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- Boris Johnson opens new factory as JCB goes for growth
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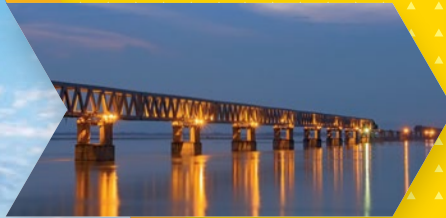


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EDITOR'S NOTE

ARE WE SET FOR A TIDAL WAVE IN CONSTRUCTION?

Holcim's divestment of its pre-eminent position as the second largest cement manufacturer in India with brand Ambuja and brand ACC was sold in a matter of days despite the prized tag of over \$10 billion. Not only did the deal close within days, the open offers it triggered were also rolled out in quick succession, making the total investment for the winning bidder, the Adani Group, \$10.5 billion, plus another \$3.5 billion towards the acquisition of shares through the open offer. The private sector, which has remained shy during the past eight years, is seen to have made a beeline for this acquisition with JSW Group and Aditya Birla Group stitching solutions for finances and beating policy hurdles respectively.

This is one of the biggest deals in the history of building materials in India. The Adani Group has been particularly proactive, snapping up airports, roads, ports, logistics, green energy and now cement too. In December, Adani Enterprises won contracts from the Uttar Pradesh government to build three stretches of the 594-km Ganga Expressway. The fourth section was awarded to IRB Infrastructure, where Adani's share of work is 80 per cent of the total project. Now, Adani is in talks to raise ₹120 billion from SBI towards this massive project. Its capex plan for the next two years includes \$4.2 billion for airports and \$2.2 billion for roads alone. The group's roads portfolio comprises 14 projects with over 5,000 lane km with asset value exceeding ₹41,000 crore spread across India.

Meanwhile, it is heartening to see the Finance Minister proactively moving in with imposition of export taxes on steel, which has seen exports surge from 12 million tonne (mt) to 18 mt against a total annual production output of 120 mt in FY2022. Tariffs on new iron ores and concentrates have been raised to 50 per cent from 30 per cent, and duties on pellets hiked to 45 per cent from zero. The Government has also removed import tariffs for coking coal and coke. These actions could collectively help cool down the steel price steam.

The auction of mineral blocks has stabilised as 186 mines have been put on sale so far. Of the 186 mineral blocks, 28 were auctioned in the past two months and 46 were successfully sold in FY22, according to the Ministry of



Mines. The recent looming power crisis and shortage of coal has prompted Coal India to accelerate its plans. It is eyeing 12 per cent growth in its production during the current financial year and has received environmental clearance for 20 proposals, which shall add an incremental capacity of 22 mt per year. Additionally, 36 mining projects have been cleared by Coal India with a sanctioned capacity of 333 mt and an incremental capacity of 220 mt.

Through its implementing agencies, the Government reportedly constructed 10,457 km of National Highways in 2021-22, a 24 per cent decrease from the previous fiscal despite the downscaled target of 12,000 km (the earlier target was 40 km per day, which would have translated to 14,600 km). So, in effect, 4,143 km less than originally planned. However, as per Union Minister Nitin Gadkari, it aims to construct a record 18,000 km of highways in 2022-23 at a pace of 50 km per day! The FY23 target is 72 per cent higher than what was constructed in road length during the last fiscal. A tall ask indeed! Further, the Government also plans to award construction contracts of 18,000 km in FY23, according to the minister. Given that the monsoon is knocking at our doors, the post-monsoon period could see a tidal wave in construction.

There are nearly 12 state elections due until May 2024, which is when the general elections will be held. Going by the trend seen in the elections in Uttar Pradesh, which had a development agenda, it is likely that we will see a positive infrastructure push in the states of Gujarat, the Northeast, Karnataka, Chhattisgarh, Madhya Pradesh and Rajasthan.

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3i EXPO HIGHLIGHTS

- Mr Sanjay Bhatia, Upa-Lokayukta, Government of Maharashtra, inaugurated 3iEXPO & Conference; Consul Generals of Sweden, Mauritius, South Africa, Hungary, Indonesia & Brazil participate in 3iEXPO
- With 40 exhibitors displayed more than 100 innovative products for automation and modernisation of the Indian manufacturing sector
- 3i EXPO witnessed 1,167 visitors over the two days.
- During the 2-day 3i Conference, about 35 Industry Leaders deliberated on the future course
- During the event, Industrial Products Finder presented the 6th IPF Industrial Excellence Awards to 19 SMEs across various industrial sectors.

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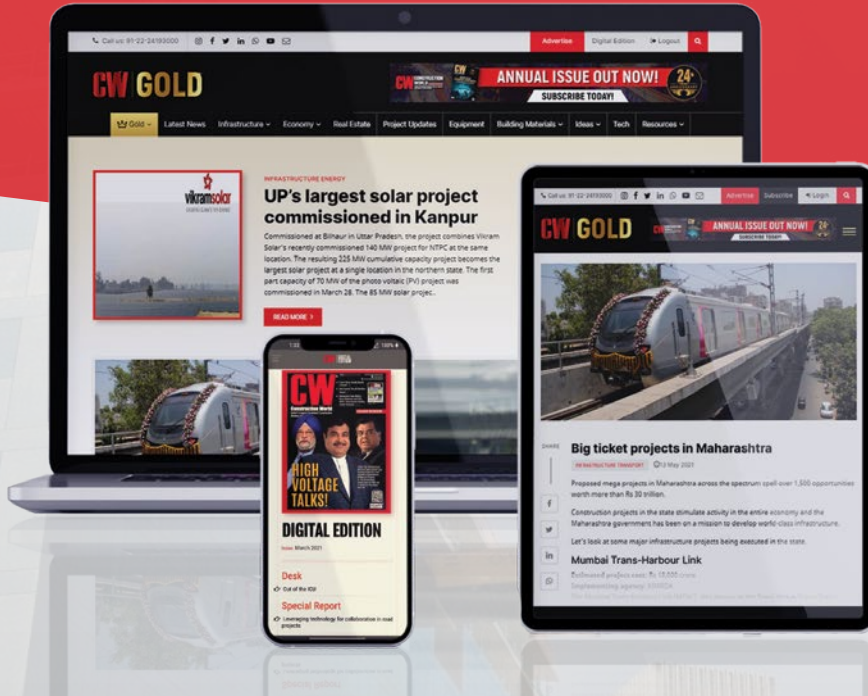
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NEWS & EVENTS

- Around 5,000 electric charging stations will be coming up in the city of Mumbai due to the joint efforts of NAREDCO and Tata Power. The initiative was signed in the presence of Aaditya Thackeray, Minister of Tourism and Environment, Maharashtra.



- SOBHA City Thrissur is now recognised by the India Green Building Council (IGBC) as India's first Net Water Positive (Platinum) operational project. The 55-acre project has set a benchmark by meeting 100 per cent of its freshwater requirement through rainwater, irrigation needs met with STP treated water, with around 20 per cent of excess rainwater being given back to nature.

- Bangalore International Airport (BIAL) has introduced an

innovative omnichannel payment solution across the airport ecosystem, in partnership with Kotak Mahindra Bank (KMBL/ Kotak) and Phi Commerce. This is a first-of-its-kind initiative undertaken by any airport in India to facilitate a seamless payment experience for customers.

