Botswana

Another critical task was to replace the earth wire with OPGW on an existing 132 kV line to connect Maun with Mawana, our newly built substation, while the line was energised. “We sourced skilled workmen from South Africa, proficient in working close to live lines.” However, the challenge was much more than they had anticipated for the first 9 expat workmen had to undergo a prolonged process to exit South Africa and enter Botswana, held for nearly 3 weeks at the border to complete the statutory regulations as per the requirements of both the countries. “After quarantine, they could join the ground workers only after a secure process,” says Project Manager, Hemananda Chowdary. “However, having learnt our lesson, the process with the next batch of expats was slightly easier and now all the workmen



**“We have completed the highest tower erection in Botswana, finalized 14 out of the overall 24 outages and achieved over 200 km of conductor and OPGW stringing works.”**

**Nicholas van der Mescht**  
Project Director,  
400 kV Morepule B–Orapa–Mawana  
project, Botswana

are deployed on the lines.” Despite the challenges this work was completed on time and testing at Mawana Substation has commenced.

Botswana’s reliance on South Africa for diesel fuel caused a huge shortage during the early days of unlock. “It was extremely difficult to manage the fuel requirements of our plant & machinery. Likewise, materials were being delayed by 4-5 days to reach our site due to clearance and screening regulations at the border,” Planning Engineer, Ganesh Kumar points out. “This affected our production as the site teams were retrofitting towers faster than the deliveries and hence, we had to slow down the process and engage in less critical activities.” For the records, between 14<sup>th</sup> May and 15<sup>th</sup> September, 367 tower parts were received at site and work is in full swing now with 288 expat workmen engaged across fronts.

Nicholas and team are closing in on their milestones with almost 97% of LOT 1 & 2 works achieved. “We have completed the highest tower erection in Botswana, finalized 14 out of the overall 24 outages and achieved over 200 km of conductor and OPGW stringing works,” he shares, appreciative of the success of his team.

## Key breakthroughs in the Middle East

At the PAHW Substation Package 1148 in Kuwait, Project Manager, P. Senthil Raja, had to mitigate a series of partial lockdowns, mostly from evening to the early morning hours. Their workmen strength had reduced to 200 while with all factories closed, supplies had dried up. Mobilizing skilled workmen from India was becoming increasingly difficult and hence the team had to



Overall view of the PAHW Substation, Kuwait

manage with the existing available resources. "Improvisation was key for our movement," mentions Senthil. "Work inspection schedules were aligned as per the client's feasibility with a provision of one client engineer covering 3 stations unlike the pre lockdown phase when one engineer was dedicated for a site. Further, to facilitate the electrical works, we obtained a special approval to take up



"Improvisation was key for our movement. To facilitate the electrical works, we obtained a special approval to take up tasks parallelly with the civil finishing activities to enable final completion."

**P. Senthil Raja**  
Project Manager,  
PAHW Substation Package 1148, Kuwait



132 kV GIS HV testing at PAHW, Kuwait

tasks parallelly with the civil finishing activities to enable final completion. In terms of progress, we have completed 92.85% of works and are on track to deliver the project by February 2021."

Qatar was another front where a series of 132/11 kV substations were in line for commissioning with Project Manager, Gaurav Gaur at the helm of operations. "We were in the final leg of works when the partial lockdown restrictions were imposed which

affected our supply chain as most of the equipment was sourced from Europe. A normal lead time of 30 to 45 days increased to 60 plus days but what worked for us was our virtual interface with the client for approvals which fast tracked the finalization process." Factory Acceptance Test has been another significant digital breakthrough, acknowledges Gaurav, "Hopefully, this is one practise that will now become a regular in the new-normal saving time and cost."



"Our final hurdle was during the installation, testing and commissioning activities. The process required OEM supervision which was not possible hence we initiated several discussions with various project stakeholders to strategize and complete the works safely."

**Gaurav Gaur**  
Project Manager,  
132/11 kV Substations, Qatar



132 kV Al Daayen-2 - GIS

"Our final hurdle was during the installation, testing and commissioning activities. The process required OEM supervision which was not possible hence we initiated

several discussions with various project stakeholders to strategize and complete the works safely." Gaurav and team have successfully energized all the substations between June and

July reflecting a huge achievement for the team and one that has reaffirmed PT&D's credentials as a premium EPC player in the transmission and distribution sector.



132/11 kV Mashaf-2 Substation

## On an electrifying mission

The Saubhagya Cluster 1 project team led by Laxmi Narayana Mohanty has the onus of providing electricity connection to households in villages and replace LT overhead lines by AB cables across 06 districts. "Resumption of works meant that we had to specifically look at each district and chart a safe work plan following all the SOPs, considering the hotspots." With the span running through rural areas, one of the team's challenges was to communicate with the locals about their mission and safety objectives. Resuming with a meagre force of 103 workmen, they have gradually increased their strength to 900 by July. "The site has achieved 30 km of cable laying in a single day which was not



**"We are in the final leg of providing service connections to 1,69,258 households with 1,44,509 links established and 3664 km AB cable conversion work completed out of 5795 km by September."**

**Laxmi Narayana Mohanty**  
Project Manager,  
Saubhagya Cluster 1 Project

possible even before the lockdown," shares an extremely pleased Laxmi Narayana. With most of the major works accomplished, Laxmi Narayana



AB cable laying at Saubhagya Project



Stringing across a river at the 220/110 kV Kochi Transmission Line Project

and team are in the final leg of providing service connections to 1,69,258 households with 1,44,509 links established and 3664 km AB cable conversion work completed out of 5795 km by September.

## Working out a modular approach

At the 220/110 kV MCMV Kochi Transmission line project, Project Manager, V. Chandrasekar adopted a modular approach to take up works that were at half-way stage. "Our span is close to 100 km and when the lockdown was announced we were amid some key tasks that could not be stopped immediately. With our client, KSEB's support, we resumed works on 9<sup>th</sup> April and completed the activities and approached the district administration to procure approvals to commence works across all fronts on 17<sup>th</sup> April." Starting with only 125 workmen, the team has gradually increased their strength to 350.

"Being on the move is all about how you transform constraints into workable options," shares Planning



**"We resumed works on 9<sup>th</sup> April and completed the activities and approached the district administration to procure approvals to commence works across all fronts. Starting with only 125 workmen, we have gradually increased our strength to 350."**

**V. Chandrasekar**  
Project Manager,  
220/110 kV MCMV Kochi Transmission Line Project

Engineer, Sivaraj, with a gleam in his eyes, "Take for instance our issue of sourcing aggregates which was possible only after May 20<sup>th</sup> as the quarries were closed. We convinced the client to approve sourcing from ready-mix concrete units close by as they had ready stock which enabled us to continue our works." The team has been strictly following all the safety protocols regarding movement of workmen and looking after their wellbeing. "Our client's ready acceptance of digital interface has been a big plus for us," smiles Chandrasekar. "Today, all our material inspections, drawing submissions are only through the online mode." With the project getting an extension up to 31<sup>st</sup> March 2021, Chandrasekar is confident of achieving their deliverables.

## A step ahead

The pandemic has opened new vistas of working and to remain firmly ahead of the competition, it is important to rethink work processes leveraging their digital tools which PT&D IC has been doing diligently in many ways across fronts. Truly, the 'Columbus of L&T' is a step ahead in the game of power play! ■



Tower erection at the 220/110 kV Kochi Transmission Line Project

# WET IC GAINS GROUND WITH INNOVATIVE WORK APPROACHES

Ever since operations resumed, WET IC project teams have focused on ensuring operational continuity and productivity with every site evolving specific 'back-to-work' strategies considering the local factors, statutory regulations with location-based safe work implementations to complete critical works before the onset of the monsoon and subsequently take up larger work fronts.



## Giving a parallel push

Work continued uninterrupted at the RWS Boudh Water Supply project in Odisha, even during the lockdown with the client's permission and support. "With 353 habitations to be networked and around 40% of works achieved, we have a long way to go," remarks Project Manager, R. Rajakumar, reflectively. "We listed out remote locations along the alignment and successfully executed pipeline works and civil execution of the elevated service reservoirs."



**"We deployed our resources in parallel activities such as hydrotesting of the pipeline, constructing valve chambers, thrust blocks, crossing works, etc., to void idling as much as possible."**

**R. Rajakumar**  
Project Manager,  
RWS Boudh Water Supply Project

Initially, with a workmen strength of less than 200, it was tough going for Rajakumar, "but as the restrictions eased, we deployed our resources in parallel activities such as hydrotesting of the pipeline, constructing valve chambers, thrust blocks, crossing works, etc., to avoid idling as much as possible." The use of plant and machinery is selective in water infrastructure projects and Rajkumar was spot on to line up some key equipment well before the lockdown. "In such remote areas, it is difficult

to source earth moving equipment, so we developed a continuous engagement scheme for works which required such services." Similarly, for the complex elevated storage reservoirs works, largely executed by local contractors and being a stand-alone structure, safety was ensured in a secure zone.

