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Scaling new heights in
TIMELY DELIVERY,
QUALITY &
DIGITAL INNOVATION





Acknowledgements

A big 'Thank You' to the various business leaders and the site leadership of all the projects featured in this issue for their whole-hearted contribution to making this issue a reality. It was wonderful to see the passion and commitment of every project team to get their stories just right. Trust you will find our effort worthwhile. Kudos to all the award-winning projects! We are all winners!

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QUALITY IS NEVER AN OPTION; IT IS A NECESSITY



Very often, we buy a product or service without considering about it too much because we are sure that it will meet our expectations. It is a trust born out of long usage and/or periodic positive reinforcement from people. Interestingly, all this while, the company that offers this product or service has been understanding your evolving needs, listening to your feedback and refining their offering. This interplay is about Trust on one side, and Quality on the other, the foundation of a long and fulfilling association.

In our context, our quest for Quality is all about understanding and listening to our clients and delivering projects that certainly meet their expectations, even better if we can successfully exceed them. Recently, a newly formed IC that has been on a remarkable turnaround mode, won two major

projects in the Middle East. What is heartening is that both these were repeat orders from the respective clients. There is no better way to reward our quality. Five of our projects have won L&T Construction's Timely Delivery award and they

Our quest for Quality is all about understanding and listening to our clients and delivering projects that certainly meet their expectations, even better if we can successfully exceed them.

could have delivered only if they had their quality systems and processes in place. Four more of our projects have won the Quality Award for 2024, giving ample proof that quality is deeply embedded in the way we execute our projects.

It should be our collective mission to instil and keep alive in our clients, customers, consultants, partners, prospective employees and, the people at large who experience our projects, an abiding trust in our ability to deliver nothing but the best.

However, it cannot only reside in just 9 projects. Our Quality theme for the year, **Ensuring Reliability by Innovation & Quality** that encapsulates our mission of combining innovation with rigorous quality measures to ensure reliability in everything we do, must be more widespread running through every project that we are executing. It should be our collective mission to instil and keep alive in our clients, customers, consultants, partners, prospective employees and, the people at large who experience our projects, an abiding trust in our ability to deliver nothing but the best.

That we are serious about Quality is reflected in our association with IFQM (Indian Foundation for Quality Management), underscoring our commitment to find innovative 'Indian ways' to create sustainable value for our customers and the society at large.

Listening to clients is key

Successful project delivery depends a lot on managing customer expectations for which it is imperative to understand them by 'listening' to what they are saying, internalizing their stated and unstated requests/demands. Often, although we hear a client's feedback, we continue to do what we think is right resulting in a mismatch between expectation and delivery. Never forget that we are executing their project and that their ownership is always greater than ours. Of course, we need to share our opinion and make ourselves heard but after a point it becomes more important to deliver than to win your argument.

Winning and maintaining a client's trust is crucial in this scenario, for then they value our point of view and are convinced that we are just as passionate about the project as they are. That is a critical inflection point when clients start

to see us as worthy partners and that is more than half the battle won. Involving them from word 'go' and collaborating with them right from the designing and planning phases, ensure that everyone remains on the same page, and clearly communicates that we co-own the project with them. This trust can, however, only be built on the bedrock of quality. Quality, therefore, is never an option; it is a necessity.

Our robust Quality Management System, with its comprehensive set of procedures, guidelines, and best practices, has been so designed to ensure that every project we execute meets with client expectations, covering every aspect of project management and execution including pre-construction planning, in-depth risk assessments, material selection, partner onboarding, worker mobilization, and onsite supervision. We cannot go wrong if we all follow our QMS to the 'T'.

Our tech adoptions should hold us in good stead

Our suite of tech solutions, fuelled by the AI revolution, are already driving our quest for Quality across several sites, be it BIM for precise planning, visualization, coordination and reducing rework or geospatial technologies to save time and costs in surveys, or even using smart, automated equipment. As our clients become more demanding, and we work on more complex projects to even more stringent timelines, widespread adoption of technology will be the key differentiator to enhance efficiencies, productivity and delivery.

Our digital transformation has always been about seeking and finding solutions for unique and specific problems faced at sites and therefore is relevant and beneficial for every project that we execute hence adoption must be 100%.

Quality is our collective responsibility

Quality is about doing the right things when no one is watching and therefore it is also a mindset. An orientation to do only that is acceptable, about readily adopting best practices, rigorous audits and a relentless focus on getting into granular details. It is said that God lies in the details, and it holds true more with projects for the more we are on top of the details, the better our chances to deliver. Our Quality Council has been instituted to standardize and drive Quality across our organization. Let's together re-commit ourselves to delivering nothing but the best.

All the best!

S N Subrahmanyam

Chairman & Managing Director, Larsen & Toubro

Celebrating Excellence in Digital Innovation

A transformative year for L&T's digital journey

The year 2024 saw L&T's digital journey shifting into higher gear with unprecedented cross-pollination of innovative ideas across our manufacturing, energy, and construction businesses.

Speaking at the Celebrating Excellence awards event, Mahesh Chikodi, Chief Digital Officer, L&T, elaborated on some of the new digital initiatives. "Several pioneering digital platforms like Earth – an ESG platform, **RFID Formworks Smart Track**, and **Asset One** were launched in L&T Construction. The manufacturing businesses significantly enhanced the **iRudra - I4.0** platform and leveraged quantum computing for dynamic job scheduling of plant equipment, while the Energy business introduced innovative platforms including **SP Track** for smart piping & tracking and **Pravah** for milestone management." Additionally, he mentioned the successful launch of **Yantra** for P&M asset allocation and **Scaff 4.0** for scaffold tracking, which are all interconnected elements of the strategic vision to create the **L&T One** ecosystem.



When our digital journey started, each IC was free to look at what suited them and what they could do independently to bring improvements, as the main objective was to shift our conventional mindset to a digital one. We have now matured and must speed up cross-pollination across ICs. These awards are a great platform to do that and for bringing fresh ideas to the forefront. They give us a complete picture of what's happening across the organization and how it can be taken to other parts. This is where our Digital Ambassadors have their most critical role to play.

Ultimately, all that matters is how these initiatives improve our efficiency in delivering projects at cost in the quickest timeline possible with safety and quality. I am optimistic that in the coming years, we will see huge improvements and a dramatic reduction in time overrun measured in terms of the Project Execution Index as a result of all these digital investments we have been making.

T Madhava Das
Whole-Time Director & Senior Executive Vice President (Utilities)

As a part of the Jury, I found this year's competition very intense. Every year, the level is going up. Most initiatives were more towards operational excellence, internal productivity, and process improvements, but it would be more appropriate to offer unique experiences to our customers, by improving our cost competitiveness & reliability and maintaining the highest level of transparency. We should apply data analytics to improve our Project Flow Index to 1 or 1.05 levels. This is important for our organization. We also need to focus on improving office productivity using AI and ML solutions, which will help our managers and engineers to focus on more productive, constructive work.

Anil V Parab,
Whole-Time Director & Senior Executive Vice President
(Heavy Engineering & L&T Valves)



The digital journey in numbers

- The Asset One Platform tracks
 - 100% of the concrete chain for major sites
 - 90% of the fuel chain across all sites
 - 96% of the material chain for major commodities
 - Connected Equipment System has been implemented for overseas projects
 - 8,000+ fuel sensors have been installed
 - 15,000+ assets in India and 600 assets overseas are being tracked in real time
- WISA digitally captures attendance for 300,000 workmen daily
- 180,000 indents are generated monthly through the Material NxT app, and close to 2 million forms are submitted through the SHEILD app
- 4,000 formwork components are monitored through the RFID Smart Track app with 95% efficiency
- 146 critical resources are connected to the Security Operation Centre (SOC), to strengthen our cloud infrastructure security
- 332 Digital Ambassadors and 25 Digital Catalysts have been successfully certified



Mahesh Chikodi
Chief Digital Officer, L&T

KRide C-2 – Transportation Infrastructure IC (RBF)

Best Project in Digital Adoption & Benefits Realization



Digital interventions in the areas of Human Resource Management, Safety Systems, Quality Management, Equipment & Asset Management, Project Monitoring & Document Management.

Benefits: **Total Cost Savings** of Rs. 36.25 Crores through the Quality App, Fuel RFID & Asset One, EDMS, Cycle Time Monitoring App & CCTVs. **Operational Improvements:** 50% reduction in FSLM casting & erection cycle time, enhanced safety monitoring and incident analysis, real time tracking and monitoring capabilities. **Process Optimization:** Automated time-motion analysis for precast activities, Integrated machine learning for motion analysis, Streamlined vehicle allocation and billing validation & Enhanced progress monitoring through drone technology.

Khatan WSS – Water & Effluent Treatment IC

Best Project in Digital Adoption & Benefits Realization

Digital interventions in the areas of Planning & Execution, Safety Management, Equipment & Asset Management, Quality Control & Workforce Management.

Benefits: **Total Cost Savings** of Rs. 9.70 Crores through Planning & Execution, IR, QA/QC, EHS, Stores & P&M. **Operational Improvements:** Enhanced productivity saving ₹2.64 Crores, reduced overhead costs: ₹0.40 Crores, saved 650,000+ paper forms, improved material flow and approval process & real time tracking and monitoring.



SSC Talegaon – L&T Precision Engineering & Systems

Best Manufacturing Plant in Digital Adoption & Benefits Realization



Digital interventions in the areas of Design & Planning, Manufacturing & Quality and Infrastructure.