- Hitachi Energy India has inaugurated its new transformer components factory in Vadodara, Gujarat. This will be the first manufacturing facility in India producing Resin Impregnated Paper bushings up to 400kV voltage level. This improves thermal, electrical and mechanical performance of bushings – critical in transformers deployed in the power grid.



AWARDS AND RECOGNITION

- Ar Hafeef PK and Ar Hamid MM of Zero Studio have bagged the IIA National Awards for excellence in Architecture in the 'Architecture Unbuilt' category.
- Acclaimed architect BV Doshi, has been conferred the prestigious Royal Gold Medal 2022. He is among the rare people, and the only one from India, to have been awarded both the Royal Gold Medal and the Pritzker Architecture Prize in their lifetime.



APPOINTMENTS



- **Surabhi Gupta** appointed as Senior Director and Head of Office Services for North India, Colliers India to strengthen company's presence as one of the leading real estate consulting firms.
- **Vivek Kumar Dewangan**, an Indian Administrative Service Officer of Manipur Cadre, 1993 batch has taken charge as Chairman and Managing Director of REC.

MERGERS AND ACQUISITIONS

- APM Terminals Pipavav has secured a new service Jade Express mainly for transshipment cargoes. The weekly service, introduced by Maersk, will connect Port Pipavav to Port Qasim.
- Pidilite Industries has partnered with GCP Applied Technologies to offer high-performance waterproofing solutions under its brand Dr. Fixit.
- WeWork India and Bhutani Group have announced a long-term partnership for a tower comprising of 25 leasable floors at Bhutani Alaphathum, in Noida.
- Saint-Gobain India and Green Infra Wind Energy have signed a 33MW hybrid energy supply agreement for next 25 years.

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80,000+ residential units launched across top six cities



Strongly rooted in high homeownership sentiment, the realty sector during the first quarter of 2022 has predominantly remained end-user driven. The top six cities have witnessed the new launch of close to 80,000+ housing units, noting an exorbitant QoQ rise of 43 per cent, as per the latest report by Square Yards titled 'India Residential Overview: Jan-Mar 2022'. These cities include Hyderabad, Bengaluru, MMR, Pune, Noida and Gurugram.

MMR once again has bagged the highest share of 35 per cent, followed by Pune which accounts for 25 per cent of the total new launches. With a 26 per cent share of total online searches in Q1 2022, MMR is also the most searched city, closely followed by Hyderabad at 22 per cent – in which, mid-segment properties, in the budget bracket of ₹3-6 million and ₹6-10 million are the most searched.

3BHK units formed more than 40 per cent of the residential supply in Bengaluru and Gurugram while 2BHK units continued to be the most preferred by homebuyers in the quarter with 42 per cent of the total demand share.

Further, according to the report, independent homes are once again in vogue with a 27 per cent share of the total property searches across the top six cities. Demand for luxury and ultra-luxury residential spaces (greater than 3,000 sq ft) has been more prominent in Bengaluru and Gurugram with 12 per cent and 8 per cent shares respectively.

"This phenomenal rise in quarterly launches is indicative of the fact that demand for homes is at an all-time high post COVID and that the property sector has found its zing with respect to both sales and launches," **Anupam Rastogi, Co-founder and CBO (NRI Sales), Square Yards**, says. "The bull run for the residential sector will continue in the following quarters against the backdrop of a strengthening economy, a robust job market and healthy wage growth. This will provide much-needed propulsion to the real estate sector to come out of the woods and be a shining sector again."

Boris Johnson opens new factory as JCB goes for growth

JCB has recently opened its newest factory in India with an investment of £100 million (nearly ₹9.95 billion), with **British Prime Minister Boris Johnson** inaugurating the facility. The new factory is located in Vadodara near the port city of Surat on the West Coast of India and will fabricate parts for global production lines.

Joining the British Minister was **Lord Bamford, Chairman, JCB**, who had led the company's expansion in India in the late 1970s, including the opening of its first factory in Ballabgarh,



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near Delhi. Today, JCB has six factories in India at locations including Jaipur and Pune.

Lord Bamford has said, "In its first year of full production, JCB India manufactured just 39 machines and by next year will have made a total of half a million. This country is now a major engineering power and being here has transformed our business. It has been a fabulous success, with so much more potential for growth. Such progress has only been possible by continued investment and the opening of our new Gujarat facility is an important step in growing our business here and around the world."



India has been JCB's biggest market every year since 2007 and one in two of every construction machines sold in India today is made by JCB. The new facility, which is on a 47-acre site, will be capable of processing 85,000 tonne of steel annually.

"This new facility will create around 1,200 direct jobs when complete and thousands more in the supply chain," Deepak Shetty, Managing Director and CEO, JCB India, has said. "It will also be a benchmark in the industry on gender diversity and modern technologies in laser cutting, welding and

machining. Vadodara is a strategic location for JCB India given its proximity to ports and availability of raw materials and skilled talent."

The new plant will be a gender diverse manufacturing facility employing 50 per cent women. JCB India has also set up a skills centre at the plant where young professionals will be trained to work in diverse job roles in manufacturing.

ACC builds sustainable and low carbon footprint 'Gratitude Eco-Villa'

As part of its 'Houses of Tomorrow' initiative, spearheaded by ACC's parent company, the global cement major Holcim Group houses tenements built with materials that have a near-zero carbon footprint.

Speaking on the initiative, Neeraj Akhoury, CEO India, Holcim, has said, "Our vision for Holcim India and its two operating companies – ACC and Ambuja Cements – is to make sustainable construction accessible to all in India and not just in the domain of the infrastructure and commercial buildings. We are proud to introduce the 'Houses of Tomorrow' initiative in India, which will help us continue inspiring future generations of home builders to adopt green products and sustainable solutions. We strongly believe that sustainability is for everyone in any location and at any price range through innovation and smart design."

The first such project in India, named Gratitude Eco-Villa, is located in Puducherry and has been designed by Ar Trupti Doshi, Principal Architect, The Auroma Architecture, who is a well-known sustainability professional. The project uses low



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carbon footprint materials, climate-specific passive design and smart construction methodologies to create a holistically sustainable house while enhancing the comfort of the residents. "The most exciting thing about this initiative is the opportunity to respond to the people's and the planet's needs for building a sustainable future," Doshi has said. "Auroma specialises in designing and building holistic buildings, which integrate heritage wisdom and cutting edge modern technologies. At Gratitude EcoVilla, Holcim and ACC have complimented the design and construction competence of Auroma by specifying the right green building materials and calculating their impact on the environment."



Every construction material has a carbon footprint as some amount of the greenhouse gas – carbon dioxide (CO₂) – is emitted during its manufacture. Gratitude Eco-Villa has shown that it can reduce CO₂ emissions by nearly 40 per cent through the use of materials such as ECO Pact green concrete, ACC Suraksha cement, fly-ash bricks and low-CO₂ alternative to virgin steel reinforcements. Through the 'Houses of Tomorrow', ACC seeks to align the construction sector with where the earth is collectively headed i.e., a low-carbon future that consumes fewer resources and promotes the circular economy by making the most out of existing materials.