An all supportive client held Rajakumar and his team in great stead stepping in readily to solve any issue related to statutory clearances. "Today, thanks to our combined efforts, we have completed around 59% of works comprising 22 elevated reservoirs and 731 km of pipe laying, achieved INR. 2.78 crore of invoicing and expect to deliver the project by March 2021," shares Rajakumar on a high.



Overview of the 20.12 MLD Water Treatment plant under construction at RWS Boudh WSS Project

## Shaping a hi-tech sustainable plant

WET IC's 100 MLD Desalination Plant project at Dahej will be the country's largest state-of-the-art plant and a role model for similar such upcoming sustainable water infrastructure projects. For the team led by Project Manager, Rajesh Madhaian, the lockdown was a big blow as the project was in its initial stage with work gaining momentum prior to the onset of the monsoon. "Being an in-plant job, we retained all our workmen following all safety and welfare measures inside the premises," he shares. "It worked well for us for we got a marginal leeway during the lockdown, thanks to our client's support, and were able to continue with the MS pipeline unloading along the alignment."



Lamella clarifier wall shuttering works at the 100 MLD Desalination Plant Project, Dahej



**"We introduced night operations and successfully completed the second milestone one month prior to the target that was acknowledged by our client."**

**Rajesh Madhaian**  
Project Manager,  
100 MLD Desalination Plant Project, Dahej

When operations resumed on 21<sup>st</sup> April, the team picked up pace, successfully adding 80 plus workmen in the first phase and gradually increasing the numbers to 350

across fronts. One of their immediate worries was to complete the ground improvement works before the onset of the monsoon as it required sourcing stone dust, aggregates, with statutory permits from quarries. "To bridge the gap, we introduced night operations and successfully completed the second milestone one month prior to the target that was acknowledged by our client," shares Rajesh proudly. Subsequently, the structural works were taken up through the monsoon. 31% has been completed by end September.

"We have scheduled a sustained progress over the next few months and though the contractual project deliverable is January 2022, the client is keen to achieve completion by the end of December 2021 and we are diligently working towards the cut off dates," highlights Rajesh.

## Closing in on project delivery

“We restarted work after April 23<sup>rd</sup> on a secure footing with a series of work mock-ups for the workmen,” says Project Manager, R. Balaji at the Dhadusan LIS project. “As most of our workmen stayed at our camps, we used the lockdown to comprehensively initiate them to the new SOPs and COVID safety measures.” Continuously touch-basing with clients and subcontractors, the team ensured seamless resumption of activities with all precautions. With restrictions easing, they were able to source migrant workmen but the challenge was to quickly orient this new lot to the COVID-19 safety measures. “Initially it required a lot of effort from the new workmen to align with the SOPs but as the new-normal conditions were regularly oriented from our end, we successfully achieved productivity and ensured quality works.”

All our efforts have been worth it, mentions Balaji with a broad smile, “We have completed some key tasks such



“We have completed some key tasks such as road works, construction of drains, slopes, backfilling, masonry, thrust block concreting, civil works for the switch yard, electro mechanical works and pipe line testing.”

R. Balaji  
Project Manager,  
Dhadusan LIS Project



Soil embankment works in full swing at the Mallannasagar Reservoir Project

as road works, construction of drains, slopes, backfilling, masonry, thrust block concreting, civil works for the switch yard, electro mechanical works and pipe line testing.” With almost 95% works completed, Balaji is confident of closing out the project soon.

## Aligning to a task-based approach

Operations at Erode WSP project resumed only on 9<sup>th</sup> May with 175 workmen. “On ground, we identified the critical work factors, conducted situational review meetings and assigned individual responsibilities with set timelines,” shares Project Manager, D. Kumaresan. “In a way,



A fully operational pumping station at Bhalak



“Overall, we have made significant progress, commissioning the clear water pumping main, completing significant portions of the feeder mains and have started water supply distribution in a few zones.”

D. Kumaresan  
Project Manager, Erode WSP

“Overall, we have made significant progress, commissioning the clear water pumping main, completing significant portions of the feeder mains and have started water supply distribution in a few zones. We are confident of delivering the project in December 2020,” shares Kumaresan, looking sure of himself.

## On the move

Work at the Mallannasagar Reservoir Project was halted for just three days so the team could formulate their SOPs in line with the Telangana



Overview of the Erode Water Supply Project

we knew the exact feasibility of each task considering the external factors. Going by the safety zones, work was taken up after pre-inspection by the P&M, Formwork and EHS teams.”

In line with their revised project schedule, the workmen count has increased to 470+ with TWAD authorities facilitating the remobilization approvals.

Government’s guidelines that permitted operations with all safety measures for significant infrastructure projects. “Within a day, we obtained the necessary permits,” mentions Project Manager, K.S. Viswanatham, and formed a 6-member task force team to ensure 24/7 safety across work fronts and camps by rearranging work structures.





“With the local MP’s support, we arranged separate vehicles and moved about 70 workmen to our work location at Siddipet within 10 days and engaged them after the mandatory quarantine and medical checks.”

**K.S. Viswanatham**  
Project Manager,  
Mallannasagar Reservoir Project

After close to 5 months of continuous operations, most of the available workmen wanted to leave and the team could only hold them back for a month but with the help of subcontractors, they managed to source workmen from Madhya Pradesh and Jharkhand. Another huge challenge for Viswanatham was to ensure safety. “With the local MP’s support, we arranged separate vehicles and moved about 70 workmen to our work location at Siddipet within 10 days and engaged them after the mandatory quarantine and medical checks.”

Isolating their work area proved to be an effective and secure strategy. “As our major scope involved soil embankment with around 10 km of daily travel, we decided to avoid it and look for sources close by with the client’s approval,” shares Viswanathan. This ploy worked during the lockdown phase but as fronts opened, longer trips had to restart. To limit the exposure of truck drivers to infections when they stop in between loading points to eat, the team arranged for refreshments centrally and tracked vehicle movements through GPS. With 45% of the works completed, Viswanatham is confident of closing the project by December 2021.



Completed sections of the Ganganagar Plant



Construction of filter house at Jawai Cluster IV Project

## Arriving at the right numbers

“When your project site is located close to the Indo-Pak border, mobilization is always a challenge,” shares Project Manager, Amit Kumar Singh, at the Sri Ganganagar project. “With workmen numbers fast dwindling, our welfare measures and safety initiatives had to kick in and we successfully retained about 140 of them.”

Prepping up for resumption of works was a two-pronged strategy: one to network with the various workmen gangs across locations and the other to prepare a detailed micro plan mapping the schedule, plotting the catch-up scheme for milestone works to arrive at the quantum of resources required during resumption.



Elevated storage reservoir under construction at the Erode Water Supply Project



“On June 8, we began mobilization and within a short period sourced 950 manpower, and other critical equipment for action. We are about midway having completed 43% of the works and are on track to deliver the project.”

**Amit Kumar Singh**  
Project Manager,  
Sri Ganganagar Project

To begin with, works were undertaken across the closed areas of the campus that involved structures such as water treatment plants, associated structures where public movement

was almost negligible. “On June 8, we began mobilization and within a short period sourced 950 manpower, and other critical equipment for action,” highlights Amit. An incentive scheme by roping in the subcontractors to recognize workmen for their good work helped significantly. “Right now, we are about midway having completed 43% of the works and are on track to deliver the project as per the schedule by May 2021,” he assures optimistically.

## Prioritizing revised goals

It was a similar approach adopted by the Jawai Cluster IV, project team that made a difference for Project Manager, Sumer Rewar. “We first revisited our project goals after the lockdown to identify how to accelerate when things got moving. Labour was our strength and retaining



“When things got moving, we went full throttle, added around 45 subcontractors and with 364 workmen we completed the first and second contractual milestones.”

**Sumer Rewar**  
Project Manager, Jawai Cluster IV

a large number of them ensured that we could take up work fronts as and when available.” Deciding to play safe, the team resumed minor activities focussing on civil construction works, completing the balance design submissions and obtaining client approvals. “When things got moving, we went full throttle, added around 45 subcontractors and with 364 workmen we completed the first and second contractual milestones,” says Sumer who is hopeful to deliver the project in September 2021.