Benefits: Annual savings of Rs. 805 lakhs (FY25) 239,907 man hours saved; machine utilization up 88%; 71,180 drawings processed through IDMS; 40,618 material tracked in the warehouse; 15,550 tests completed through LIMS; 12,221 eQC entries; reduced cycle times.

The Future of Pipeline Design: A Breakthrough in Irrigation Projects

Water & Effluent Treatment IC
Innovative Digital Solution



First-of-its-kind automated solution to design pipelines for mega lift irrigation projects piloted at the Cluster 19 MLIS Project.

Features of the Unique Solution: **Integrated GIS-based System:** automated chak planning using genetic algorithms, strategic outlet placement, intelligent pipeline routing, automated layout generation, LIDAR & drone integration. **Smart Optimization:** least cost path analysis, automated hydraulics calculations, cross-country pipe network optimization, reduced crossing points (roads/railways/river) & real time optimization.

Benefits: **Performance Improvements:** 85% reduction in man-days (407 → 52), 80% increase in productivity, 60-85% reduction in design time, manpower optimization: 9 → 3 team members & ability to handle 8+ projects annually with half the team.

Financial Impact: ₹3 Crores annual savings in engineering hours, ₹52 Crores material savings on ₹1000 Crore project, significant reduction in drafting costs & enhanced cost optimization in routing.

Strategic Value: Scalable to power transmission and transportation projects; 23% reduction in environmental crossings; enhanced data accuracy and quality, digital asset creation & standardized design approach.

Kathick Kasimayan

Heavy Civil Infrastructure IC
Influential Digital Ambassador



Pragatheesh Sugavanam

Water & Effluent Treatment IC
Influential Digital Ambassador

Celebrating Excellence in Timely Delivery!



**700 MW Ar Rass-1 Solar
IPP Project, KSA**
RENEWABLES IC



**Etihad Rail 2F2 Package
Freight Facilities, UAE**
MINERALS & METALS SBG



**Food Processing Plant for
JRS India Corp Pvt Ltd.,
Ahmedabad**
BUILDINGS & FACTORIES IC



Dhaka Metro CP 07
**TRANSPORTATION
INFRASTRUCTURE IC (RBG)**



**132 kV NADHESSA
Substation for DEWA, UAE**
**POWER TRANSMISSION &
DISTRIBUTION IC**

DHAKA COMMUTES FASTER, EMITS LESS, THANKS TO L&T

Dhaka Metro CP 07

A visionary initiative, the Dhaka Metro CP07 Project, has transformed urban mobility in Dhaka, Bangladesh, combining cutting-edge technology and advanced engineering. Despite the complexities and challenges of executing a large-scale, urban infrastructure project in a foreign country, the Railway SBG team completed the two phases on time to deservedly win L&T Construction's Timely Delivery Award. Phase 1 was completed under the leadership of Sunil Khattar, (then Project Manager and now heading the Metro BU, Railway SBG) followed by Phase 2, initially led by Ashish Gupta (now GM & Head - SCM) and thereafter under the young leadership of Project Manager, Debakash Banerjee.

VOICES FROM GROUND ZERO

With an impressive average monthly passenger footfall of 70.45 lakh in 2024, the success of MRT Line 6 has not only catalysed the introduction of new MRT lines, but it also places L&T in a commendable position to secure the upcoming lines.

Sunil Khattar
VP & Head - Metro BU



Apart from easing traffic congestion and reducing travel time for daily commuters from approximately 4 hours to just 45 minutes, the reduced reliance on private vehicles is helping reduce carbon emissions by over 200,000 tons annually.

The impact of the project on the people of Dhaka is even more pronounced: Apart from easing traffic congestion and reducing travel time for daily commuters from approximately 4 hours to just 45 minutes, the reduced reliance on private vehicles is helping reduce carbon emissions by over 200,000 tons annually. Certainly, the city of Dhaka is breathing easier.

Marking L&T's first ever fully integrated Electrical & Mechanical

(E&M) systems venture in the metro domain, Phase 1 involved a 11.4 km stretch connecting Uttara North & Agargaon, inaugurated on December 28, 2022, by the then Hon'ble Prime Minister Sheikh Hasina, who thereafter also did the honours for Phase 2, another 9 km stretch from Agargaon to Motijheel, on November 4, 2023, completing the MRT Line 6.



SOME VITAL STATS ABOUT THE PROJECT

TRACK WORKS

Entirely Ballastless Trackwork in Operational Sections & Ballasted Trackwork in Depot

ELECTRIFICATION

132 kV GIS based RSS and EHV cabling, 1,500 DC Traction Substations, DC Overhead Catenary Systems (OCS), 33 kV Cable Ring, Auxiliary Substation, SCADA and Energy Storage Systems

SIGNALLING & COMMUNICATION

Communication based Train Control & LTE-based Radio Communication - first by an Indian Company, Integrated Platform Screen Doors, Telecom System and Radio Communication based on LTE

PASSENGER CENTRIC FEATURES

Automatic Fare Collection Systems, Platform Screen Doors, Efficient Lifts & Escalators

AUXILIARY SYSTEMS

GIS-based Receiving Substations, SCADA, and Auxiliary Substations

VOICES FROM GROUND ZERO

By keeping their people, employees, their families & workers, safe, we successfully maintained progress, albeit at a slightly lesser pace.

Ashish Gupta
GM & Head - SCM

Maintaining a stiff asking rate

"Of course, we had our fair share of challenges," Debakash smiles tightly, "that called for effective strategies, proactive problem-solving, and seamless coordination among all our stakeholders."

Overcoming the impact of the pandemic: The team took the global disruptions in their collective stride, constantly coordinating with global suppliers to ensure timely manufacturing and shipping while the Bangladesh government chipped in by allowing e-filing of import permits. "By keeping their people, employees, their families & workers, safe, we successfully maintained progress, albeit at a slightly lesser pace," says Ashish Gupta.

Managing the issues of working in an unknown geography: Navigating local regulations, understanding cultural nuances, and integrating the workforce were the team's initial set of challenges. "It is only through extensive interface and collaboration with the local subcontractors that we were able to achieve efficiency and productivity," shares Planning In-charge, Kollu Prasad. "In fact, the involvement of our front-line personnel in strategy development helped streamline operations." To combat a slow bureaucratic process, the team regularly recalibrated their strategies, engaging with the local authorities to keep the project on track. "By resorting to a hybrid model of planning, which combined departmental, supply and measurement work, we succeeded to exceed our client's expectations," he says with a broad smile.

Ensuring the coexistence of old & new technologies: Introducing and integrating advanced technologies into a country with old infrastructure systems was challenging, especially in a region without an electrical railway system that relied on conventional signalling infrastructure. "Our

E&M system that includes multiple specialized subsystems, required seamless integration of new systems with the existing traditional infrastructure," points out Electrification In-charge, Shamim Ahmad Khan. "By adopting a proactive approach

VOICES FROM GROUND ZERO

Debakash Banerjee
Project Manager

This Timely Delivery Award 2024 is truly the crowning piece reflecting our dedication to meet all deadlines without compromising quality or safety and set a new standard for urban transit projects.



and assigning clear ownership for each segment, along with continuous training, effective communication, and strong problem-solving approaches, we successfully integrated and commissioned the new technology,” he grins with satisfaction.

Striking the right chord with the Employer: Although working with a new organization like the Dhaka Mass Transit Company Limited (DMTCL) had its own set of uncertainties, the team overcame them through seamless coordination with all parties involved and a collaborative approach, by winning the confidence of the Employer and the Engineer. “Our new organizational framework was leveraged to drive growth and development with a strong focus on training and knowledge transfer, ensuring that DMTCL’s team was equipped with the necessary skills and understanding to operate and maintain the system,” apprises Akshay Dhawan, Track Engineer,

Interface & Quality In-charge. “Additionally, we provided dedicated maintenance support to ensure long-term system efficiency, reinforcing the collaborative approach and fostering sustainability for future operations.”

Solving regulatory issues: A particularly challenging issue was the stringent regulatory requirement imposed by the Bangladesh Investment Development Authority (BIDA), mandating a 1:5 ratio for foreign to local employees that required careful management of staffing and human resources by adhering to the local employment laws and yet maintaining the necessary expertise. “It is remarkable that we effectively balanced compliance with regulation and the need for specialized skills, to ensure that our workforce remained well-equipped to meet the demands of the project. This also contributed to in-country value through employment

generation, skill upgradation as part of our ESG pursuits,” notes G Ashok Kumar, Finance, Accounts & Administration In-charge.

Safety & Quality at the forefront

For L&E System & EHS In-charge, Bhupesh Mahajan, a matter of great pride and delight was his project completing 10 million safe manhours without a single Loss Time Injury (LTI), adding to which were the several awards the project was honored with including the International Safety Award 2023 – Best in Country (Bangladesh), British Safety Council’s Sword of Honour and the ROSPA Gold Award 2023 for exemplary occupational health and safety practices. Additionally, the project was recognized with the Risk Award 2023, for their proactive risk management and mitigation strategies. “Our zero-injury record is a remarkable achievement,” gushes

Bhupesh. “Safety was our priority when executing the various sub-systems, installing the lifts and escalators and we are happy that we have made Dhaka Metro a more agile, accessible and safer mode of transport for the citizens of Dhaka.”

Winning the Quality Trophy in 2022 and 2020, alongside the Best Performing QMS Awards for 2020–2021 and 2022–2023 in RSBG demonstrated the team’s commitment to quality and operational excellence. “Our focus on workplace efficiency earned us the Best 5S Implementation Award for FY 2022–2023,” smiles Debakash, “and this Timely Delivery Award 2024 is truly the crowning piece reflecting our dedication to meet all deadlines without compromising quality or safety and set a new standard for urban transit projects.”