Prabodh Doshi and Roma Doshi, the owners of Gratitude Eco-Villa, have said that they strongly believe that "we do not inherit the earth from our parents but we borrow it from our children. Our buildings will outlive us. This is the legacy we leave behind for our future generations and why it must be created in a responsible manner."

As part of the selection process, over 40 well-known architects were invited to participate in the 'Houses of Tomorrow' initiative. Following a review by the jury, Gratitude Eco-Villa was selected to be the first House of Tomorrow in India as it met the objective of showcasing a beautifully designed house that utilises low carbon impact materials and sustainable construction.

The Houses of Tomorrow are awarded on the basis of parameters such as design, reliability, team commitment to meeting project timelines with sustainable practices, sustainable design and architects' commitment to sustainable practices.

Zero Studio wins the IIA National Award

Ar Hafeef PK and Ar Hamid MM of Zero Studio have won the IIA National Awards for Excellence in architecture under the 'Architecture Unbuilt' category.

They have proposed an attempt to aid the people of Edavani in the tribal belt of Attappady, Kerala who are lost, like many other tribal settlements, in the turmoil of the fast-moving world. The approach to the design is a prototype for affordable incremental housing in contexts similar to Edavani. Inclusive architecture conscious of the local people's need and their indigenous technology helps the communities to regain their self-sustainable life system.



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"It is time we grow more responsible and careful in choosing our design palette," says Ar Hafeef PK. "The industry is one of the greatest contributors towards the global carbon footprint. Having the desire to do something about it allows us to build in a sensible way. As a result, we can action interventions that are sensitive to the context and the climate and which hold the environment in high regard."



The idea of tribal community housing was challenging and was conceived out of the basic ideology about life that "it is our duty to nurture the land we live on so that it survives and supports our survival as well."

The design incorporates materials like bamboo, reed and mud rather than employing a one-size-fits-all kind of solution.

Adani acquires Holcim's stake in Ambuja Cements and ACC

The Adani Family, through an offshore special purpose vehicle, has announced that it has entered into definitive agreements for the acquisition of Holcim's entire stake in two of

India's leading cement companies – Ambuja Cements and ACC.

Holcim, through its subsidiaries, holds 63.19 per cent in Ambuja Cements and 54.53 per cent in ACC. The value for the Holcim stake and open offer consideration for Ambuja Cements and ACC is about \$10.5 billion, which makes this the largest ever acquisition by Adani and India's largest-ever M&A transaction in the infra and materials space.

"Our move into the cement business is yet another validation of our belief in our nation's growth story," said **Gautam Adani, Chairman, Adani Group**. "Not only is India expected to remain one of the world's largest demand-driven economies for several decades, but India also continues to be the world's second-largest cement market and yet has less than half of the global average per capita cement consumption. In statistical comparison, China's cement consumption is over seven times that of India's. When these factors are combined with the several adjacencies of our existing businesses, we believe that we will be able to build a uniquely integrated and differentiated business model and set ourselves up for significant capacity expansion."

"I am delighted that the Adani Group is acquiring our business in India to lead its next era of growth," **Jan Jenisch, CEO, Holcim**, has said. "Mr Gautam Adani is a highly recognised business leader in India who shares our deep commitment to sustainability, people and communities. I would like to thank our 10,000 Indian colleagues who have played an essential role in the development of our business over the years with their relentless dedication and expertise. I am confident that the Adani Group is the perfect home for them as well as our customers to continue to thrive."

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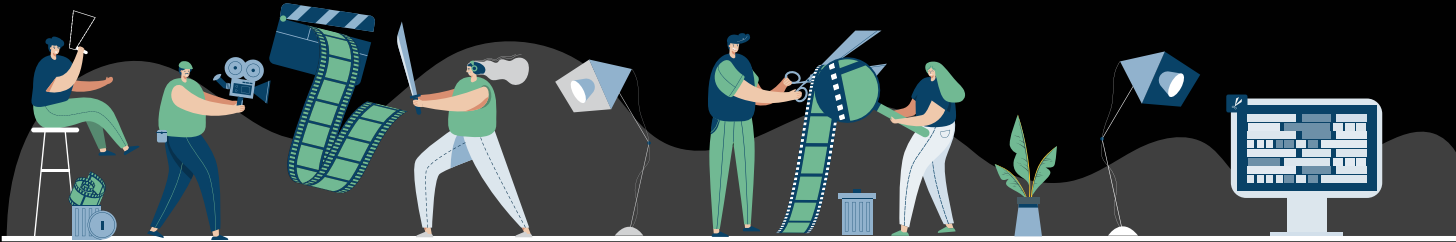
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Mumbai Trans Harbour Link (MTHL) India's Longest Sea Bridge

Metropolitan Region Development Authority (MMRDA) is developing the bridge which will connect central Mumbai and Navi Mumbai and a township located on the opposite shore of the city is also being planned.

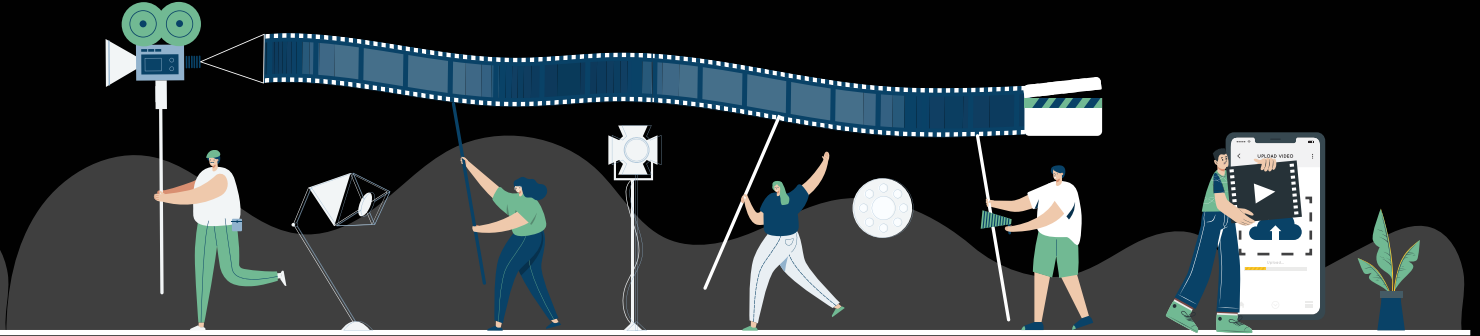
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Metropolitan Region Development Authority (MMRDA) is developing the bridge which will connect central Mumbai and Navi Mumbai and a township located on the opposite shore of the city is also being planned.



Kashi-Vishwanath Corridor Project - Transforming pilgrims experience of the temple town

The Kashi Vishwanath Temple Corridor project in Varanasi connects the iconic Kashi Vishwanath temple and the ghats along the river Ganga. It ensures easy movement of pilgrims and devotees between the ghats and the temple.

TANVEER

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INDIA'S MOST ADMIRABLE CONSTRUCTION BRANDS 2022

A perception-based survey followed by bringing together a power-packed jury panel and CW arrived at its Top 10 Most Admired Construction Brands for 2022.