## Ticking on the right priorities

A few weeks into March and we had a huge challenge as most of our alignment was running right through the containment zone with the Nagar Nigam area locked down for more than 45 days, mentions Vipin Kumar Tyagi, Project Manager, Udaipur Integrated Infrastructure Project, “When we resumed, the workmen numbers was around 377 and to up the scale we needed to have around 900 which was a task that every member of the team chipped in with and by the end of September we achieved the impossible of mobilizing



Civil works at Mukkombu Upper Anaicut Barrage Project



Tube Settler bar binding works at Udaipur Integrated Infrastructure Project



“We acted fast and thanks to the support of the district administration, we brought workmen from other states by arranging special buses and, in some cases, even flights. Moving ahead and completing 58% of works is our biggest satisfaction.”

**M. Srinivasakan**  
Project Manager,  
Mukkombu Upper Anaicut Barrage

we brought workmen from other states by arranging special buses and, in some cases, even flights. A tie-up with a testing agency facilitated seamless screening for the workmen to hasten the process of engaging them at work. “The last few months have been tough,” admits Srinivasakan. “Moving ahead and completing 58% of works is our biggest satisfaction and we are on track to complete our major activities as per contract by March 2021.” We share his optimism!

## Handling a city centric project

Able to restart work on 9<sup>th</sup> May with only 40 workmen at site, Project Manager, Mrityunjoy Santra, Ranchi WSS Phase 1 scheme, had a lot of catching up to do. To speedily up the numbers, the team, with their subcontractors, planned a phased mobilization of available resources. Parallely, they approached the labour commissioner for workmen facilities under the BOCW Act and were assured of funding for



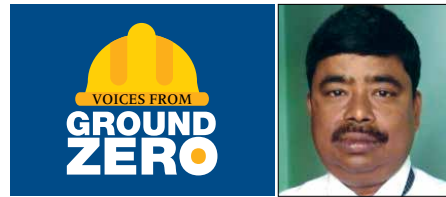
“By the end of September, we achieved the impossible of mobilizing 952 workmen which has given us the edge in taking up critical works across fronts. Today, we are in position to close in on the project.”

**Vipin Kumar Tyagi**  
Project Manager,  
Udaipur Integrated Infrastructure Project

952 workmen. This has given us the edge to take up critical works across fronts and today, we are in position to close in on the project,” attributes ipin Kumar Tyagi.

## An all-out effort

While ensuring the safety and welfare of 220 workmen at camps was his immediate priority, Project Manager, M. Srinivasakan, at the at the Mukkombu Upper Anaicut Barrage project, saw his numbers dwindling as soon as the Sharmik trains were introduced. “We acted fast,” he says. “and thanks to the support of the district administration,



“To speedily up the numbers, the team planned a phased mobilization of available resources. We also anticipated constraints from the public and prepared mitigation measures by informing the local thanas which helped to ease ground tensions.”

**Mrityunjay Santra**  
Project Manager,  
Ranchi WSS Phase 1 Scheme



2.45 ML capacity Elevated Service Reservoir under construction at Ranchi WSS Phase-1 Project

inter-state workmen movement. “We also anticipated constraints from the public and prepared mitigation measures by informing the local thanas which helped to ease ground tensions.” Being a city centric job, it is an important enabler, and the team is receiving support from all quarters. With 52% works completed, Mrityunjay is planning to contractually deliver his project by December 2021.

### Pressing the home advantage

It was reverse migration for Project Manager, P. Nagendra, Nuapada WSS Scheme at Odisha that is home to India’s migrant labourers. “We retained several of our workmen and added strength later when migrant workmen returned to Odisha from across the country that helped us achieve 88% of physical completion, conduct successful trial runs for two schemes and line-up the other three schemes in due course. It is likely that by 8<sup>th</sup> March 2021, we should complete the project.”



“We retained several of our workmen and added strength later that helped us achieve 88% of physical completion, conduct successful trial runs for two schemes and line-up the other three schemes.”

**P. Nagendra**  
Project Manager,  
Nuapada WSS Scheme

### Mitigating an overseas challenge

“We were 8.65% ahead of our schedule when partial restrictions were implemented across Qatar,”



Nuapada WSS Plant on course for a scheduled completion



“The ploy was to keep site activities ticking safely in two shifts by breaking down the process in line with a ground zero safe work policy.”

**S. Vishal**  
Project Manager,  
Industrial Area Sewage Treatment Works, Phase 3A Project

says, S. Vishal, Project Manager, at the Industrial Area Sewage Treatment Works, Phase 3A. “Around 240 of our subcontract workmen based at the industrial area were under lockdown as a result of which continuing works at site was increasingly become tough.



Night operations at the Industrial Area Sewage Treatment Works, Phase 3A Project

However, we bridged the gap to some extent by sourcing workmen from other areas.” The ploy was to keep site activities ticking safely in two shifts by breaking down the process in line with a ground zero safe work policy,” he adds. “We have deployed additional resources to accelerate the work progress and are now on track hoping to complete the project within the contractual time.”

### Fulfilling a vital human need

Over the last few months, every site has raised the bar with multiple innovative operational methods and collectively, these insights are keeping WET IC in good stead as it surges ahead on a vital mission of building significant water infrastructure projects to fulfill a vital human need. ■

# OBSTACLES GALORE BUT L&T GEOSTRUCTURE SITES FORGE AHEAD!

The pandemic has disrupted lives and businesses across the world. The construction industry worldwide is also going through the rigours. Perhaps, Sanjeevi Perumal, Project Manager at the 2x660 MW Ennore SEZ Super Thermal Power Project, near Chennai, will feel that COVID-19 has sought him out for special treatment considering the challenges he has had to face! With the city throwing up positive cases by the thousands, it was declared a hot zone and with Chennai slipping in and out of lockdowns, uncertainty ruled the lives of the project team. Made of sterner stuff, Sanjeevi and his team took these in their collective stride and moved into overdrive as soon as things started to stabilize proceeding with their sequential fabrication, piling, pile cap, building and painting works.





“That we have handled a total volume of more than 5000 cum in the last two months shows our momentum and pace of works during these crisis times.”

**Sanjeevi Perumal**  
Project Manager, 2 x 660 MW Super Thermal Power Project, BHEL-Ennore

“Since resumption, we have completed 360 piles, 17,990 cum of concreting, 1635 MT of reinforcements and 2029 MT of structural steel fabrication,” shares Sanjeevi, reeling off the numbers in a rush. “We successfully completed the vacuum pump house slab of (20 X 41 m span), 300 cum concrete with a staging volume of over 3600 cum and formwork of 1400 sqm, roof beams of 2 m depth and installed multiple EPs for further mechanical works.” The team has completed a 792 cum transfer tower foundation installed with 100 bored cast insitu piles of 600 mm dia, involving excavation at a depth of 4 m below ground, PCC, pile chipping, two lateral load test works and 114 MT of reinforcement and shutter works with waler and tie rod fixing. “We have also successfully completed major pile cap foundations for the External Coal Handling System involving excavation, pile chipping of more than 250 numbers and reinforcement works of more than 450 MT,” continues an obviously excited Sanjeevi. “That we have handled a total volume of more than 5000 cum in the last two months shows our momentum and pace of works during these crisis times.”



“Once we got cracking, there was no looking back. We targeted to mobilize 600 workmen by end August but by mid-September we have already mobilized 770.”

**Krishna Karteek**  
Head Planning, 2 x 660 MW Super Thermal Power Project, BHEL-Ennore

### Curing labour pains

Sanjeevi’s excitement should be seen against the backdrop of the problems the site has had to face during and after the lockdown. “End March, we had 61 staff and 501 workmen but as soon as the lockdown was announced,



“Through some concerted efforts, we increased our labour strength from 42 to 420. In the process, we completed 4,500 cum of concrete, cast around 215 precast slabs, 50 I-girders and 15 piles.”

**R Ravikumar**  
Project Manager, Sea Water intake for 2 x 800 MW Super Critical Thermal Power Project, Uppur

our workmen strength dropped to just 8,” shares Head – Planning, Krishna Karteek. “We could not restart operations when the lockdown was

relaxed as our personnel were staying 15 km away from site and could not travel.” The team’s proposal to construct new workmen quarters at site was only approved by the client in July. Chennai saw a second lockdown from 19<sup>th</sup> June to 5<sup>th</sup> July and steady operations only started thereafter. “Once we got cracking, there was no looking back,” exclaims Krishna. “We targeted to mobilize 600 workmen by end August but by mid-September we have already mobilized 770.”