**VOICES FROM
GROUND ZERO**

Kollu Prasad
Planning In-charge

“It is only through extensive interface and collaboration with the local subcontractors, that we were able to achieve efficiency and productivity. In fact, the involvement of our front-line personnel in strategy development helped streamline operations.”



VOICES FROM
GROUND ZERO

Shamim Ahmad Khan
Electrification In-charge

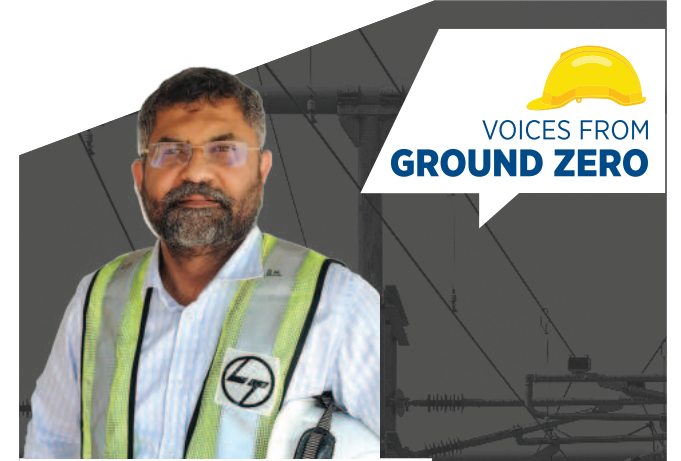
By adopting a proactive approach and assigning clear ownership for each segment, along with continuous training, effective communication, and strong problem-solving approaches, we successfully integrated and commissioned the new technology.



Future Opportunities

Following the successful completion of E&M works and the operationalization of the MRT Line 6, the metro system has been extended by 1.12 km to include the Kamlapur section. "With an impressive average monthly passenger footfall of

70.45 lakh in 2024, the success of MRT Line 6 has not only catalysed the introduction of new MRT lines such as MRT Line 1, Line 5-Northern Route, Line 5-Southern Route, Line 2 & Line 4, but also places L&T in a commendable position to secure the upcoming lines," says Sunil Khattar, VP and Head – Metros BU.



VOICES FROM
GROUND ZERO

Bhupesh Mahajan
L&E System & EHS In-charge

Our zero-injury record is a remarkable achievement. Safety was our priority when executing the various sub-systems, installing the lifts and escalators and we are happy that we have made Dhaka Metro a more agile, accessible and safer mode of transport for the citizens of Dhaka.



Stakeholder voices



We are pleased to announce that the contractor of package CP-07 of MRT Line-6 Marubeni - L&T JV has successfully completed all the works related to the package and achieved early commissioning. The system is working satisfactorily.

Md. Zakaria
Project Director of Dhaka Metro

During the course of the construction, the Marubeni and L&T Joint Venture (MLJV) suffered COVID-19 and lots of difficulties. However, MLJV completed Phase 1 in December 22 and Phase 2 in November 23 in a timely manner. I am very much proud of the capability of L&T and wish L&T to expand their activities in Bangladesh from the experiences obtained through the MRT6 Project.

Nagato Osamu
General Manager – Marubeni, JV partner



We are immensely grateful to L&T for the collaboration on the Dhaka Line 6 project. Despite the request for a shortened timeline of the inauguration, L&T's dedication and realistic scheduling, tightly communicated with the client, was the key to success. The team's professionalism and commitment ensured the project's successful completion. This experience has strengthened our partnership, and we look forward to future opportunities to work together. Thank you!

Murakami
Nippon Signal SIG, PSD & AFC sub-contractor

I would like to extend my sincere appreciation for the successful completion of the Dhaka Metro Project despite unfavourable geographical and environmental conditions. Your collaboration, expertise and unwavering commitment has become the 'X' factor to delivering the work within a time frame. We look forward to continued success in our future endeavours.

Rajnish Behl
Infrastructure Projects – OTIS, L&E sub-contractor



DELIGHTING THE CLIENT BY DELIVERING ON TIME

132 kV NADHESSA Substation for DEWA, UAE

While completing a project ahead of contractual commitments and winning L&T Construction's Timely Delivery Award – 2024 are matters of great pride, what must have thrilled Project Manager, P Vadivelu and his team at the NAHESSA 132/11 kV Substation project in Dubai even more is the appreciation and accolades they received from a delighted client, the Dubai Electricity & Water Authority (DEWA).

"By energizing the substation 5 months ahead of schedule, this project stands as a beacon of success, a testament to L&T's capability to deliver exceptional results and an example of our successful collaboration with DEWA," says a delighted Vadivelu.



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VOICES FROM
GROUND ZERO

By energizing the substation 5 months ahead of schedule, this project stands as a beacon of success, a testament to L&T's capability to deliver exceptional results and an example of our successful collaboration with DEWA.



P Vadivelu
Project Manager

"It was a journey of innovation, collaboration and dedication with our skilled and devoted team demonstrating unparalleled technical prowess and overcoming challenges to ensure the seamless execution of this critical infrastructure project." At another level, this not only reinforces L&T's reputation for reliability and precision but also underscores its proactive approach to project management.

The project executed by a powered team from PT&D IC, is intended to power the upcoming Data Centres being developed by the Dubai Integrated Economic Zones (DIEZ) and involved Engineering, Supply, Installation, Testing & Commissioning of 8 bays of 132 kV GIS, three Power Transformers, 71 bays of 11 kV Switchgears, associated protection panels, a civil building, HVAC, LSP and FPS systems.

Many constraints. Many more solutions

Perhaps, one of the initial constraints facing the team was the limited space to manoeuvre for construction. "Despite these constraints, the developer, DIEZ, was extremely aggressive in their approach, determined to commission the substation within the contractual duration to facilitate the development of their respective zones," recalls Vadivelu, grimly, who is also the Planning Head for the project.

Another challenge was the introduction of the DOSS concept by DEWA. "It was being implemented for the first time in the DEWA network at our project that impacted design approvals, the Factory Acceptance Tests and delivery of major secondary equipment required to commission the project," moans Vadivelu but immediately brightens up and says with steel in



Mohamed Rasiq
Quality In-charge



Our engineering team chose to submit the Overall Equipment Layout (OEL) in two stages, segregating the architectural and equipment details along with cable orientation that enabled us to proceed with the submission of the civil drawings and site activities.



his voice: "We met these hurdles with resilience and strategic thinking and our innovative solutions not only addressed the immediate issues but also enhanced the overall project outcome."

Engineering is always the first activity in a construction project which builds the momentum for further activities to perform better. "Our engineering team chose to submit the Overall Equipment Layout (OEL) in two stages, segregating the architectural and equipment details along with cable

orientation that enabled us to proceed with the submission of the civil drawings and site activities," informs Quality In-charge, Mohamed Rasiq.

Additionally, the team convinced the DEWA Engineering team to review and approve the entire civil & MEP drawings (150 Nos) in bulk submissions (5 Nos) instead of doing them sequentially. Taking the DEWA and the Developer into confidence, the team arranged multiple workshops to secure design approvals in stages. The result was that they were able



to complete the casting of the substation raft in a record 217 days from the award of the project, that included shoring (all the 4 sides), erecting 697 stone columns and diverting an existing 225 mm dia waterline.

Vadivelu mentions introducing the lean methodology, SCRUM, at the project. "SCRUM meetings involving all critical stakeholders were conducted daily to promptly resolve bottlenecks and we convinced the client for FATs saving time in scheduling, processing and overseas travel," he says with an encouraging nod.

The availability of incomer cables could have potentially derailed project progress. The team, however, was prompt to follow up with the cable contractor, appointed by DEWA, to propose possible options to ensure their readiness in line with the targeted commissioning schedule. That the project was completed in time reveals the team's success.

Collaboration & teamwork to the fore

A project of this magnitude could only have thrived on the collective efforts of a diverse and talented team and Vadivelu is delighted with their collaborative spirit that enabled a free flow of ideas, creativity and problem-solving. "Each team member brought his or her unique skills and perspectives, contributing to the project's success," he notes.

In the grand tapestry of PT&D, NADHESSA 132/11kV Substation project stands as a testament to the capabilities of a dedicated and collaborative team. The journey from conception to completion has not only realized the initial vision but has set a new standard for excellence. Another reason for Vadivelu and his team to celebrate is that their project showcased the wonderful synergy and collaboration between the DEWA and L&T, laying the ground for a sustained and fruitful association going forward.



SCRUM meetings involving all critical stakeholders were conducted daily to promptly resolve bottlenecks and we convinced the client for FATs saving time in scheduling, processing and overseas travel.

P Vadivelu
Project Manager

CREATING THE POWER TO LIGHT UP 132,000 HOMES

700 MW Ar Rass-1 Solar IPP Project, KSA

An area the size of 2500 football fields.
The length of cable laid is equivalent to 2/3rds of the Earth's diameter.
These are some startling facts that have gone into constructing the 700 MW Solar PV IPP Single-Axis Tracker Plant by a Renewables IC team at Ar Rass, that is the oldest and largest city in the Al-Qassim Province by area and third largest by population. The development of the plant is a part of the REPDO (Renewable Energy Project Development Office) Round 3 renewable projects with a combined capacity of powering 132,000 homes while offsetting nearly 1.5 million tons of emissions per year and a part of Saudi Arabia's ambitious target to develop 130 GW of renewable energy capacity by 2030.