Tech giants seem to be dominating as, for the third year in a row, Apple, Amazon and Microsoft rank first, second and third, respectively on the Fortune list of World's Most Admired Companies. This was based on a poll of some 3,700 corporate executives, directors, and analysts.

Considering that the infrastructure sector is a key driver for the Indian economy, spurring big opportunities for the construction segment, the contributors to the sector – construction brands – and their role should not go unrecognised. Last year, in 2021, the CW team created a robust process to recognise and determine what we have coined as 'India's

Most Admired Brands'. And for the second year in a row, we once again set ourselves on the journey that polled over 1,000 senior and middle management executives from within the industry, to identify the brands that make it to the much-admired list.

About 140 construction brands were put to vote (which contribute a turnover of ₹8 trillion per annum). These spread across multiple categories such as contracting, real estate, cement, steel, construction equipment, construction chemicals, paints, tiles and sanitaryware, and glass sectors. Parameters taken into account included: financial performance, scale and speed of project execution, commitment to

customers, corporate governance, ethics, best business practices, social responsibility, adaptability, eco-friendly and customer-friendly policies and transparency, amongst others, as they perceived them.

The respondents – belonging to and working with these industries – were asked to vote for 10 companies, with a provision to add a name if they felt it was missing from the list.

The Top 20 Brands were put to a Jury on April 27. This Jury comprised of:

- **Sandeep Goyal**, Chairman of Jury, Chairman, Rediffusion
- **Sanjeeb Chaudhuri**, Chairman, IDFC First Bank
- **Vikram Sakhuja**, Group CEO,

Madison Media & OOH

- **Akshaya Gujral**, Chief Sales Steering and Distribution, ArcelorMittal Nippon Steel (AMNS) India
- **Dinesh Singh**, Vice President & Chief Strategy Officer, Voltas
- **Ketan Kulkarni**, CMO & Head-Business Development, Blue Dart
- **Shreepad Shende**, Banking and Marketing Professional

Amid the discussion, the jury shared their observations and recommendations on the shortlisted brands as well as the assessment process. Excerpts:

- Brand value is like the stock market value – news rather than actual results influences the movement.
- Adopt an environmental, social, and governance (ESG) metric as it is a criterion considered by investors as well as it is the single biggest challenge faced by the industry.
- Look at companies that are complying to Sustainable

WINNERS

- **ACC**
- **AJAX Engineering**
- **Asian Paints**
- **Caterpillar**
- **JCB**
- **Larsen & Toubro**
- **Putzmeister**
- **Tata Projects**
- **Tata Steel**
- **UltraTech Cement**

Development Goals (SDG).

- Allow the perception-based survey to include certain weightages; it would only help make the process full-proof and transparent.
- A B2C brand could be looked at from a consumer mindset to understand what they feel.
- Masonry is one of the most important influencers and their perspective should be brought in.
- Consider including well-defined

attributes so that we know, in quantitative terms, where the company stands.

- Consider parameters that can be measured such as operating margins.
- Commercial vehicles were not considered in the list as a majority on the jury panel was of the opinion that these companies do not have a major placing in the construction sector.
- It was observed that this year not a single real estate player has made it to the cut.

Top 10 Brands were selected by each individual jury member, which comprised the total jury vote (See 'winners' box). These companies have been featured here.

This is not just it! Deliberations will go on during this year; if you'd like to know whether your brand was featured in the list, or if you would like to participate in this exercise, write in to us at marketing@ASAPPmedia.com. Meanwhile, read on...



(L-R) Akshaya Gujral; Ketan Kulkarni; Sanjeeb Chaudhuri; Sandeep Goyal; Falguni Padode, Group Managing Editor, CW; Vikram Sakhujia; Shreepad Shende; Dinesh Singh; and Pratap Padode, Editor-in-Chief, CW.

COVER STORY



ACC

Sridhar Balakrishnan, Managing Director & CEO, ACC

ACC's reputation today is that of a pioneer that consistently sets new benchmarks and achieves them backed by innovative research and product development. "This, in our opinion, is the key parameter that has contributed to us being one of the most admired brands offering construction solutions in India," says **Sridhar Balakrishnan, Managing Director & CEO, ACC.**

Other factors bolster the company's reputation too. With experience and expertise spanning over eight decades, ACC has contributed to India's progress. "A consistent focus on sustainable business practices with greater use of technologically advanced processes has enabled us to grow stakeholder value," mentions Balakrishnan. That includes introducing blended cement brands – which have a smaller carbon footprint – to the market, or by installing waste heat recovery systems at our manufacturing plants that minimise dependency on electricity grids and curb carbon emissions. He shares more...

Amid the pandemic, did you manage to increase sales, improve margins and enhance market share?

Our performance during the year

was marked by strong growth in cement volumes as well as higher price realisations. Despite a steep increase in fuel costs, our cost-efficiency measures under project 'Parvat' enabled us to deliver a robust performance in 2021. Hence:

- Net sales increased 17.3 per cent YoY to ₹15,814 crore.
- Cement sales volumes rose 13.1 per cent over the preceding year to 28.9 million tonne.

ACC's operating profit, too, witnessed a healthy growth over a year ago. Operating profit increased 27.6 per cent YoY to ₹3,000 crore.

Segment-wise, the company's cement operating profit (EBITDA) increased 26.7 per cent YoY to ₹2,903 crore, while operating margin rose from 18 per cent in 2020 to 20 per cent in 2021.

The operating EBITDA for our ready-mix concrete division, too, increased 61.7 per cent YoY to ₹97 crore. EBITDA margin of this segment rose from 6 per cent in 2020 to 8 per cent in 2021.

“**ACC aims to deliver strong returns to shareholders, best-in-class and sustainable products to customers and create shared value for our employees.**”

ACC, with 17 cement plants and an installed manufacturing capacity of 34.45 mtpa, ranks among India's largest cement makers.

What is the one thing that your customers value most about you?

ACC wants to position itself among India's premier construction solutions providers that are sustainable. This finds widespread appeal among our clients. We have led in creating effective low-carbon construction solutions as customers today look for construction solutions that manage the ambient conditions better. Further, our customers trust ACC to provide solutions that are the right fit at the right price.

How will your FY22-23 plans continue to contribute to this admired quotient?

At the start of every fiscal, ACC aims to deliver strong returns to shareholders, best-in-class and sustainable products to customers and create shared value for our employees. This year will be no different. All strategic initiatives are geared to strengthen brand equity, offer innovative products, drive our sustainability strategy, focus on cost efficiency and management, reinforce a strong corporate governance framework to support organisational needs, and build robust growth plans.

As part of our sustainable innovations, ACC recently facilitated the building of the "Gratitude Eco Villa" in Puducherry. One objective here is to prove that construction need not always have a negative impact on the environment.

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COVER STORY

AJAX ENGINEERING

Jagadish Bhat, Managing Director & CEO, AJAX Engineering



AJAX Engineering has always aimed at catering to the stated and unstated needs of its customers' requirements at their projects and applications and has accordingly strengthened and diversified its product portfolio to satisfy the customer needs for concreting, wherever the need is, whenever the need arises and for whatever the nature of need is.