The story is much the same for Project Manager, R Ravikumar at the Uppur project. His workmen strength of 533 (225 local and 308 migrant labour) dwindled to just 24 within a week. “Idle minds are dangerous, and we have had some unrest regarding salaries, but we have pacified them,” he informs. By the

time the relaxations were announced on April 20<sup>th</sup>, the site had 300 workmen including 42 locals, “but things were unsettled as the migrants wanted to leave. Through some concerted efforts, we increased our labour strength from 42 to 420,” says Ravikumar, obviously pleased with his team’s effort. “In the process, we completed 4,500 cum of concrete, cast around 215 precast slabs, 50 I-girders and 15 piles.”

With Project Manager, Sarasindu Datta’s team raring to re-start their activities of spillway concreting, radial gates, sluice fabrication works, and earthwork at the Runj Dam project, labour was their pain point too. “Before lockdown, our subcontracted labour strength was 120 workmen for both shifts and a departmental workmen strength of 73 workmen,”



Overall view of Spillway from downstream at Runj Dam



“Even so hamstrung, we have forged ahead despite the monsoon and are well on the road to make up for the time lost.”

**Sarasindhu Datta**  
Project Manager,  
Design and Construction Runj Dam

he shares. “After resumption, we were left with only 70 subcon and 45 departmental workmen. Even so hamstrung, we have forged ahead despite the monsoon and are well on the road to make up for the time lost.”

After some vigorous follow up when Construction Manager, Sreejith Menon and team finally received client permissions to restart work at the Panki Power House project, they realized that their workforce had dropped alarmingly. “With only 115 workmen available, we started with activities that were more equipment-led requiring less workmen like excavation and



Piling work in progress at Panki

piling,” Sreejith points out. “We commenced civil works on pile caps only after achieving a threshold level of workmen.” By sourcing manpower from around Kanpur, they reached a figure of 247 by the third week of May.

Planning Manager, Ankur Bhadoria’s issue was that the job required skilled workmen while the locals were largely unskilled. “To overcome this challenge, we focused more on on-site training with professional supervision



“We focused more on on-site training with professional supervision and our frontline supervisors rose to the challenge by getting involved to impart job specific training.”

**Ankur Bhadoria**  
Planning Manager,  
1 x 660 MW Panki Thermal Power Plant

and our frontline supervisors rose to the challenge by getting involved to impart job specific training.



“We decided to remove internal and external heavy equipment that were costing us and focused on round-the-clock and weekend working to complete maximum works in the allotted time frame. We monitored the utilization of equipment, de-hiring the underutilized ones that helped reduce our overheads.”

**Sreejith Menon**  
Construction Manager,  
1 x 660 MW Panki Thermal Power Plant

Gradually with close supervision and monitoring, we were able to train the newly inducted workmen to significantly improve productivity and get the site works running to full capacity.”

When manpower dropped in March – May, invoicing dropped by 33% too, but when manpower and activities increased, so did the invoicing. Traditionally, piling activities contribute to the bulk of the invoicing but with uncertainty about the availability of piling work fronts, Sreejith had to think out-of-the-pile, as it were. “We decided to remove internal and external heavy equipment that were costing us,” he says, “and focused on round-the-clock and weekend working to complete maximum works in the allotted time frame. We monitored the utilization of equipment, de-hiring the underutilized ones that helped reduce our overheads,” he smiles. And, he has reason to smile. “We have handed over the NDCT, Powerhouse and Absorber Foundation area, ID fan etc., collected payment for works done till July 2020 and payment for August is expected by this month-end.”

## Addressing supply chain disruptions

Sites all over are contending with the disruption of supply chains that are critical for project progress. At Uppur, the team was left with only about 10 - 15 days stock of cement and aggregates and with pace of construction picking up, the situation was becoming serious. They discovered that vendors had stocks, but transportation was the roadblock. "Our store management team directly contacted all the major transport services and worked out the modalities of delivery though at rates far higher than pre-COVID times." Planning Manager, Arokia Joint's perturbation is understandable. Delivery time was stretched too: a consignment of glass reinforced pipes

from Gujarat to Tamil Nadu that would have normally taken 4-5 days was taking more than 2 weeks even with all the required documents. "We had to revise our construction plans according to these delivery schedules," observes Joint, "and even scheduled the date and time of arrival of items and aggregates to minimize contact after procuring approvals from the district administration."

Sarasindu acknowledges the help and support of the HQ procurement team, suppliers, and vendors to procure the required supplies. "It not only helped us to progress, but also sustained us during the monsoon and now that the monsoon has receded, regular work has resumed across sectors and we are gunning for our targets at a much faster pace." Sarasindu's enthusiasm is infectious although



Aerial view of New Navigational Lock at Farakka



Seawater intake outfall structure at Uppur

he and his team have an additional hurdle of getting work approvals from Client and other government agencies. "Being a state government sponsored project involving forest and revenue department clearances over work-oriented lands, clearances have been stalled at various stages," he laments, "but since our district has started to function normally, we are hopeful of getting more work fronts opened," he says with his fingers crossed.

At the Navigational Lock Facility being constructed for IWAI at Farakka in West Bengal, problems multiplied for Project Manager, Rajaneesh Kumar Rai as they ran out of stock of the approved OPC cement from Ramco in the first week of May. "Our supplier's plant located approximately 400 km away was in a red zone. In any case, they were operating with limited resources, facing logistical issues, and therefore



**“Against all odds, our site team went all out post the lifting of restrictions from 20<sup>th</sup> April and till July have invoiced for 6.71 % of the job scope.”**

**Rajaneesh Kumar Rai**  
Project Manager,  
New Navigational Lock at Farakka

regretted immediate supply." Rajaneesh found a way around this issue. "Our site team, QA/QC in consultation with the procurement team presented a viable proposal to our client to approve PPC cement from Ambuja Cement. They approved our proposal in 13 days albeit

for limited use." The procurement team got into action and soon smooth supply of OPC cement was established.

Rajaneesh and his team proposed client and third-party inspections of procured items through video conferencing, and inspection waivers with internal test reports and photographs from the vendor. Again, the client approved the proposal, and the first virtual inspection was made on 6<sup>th</sup> June.

"Against all odds, our site team went all out post the lifting of restrictions from 20<sup>th</sup> April and till July have invoiced for 6.71 % of the job scope," Rajaneesh looks reasonably happy.