THE NUMBERS TELL A STORY

- 1.418 million bifacial PV modules
- 12,667 solar PV trackers
- 1,558 automated robot cleaning systems
- 239 solar inverters, and much more

The scope of work for Project Director, Avesh Kumar Verma, and his team was to design, engineer, procure, construct, commission and test for 700 MW of solar-generated power. The project consists of PV plant works, and the plant will be connected electrically through a 33/132 kV substation, in turn connected to the Electrical Special Facility (ESF) via overhead transmission lines.

"We set a record in the industry by energizing a 700 MW plant in just 8 days," exults Avesh, who is equally buoyed by the fact that his project has won L&T Construction's Timely Delivery Award – 2024. "It is a testament of human ingenuity, meticulous planning, and unrelenting determination, redefining what people think of energy projects and proving that with the right vision, no target is too ambitious."



We set a record in the industry by energizing a 700 MW plant in just 8 days. It is a testament of human ingenuity, meticulous planning, and unrelenting determination, redefining what people think of energy projects and proving that with the right vision, no target is too ambitious.



Avesh Kumar Verma
Project Director



THE RESULTS OF DRIVING PRODUCTIVITY

2,955 ramming per day

259 tracker installations per day

19.5 MW module installations per day

150 km of cable laying per day

60 MVPS station civil works completed within 120 days

Never losing sight of the ball

With aggressive targets to achieve, not a moment was lost as the team got down to construct in real earnest. "We completed our project in time by focusing on the per day productivity that was achieved against per day asking rates as per the planned dates," stresses Project Manager, Mithilesh Kumar Verma. Driving productivity was within the team's control as majority of works in PV Electrical was inhouse, so dedicated teams for each activity were formed that

synchronized with their successor activities to ensure that all teams got ready stock of fronts, avoided idling, and improved productivity and workflow, as the same workmen were involved in the same activity.

In the ever-evolving landscape of power systems, reducing inefficiencies and optimizing project timelines are paramount for which adopting innovative technologies to simplify installations and reduce resource consumption are critical.



Mithilesh Kumar Verma
Project Manager

VOICES FROM
GROUND ZERO

“We completed our project in time by focusing on the per day productivity that was achieved against per day asking rates as per the planned dates.”

“One such innovation that has had a transformative impact on our project execution is the SKID Inverter Station,” explains Project Control Manager, S N H Prasad. “By replacing traditional MVPS equipment, SKID Inverter Stations have

revolutionized installations, particularly by minimizing the volume of civil work required and significantly shortening installation time.” He adds that this shift has been pivotal to ensure the timely completion of their project.



S N H Prasad
Project Control Manager

“

By replacing traditional MVPS equipment, SKID Inverter Stations have revolutionized installations, particularly by minimizing the volume of civil work required and significantly shortening installation time.”

VOICES FROM
GROUND ZERO



**VOICES FROM
GROUND ZERO**

Aathikesavan
Civil Construction Manager

“It was all about creating and following a new, proactive approach to manage the impact of adverse weather conditions at site.”

Combating the weather and on-ground conditions

In the world of solar energy, as in any other construction field, unforeseen weather conditions can significantly disrupt progress. The trick is to anticipate and mitigate the impact of these weather changes to keep the project on track. Says Civil Construction Manager, Aathikesavan, “It was all about creating and following a new, proactive approach to manage the impact of adverse weather conditions at site.”

For their strategic planning, the team used weather forecast data in conjunction with local knowledge to be prepared for fluctuations before they occurred and adjust their workflows accordingly that not only safeguarded the integrity of the site but also helped to maintain the pace of construction. They faced abnormal rainfall for two months (March & April '23), which was a rare occurrence in the area but a huge challenge, and the team had to be ready with adequate dewatering equipment to avoid any idle in electrical trenches and civil foundations.

Other steps to maintain progress included precast solutions for substation civil works, lighting & CCTV pole foundations, and PV communication tower foundations. “We used a slew



of digital solutions at site,” says Avesh, reeling them off. “The QIR App for quality, SHEILD for safety, SharePoint for database management, timelapse cameras and drone surveys for geospatial, RFID cards, the WISA App for administration, Align for project monitoring, and BIM for engineering.”

Although resource mobilization was an uphill struggle, the team managed it and by constructing camps for the workforce, that solved the issue of non-availability of proper accommodation in the area.

Arranging material was another major challenge with the Russian aggression in Ukraine drying up supplies from Europe. New vendors were onboarded, with whom, the team continuously stayed in touch and with regular follow-ups, ensured timely delivery of materials, which in turn contributed to the timely execution of construction works.

Making Mission Zero Harm a reality

“On June 4, 2024, we were proud to announce that our team had successfully completed over 4 million safe working hours without any Lost Time Injuries (LTIs),” declares a delighted EHS In-charge, Mohamed Behery. “This achievement is a testament



Mohamed Behery
EHS In-charge

“

On June 4, 2024, we were proud to announce that our team had successfully completed over 4 million safe working hours without any Lost Time Injuries (LTIs). This achievement is a testament to the dedication, commitment, and constant vigilance of every team member in creating and maintaining a safe working environment.

**VOICES FROM
GROUND ZERO**

to the dedication, commitment, and constant vigilance of every team member in creating and maintaining a safe working environment.” A key factor in achieving this milestone was the 120,000 training hours conducted throughout the year. In addition to their internal safety efforts, the team also completed all external Environment & Safety (E&S) audits without any Non-Conformance Reports (NCRs) or major findings: another feather in Mohamed's hat.

“It was a really tough project to execute with harsh timelines and even harsher conditions, but we succeeded thanks to our never say die attitude,” sums up an extremely satisfied Avesh. “I am sure in future many families will thank us for what we have created,” he concludes with elan. ■

A TIMELY DELIVERY TO THE DOT

Food Processing Plant for JRS India Corp Pvt Ltd., Ahmedabad

It was all a matter of dates for Project Manager, Hemant Gupta and his B&F IC team at the JRS (India) Food Factory project in Ahmedabad.

11th February 2022
Start date

7th November 2023
Trial run of the French Fries line

15th February 2024
Start of commercial production



VOICES FROM GROUND ZERO

In one hour over lunch, we were able to catch up on how things were progressing in each building from morning to lunch and during the course of the discussions, we got to hear stories and accounts of what was happening at ground zero that put everyone on the same page. We thereby achieved a high degree of synergy between the teams.



Hemant Gupta
Project Manager

"These dates were cast in stone with absolutely no scope for negotiations even as the design was continuously evolving and our scope increasing with new additions," recalls Hemant, the memories creating worry lines on his forehead. The client, M/s J R Simplot, was entering India to set up a special process plant with a 6 ton/hour capacity for the initial line, and as their EPC partner, L&T was expected to deliver as per the contractual stipulations. "Being on an EPC model, we had to coordinate with several OEMs across five countries and lack of closure on design and scope was not helping us," adds Hemant.

One can understand Planning Manager, Vinoth Kumar's headache in this situation. "All the international vendors onboarded for commissioning the process plant line were scheduled as per the

original dates and prebooked 9 months in advance, so it was hugely challenging to keep their trust intact and live up to the client's faith in L&T."

Tough situations warrant new solutions

One the team's initial challenges pertained to coordinating with multiple process equipment vendors across different regions and overcoming language barriers to ensure smooth design integration. "By leveraging structured communication templates, multilingual documentation, and collaborative digital platforms like BIM 360, we met the expectations of all our stakeholders including in design, execution and delivery," shares a delighted Design Manager, Magesh Kumar.

Setting up the MEP Systems was another tall order having to adhere to stringent global food hygiene standards, incorporating first-of-their-kind systems like GFS (Glass Fused Steel) tanks, Zero Liquid Discharge Systems, Glycol-based process cooling systems, cold storage refrigeration and associated MEP systems apart from integrating the MEP system with the process equipment, many of which were being deployed in B&F IC for the first time. "By leveraging our inhouse design expertise residing within the EDRC design team, we were able to successfully deliver the project on time," Magesh's smile says it all.

Procurement Manager, Vinod Pandey's challenge was to get Customs to clear some 400-odd sea containers full of equipment & machines arriving in knocked down condition on time. "Thanks to the Just In Time concept, we were able to directly position the equipment on to the foundations that eliminated rehandling costs," he grins.

It is often said that a team that eats together, stays together, and one of the unique yet simple initiatives that Hemant introduced was to have lunch with all the department heads. "In that one hour over lunch, we were able to catch up on how things were progressing in each building from morning to lunch and during the course of the discussions, we got to hear stories and accounts of what was happening at ground zero that put everyone on the same page." Hemant stops for a moment, perhaps reliving some of those war stories shared at the table. "It really worked wonders," he resumes with gusto, "and we achieved a high degree of synergy between the teams."

He shares another of his peoples' initiatives that he calls "Prep" involving all the stakeholders right up to the Foreman level, for all to understand how one particular agency would be working that reduced reworks to almost nothing.



Magesh Kumar
Design Manager



By leveraging structured communication templates, multilingual documentation, and collaborative digital platforms like BIM 360, we met the expectations of all our stakeholders including in design, execution and delivery.



THE PROJECT SCOPE IN NUMBERS

- 2,200** MT of structural steel
- 28,000** cum concrete
- 4,000** MT reinforcement
- 32,000** sqm Puff Insulated panels
- 4,800** sqm of façade and ACP works

Hemant and team extended this exercise even to the trial phase by initiating morning huddles involving the client, the OEM engineers, and his team to promptly resolve day-to-day issues.

In fact, they endeavoured to close issues in less than 24 hours that contributed significantly to their successful and timely delivery of the project.