Innovation, product capability, technology, network, after sales support and indigenisation are the core strengths, which differentiates us from other manufacturers, says **Jagadish Bhat, Managing Director & CEO, AJAX Engineering.** "We are overwhelmed that our esteemed customers have brought us to be among the top 10 brands in the category. There are several factors that yielded results towards where we stand today as a brand. But all-in-all, it's our customers' acceptance and patronage that is the key." He shares more...

Amid the pandemic, did you manage to increase sales, improve margins, and enhance your market share?

Yes, we have grown by 4 per cent over the previous year despite the challenges posed in by the

pandemic. This was possible because of our spread across geographical areas and application segments through our extensive network of over 35 dealers and their 100 touch points catering to the sales and product support, by offering value-added services. The entire industry has been hit by steep increase in raw material prices, viz, steel and it has been a challenge to pass on the same straightaway to customers. As part of our continual cost optimising process, we implemented quite a few measures across our operations to ensure that we strike a meaningful balance between price increase, market share and operative margins.

In fact, we have not only maintained our dominant market share in self-loading concrete mixers, but also doubled our market share in batching plants and concrete pumps.

What is that one thing that your customers value most about you?

We believe that our 360° next gen concreting solutions backed by an immaculate product support

“**Our endeavour to provide the best concreting business solutions that is driven by innovation in technology will continue.**”

network is what our customers' value and appreciate. And thanks to our extensive sales and product support network, which is unparalleled in the country today, we offer value-added services, viz., maintenance contracts, refurbishment of machines, training of operators and technicians at our dealer points, which are immensely valued by customers.

Are your products priced higher than your competitors?

Over the years, we have emerged as a '360° concreting solution provider' by delivering cost-optimised products with the state-of-the-art technology that delivers value and answers customers' stated and unstated needs.

Our products offer solutions to customer needs, which has made us the world's largest manufacturer of SLCM today, and we have expanded our products under concrete solutions over a span of years.

How will your FY22-23 plans continue to contribute to this admired quotient?

Our endeavour to provide the best concreting business solutions that is driven by innovation in technology will continue. To bolster the initiative of Skill India (NSDC), AJAX Engineering, under its CSR programme, is conducting 'vocational skill development training programmes' for the skill enhancement of rural, semi-urban and urban youths for employability. Our network and after sales support will further strengthened to deliver value to customers every time there is a need.



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COVER STORY



ASIAN PAINTS

Amit Syngle, Managing Director and CEO, Asian Paints

Asian Paints has come a long way since its humble beginnings in 1942. Over the course of two decades, the company has become a corporate force and India's leading paints company. Driven by a strong consumer focus and innovative spirit, it has been a preferred brand for paints in India for more than 50 years.

Headquartered in Mumbai, today the company is in the business of manufacturing and selling a wide range of paints for decorative and industrial use. The company also offers wall coverings, adhesives and services under its portfolio and has entered the home décor segment offering lightings, furnishings and furniture and end-to-end design to execution services under this and the home improvement segment offering bath and kitchen products.

Asian Paints operates in 14 countries and has 26 paint manufacturing facilities in the

world, servicing consumers in over 60 countries. In the year 2020-21, it saw a consolidated turnover of ₹217.13 billion. The company's reported revenue outcome is ₹185.17 billion and EBIDTA is ₹48.59 billion.

Over two decades, the company has become a corporate force and India's leading paints company. Driven by a strong consumer focus and innovative spirit, it has been a preferred brand for paints in India for more than 50 years.

FY2020-21 was a year of new norms – new customer expectations and needs, and a new work environment and its challenges. "As an organisation, we not only adapted to these new norms, addressing the emerging realities but also remained in pursuit of our long-term strategic objectives that would enable us to deliver sustainable growth," **Amit Syngle, Managing Director and CEO, Asian Paints**, as quoted in the company Integrated Report 2020-21. "The key highlight of the past year has been our organisation's resolve to deliver, despite (the) challenges, driven by our singular passion of delivering best-in-class value to our customers. And I am confident that we will continue to stay focused in this pursuit."

The market capitalisation of the company has grown at a CAGR of 28.3 per cent since April 1, 2002, from ₹21.25 billion to ₹2,433 billion as of March 31, 2021. An investment of ₹1,000 on April 1, 2002, would be valued at ₹114,535 as of March 31, 2021, excluding dividend pay-outs.

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COVER STORY



CATERPILLAR INDIA

Vivekanand Vanmeeganathan, Director, Caterpillar India

Caterpillar has been part of the India growth story for the last several years. The first Caterpillar equipment was sold in the country in 1930 and the company was among the pioneers in establishing a manufacturing footprint, and this is the 50th year of Caterpillar manufacturing in India. "We have a lot of products that are not only Made in India but also Made in India for the world," says **Vivekanand Vanmeeganathan, Director, Caterpillar India**. "We have been exporting to almost all parts of the world – America, North America, Europe, Japan, Africa, and Asia." The company has six state-of-the-art world-class manufacturing facilities producing a diverse set of product lines to its customers in and around the country. Vanmeeganathan shares more...

What is a key parameter that you think has contributed towards being one among the 'Most Admired Brands' in construction?

Caterpillar has always been the global leader for all equipment that we provide in the construction

space. The company has been among the most admired brands. One of the biggest reasons that we attribute to the success of the brand is the quality and durability of the product not just in India, but world over. For me, the brand equity and image the company carries are the primary reasons why Caterpillar has made it to the top 10 list.

In the backdrop of the pandemic, did you manage to increase your sales over the previous year's same period?

Sales is the function of many things and the pandemic is not the only primary reason why I would say this. Globally, much has changed in the last two years. People were impacted – customers, suppliers and of course Caterpillar operations as well. However, market

sentiments are getting better as we come out of the pandemic and we have a strong reason to believe that the future will be brighter.

According to you, what is that one thing that your customers value most about you?

What customers value most is the product that they get and its operating efficiency as per their requirement. Second, the customer can count on us for the product's lifecycle cost, which is what we have been focusing on.

Are your products priced higher than your competitors?

Pricing is subjective, and depends on how you look at it. One is the cost of the equipment versus the total cost of ownership. Going by Caterpillar's philosophy, the focus is on total cost of ownership, which means the lifecycle cost and not just initial cost. And, if you are to look at lifecycle cost, we offer the best.

How will your FY22-23 plans continue to contribute to this admired quotient?

It is going to be like any other year. At Caterpillar, what we look at is the 95-year plus legacy that the company carries. We want to be the most admired brand for the next several decades or centuries. We believe it as our responsibility to carry the legacy forward.

“
If you look at Caterpillar's philosophy, the focus is on total cost of ownership, which means the lifecycle cost.
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COVER STORY

JCB INDIA

Deepak Shetty, CEO and Managing Director, JCB India



JCB India started as a JV in 1979 and is a fully-owned subsidiary of JC Bamford Excavators UK. An embodiment of the vision of an Atmanirbhar Bharat, the company has six state-of-the-art factories in India at Ballabgarh, Jaipur, Pune and Vadodara (Halol). It also has a design centre at Pune that works on domestic as well as global projects. All factories operate to 'One Global Quality', and the company's 'Made in India' products are being used in over 110 countries.