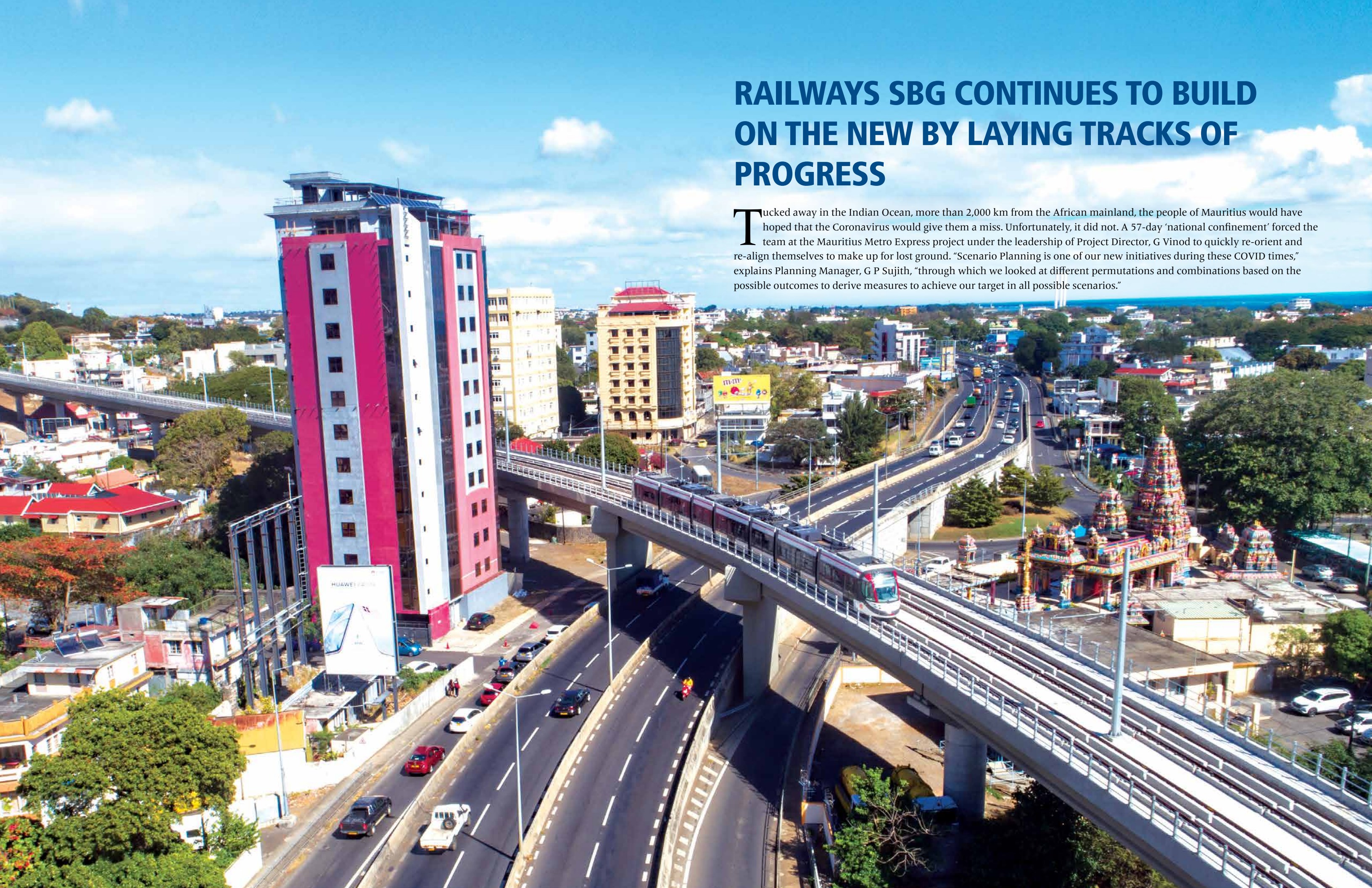
## Going digital helps

One positive impact of COVID-19 has been the widespread embracing of the digital mode. Digital approvals, video inspections and tele-conferences have become the norm. Apart from the already established digital solutions, the Workmen Mobilization App has been heaven sent for Sanjeevi Perumal's team, in their concerted effort to mobilize labour. "Once we place our request in the App by providing details of project, location, nature and duration of work, we receive responses from various subcontractors in less than 6 hours about their interest to do the work, their location that helps us ascertain their distance from site, number of workmen available for us to plan for transportation and the like. This App has helped us negotiate and finalize the contractors during the lockdown, arrange buses for workmen and E Passes to mobilize 700 workmen in a span of 45 days."

Challenges continue even as the pandemic rages, but project teams are finding ways and means to co-exist with the virus and still show progress. Here is wishing them all the very best! ■

# RAILWAYS SBG CONTINUES TO BUILD ON THE NEW BY LAYING TRACKS OF PROGRESS

Tucked away in the Indian Ocean, more than 2,000 km from the African mainland, the people of Mauritius would have hoped that the Coronavirus would give them a miss. Unfortunately, it did not. A 57-day 'national confinement' forced the team at the Mauritius Metro Express project under the leadership of Project Director, G Vinod to quickly re-orient and re-align themselves to make up for lost ground. "Scenario Planning is one of our new initiatives during these COVID times," explains Planning Manager, G P Sujith, "through which we looked at different permutations and combinations based on the possible outcomes to derive measures to achieve our target in all possible scenarios."







Aerial view of Mauritius Metro Depot

## Preparing to get rolling

Even during the lockdown, the team reorganized themselves to keep the ball rolling and be prepared to hit the board running when things unlocked. A 'Back to Work Procedures & Guidelines' document was prepared and shared with all detailing the measures to be strictly adhered to by employees, workmen, subcontractors and other external stakeholders. Managing workmen psyche was high on Vinod's priority list. "They were agitated with several of them wanting to return to their families in India," shares Vinod, with a deceptively calm demeanour. "Since the borders were closed, they could not leave but we



“Our progress has been commendable. The authorities have supported us by facilitating situations regarding health, staff and workmen who feel safe and free to work which is why we have completed 70% of execution and are effectively managing our deadlines.”

**G Vinod**  
Project Director, Mauritius Metro



Plinth trackworks at Mauritius LRT

reached out to morally support them and, convinced them to focus on work since we had a lot of ground to cover. It was a delicate situation, but we handled it well and the positive fallout was a sense of solidarity and belonging that has bound the entire team.”

All Work Access Permits in Mauritius for the resumption of business operations, involving major site activities, including Mauritius Metro project, were stopped since mid-March. However, thanks to the excellent stakeholder relationships and collaboration with the local authorities including the Ministry of Health, Police and the PM's office, progressive permits for 100% of the workforce were quickly and smoothly obtained therefore when the lockdown was lifted on 21<sup>st</sup> May, the project office and site were immediately up and running.

## Fore planning is being forearmed

With labour under control, the disruption of supply chains could have been a huge deterrent. "Luckily, our pre-planning was spot on and we had sufficient stock of major materials and tools," smiles Sujith, for whom this is a feather in his



“Scenario Planning is one of our new initiatives during these COVID times, through which we looked at different permutations and combinations based on the possible outcomes to derive measures to achieve our target in all possible scenarios.”

**G P Sujith**  
Planning Manager, Mauritius Metro

cap. "Since our Phase 2 was in full swing, we had advance planned our materials requirement and importation. Shipping time for new orders could be anywhere from 30 to 60 days but we are fine."

"Our progress has been commendable," remarks Vinod. "The authorities have supported us by facilitating situations regarding health, staff and workmen who feel safe and free to work which is why we have completed 70% of execution and are effectively managing our deadlines." Vinod's positivity is certainly holding the project in good stead.



**“We successfully resumed work in 100 days. The Engineer supported us to reimburse our claims for the COVID PCR Tests conducted and to construct additional labour colonies to maintain social distancing. We received an Extension of Time for 66 days for the delay incurred due to COVID-19 under the Contract.”**

**Sunil Khattar**  
Project Director, Dhaka Metro

Signalling items, Automatic Fare Collection Systems, Equipment and Platform Screen Doors while import e-permits and digital clearances by the Bangladeshi government helped enormously. “The material successfully arrived at our stores and was secured properly,” Planning Manager Debakash Banerjee’s relief is obvious. Some of the major materials that arrived at site during the months of April, May, June, and July included a Rectifier Transformer from Italy, Copper Conductors from Belgium, Escalators from China, Master Clock Systems from Switzerland and a host of material from India like Circular Masts, 132 kV Cables,

33 kV Switchgear, SCADA systems and telephone systems.

At the same time, the team constantly updated the Engineer about delays in manufacturing, shipments, and port clearances, listing out the material required under each sub-system, evolving strategies, and adopting measures to mitigate delays.

“We successfully resumed work in 100 days,” shares Sunil. “The Engineer supported us to reimburse our claims for the COVID PCR Tests conducted and to construct additional labour colonies to maintain social distancing. We received an Extension of Time for



*Ballastless trackworks at Dhaka Metro Project*

66 days for the delay incurred due to COVID-19 under the Contract.” What should please Sunil and his team more is that the Engineer is appreciative of their progress of completing major physical works for Trackworks (Plinth Construction for Ballastless Trackwork and Track Linking), Overhead Catenary System (OCS) Works, Receiving Sub-Station Works and Traction Sub-station Works.

## Concentrating on building on the new at the Roha-Verna Project

*The secret of change is to focus all your energy not on fighting the old but building on the new.* Taking cue from Aristotle to whom this quote is attributed, Project Manager, Prashant Soni at the Roha-Verna Project that is part of the mega Konkan Railway Electrification Project delves on the positives. “Yes, our workforce slipped from 1,000 to 300 just when we were ready to resume critical operations, but the lack of manpower forced us to use more mechanization and digitalization and those have been real game-changers,” he says with gusto. “We successfully introduced several technological innovations like OHE stringing through automatic wiring train, installing spring type automatic tensioning devices.” Construction Manager, Prashant Andhare adds, “We are using an excavator with breaker and a self-loading mixer machine on rail BFR along with our UTV that has hugely improved our productivity and tower wagons, integrated OHE wiring, impact wrenches, and more.”

Obviously one with a philosophical bent, Prashant adds, “COVID-19 has introduced us to new challenges, new perceptions and new methods.” They soon found opportunity

## Addressing issues in Dhaka

Warning bells for Project Director, Sunil Khattar at the Dhaka Metro Rail project rang as early as on 15<sup>th</sup> March, when he received the first notifications about delay in deliveries from global vendors. Soon thereafter, his local workmen deserted the site shrinking his workforce from 158 to just 7 in the space of 3 days. “There were travel restrictions between India and Bangladesh, the border between the two countries at Benapole was closed stopping all land deliveries and clearances at the Chittagong seaport was getting inordinately delayed.” Sunil’s expression is of a person for whom nothing more could go wrong. “We addressed these issue by issue and soon we were on firmer ground,” he says, with a brighter look.