Project features

A few highlights of the project included specialized mechanical utilities consisting of ammonia, compressors, boilers, AHU units, cooling towers, Glycol systems, fire protection & fire alarm systems, VESDA system, IT networks, CCTV and access control systems, and more. Civil structures included a PEB building,

hygiene rooms, a cold storage warehouse, an administrative building, security facilities complete with interior finishing, furniture and a transit house with interiors & furnishings. Utilities included a 66 kV switch yard, a control building, a 11 kV transformer yard, among others. External development involved a security compound wall, ponds, landscaping, trees, hardscaping, shrubs & hedges, recharge well system, and traffic signage.



Vinod Pandey
Procurement Manager



Thanks to the Just In Time concept, we were able to directly position the equipment on to the foundations that eliminated rehandling costs.



Chirag Soni
EHS Head



The proof that we prioritized Safety above everything else is reflected in our clean EHS record of no fatalities or LTI and the fact that we won British Safety Council's Sword of Honour.

A well thought through delay mitigation strategy

An extremely insightful step taken by the team was to liaise with the IBR Inspector right from conceptualization to final certification that was beyond the scope of the original contract. "Our proactive consideration of Natural Gas skid with provision of a gas flow meter saved us approximately 4-5 months," mentions a happy Vinod, "for reduced gas connection requirements led to GSPL to Gujarat Gas." The team's initiative to procure and install cable trays from Vandepole that falls in the OEM's scope further mitigated delays and even though the contract stipulated a non-walkable false ceiling, the team designed and installed a serviceable false ceiling for easier maintenance in future.

Tackling speed with safety

Even as the team pressed the pedal to deliver as per the committed dates, the onus on EHS Head, Chirag Soni, was to ensure that the highest Safety standards were met and sustained, and lives kept safe. "The proof that we prioritized Safety above everything else is reflected in our clean EHS record of no fatalities



or LTI and the fact that we won British Safety Council's Sword of Honour," he says with a thumbs up.

Technology, another key contributor to success

Apart from having a BIM studio at site that was not part of the contract, Hemant used BIM slightly differently to his and the project's advantage. "As Project Manager, I decided to share the sequence of services in BIM to all right up to Foreman level," shares Hemant, "which is a little unique for normally engineers only check BIM to see the route and sequence. My initiative helped in reducing reworks and abortive works to a very large extent," he smiles with great satisfaction.

A measure of the client's trust in the team's capability was that they did not have any consultants or third parties at site to monitor progress. "The onus of delivering to quality, safety and time was entirely on us and it is a great feeling that we were able to live up their expectations and deliver a project that we are all extremely proud of," rounds off Hemant, triumphantly. ■

CELEBRATING A TRIUMPH OF COLLABORATION AND TEAMWORK

Etihad Rail 2F2 Package Freight Facilities, UAE

If asked, Project Director, Barath Kumar U of the Etihad Rail Freight Facilities Project in the United Arab Emirates, will describe it as a triumph of resilience, collaboration and teamwork, aided in good measure by successful and agile stakeholder management including subcontractors, efficient equipment sourcing, handling contracts, and of course, major construction works. The project involved the construction of six freight handling facilities, across UAE to support the Etihad Rail network, to provide a safer, greener and more efficient mode of transportation for goods and commodities.



Khalifa Port Railway Marine Bridge



The key was to select the right design and local consultants and manage them effectively to deliver compliant designs meeting both the project and local requirements.

VOICES FROM
GROUND ZERO



Barath Kumar U
Project Director

The fruits of their labour are there for all to see in the numerous accolades and commendations, both internal and external, that the project has won starting with the L&T Annual EHS Rolling Trophy (2021-22) for the Safest Job Site within the then M&M SBG, followed by the Construction Week Awards-2023, identifying it as the Infrastructure Project of the Year, and the MEED (Middle East Economic Digest) Awards-2023, honouring it as the Transport Project of the Year. Certainly, L&T Construction's Timely Delivery Award 2024 is the crowning piece, acknowledging the efficiency of Barath and his team to deliver on time as per their contractual obligations to a tough client like Etihad Rail.

"The Etihad Rail Freight Facilities Project stands as a hallmark of strategic execution and engineering excellence, seamlessly integrating freight infrastructure across multiple Emirates," elaborates R Madhusudanan, Segment Head –

MENA, M&M IC. "L&T delivered this transformative project with a meticulously orchestrated approach to engineering, procurement, construction, and stakeholder management. Despite unprecedented challenges during and post-COVID-19, our ability to navigate complexities ensured its successful and timely completion. This achievement underscores the power of collaboration, and reinforces enduring partnerships with clients and stakeholders."

Overcoming the impact of the pandemic and other challenges

To contend with lockdowns, supply chain disruptions and manpower shortage caused by the pandemic, the team closed ranks quickly adapting to changing circumstances, taking proactive measures to keep their employees and workers safe by following all the prescribed protocols and the strict UAE regulations.



VOICES FROM GROUND ZERO

R Madhusudanan
Segment Head – MENA, M&M IC

“L&T delivered this transformative project with a meticulously orchestrated approach to engineering, procurement, construction, and stakeholder management.”

Managing stakeholders was a major challenge during execution that included regulatory bodies at different geographical locations. “The key was to select the right design and local consultants and manage them effectively to deliver compliant designs meeting both the project and local requirements,” shares Barath, “but it was not entirely a smooth and hurdle-free journey,” he smiles tightly, citing an example of the E611 flyover in Dubai, over the approach rail track to the facility.

“The approval for the flyover was kept on hold by the Roads and Transport Authority (RTA), Dubai, due to the ongoing Expo-2020 that adversely impacted the construction of the track and subsequent testing and commissioning of the facility,” says Barath, with a shake of his head. “However, both the design and construction teams collaboratively came up with an innovative solution to place a precast arch over the railway track and manage the traffic on a Temporary Traffic Management (TTM) road with a level crossing so that we could continue constructing and testing the track irrespective of the status of the flyover.”




Aggregate Dry Port Freight Facility (ADP)

Maintaining a constant inflow of material

Procurement Manager, Vinod Choudhary is a relieved and happy man having successfully managed a team comprising people drawn from diverse nationalities, including from China, Syria, Philippines and Lebanon, to source quality goods from 20 different countries and have them delivered to site on time, within the allocated budget. “It called for extensive coordination and constant communication,” he says, “and our procurement strategy was to identify critical long lead packages, evaluate suppliers in advance, prepare SOPs with details of preorder, ordering and post order guidelines that helped our team to work in sync with the project schedule.” In addition, regular monitoring, risk assessment and supporting the supply chain in times of need helped them to overcome the numerous supply chain disruptions. “In fact, periodic reviews and guidance from our senior management at the Kolkata HO were morale boosters for the team,” he adds, with gratitude.

Managing and ensuring a high level of performance and delivery from 250+ subcontractors was a tall order. Vinod attributes their success to effective leadership, timely decision

making and constant communication with their senior management. “We successfully managed this complex network of subcontractors to ensure that their work met the



VOICES FROM GROUND ZERO

“Our procurement strategy was to identify critical long lead packages, evaluate suppliers in advance, prepare SOPs with details of preorder, ordering and post order guidelines that helped our team to work in sync with the project schedule.”

Vinod Choudhary
Procurement Manager



Akash Jain
Senior Deputy General Manager
– Accounts



I focused on disciplined cash flow management, leveraging surplus funds, securing vendor advantages, and implementing cost-control measures. Rigorous financial oversight, including quarterly audits and seamless coordination with over 650 vendors and subcontractors, ensured operational efficiency and regulatory compliance across UAE and India.



expectations of our project management consultants - Egis and Jacobs,” he announces proudly. Their commitment to deliver a project of the highest quality, strict adherence to best practices in project & supply chain management and focus on continuous improvement based on feedback from the consultant/client and L&T senior management stood the team in excellent stead all through the project life cycle.

“The Project, executed as a Joint Venture, required a strategic approach to liquidity management, resource optimization, and cost efficiency,” remarks Akash Jain, Senior Deputy General Manager – Accounts. “As Deputy CFO, I focused on disciplined cash flow management, leveraging surplus funds, securing vendor advantages, and implementing cost-control measures. Rigorous financial oversight, including quarterly audits and seamless coordination with over 650 vendors and subcontractors, ensured operational efficiency and regulatory compliance across UAE and India. This meticulous financial stewardship contributed to a well-governed and successfully executed project.”

Project management tested to the limit

Of the six facilities, the Ghweifat Freight Facility was introduced as a change order to the original scope, that sternly tested the project team's project management skills. “At the UAE-KSA border, the construction of the facility faced constraints in terms of resource, material, and equipment availability,” mentions Construction Manager, Suneel Kumar S, “however, through meticulous planning, we ensured timely availability of the resources, avoiding typical last-minute hurdles to adhere to the project timeline and deliver as per an extremely demanding schedule.” He looks a happy man.

Unfavourable weather conditions with temperatures in summer soaring to 50°C, humidity levels reaching 90% compounded by frequent sandstorms and remoteness of the site were other challenges that team had to overcome. “There we relied heavily on precast construction,” explains Suneel. “Additionally, we utilized a special concrete mix with an extended initial setting time of up to 8 hours to accommodate to the needs of the site.” Modular Porta-cabin structures minimized extensive on-site work, and all construction activities were scheduled during the day, as obtaining night shift approvals was difficult due to remoteness of the site.

Smooth interfaces speed up delivery

Another key reason for the project's timely delivery was how interfaces were expertly managed with the systems contractor, whose engineering completion and interface inputs were critical to the design and construction of the facility buildings and infrastructure. The interface team, led by the Interface & Systems Manager, Sutanu Biswas, proactively engaged in technical discussions to define the interfaces and provisions acceptable to both the parties, recording them and proceeding with the designs so that engineering completion was not affected by the Systems contractor.