"JCB has been in India for over four decades, and all through this journey, we have focused on introducing innovative products based on the needs of our customers," says **Deepak Shetty, CEO and Managing Director, JCB India**. "The iconic JCB Backhoe Loader today can be seen across infrastructure projects in the country, in both urban and rural India. It has become a part of our lives." He shares more...

Amid the pandemic, did you increase your sales over the previous year's same period?

Despite the disruptions due to the pandemic, 2021 was the third-best year for us. This was because all through the second wave, the

infrastructure development activity went ahead unabated, and we continued to remain close to our customers. Through our advanced telematics technology, JCB Livelink, we were also able to monitor equipment utilisation across India and thus plan for seamless product support.

Did you manage to improve your margins with more efficient cost management?

During the pandemic, we focused on integrating more digital technology into our products and services. For instance, our Parts App is today capable of processing orders and ensuring door delivery of genuine spares. We are seeing a strong penetration of digital technology for our customers who are in rural India as well. We also introduced the industry's first dual-fuel CNG Backhoe Loader and our access range during the pandemic.

Have you enhanced your market share during this period?

JCB India continues to be a leading manufacturer of earthmoving and construction equipment. We today have over

60 different products in nine categories. These are made to 'one global quality' at our six factories in India and are used in over 110 countries around the world.

What is the one thing that your customers value most about you?

We feel that our customers value the trust that comes along with the JCB brand. Our products are built around innovation and technology and when our customers become a part of the JCB family, they are assured of robustly engineered, world-class products, along with the industry's widest dealership network of over 700 outlets across the country. JCB continues to offer the industry's finest customer support through more than 6,500 trained dealer engineers.

Are your products priced higher than your competitors?

Customers always look at the overall life-cycle cost of the equipment. Our products are known for their reliability and productivity. They provide a significantly higher value proposition to our customers not only in India but world over.

How will your FY22-23 plans contribute to the admired quotient?

Innovation has always been the cornerstone of JCB's operations. Our Road to Zero programme will continue to develop products that operate on alternative fuels such as CNG, PNG and Electric. At Excon 2021, JCB launched products that operate on alternative fuels such as the industry's first fully-electric excavator and the natural gas genset.

“**JCB continues to offer the industry's finest customer support through more than 6,500 trained dealer engineers.**”



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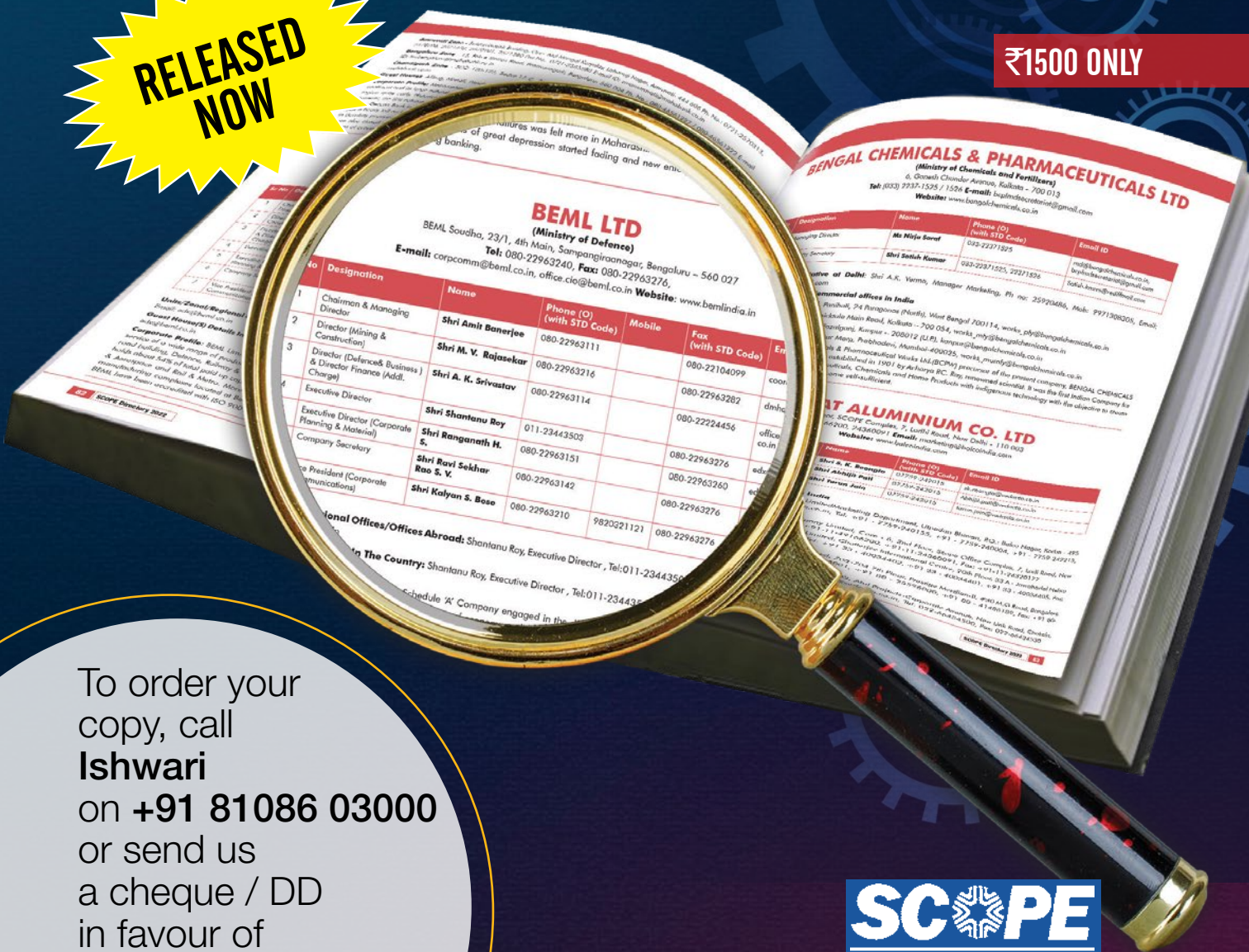
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COVER STORY



LARSEN & TOUBRO

SN Subrahmanyam, CEO & Managing Director, Larsen & Toubro

Larsen & Toubro (L&T) is a major Indian multinational engaged in technology, engineering, construction, manufacturing and financial services and operating in over 30 countries worldwide. L&T Construction, the construction arm of L&T, is India's largest construction organisation, and encompasses multiple businesses, with distinct but complementary capabilities that addresses various core segments of the infrastructure and industry. **SN Subrahmanyam, CEO & Managing Director, Larsen & Toubro**, shares more...

What is a key parameter that you think has contributed towards being one among the 'Most Admired Brands' in Construction?

Trust. Larsen & Toubro has built a reputation over several decades of possessing the capability to execute infrastructure projects that others cannot. Some of the tallest and the largest, the fastest and the longest, the smartest and the most complex infrastructure projects have been executed by us engendering trust and reliability among all our various

stakeholders. They depend on us to deliver, and we do. Repeatedly.

In the backdrop of the pandemic, did you manage to increase your sales over the previous year's same period? If yes, how?

Being a project-based business, most projects we execute are either government-sponsored or government-driven. During the pandemic, there was certainly a lull in activity as the government's focus shifted to social spending to safeguard the health of the nation. However, once the threat posed by the pandemic has receded, large infrastructure development projects have been kickstarted and, as such, L&T presently has an order book more than ₹3.5 lakh crore.