By maintaining close contact with European manufacturers, the team ensured supply of critical project material from them. To expedite matters, Factory Acceptance Tests were conducted virtually for various



*Completed section of trackworks at Dhaka Metro Depot*



OHE stringing through automatic wiring train



**“The commissioning of our priority Roha – Ratnagiri section has been planned for December 2020 and with our current resources and planning, we are sure to achieve our target with flying colours.”**

**Prashant Soni**  
Project Manager, Roha – Verna Project

in crisis. “Progress at a railway electrification project, depends on traffic blocks and with train traffic at a standstill during the lockdown, we used the blocks to the fullest extent possible to push forward with our construction,” shares an excited Construction Manager, S Praveen, “working both day and night shifts to achieve a milestone of



OHE foundation and mast erection at the Roha - Verna section

erecting 1,401 masts in just 20 days managing to invoice to the tune of INR 5.3 Crores!”

The team visited villages in the vicinity, contacted the Sarpanches to identify workmen and 200+ were convinced to come to work after which they were properly inducted with technical and safety training. The team’s long association with the workmen came in handy as they were gradually able to wean them back to site. By end September, 1,000 workmen were at site with work proceeding at full steam. Prashant eagerly shares a series of achievements. “We erected about 1500 MT of steel structure in 5 months that is approximately 40% of the total steel structures erected till date since September 2018. We have erected 234 steel structures (120 MT) in a day, erected 22 Booms (21 MT) in a day and checked 108 OHE Cantilever joints again in a day.” He takes a deep breathe. “The commissioning of our priority Roha – Ratnagiri section has been



**“Progress at a railway electrification project, depends on traffic blocks and with train traffic at a standstill during the lockdown, we used the blocks to the fullest extent possible to push forward with our construction, working both day and night shifts to achieve a milestone of erecting 1,401 masts in just 20 days managing to invoice to the tune of INR 5.3 Crores!”**

**S Praveen**  
Construction Manager, Roha – Verna Project

planned for December 2020 and with our current resources and planning, we are sure to achieve our target with flying colours,” he declares confidently.

## Meeting problems head on

At CTP-14, Project Director Shashank Pachade is overjoyed that his team has over-remobilized labour. “We were at 1,600 levels pre-COVID but presently have 2,600+ workmen at site, 150% more deployment!” Things looked bleak for him during the lockdown as apart from a deserting workforce, he was facing several other issues: lack of progress, disruption in design approvals, no physical follow-ups, negative cash flows, slipping deadlines and “our invoicing was reduced by 80% compared to pre-COVID days,” he laments. “Obviously, there was huge pressure from the management to resume work at the earliest to meet our expected budgeted target. Our client (DFCCIL) was also worried about delays in completion.”

When work resumed, labour and material supply were causes for concern. Soon, the project ran out of cement and steel, the supply of elastomeric bearings was delayed as the raw material had to be imported from Japan; the box girder erection launching gantry had been procured earlier from HLCM, China. “We contacted local authorities for the spare parts and significantly saved on cost and time,” says Shashank. “In the meantime, we procured full-span shuttering to complete the retaining wall of up to 6 m that required less manpower and time but was better in terms of quality and costs.”

The team approached the client for funds to remobilize labour and received a one-time payment of INR 80 Crores to get things moving. With the client keen to release funds against progress at site too, Shashank’s immediate issues have been addressed including releasing



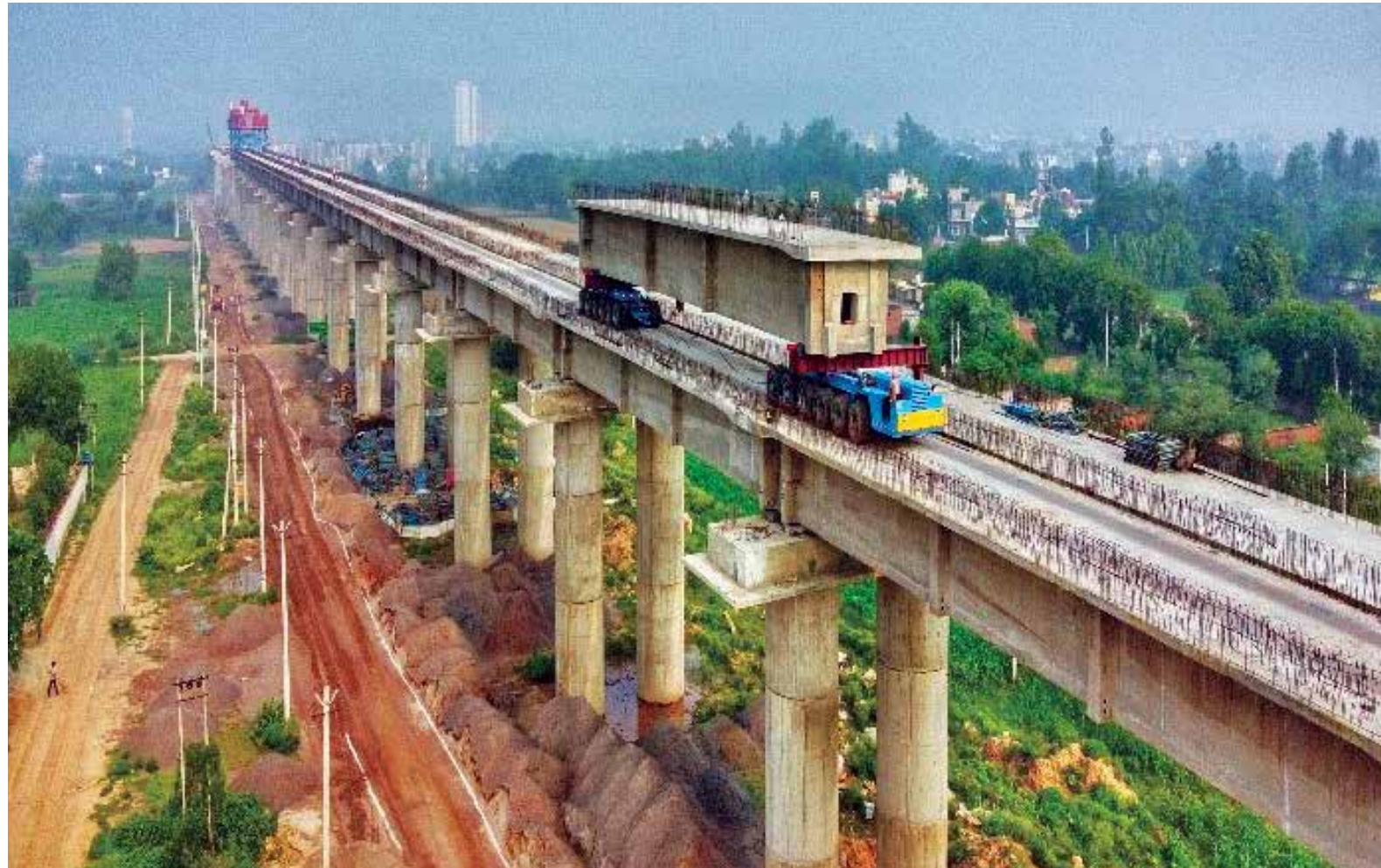
“ Before resumption, we concentrated on a few critical aspects. We ensured that our P&M was well maintained, planned to commence works based on the availability of work fronts, material and necessary permissions.”

**Anud Koul**  
Project Director, CP-204

payment to 900 workmen and he is even talking to DFC for arranging special trains for labour re-mobilization.

Having successfully addressing their issues head-on, Shashank and team have several triumphs to share. “We achieved a 1 km tunnel breakthrough on 24<sup>th</sup> July in the presence of the Managing Director of DFCCIL, Mr. Anurag Sachan,” shares Shashank. “The Sleeper Plant was set up in a record time of 6 months, all electrical utilities infringing the construction of bridge piles at BR 191H were cleared within 20 days and,” he adds with emphasis, “we have been progressively improving our invoicing that has touched 70%+ by September.”

The inspection agency Bureau Veritas India had to conduct a third-party inspection of the Auto and Scott Transformer in Japan. With inter-country travel suspended, the team co-ordinated with the agency to arrange for a local inspector in Japan. Bureau Veritas India co-ordinated with their counterparts in Singapore and arranged for a local inspector in Japan. The inspection was carried out



3.3 km viaduct through full span box girders of 32m spans each weighing 338t

as per schedule, with video conference inspections carried out for multiple products overseas.