“Working closely with the construction team, we ensured that those interface provisions were incorporated, inspected and accepted during the construction phase itself, even though the program for installation was by different interfacing contractors,” mentions Sutanu. “This met our customer's expectations, which resulted in Faster Taking Over, despite longer duration in integration works by the systems contractor,” he smiles.



Dubai Industrial City Freight Facility (DIC)



Through strategic planning, seamless stakeholder collaboration, and engineering excellence, we have delivered a world-class logistics infrastructure that strengthens UAE's freight network.



T Kumaresan
EVP & Head – M&M

Sutanu mentions the unique Terminal Operating System (TOS) and Gate Operating System (GOS) solutions that digitalized the entire operations of the rail terminal bringing in efficiency & better visibility. “It is the first of its kind in the region for rail operation,” he remarks proudly.

Risks related to such unique solutions were mitigated through in-depth interface discussions & records with all stakeholders and a robust contract where the supplier was also made accountable and responsible for end-to-end design, interface, implementation and handover.

“The Etihad Rail Freight Facilities Project is a testament to our ability to navigate complexity with precision and agility,” says T Kumaresan, EVP & Head – M&M, all praise for his

award-winning team. “Through strategic planning, seamless stakeholder collaboration, and engineering excellence, we have delivered a world-class logistics infrastructure that strengthens UAE's freight network. This achievement underscores our commitment to innovation, sustainability, and setting new industry benchmarks in large-scale project execution.”

“At the end of the day, despite the challenges, we successfully completed the Etihad Rail Freight Facilities project on time, with Zero Harm and or LTI and within budget,” exults a delighted Barath. “The facilities are also so designed that they are environmentally sustainable, reduces carbon emissions and supports UAE's commitment to sustainability,” he concludes on a high. ■



Celebrating Excellence in Quality!



**Agar Malwa MVS
WATER & EFFLUENT
TREATMENT IC**



**Construction of Vitrified &
Control Buildings, BARC Tarapur
HEAVY CIVIL INFRASTRUCTURE IC**



**435 KTPA Aluminium
Smelter Expansion
Project, BALCO, Korba
MINERALS & METALS SBG**



**112.5 MW WBSEDCL Solar
Project, Goaltore,
West Bengal
RENEWABLES IC**

ALWAYS SEEKING TO RAISE THE QUALITY BAR

Construction of Vitrified & Control Buildings, BARC Tarapur

Project Manager, Sunil Kumar Singh at Heavy Civil Infrastructure IC's project to construct vitrified storage & control buildings at the Bhabha Atomic Research Centre, Tarapur, has a simple approach to drive Quality at site. "We are always looking to develop a culture of continuous improvement by regularly reviewing quality performance, gathering feedback from the team, and identifying areas for process improvement," he states. That he and his team have been doing a good job about it is reflected in the project



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VOICES FROM
GROUND ZERO

We are always looking to develop a culture of continuous improvement by regularly reviewing quality performance, gathering feedback from the team, and identifying areas for process improvement. Meeting and surpassing customer expectations aligns with our continuous improvement measures through a robust quality management system.



Sunil Kumar Singh
Project Manager

winning L&T Construction's Quality Award 2024. "Meeting and surpassing customer expectations aligns with our continuous improvement measures through a robust quality management system," he adds for good measure.

Driving a robust QMS

A comprehensive Quality Management System backed by a well-defined quality assurance procedure with rigorous quality control checks at every stage is at the core of the team's drive to raise the Quality bar. "Our Quality Induction Center at site gives an overview of the project quality deliverables and quality-related DO's and DON'Ts," informs Planning In-charge, Mahindra Shanbhag. Apart from displaying construction materials to first time workmen, the Centre features a physical mock-up area, and a training area too. "Periodic internal

ISO 9001 audits and MRMs further reinforce our commitment to maintaining a fool-proof quality management system throughout the project duration," he emphasizes.

Adopting a proactive, quality centric approach

Mock ups are conducted before the actual execution of the critical & complex activities on site that help to fine tune procedures and identify issues before hand as well as minimize reworks. "We have a large scope of finishing work in our project and to enhance the quality of the final product and reduce the rework at site, we have introduced a skilled workmen qualification, and our QA engineers qualify the masons, welders and painters after assessing their performance during the mock-ups conducted on site," shares Quality In-charge, Abhishek Kumar.



Mahindra Shanbhag
Planning In-charge



“Periodic internal ISO 9001 audits and MRMs further reinforce our commitment to maintaining a fool-proof quality management system throughout the project duration.”

Every month, one worker from each package is recognized and awarded for his quality-conscious behaviour that fosters a quality-conscious environment at the workplace, motivating workers to strive for excellence in their quest to earn the monthly quality conscious award - PRATHAM – Initiative towards Quality Conscious Behaviour.

Driving a culture of continuous improvement

Thimble tube erection is one of the most critical activities of our project. “On carefully reviewing and implementing in-house engineering measures like introducing ventilation pipe installation trolley, wheel mounted jigs and electrical hoists, we have managed to reduce the thimble tube erection time from 16 months to 7.5 months and bring down multiple handling and thereby reducing the incidents of pipe damage and saving on rework costs,” beams Sunil.

Faced with a large plastering scope, the project team is dealing with a crisis: the dearth of skilled masons. To reduce their reliance on manual labour, the team has taken approval for a spray plaster pump and ready-mix plaster after demonstrating its efficacy to the client. “With spray plasters we have not just

managed to increase our plastering productivity but have also reduced wastage and achieved better quality,” shares Sunil, looking pleased at the result of their initiative.

Riding the tech wave

Technology is lending more than a helping hand for the BARC project team to enhance their efficiencies and maintain their effort to sustain Quality in top gear. Digital platforms like ConPro & Sanyog are not only providing just real time data monitoring but helps improve both product quality and operational efficiency. “We have a 100% adoption record of Quality Sanyog and ConPro at our project,” shares Abhishek with a look of triumph.

The team’s proactive approach of finding potential quality related deviations in processes is leading to the prevention of product non-conformities which, according to Abhishek, is helping them maintain zero NCRs from the customer.

Due recognition & awards for their quality effort

In their integrated Nuclear Recycle Plant Construction (INRPC) facility, Sunil informs, that there are 7-8 contractors working



Abhishek Kumar
Quality In-charge



“We have a large scope of finishing work in our project and to enhance the quality of the final product and reduce the rework at site, we have introduced a skilled workmen qualification, and our QA engineers qualify the masons, welders and painters after assessing their performance during the mock-ups conducted on site.”

simultaneously on different blocks inside the secured & sensitive project perimeters, including Hindustan Construction Company (HCC) & Tata Projects Limited (TPL), among others. “Often, during their site walkdowns, senior BARC officials have appreciated our final product quality in comparison to

that of our fellow contractors,” he says, with unconcealed pride. “Our project team is always ready to go the extra mile to delight the customer and maintain L&T’s brand value.”

Maintaining zero NCRs at the project has fetched an appreciation certificate from BARC and there have been accolades too for completing both the chimneys along with platform to the highest standard of safety & quality within 4.5 months (for the first time in the history of BARC). “We have received another appreciation certificate for achieving superior finish with minimal defects in B-145 and for implementing various innovative techniques like spray plastering, EV trolleys, triple blend HPC, and more,” adds Sunil.

Without doubt the team has got its Quality act together and with a delighted client urging them on, Sunil and his team are on the high road to complete their project maintaining their award-winning Quality performance.



We have received another appreciation certificate for achieving superior finish with minimal defects in B-145 and for implementing various innovative techniques like spray plastering, EV trolleys, triple blend HPC, and more.

Sunil Kumar Singh
Project Manager



50,000+ HOUSEHOLDS WILL SOON RECEIVE WATER THANKS TO A QUALITY PROJECT FROM WET IC

Agar Malwa MVS

Started in December 2021 and funded under the Jal Jeevan Mission, the transformative Agar Malwa Multi-Village Scheme (MVS) involves the construction of a 64.15 MLD Intake Well, a 52.92 MLD Water Treatment Plant, 137 MBRs/ESRs & 2700 km of DI & HDPE Pipelines to ultimately supply drinking water to 53,199 households in this district of Madhya Pradesh.

L&T's team from WET IC under the leadership of Project Manager, V Dhilipkumar, is promising a new dawn for these beleaguered villagers as the scheme envisages to ensure safe,



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VOICES FROM
GROUND ZERO

Right from the planning stage, we have been committed to deliver a state-of-the-art water supply system. We had our share of technical and logistical challenges but have been overcoming them with determination and innovation like adopting monolithic construction for ESRs, hybrid construction methods for the intake wells and more.



V Dhilipkumar
Project Manager

reliable and high-quality drinking water to an area that has for long suffered from water scarcity & inadequate distribution.

“Right from the planning stage, we have been committed to deliver a state-of-the-art water supply system and it is a matter of pride for my enthusiastic project team and me that we have been recognized for our Quality with L&T Construction's Quality Award,” smiles a delighted Dhilipkumar. “We had our share of technical and logistical challenges but have been overcoming them with determination and innovation like adopting monolithic construction for ESRs, hybrid construction methods for the intake wells and more.

Monolithic construction for ESRs

“To enhance the durability of our construction, we have adopted monolithic shutters to construct the Elevated Service Reservoirs (ESRs) that has enabled us to cast the 3.6 m columns and tie beams in a single pour,” explains Assistant Manager – Planning, Rajesh Patidar. “This approach has significantly reduced construction time and eliminated joints, ensuring stronger, more durable structures.” By forming the columns and tie beams seamlessly, the risk of weak points is

minimized, enhancing the stability and longevity of the ESRs.