Also, did you manage to improve your margins with more efficient cost management? Did any other method help you in improving your margins – for example, price revision, and new launches?

In the project business, profitability can improve by being smarter and more efficient in execution by reducing costs, improving productivity, cutting wastage, and reducing execution time. We have successfully enhanced our efficiencies with increased automation, mechanisation and embracing the benefits of digitalisation.

Presently, there are more than 11,000 assets across our projects that are connected with sensors streaming real time data about performance enabling us to detect trends, find patterns, do predictive analysis, improve our methods of manufacturing and construction for superior efficiency.

According to you, what is that one thing that your customers value most about you?

On time delivery of projects to cost, quality and safety.

How will your FY22-23 plans continue to contribute to this admired quotient?

We will continue to build the things that make India proud.

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We have successfully enhanced our efficiencies with increased automation, mechanisation and embracing the benefits of digitalisation.
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COVER STORY

PUTZMEISTER CONCRETE MACHINES

Dr Xiangyang Jiang, Managing Director, Putzmeister Concrete Machines

launched range of Stationary Concrete Pumps – BSA 1004 D and BSA 1005 D, EOC will be introduced to our eSmart range of Stationary Concrete Pumps in the coming months.

Operating comfort, convenience and safety are also importance in the solutions we develop. The customer benefits from a long service life, durable wear parts and fewer replacements over the life of the machine. Our machines are known to garner a higher resale value. Our service team supports our customers with deep application expertise onsite and remotely. Our extensive service and parts network supports Putzmeister and Sany concrete products across the country as well as in Nepal, Bhutan and Bangladesh.

The trust and confidence that customers place in us and an extensively trained pool of operators helped us get this recognition. We celebrate 15 years in India, and thank our customers, operators, suppliers and partners for this honour.

“
We will continue focusing on delivering differentiated solutions for our customers to help them meet their unique challenges in applications.
”

What is that one thing that your customers value most about you?

When customers deploy Putzmeister equipment on their job site, they can be rest assured in the fact that they will enjoy maximum uptime, operating efficiency and convenience, lower operating and maintenance costs, and a long service life. Product quality, machine reliability and performance, and after-sales support are the top three reasons that customers choose us.

Are your products priced higher than your competitors?

Customers do pay a premium for Putzmeister equipment. And we ensure that our customers enjoy a higher RoI. Customers benefit from the best-in-class technology, superior product quality with high performance, lower operating and maintenance costs, a longer service life and a higher resale value.

How will FY22-23 plans contribute to the admired quotient?

Putzmeister has not only helped shape concrete construction, but set industry benchmarks in delivering improved performance, lower service and maintenance costs, unmatched fuel efficiency, intuitive operations, and maximum uptime through our range of products.

We will continue delivering differentiated solutions to help customers meet their unique challenges in applications and our equipment operators with the most convenient user experience.



Putzmeister has over 60 years of global experience and expertise across a range of concrete placement applications. Over the years, the company's innovations have enabled advances in concrete pumping and has set industry benchmarks and standards.

Dr Xiangyang Jiang, Managing Director, Putzmeister Concrete Machines, shares more...

A parameter that has contributed towards being among the 'admired brands' in construction?

Developing solutions that add value to our customers' business is at the heart of everything we do. When customers invest in Putzmeister solutions, they benefit from the best-in-class technology in concrete pumping. We follow a continuous R&D process and regularly enhance or add new features to our range of concrete pumps and shotcrete equipment.

For instance, at Excon, we introduced the enhanced Ergonic 3 control system on our range of Truck Mounted Concrete Pumps. Customers will be able to make significant fuel savings during the pumping operation with the enhance Ergonic Output Control. Also, available on our newly

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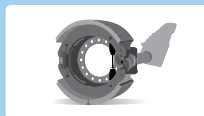
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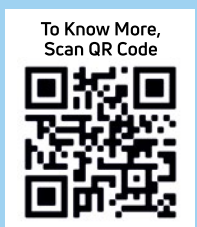


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COVER STORY

TATA PROJECTS

Vinayak Pai, CEO & Managing Director, TATA Projects



Tata Projects is one of the fastest growing and most admired industrial infrastructure companies in India. The company has expertise in executing large and complex urban and industrial infrastructure projects. It provides ready-to-deploy solutions for refineries, roads, bridges, integrated rail and metro systems, commercial building and airports, and power generation, transmission and distribution systems, chemical process plants, water and waste management and mining and metal purification systems. **Vinayak Pai, CEO & Managing Director, TATA Projects**, shares more...

A key parameter that has contributed towards being a 'Most Admired Brand' in construction?

"Accelerating India's Progress" is not only our brand communication but also everything that we believe and do – it is the crux of our business strategy. As part of this endeavour, we are also conscious of our responsibility towards the environment. Hence, through Tata Projects' Green Thumb initiative, we help restore India's depleting green coverage. Under the Green Thumb initiative, Tata Projects plants trees at its various project sites across the

country. These trees are attributed to the pledges of support received from participating citizens. Green Thumb is a truly unique initiative as it is led by an online 'platform' wherein the 'trees' are attributed for 'clicks' received on its microsite.

As a company, we have undertaken many marquee projects such as Mumbai Trans Harbour Link, dedicated freight corridors, New Parliament Building, power transmission lines, and multiple metro-rail lines across cities. These projects have improved people's lives and uplifted communities which has strengthened our brand.

In an industry such as construction and engineering, which is a brick-and-mortar industry – the brand represents one of the fastest growing and most admired industrial infrastructure companies in India – Tata Projects. The trust and quality that the brand represents remains unmatched.

Amid the pandemic, did you manage to increase your sales?

Yes. We did manage to increase our overall sales. However, the most important aspect for us is to deliver projects on-time, using world-class

project management techniques and uncompromising standards for safety and sustainability.

Did you manage to improve your margins?

We have introduced digital technology aided monitoring and project execution tools, which will allow us to reduce costs escalation and ensure timely project execution following all the quality and safety parameters. In the last two years, the pace of adoption of such digital technology aided monitoring and project execution tools has increased.

However, as a company we remain more focused upon 'accelerating India's progress' because if the nation develops – we also grow since it is all interlinked.

What is that one thing that your customers value most about you?

The most valued aspect about us is our customer centricity. As part of this approach, we remain sensitive to their needs and allow flexibility whenever requested. It also involves professionalism wherein the focus is on quality and timelines.

How will your FY22-23 plans contribute to the admired quotient?

We will quicken the pace of adoption of interactive technologies to ensure seamless integration with our customers. Additionally, we will be focussing on bidding for projects of national importance with an endeavour towards accelerating India's progress. We will also continue our sustainable efforts through the Tata Projects Green Thumb initiative.