Shashank also has his client’s glowing letter of appreciation to show for his ongoing efforts.

### CP 204 gets back on rail

Project Director, Anud Koul had his hands full as his project readied to resume operations. Having to implement SOPs to the manpower at a project that stretched 420 km, managing a panicked client and PMC, having to make do with restricted transportation that hampered movement of material and essential services, lack of COVID-19 PPE, security



Erection of mast at CP 204



“ We achieved a 1 km tunnel breakthrough on 24<sup>th</sup> July in the presence of the Managing Director of DFCCIL, Mr. Anurag Sachan. The Sleeper Plant was set up in a record time of 6 months, all electrical utilities infringing the construction of bridge piles at BR 191H were cleared within 20 days and we have been progressively improving our invoicing that has touched 70%+ by September.”

**Shashank Pachade**  
Project Director, CTP-14

of material and maintaining P&M. Fortunately, the lockdown gave Anud and his team time to think and plan their actions that were based on a Work Resumption Plan, a Business Continuity Plan, SOPs to combat COVID-19 and a Work Methods based SOP for site.

“Before resumption, we concentrated on a few critical aspects,” points out Anud. “We ensured that our P&M was well maintained, planned to commence works based on the availability of work fronts & material and necessary permissions.” We also ensured that our employees, workmen and subcontractors were trained about the new procedures and were in constant touch with our subcontractors to understand their concerns.

The planning has helped for by October, productivity and site execution have exceeded February 2020 levels, with zero COVID positive cases, no theft or damage to P&M and more than 1,000 hours clocked for training staff and workmen. To expedite supply chain issues, third party inspections were organized and Anud says, “various materials worth INR 38 Crores were delivered such as Mast Portal, SPI Steel, Copper, UPS, Cantilever Fittings, Tube etc. We ensured that our Dispute Adjudication Board (DAB) proceedings were not hampered, pursuing the Client and DAB members to conduct proceedings through MS Teams to save cost and time. DAB for a major EOT claim is currently under progress.”

The numbers are showing as the project has achieved INR 40 Crores of invoicing and INR 100 Crores of collection in H1.

As a matter of fact, the results were as per expectations and Anud attributes the success to team bonding, planning and passion of the employees to drive through these tough times.

The same certainly applies to all the projects of the Railways SBG! ■

# MMH PROJECT SITES SUCCESSFULLY MOVE FROM STANDSTILL TO FULL FLIGHT

**A**cross the country, the Unlock came along with the challenges of resuming activities safely and efficiently. "We could not afford to simply return to action, we had to roar back to action," comments Anupam Kumar, Executive Vice President & Head – MMH SBG. "The asking rate has gone up significantly and therefore we had to hit the board running and keep running till we catch up for time lost." Sites have certainly hit the board running but many have found the board slippery. There remains the constant threat of the spread of COVID-19 infections; the need to rigorously enforce the elaborate safety precautions that are alien to many; the depleting labour force and the induction of fresh workmen; the disruption of supply lines requiring quick realignment of material procurement plans; the reluctance of clients and customers to readily adopt to the new normal of increased digital and 'virtual' interactions. The challenges are many.





“We could not afford to simply return to action, we had to roar back to action. The asking rate has gone up significantly and therefore we had to hit the board running and keep running till we catch up for time lost.”

**Anupam Kumar**  
Executive Vice President & Head –  
MMH SBG

struggled to convince workmen to stay and work though they were already a nervous and agitated lot. Some projects succeeded in their effort like the team at the MCL Bhubaneswari Project as Project Manager, C N Padhi says, “We retained 50-60% of our workmen and even after the Unlock, 80-90% of our workforce have stayed with us. We succeeded by motivating them, boosting their morale, and gaining their confidence to return to work.”

At the Utkal Alumina Expansion Project, Project Manager, Prasanta Tikadar and his team evolved a 3-level system to ensure that its business as usual in the new normal. “Our COVID Watchers are from among the workmen themselves who have been mandated to ensure SOP compliance

at site,” explains Prasanta. “They report in to the COVID Warriors who are predominately EHS and admin staff who in turn appraise the COVID Task Force Committee about how SOP guidelines are being followed.” This system has since been adopted by several other MMH sites with encouraging results.

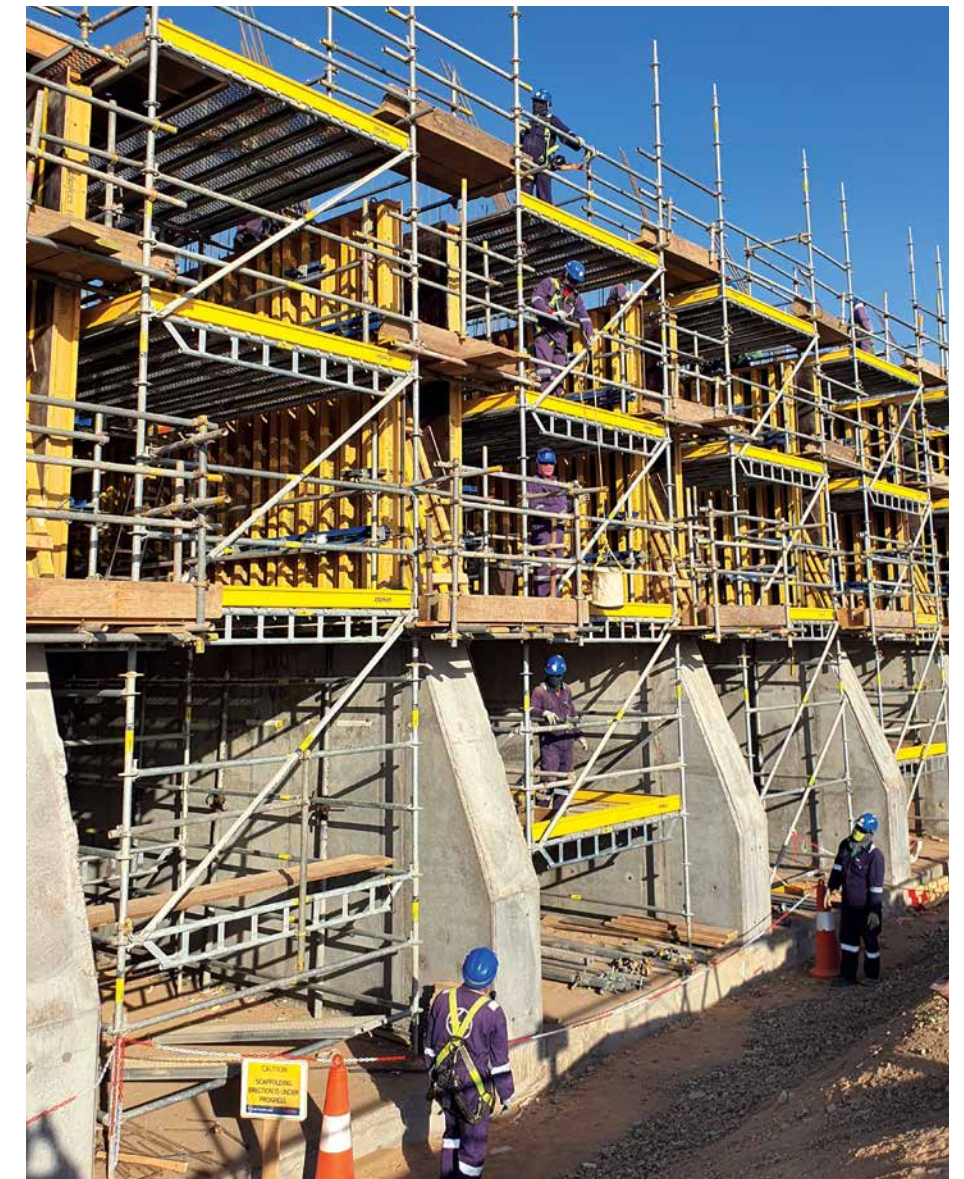
### Screening and induction

Separating the existing workforce from the newly inducted workmen was vital to maintain safety by preventing all interactions until the latter had been tested, screened, and cleared. At MMGP, the team followed an elaborate screening process as Swagath Gowda,



“We retained 50-60% of our workmen and even after the Unlock, 80-90% of our workforce have stayed with us. We succeeded by motivating them, boosting their morale, and gaining their confidence to return to work.”