Hybrid construction of the Intake Wells & ESRs

The Intake Well and the 150-m approach bridge were constructed using a hybrid method of Slipform to cast rapidly and continuously, as well as optimize cost. While the superstructure columns were cast-in-situ for precision and stability, the staircase, beams, and top slab were completed using precast components to save time. “This innovative approach saved us about 200 construction days as we completed the structure in just four-and-a-half months and our cost savings were to the tune of ₹37 lakhs,” flags off a jubilant Dhilipkumar. Another example of the team's excellent resource management and efficiency was to construct the ESRs using a hybrid method in which the bottom slab was cast in-situ with the zinc aluminium tank installed above it.

“We commissioned the RWPM Pipe laying without leakage following the first-time right concept with proper monitoring of the pipelaying activities,” adds Prashant Patel (Senior Engineer- Mech Execution).



VOICES FROM GROUND ZERO

Rajesh Patidar
Assistant Manager – Planning

“We have adopted monolithic shutters to construct the Elevated Service Reservoirs (ESRs). This approach has significantly reduced construction time and eliminated joints, ensuring stronger, more durable structures.”

Unwavering focus on progress & quality

Rigorous review and monitoring throughout the construction phase involving regular inspections, progress tracking, and proactive decision-making are what has kept the project on track and winning the Quality Award is a vindication of the MVS project team’s concerted and cohesive approach that



VOICES FROM GROUND ZERO

Prashant Patel
Senior Engineer – Mech Execution

“We commissioned the RWPM Pipe laying without leakage following the first-time right concept with proper monitoring of the pipelaying activities.”



must be music to Head – QA/QC, WWW SBG, P Sivasankaran’s ears. “Apart from adhering to ISO 9001:2015 standards, they have implemented L&T’s robust Quality Management System (QMS) framework, ensuring that all processes meet the highest benchmarks from procurement to execution,” he informs. He is equally pleased with the appreciation from the JJM-Delhi Auditor for Implementing ISO 9001:2015 Quality Management System and that the project achieved a Quality Score of 902 in 2024 with only 14 internal NCRs, all of which have been closed.

The Intake Well and the 150-m approach bridge were constructed with a hybrid method of using Slipform to cast rapidly and continuously, as well as optimize cost. It saved the team about 200 construction days as the structure was completed in just four-and-a-half months accruing cost savings to the tune of Rs. 37 lakhs.

Regular stakeholder reviews and feedback loops with clients and consultants are rigorously maintained while digital tools like QIR, PQI, View EHS, and E-Pragati help the team to monitor progress, track compliance, and document



VOICES FROM GROUND ZERO

P Sivasankaran
Head – QA/QC, WWW SBG

“Apart from adhering to ISO 9001:2015 standards, they have implemented L&T’s robust Quality Management System (QMS) framework, ensuring that all processes meet the highest benchmarks from procurement to execution.”



Mohd Mujiburrahman
Engineer – QA/QC



Continuous training for workmen, internal audits and frequent site visits helped us maintain Quality when constructing the MBRs & ESRs.



quality metrics in real time. "Our periodic internal audits have identified non-compliances that are actually helping us to continuously improve to ensure zero defects and minimize rework," asserts Dhilipkumar. Continuous training programs reinforce SOPs and inspection protocols, driving an awareness for maintaining Quality at every stage of the project. "Continuous training for workmen, internal audits and frequent site visits helped us maintain Quality when constructing the MBRs & ESRs," points out Mohd Mujiburrahman (Engineer – QA/QC).

Quality and safety go hand in hand and that the MVS project has thus far clocked 2.5 safe million manhours is a testament to the EHS standards followed at site that have additionally been recognized with a National Safety Council Award in 2023, a 4-Star Rating by the British Safety Council and a State-level OHS&E Award from the World Safety Organization, both in 2024.

A lot to be proud of

Roundly applauded and recognized for their work thus far, the team is happy with the accolades from the Madhya Pradesh Jal Nigam and local governing bodies in addition to endorsements from key officials. An award that is particularly worth celebrating is the Pride of Central India award from the Dainik Bhaskar magazine, for the project's exemplary contribution to the Madhya Pradesh region, that was followed by recommendations from the District Collector of Agar Malwa and the General Manager of MPJNM, Ujjain. Internally, the project has been appreciated by the Centre of Excellence for their Innovative Ideas at L&T's Pi Awards in 2023 & 2024.

That Dhilipkumar and his excellent team are doing most things right reflects their Quality record and here is wishing them the best as they push for completion that will certainly bring joy to those 50,000+ households who are today still struggling for good drinking water. ■

A CULTURE OF CONTINUOUS IMPROVEMENT KEEPS QUALITY STANDARDS SUN-HIGH

112.5 MW WBSEDCL Solar Project, Goaltore, West Bengal

“Our secret to successfully maintain high quality standards has been to inculcate a culture of continuous improvement by encouraging detection, strict monitoring and addressing lead indicators for quality improvements, and our site has thus far reported 104 lead indicators,” says Project Manager, Narayana Panigrahy, sharing the prime reason for his 112.5 MW

WBSEDCL Solar Project, at Goaltore in West Bengal, winning L&T Construction’s Quality Award for 2024. It also marks a first triumph for the mint-new Renewables IC.



KEY SPECIFICATIONS OF THE PROJECT

Total Capacity

112.5 MWac / 135 MWdc

Structure

The solar power system consists of 9 arrays, each with a capacity of 12.5 MWac / 15 MWdc

Interconnection

Each array is connected to a nearby 33/132 kV pooling substation through 33 kV underground cables. The project scope is till interconnection to 33 kV side at the 33/132 kV pooling substation

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VOICES FROM
GROUND ZERO

Our secret to successfully maintain high quality standards has been to inculcate a culture of continuous improvement by encouraging detection, strict monitoring and addressing lead indicators for quality improvements.



Narayana Panigrahy
Project Manager

Narayana & his team are constructing one of the largest grid-connected ground-mounted photovoltaic (PV) systems near West Bengal’s Goaltore village for the West Bengal State Electricity Distribution Company Limited (WBSEDCL), designed

to generate renewable energy to be distributed to customers and meet the renewable purchase obligations established by the West Bengal State Electricity Regulatory Commission.

In addition to design and engineering, the project team's scope of work includes supply of modules, MMS, inverters, IDT, cables, HT panels, Automatic Robot Cleaning System & SCADA Systems, etc., the construction of the MCR & Auxiliary buildings, IR Platform, pilling, RO building for Module Cleaning, fencing, drains and roads, development, erection & installation at site, testing & commissioning and an O&M contract for 5 years.

Communication is key

"In our culture of continuous improvement, constant communication is critical and our regular team meetings with our Project Manager are primarily instrumental in maintaining the highest Safety and Quality standards," says Assistant Manager – Planning, Arya Mondal, with a sense of purpose, "that enable effective and prompt decision making and effective resource mobilization that will go a long way in completing our project on schedule." By consistently reinforcing quality control and safety standards, the team has successfully maintained exceptional project quality throughout the construction phase, fetching them a Quality Score of 976.



Arya Mondal
Assistant Manager – Planning

VOICES FROM
GROUND ZERO

“nPulse gives us real-time updates on project milestones, task completion, and activity wise progress status to accurately track project progress and facilitate timely decision-making.”



Daily discussions that focus on protocols to sustain a safe work environment provide the team with a platform to proactively identify and address potential hazards before they escalate, significantly reducing the risk of accidents. "Regular safety drills and clear communication ensure that all of us are well-prepared to respond quickly and appropriately in case of an emergency," asserts Safety In-charge, Bijay Ketan Bhuyan. "Proactive identification and resolution of issues prevent delays and ensure smooth project execution."

PEP Talks led by Jakir Hossain, Quality In-charge, and the site personnel have encouraged the staff and workers to meet higher quality and safety standards. "Our training programs are basically focused on technical skills, safety protocols



Jakir Hossain
Quality In-charge

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Upon receipt, every delivery is thoroughly inspected and constantly monitored to ensure material integrity throughout the project, preventing delays and defects. In addition, we have implemented a system of carefully timed and staged material deliveries, reducing the need for long-term storage and minimizing security risks.

VOICES FROM
GROUND ZERO

and quality control,” adds Narayana, “that have resulted in superior quality & safety standards, increased productivity and reduced errors.”

External audit gives a clean chit

“Our site was selected for ISO 9001:2015 certification and the audit, conducted by M/s TUV NORD, did not throw up any NCRs or Observations and made only one point for opportunity for improvement,” beams Narayana, with good reason, attributing their good showing to the use of online tools to improve their project management and overall quality of their installations. The SANYOG App has enhanced workplace quality monitoring. “It streamlines quality assurance processes, quality training to workmen and staff, compliance checks, defect reporting,” Narayana continues, “and ensures that our installations meet the highest standards of quality, ultimately contributing to project success.”

Amongst the progress monitoring tools deployed, is the nPulse App to streamline progress monitoring, enhance project management efficiency and give the site leadership greater visibility and control over the entire process of construction & installation. “nPulse gives us real-time updates on project milestones, task completion, and activity wise progress status to accurately track project progress and facilitate timely decision-making,” Arya elaborates.

Quality is also dictated by the material one uses. The team’s rigorous inspection process conducted by the Quality & Store In-charges ensure that all materials meet the expected quality standards. “Upon receipt, every delivery is thoroughly inspected and constantly monitored to ensure material integrity throughout the project, preventing delays and defects,” highlights Jakir. “In addition, we have implemented a system of carefully timed and staged material deliveries, reducing the need for long-term storage and minimizing security risks.”

