



A COMMITMENT to the **FUTURE**

Construction activities are at their peak currently with many construction projects underway and many are in the pipeline. This has added more stress to the environment by way of air pollution and emissions. In this scenario, there is a growing importance for companies in the construction value chain to adopt eco-friendly measures for a sustainable future. **Construction Times** presents the trend and way forward.

Sustainability has become the need of the hour in every segment and construction has no exception. Sustainability in construction involves integrating environmentally responsible practices, resource efficiency, and social considerations into the planning, design, construction, and operation of buildings and infrastructure. Sustainable practices, ranging from the use of eco-friendly materials to the implementation of energy-efficient designs and climate-resilient construction methods, play a pivotal role in mitigating environmental impact and ensuring the enduring resilience of our built environment.

IMPORTANCE OF SUSTAINABILITY PRACTICES

Sustainable practices in construction are of paramount importance in today's world, reflecting

increased awareness of environmental and social responsibilities. Although the building sector uses 32% of natural resources and accounts for 40% of world energy consumption – it emits 30-33% of greenhouse gases. It is therefore important to follow sustainable practices to reduce pollution and become environment-friendly. Embracing sustainable construction begins with adoption of environmentally conscious design principles involving the integration of eco-friendly materials, reuse of recycled resources and energy-efficient technologies.

CHALLENGES IN ENGAGING SUSTAINABLE PRACTICES

According to Sourabh Mukherjee, Executive Vice President – Clean Energy & Sustainability, **Tata Projects**, the construction industry is one of the prime hard-to-abate sectors, primarily built around



SOURABH MUKHERJEE
Executive Vice President
– Clean Energy &
Sustainability,
Tata Projects

steel and cement, facing multiple challenges in its journey to sustainability. “Reducing the embodied carbon and transitioning to carbon-efficient methods and materials remains the most significant challenge. Other major challenges include lack of funding as well as restrictions on expenditure and reluctance to incur higher capital cost when needed to include sustainable practices,” he further adds.

Yogen Lal, CEO – Water, Welspun Enterprises, highlights lack of awareness on sustainable practices



YOGEN LAL
CEO – Water,
Welspun Enterprises

as a challenge. “Many stakeholders in the construction industry, including developers, contractors and even consumers, lack awareness of sustainable construction practices. In the absence of proper education and knowledge sharing, it’s challenging to drive its widespread adoption,” he adds.

Also, construction professionals may be hesitant to adopt new technologies or methods when they perceive them as unproven or disruptive to established workflows. Many a times, the availability of eco-friendly construction materials may be limited which can hinder the feasibility of sustainable construction work, as alternative materials might be difficult to source or economically unviable. Another challenge is the cost, the initial costs of eco-friendly materials and technologies can be a little higher, deterring some stakeholders from investing in sustainable practices despite the potential long-term savings.

SUSTAINABILITY INITIATIVES IN CONSTRUCTION

Construction industry banks on natural resources such as water and aggregates in a big way for construction activities. In the case of water, it is a fact that the demand-supply scenario of water is under tremendous stress due to the depleting water resources and changing weather conditions due to global warming. Growing population and

urbanisation is demanding the need for more water for domestic, commercial as well as industrial use. The growing construction activities has compelled the construction companies to adopt water-saving methods and water recycling and reuse. **Nagesh Veeturi, Executive Director – Civil, KEC International,** says, “Sewage treatment plants



NAGESH VEETURI
Executive Director – Civil,
KEC International

have been installed in two of our projects to treat wastewater, which is subsequently recycled for dust suppression and cleaning activities. Water collection ponds as well as water recycling system for curing precast structures have been established at major project sites.”

“Tata Group companies have announced their ambitious Net Zero 2045 target and we have aligned our businesses with the goals of the Group. Our sustainability agenda is built on resource efficiency, creating low carbon operations, promoting green vendors, and incorporating engineering innovations to reduce our environmental and ecological impact,” says Mukherjee.