**C N Padhi**  
Project Manager,  
MCL Bhubaneswari Project



ROM pad wall at MMGP

### Building belief to return

Project leadership and managers across geographies soon realized that building belief amongst the workforce was the first imperative to get them back to work. Regular and cogent communication have helped as Project Manager, Mukesh Kumar’s team at the 2x660 MW NTPC Khargone Super Critical Power Plant project proved. By forming a dedicated COVID-19 Communications team, they developed and disseminated continuous messaging to employees and workmen to help them overcome their fear and anxiety. Project Director, Hare Ram, at his Mansourah Massarah Gold Project (MMGP) in the Kingdom of Saudi Arabia, adds, “We worked at convincing our workforce that there are ways and means to fight this global pandemic and that the company and site leadership are well equipped and well prepared to keep them safe provided they strictly follow our advisories and SOPs.”

Facing the labour exodus as soon as the Unlock was announced, site personnel



Civil work proceeding at the MCL - Bhubaneswari project with social distancing

Assistant Manager – EHS explains. “After mobilization, the workforce was initially quarantined at the Riyadh Camp for 5 days and on the 6<sup>th</sup> day, if found negative after the PCR test, they would be allowed to move to the site on the 7<sup>th</sup> day where they were kept under observation for another 3 days and deployed at project site only after the necessary Medical / COVID screening, EHS induction and training.” Hare Ram mentions the formation of a ‘COVID Crisis Command Centre – 4C’ to tackle the situation. “It had our client, the PMC, Bechtel and our consortium



“Our COVID Watchers are from among the workmen themselves. They report in to the COVID Warriors who are predominately EHS and admin staff who in turn appraise the COVID Task Force Committee about how SOP guidelines are being followed.”

**Prasanta Tikadar**  
Project Manager, Utkal Alumina Expansion Project



**“To comfort the agitated workmen, we placed our administrative and technical staff at strategic locations like Patna, Jamshedpur, Varanasi and Gorakhpur. We successfully mobilized 10,000 workmen in the period from July to September and are now back to full action.”**

**Bhanu Pratap Singh**  
Project Director,  
JSW Project site at Dolvi

partner, Outotec,” he shares, “and it involved the senior management, the medical team, staff members and together we did a lot to visualize the situation and seek ways for an effective and gradual restart.”

Remobilization of manpower has become extremely challenging, as Mukesh Kumar admits and with travel restrictions, things have been tougher. “We have to make do with the locally available labour for activities like road and drain construction, precast concreting and the like. We have, in the meantime, identified and developed local subcontractors too, that is helping in our manpower sourcing effort.”

### Ups, downs and ups

For Project Director, Bhanu Pratap Singh, and his team at the JSW Project site at Dolvi, in Maharashtra’s Raigad district, the impact of the pandemic has been almost like a rollercoaster. The site was at the peak of its execution phase with almost 300 staff and 10,000 workmen when COVID-19 struck. “It played havoc



*Erection of main chamber shell at CDQ 3, JSW, Dolvi project*



**“Our business continuity plan critically involves helping our client understand the risks involved while implementing measures to mitigate them to ensure that our operations continue seamlessly. Our client has been with us every step of the way.”**

**Satish Patnaik**  
Senior Manager, FA&A, UAIL Project

with the morale of our workforce and many of them immediately left for their native places and even after resumption of activities, we only had a terribly depleted labour force,” shares a worried Bhanu. “Many were frightened to travel back and resume work at site.”

Desperate situations demand desperate measures. To tackle this problem, the team came up with a smart ploy. “To comfort the agitated workmen, we placed our administrative and technical staff at strategic locations like Patna, Jamshedpur, Varanasi and Gorakhpur,” shares Bhanu. “We took the support of teams at Kolkata and other MMH project sites to drive mobilization.” The ploy worked wonders because the presence of the organization’s staff boosted the morale of the workmen and many of them were convinced enough to travel back to site. “We successfully mobilized 10,000 workmen in the period from July to September and are now back to full action,” declares a very proud and pleased Bhanu.

### Back to action

Across project sites, operations have resumed in a well-planned, phased

manner adopting a risk-adjusted strategy. Prasanta says that return to action at the UAIL site was based on 4 broad aspects: mobilization of manpower, revision of SOPs, budgeting, and resource utilization. “Mobilization in a remote place like Tikiri is not easy,” he shakes his head, “but thanks to WISA, we had the coordinates of our previous workmen and could reach out to them, convince them to return and, in some cases, even provide special transport.”

“In the midst of a crisis like this, it is important to win the client’s trust and confidence,” remarks Satish Patnaik, Senior Manager – FA&A, UAIL project. “Our business continuity plan critically involves helping our client understand the risks involved while implementing measures to mitigate them to ensure that our operations continue seamlessly. Our client has been with us every step of the way,” he adds reassuringly.



*Top view of the Feedbin building at the Utkal Alumina Expansion project*



“With travel restrictions, quarantining and self-isolation procedures, no OEM representative was able to come to site, so our in-house execution and quality teams took on the task and successfully commissioned three wagon tippers and two stacker reclaimers with only virtual guidance from the OEM.”

**Mukesh Kumar**  
Project Manager,  
2x660 MW NTPC Khargone Super Critical  
Power Plant Project

The MMGP team had four teams to look at key areas as Dhiman Bose, Manager – Systems explains. “Security controlled outsiders and locals entering our project; the medical team monitored our health status. Another team was tasked to prepare the required documents, procedures & SOPs, implement control measures during work while the mobilization team planned and restarted operations.”

For the Khargone team, commissioning major equipment like Stacker Reclaimers and Wagon Tipplers in the CHP system was critical as it involved hydraulic systems and are best done in the presence of OEM personnel. “With travel restrictions, quarantining and self-isolation procedures, no OEM representative was able to come to site,” informs Mukesh, “so our in-house execution and quality teams took on the task and successfully commissioned three wagon tippers and two stacker reclaimers with only virtual guidance from the OEM.” He sits back with a satisfied look.

Having more than doubled their workforce from 700 to 1,500+, the MMGP team has pressed the pedal on activities like mobilizing P&M and concrete production.



Crushed ore silo at MMGP



A stacker reclaimer at work at the CHP package, NTPC Khargone



“Security controlled outsiders and locals entering our project; the medical team monitored our health status. Another team was tasked to prepare the required documents, procedures & SOPs, implement control measures during work while the mobilization team planned and restarted operations.”

**Dhiman Bose**  
Manager,  
Mansourah Massarah Gold Project

## Cracking the sourcing challenge

With all forms of interstate and intrastate movement at a standstill, sites have been struggling with the disruption of supply chains as Mukesh points out. “Oxygen is a vital consumable at site for mechanical and civil works as all gas cutting works are dependent on it. Since O2 was unavailable, our site supply chain team had to make alternate arrangements for priority delivery.” Further, the team developed in-house machine cutting facilities to keep up the pace of works. Bulk material supply had also diminished from existing sources with the available material insufficient for the process of concreting. Again, Mukesh’s team had to adopt a more diversified approach by developing alternative suppliers to keep the ball rolling.



“After an extensive survey for new vendors and new brands throughout KSA, we decided on some readily available materials in the market that met our minimum requirements to maintain continuity of site operations.”

**Hare Ram**  
Project Director,  
Mansourah Massarah Gold Project

For MMGP, Saudi Arabia was still in a lockdown with restrictions on inter-city movement of vehicles when work resumed. “Most of our vendors were either totally or partially closed and our problem soon became more severe due to the restriction on imports, especially from China,” explains Stores In-charge, Kaustov Bose. “Our registered stockists ran out of stock of many of our approved materials.” The need of the hour was for a more flexible procurement strategy rather than waiting for the approved brands to become available. Hare Ram picks up the story, “With the market situation very uncertain and none of our suppliers able to commit to delivery schedules for the out-of-stock materials, we were compelled to seek alternative materials and sources. After an extensive survey for new vendors and new brands throughout KSA, we decided on some readily available materials in the market that met our minimum requirements to maintain continuity of site operations.” Having achieved August’s concrete casting target and with things rolling, Hare Ram is confident of further upping the tempo going forward.

We hope he does and with him all the projects sites of MMH SBG. ■



## Construction World recognizes L&T as the 'Largest and Most Profitable Construction Company'



Larsen & Toubro was acknowledged as the 'Largest and Most Profitable Construction Company' by Construction World magazine at their 18<sup>th</sup> Annual Awards held 'virtually' on 16<sup>th</sup> October 2020, in association with Engineering News Review. L&T was also recognized as one of the top challengers in the infrastructure sector.

Mr. T. Madhava Das, Whole-Time Director & Sr. Executive Vice President (Utilities), Larsen & Toubro, received the awards on behalf of L&T.