Key challenges and mitigation

Controlling a site spread across 420 acres: The solar site is widespread, distributed across multiple patches and surrounded by many villages with many approach roads within that plant area that presents some unique logistical and material security challenges, including the risk of theft & damage to their material. The project team’s response was to erect a robust fence around the entire 420 acres before commencing construction activities.

Rains threatened to spoil sport at the start of the project: The onset of the 2023 monsoon could have jeopardized the timely completion of the Main Control Room (MCR) works,



particularly the foundation. Realizing the impending problem, the team convinced the client to finalize and approve the required drawings in advance, enabling the team to complete the foundation works well before the rains arrived.

Delighting the client: “Understanding the expectations and needs of our various stakeholders, especially our client and consultant, is an important step towards speedy and timely project completion,” remarks Narayana. Quality and Site In-charges facilitate ongoing client interaction during site inspections, ensuring alignment with project goals, transparent communication, and prompt issue resolution, “that are helping us to meet our client’s expectations at every milestone,” adds Narayana.

Recognition for a quality performance

The project was recognized as one of the Best Renewable Power Projects of the Year by Construction Times and won the WSO India (State) Level OHSE Silver Award, both in 2024. “We have been appreciated by our client, WBSEDCL, too” points out Arya. Appreciation certificates have been awarded for ‘Quality in execution activities and implementation of ISO 9001:2015 QMS requirements’ and for ‘Implementation of Best Environmental Health and Safety practices at site.’ Internally, there were the Timely Project Delivery Award, Excellence in Construction Award, Health and Safety Excellence Award at Renewable IC Townhall 2024 for Domestic and Best Account Award for meritorious contribution.

Our site was selected for ISO 9001:2015 certification and the audit, conducted by M/s TUV NORD, did not throw up any NCRs or Observations and made only one point for opportunity for improvement.

Narayana Panigrahy
Project Manager

Certainly, the awards are reasons to celebrate, but Narayana finds true delight in seeing his team successfully complete and deliver a project on time with a good margin. ■

QUALITY IS NOT AN END-GOAL; IT IS AN ON-GOING JOURNEY

435 KTPA Aluminium Smelter Expansion Project, BALCO, Korba

There is no magic formula to achieve and sustain Quality. It is all about rigorously following established processes to minimize errors, maximize quality, and ensure that every step is aligned to set high-quality standards. This is the formula that Project Head, Sanjay Saha and his team at the 435 KTPA Aluminium Smelter Expansion project for BALCO have adopted too and that they have succeeded in their effort is reflected in the project winning L&T Construction's Quality Award 2024.



The team's Quality process has found expression in the development of comprehensive project schedules and resource allocation plans, implementation of robust risk management & mitigation strategies, establishment of clear communication channels, stakeholder engagement protocols & continuous monitoring and improvement of project processes and procedures.

"Our unwavering commitment to detailed quality checks, proactive issue identification, and strong communication with the entire team have ensured that every aspect of the build meets the highest standards resulting in a finished product that we are sure will exceed the expectations of both

our customer and our management," declares a confident Sanjay. The team's Quality process has found expression in the development of comprehensive project schedules and resource allocation plans, implementation of robust risk management & mitigation strategies, establishment of clear communication

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Sanjay Saha
Project Head



VOICES FROM
GROUND ZERO

Sujit Kumar Singh
Planning In-charge

I have been driving project excellence in planning, coordination, and execution as we progress with the project, I am committed to uphold the highest standards of quality, safety, and efficiency.

channels, stakeholder engagement protocols & continuous monitoring and improvement of project processes and procedures.

"I have been driving project excellence in planning, coordination, and execution," states Planning In-charge, Sujit Kumar Singh, "and as we progress with the project, I am committed to uphold the highest standards of quality, safety, and efficiency. Our team efforts have ensured seamless integration of various project components, resulting in timely completion of milestones and adherence to quality benchmarks," he says, heaping praise on his team that has been performing above par.

For a project that puts a premium on Quality, the Quality In-charge, V Balasubramanian (Bala), plays a key role. "Quality is not just an end goal, it is an ongoing journey that requires unwavering dedication from every team member, who have all demonstrated firm commitment to excellence," he shares passionately. Attributing their success thus far to rigorous



Aggregate Dry Port Freight Facility (ADP)

quality planning, inspection, and testing, he ticks off a few of their achievements like the implementation of robust quality control processes and procedures, conducting regular audits and inspections to identify areas for improvement, collaborating with cross-functional teams to resolve quality issues promptly, developing and delivering quality training programs to enhance team capabilities.

Sanjay, Sujit & Bala have been putting into practice what they preach and the Quality they refer to is evident in their project delivery

Precision in pot shell assembly

To assemble pot shells, the team employed IS 2062 Grade 350 BR material, using semi-automated Gas Metal Arc Welding (GMAW) and Submerged Arc Welding (SAW) methods. "Of a total of 304 pot shells, 213 have been expertly produced, each weighing 56.607 MT, with rigorous specifications, that required a total weld length of 1.2 km

per shell and a weld deposition of 0.8 MT, consisting of 507 detailed components," explains Bala, adding that managing the welding distortion to ensure flatness called for both

technical skill and a commitment to quality and craftsmanship, that has been roundly appreciated by their client.



V Balasubramanian
Quality In-charge

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Quality is not just an end goal, it is an ongoing journey that requires unwavering dedication from every team member, who have demonstrated firm commitment to excellence.

VOICES FROM
GROUND ZERO

Pot room civil works

The pot shell foundation, busbar columns, and precast column foundation demanded strict tolerance specifications (+0/-5 mm) that the team succeeded in achieving by optimizing their processes, with careful attention to detail, ensuring that each element integrated seamlessly into the overall structure.

Erecting precast columns & developing the RP-Slab casting machine foundation

"We set a benchmark within M&M by casting 704 numbers of 18-m tall precast columns, each weighing 28 MT, directly at site that reduced formwork costs and speeded up construction," highlights Sujit. By using high early-strength cementitious (HES) grout, which sets in 6 hours compared to the traditional 24-hour grout, the project achieved significant time savings and improved productivity, effectively tripling output. Excavating a 24 m deep foundation pit for the RP-slab casting machine foundation was tough, with operations hindered by lack of space. Implementing a 5-step sheet piling process to control water infiltration and avert soil failure, the team completed the works precisely and efficiently.

P&F Conveyor & Alumina Handling System

A new development was the introduction of the Power & Free conveyor system in the Anode Rodding Shop. An impressive

1,250 m overhead installation featuring a 960-m walkway, four loops, four drives, 150 carriers, and 110 stops, was efficiently erected, successfully tested and handed over to the Client. Another groundbreaking advancement was BALCO's introduction of the Air Cushion Belt Conveyor, developed by Guiyang Aluminium Magnesium Design & Research Institute Co., Ltd. (GAMI) that replaced the conventional conveyor methods. "This innovative air cushion system, that marks a significant step forward in material handling, dramatically reduces friction and wear, while boosting efficiency and decreasing maintenance expenses," points out Bala. The system spans 3.71 km and features 92 trestles, 12 transfer stations, 103 galleries, unloading stations, and three steel silos, each measuring 30 m in diameter and height.

Introduction of ACC Blocks

The team's move to substitute conventional fly ash bricks with Autoclaved Aerated Concrete (ACC) blocks enhanced construction efficiency, minimised labour requirements and improved the overall quality of the buildings. "These blocks provide superior thermal insulation, reduce heat transfer and minimize energy consumption; their lightweight yet robust structure ensures reduced dead load on foundations and a more efficient structural design," informs Sujit. ACC blocks are fire-resistant, non-toxic, pest resistant, and facilitate faster and more accurate construction.



Innovations like specialized Faraday cages for welding in high magnetic field areas and the Conquer Mobile App for real-time quality tracking have improved efficiency while modular erections reduce on-site construction time, minimize risks and ensure superior quality. Other tech solutions include real-time data analytics and documentation, Request-for-Inspection (RFI) processes and paperless observations on rework issues and resolutions.

Sustaining the workforce & vendors

To maintain the workforce at such a large-scale project, the administrative team provides essential services, including meals, snacks, mosquito control, routine medical checkups, and transportation to & from the labour colony. These initiatives have significantly improved workforce well-being, and in turn, project progress. Engaging with well-established vendors for prefabricated structures and bought-out components ensure that only high-quality resources are utilized, risks minimised, and project quality assured.

Site level Quality initiatives

Apart from stagewise inspections by field level inspectors & technicians, the team has checklists, work instructions, SOPs, internal quality review meetings, weekly reviews with BALCO, monthly Quality meetings with HQ teams, and daily checks and balances to ensure adherence to project specifications and standards. Continuous on-the-job training for employees & workers, recognizing 'Quality Champs', conducting regular walkdowns by the BALCO management & client representatives & frequent top management visits have ensured that Quality remains top of mind for all.

"By integrating these comprehensive quality initiatives, we are not only elevating project integrity but also fostering customer satisfaction by adhering to world-class quality standards," says a determined Sanjay. "These measures serve as a blueprint for delivering durable, reliable, and value-driven construction projects." ■

Tunneling to greater heights!

***New world record: 46.596 RM of tunneling in a single day
at 1,000 MW Pakal Dul Hydro Electric Project's HRT-TBM Package***



The 8.33 m diameter TBM *Askini*, measuring 147 m in length, completed 628.652 RM of tunneling in the month of December, surpassing its own previous records.

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