On sustainable materials, he further adds, “With a focus on sustainable material selection, our philosophy is to precisely articulate the criteria for material management by reducing, reusing, and promoting the judicious use of resources across all our sites.” Tata Projects promotes the use of alternate materials such as fly ash, Ground Granulated Blast Furnace Slag (GGBS), fly ash bricks and AAC (Autoclave Aerated Concrete) blocks that are made from waste generated from thermal power and steel plants. The company is also using PPC cement for making concrete across its sites, replacing conventional shuttering, made of plywood and batten, with steel/aluminium/PVC/system formworks. It has also partnered with suppliers who provide simplified solutions to recycling construction & demolition (C&D) waste and producing M-Sand which replaces natural sand.

According to Veeturi, KEC International is actively incorporating environmentally friendly materials such as green cement and green steel. Moreover, the adoption of green energy sources, including solar panels, is integral to the company’s construction processes.

Lal elaborates on the initiatives of Welspun

Enterprises, “Sustainability is one of the core values at Welspun World and we have embraced it in every business we are in, be it home textiles or pipe manufacturing at our Anjar plant, or the infrastructure business as Welspun Enterprises.” At Anjar, Welspun draws raw waste water from adjoining towns of Gandhidham and Anjar to treat it to tertiary level for use in its manufacturing process there. They further recycle and reuse this water to make it practically zero discharge plant and save as high as 30 million litre per day of fresh water for the use of drinking purpose to the population there. In their roads and water infrastructure construction projects, Welspun encourages use of fly ash cement to the permissible extent. It not only improves durability of concrete by making it corrosion resistant, but also reduces requirement of water in concrete mixture. Use of pond ash is actively used in filling and embankment works in road projects.

ROLE OF TECHNOLOGY

Technology is at the forefront of a sustainable construction revolution, streamlining processes and optimising efficiency. Advanced technologies such as 3D printing, Building Information Modeling (BIM), drones, modular construction, AI, Digital Twins, blockchain technology, virtual and augmented reality, 4D simulations play a vital role in sustainable construction like enables efficient planning and reduces material waste, while smart building systems enhance energy efficiency and overall performance. **Guru Prasad, Assistant Vice President, CSSR and Electronics, Robotics and Discrete, ABB India,**



GURU PRASAD
Assistant Vice President,
CSSR and Electronics,
Robotics and Discrete,
ABB India

says, “Latest innovative technologies such as 3D printing and robotic automation have the potential to revolutionise the construction industry by improving efficiency, reducing waste, and enhancing safety. With the industry facing increased environmental regulation and the need for more cost-effective buildings, robotic automation reduces waste by improving quality and consistency, which is significant when it’s estimated that up to a quarter of material transported to a building site leaves as waste.”

According to **Kavita Shirvaikar, CFO & Whole Time Director, Patel Engineering,** the company has recently introduced an innovative technological



KAVITA SHIRVAIKAR
CFO & Whole Time
Director,
Patel Engineering

upgrade at one of its expansive project sites—the Tower Belt System, a cutting-edge conveyor belt concreting system. This electric-powered conveyor belt plays a pivotal role in seamlessly transporting aggregates from the crushing plant to the batching plant. “Traditionally, this task involved dumpers covering a distance of approximately 1.5-2 km. Furthermore, the system facilitates the efficient movement of concrete from the batching plant to the dam, a process conventionally carried out by transit mixers or dumpers. This strategic integration not only streamlines operations but also contributes significantly to the reduction of diesel consumption,” she adds.

Construction equipment play a major role in bringing sustainability in construction practices. Many equipment players are now introducing eco-friendly products to minimise the emission. “India is a rapidly growing market with sustainable practices and recycling gaining traction, which is actually a big drive for us for developing hybrid plants,” says **Alan Witherow, Product & Applications Manager, Finlay, Terex.** According to him, almost all the Finlay



ALAN WITHEROW
Product & Applications
Manager, Finlay, Terex

crushers currently rolling out of the Terex India factory are hybrid machines. In the case of screeners, 60-70 per cent machines are hybrid.

MORE THOUGHTS FROM INDUSTRY

Commenting on the importance of sustainable practices, **Amit Gossain, Managing Director, KONE Elevators India & South Asia** says, “Sustainable



AMIT GOSSAIN
Managing Director,
KONE Elevators India &
South Asia



practices are gaining extreme importance in the construction and infrastructure sector due to a global shift towards environmental consciousness and responsible development. They involve energy efficiency, use of recycled materials, waste reduction, and low-carbon technologies, ensuring long-term resilience and minimal environmental impact. At KONE India, we are committed to sustainable practices, integrating energy-efficient technologies, and reducing our carbon footprint. We have very clear milestones for achieving our sustainability goals with clear measures. From innovative elevator designs to eco-friendly materials, we are dedicated to shaping a greener future. By aligning with infrastructure sector sustainability goals, we strive to uplift both people and environmental standards, fostering a harmonious coexistence between urban development and the planet.”

Nirmal G. Humbad, Managing Director, Dorsch Consult India, says, “Demand of sustainability measures to be incorporated in the designs of Infrastructure projects by majority of clients/multi-lateral financial institutions is becoming a norm. Sustainability measures to be adopted in design vary from sector to sector. We have designed roads with climate resilient features, mainly to cater to flooding



NIRMAL G. HUMBAD
Managing Director,
Dorsch Consult India

and efficient discharge of flood water. Building sector designs demand meeting various Green Building requirements and we have designed and monitored building construction to cater to GRIHA requirements. Airport sector demands designs with considerations of GHG emissions, apart from Green Building norms for various buildings in an airport complex. Calculations of climate-hazard scenarios based on advanced modelling and risk mitigation measures are becoming part of the design, where high investments are being made. We are currently reviewing design and construction of a large airport project in South Asia from these consideration view point.”

Manav Mathur, COO, Jakson Infra, says, “Infrastructure is the barometer of any country's development and directly impacts the quality of life of its people. While we are creating the infrastructure of tomorrow, it is imperative



MANAV MATHUR
COO, Jakson Infra

that we do it with a high sense of responsibility towards future generations. At Jakson, we see our role as a leading infrastructure partner committed to nurturing the people and environment we engage with. We work very closely with our clients and channel partners to ensure that we reduce business waste, leverage modern construction methodologies and minimise our carbon footprint across our projects. We are proud of our people and actively invest in creating an equitable and safe work environment for them. At Jakson, sustainability means taking ownership of our actions and being accountable to the future generations.”

Akshat Seth, MD & CEO, HIL Ltd adds, “At HIL, sustainability is at the core of our business. We view it not just as a responsibility but as an essential part of our strategy and operations. We actively engage our employees in sustainability initiatives,



AKSHAT SETH
MD & CEO, HIL Ltd

fostering a collective sense of responsibility & accountability. We focus on energy management, raw material sourcing, waste management and innovation as key levers to create a positive impact. We have adopted a regime of continuous improvement in operational efficiency and implemented the 3R principle (reduce, reuse, recycle) throughout our plants.”

Krishna Mehta, Head - Business Development, Perfect Infraengineers, says, “Nearly every major corporation in India has committed to achieving



KRISHNA MEHTA
Head - Business
Development,
Perfect Infraengineers

carbon neutrality. The construction industry, in response, has integrated a diverse array of sustainable materials and products into its designs. One such innovation is our product, The HTS panel, which harnesses solar thermal energy to transform any air conditioning system into the world's most efficient. Considering that ACs contribute to 50-70% of a building's load, the HTS panel proves invaluable in reducing a building's overall energy consumption.”

SUSTAINABILITY INITIATIVES — THE WAY FORWARD

According to Lal, the way forward for making construction more sustainable would involve a holistic approach that encompasses various aspects of the industry, from design and procurement of materials to construction methods and operational



practices. “Continuous innovation, education, and collaboration are essential for achieving meaningful and lasting change,” he adds.

“Our forward-looking strategy for enhancing sustainability in construction encompasses a multifaceted approach. We are committed to ongoing research and development, ensuring the integration of cutting-edge technologies and sustainable practices,” says Veeturi.

According to Shirvaikar, Patel Engineering remains unwavering in its pursuit of novel approaches and technological advancements aimed at enhancing sustainability and cost-effectiveness. “Our team of dedicated engineers is steadfast in studying and enhancing designs, selecting materials, and exploring techniques that align with our commitment to sustainability. Simultaneously, we prioritise the continual education of our workforce and contractors on sustainable construction practices. This proactive measure serves not only to enhance their skills but also to foster a culture of sustainability at construction sites,” she adds.

While we welcome the commendable roles taken up by the industry players to reduce emissions in construction, more players need to take up this as a mission for a sustainable future. ■

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