“**We remain sensitive to the needs of our customers and allow flexibility whenever requested.**”

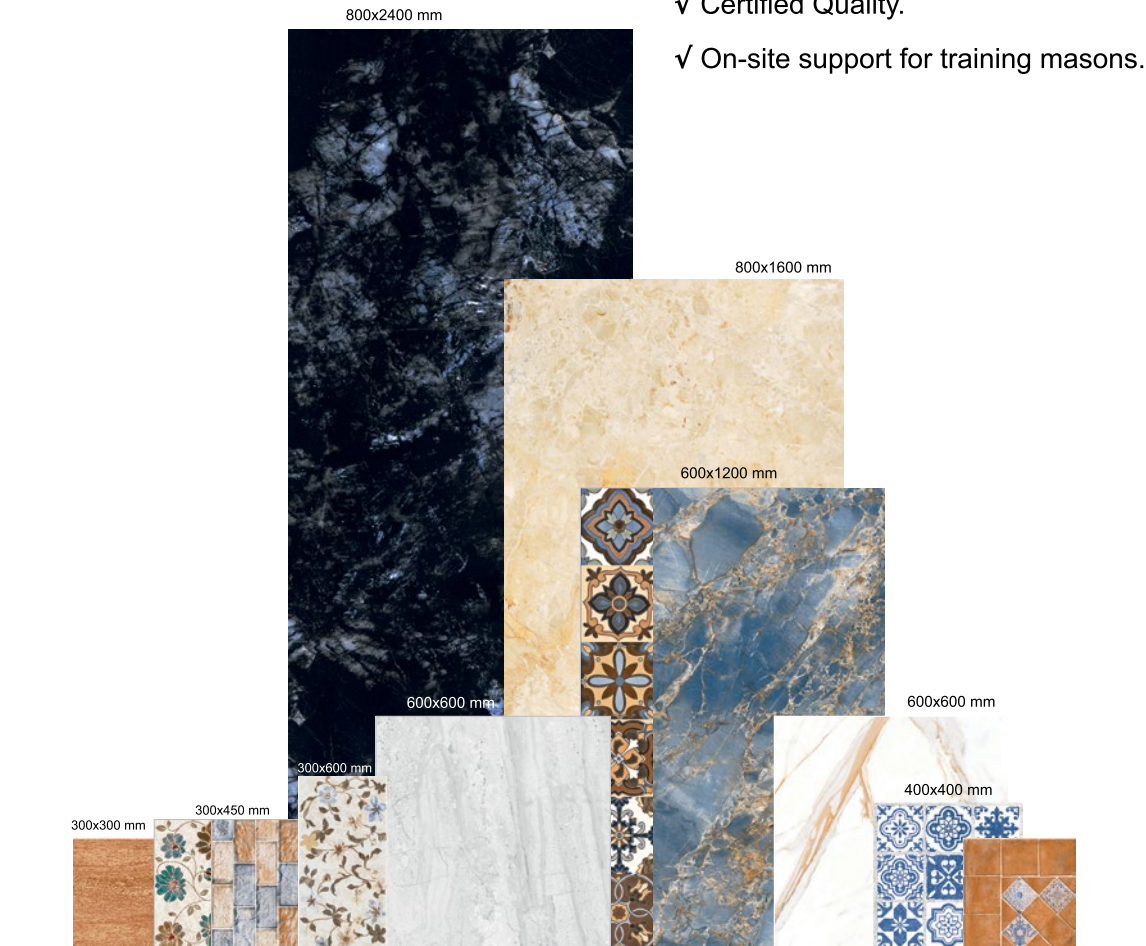
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COVER STORY



TATA STEEL

TV Narendran, CEO and Managing Director, Tata Steel

Established in India as Asia's first integrated private steel company in 1907, Tata Steel today is one of the most profitable and lowest cost producers of steel in the world, with captive iron ore mines and collieries located near our manufacturing facilities in Jamshedpur and Kalinganagar. The company's comprehensive portfolio of products and brands caters to multiple industries and segments.

The first half of 2020-21 witnessed disruptions caused by the pandemic. However, the domestic steel demand improved in the second half with favourable policies, increased government spending and relaxed movement norms. The company managed to deliver broad-based, market-leading volume growth supported by its agile business model.

Tata Steel Group delivered a strong performance in 2020-21. Consolidated steel production was at 28.54 million tonne

while total deliveries stood at 28.50 million tonne, marginally below that of the previous year. The company's consolidated revenues increased by 5 per cent to ₹1.56 trillion, driven by the strong underlying performance of the company's India operations and improved performance of their European operations.

"Tata Steel over the past few years has invested in building its digital infrastructure, which helped tide over not only the initial phase of the pandemic but continues to provide us with the critical enabler for business analytics and automation. We will continue to

We will continue to progress on the technology roadmap to create innovative products, invest in new processes and rework our business model in the future.

invest significantly in digital across all business processes in the company. As a company, we are also focussing significantly on technology, and we have identified six technology leadership areas, along with the creation of enabling infrastructure to tap into the global technology and innovation ecosystem. We will continue to progress on the technology roadmap to create innovative products, invest in new processes and rework our business model in the future," **TV Narendran, CEO and Managing Director, Tata Steel**, as quoted in the company's Integrated Report & Annual Accounts 2020-21.

Overall, the company achieved a consolidated EBITDA of ₹308.92 billion, driven by multiple factors including an improved market environment, a better product mix, continued cost takeout programmes and benefits derived through operational and financial efficiency. With disciplined capital allocation and tight working capital management, Tata Steel's full-year free cash flow after CAPEX was ₹237.48 billion. In FY 2020-21, consolidated PAT for Tata Steel Group stood at ₹81.90 billion, significantly above the ₹11.72 billion, reported a year ago.

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COVER STORY



ULTRATECH CEMENT

Vivek Agrawal, Business Head & CMO, UltraTech Cement

UltraTech Cement is the cement flagship company of the Aditya Birla Group. A \$5.9 billion building solutions powerhouse, the company is the largest manufacturer of grey cement and ready-mix concrete and one of the largest manufacturers of white cement in India. It is the third largest cement producer in the world, excluding China. UltraTech is the only cement company globally (outside of China) to have more than 100 mtpa of cement manufacturing capacity in a single country. The company's business operations span UAE, Bahrain, Sri Lanka and India.

UltraTech has a consolidated capacity of 119.95 mtpa of grey cement. It has 22 integrated manufacturing units, 27 grinding units, one clinkerisation unit and eight bulk packaging terminals. The company has a network of over 1 lakh channel partners across the country and has a market reach of more than 80 per cent across India. **Vivek Agrawal, Business Head & CMO, UltraTech Cement,** shares more...

What is the one key parameter that you think has contributed

towards being one among the 'Most Admired Brands' in construction?

Brands become loved when they truly understand their consumers and help them solve the challenges in their lives.

At UltraTech, we understand that building a home is a once-in-a-lifetime project for most Indians. It is a tough journey that needs all the help and support possible. Not just in terms of high-quality materials but also knowledge and assistance needed in the construction of a house. All parts of the UltraTech organisation are geared up for this mission. Besides this, it is our partnership and strong relationship with all the stakeholders in the ecosystem – engineers, architects, masons, contractors and our extended

network of distributors and retailers – that help us to serve our customers in a way that is second to none within the domain. We believe this makes us both the most respected and loved brand within the building solutions space.

According to you, what is that one thing that your customers value most about you?

Home building is a tough journey that involves high stakes for our customers. Not only financially, but also in the currency of effort and emotions. Given this high investment in their construction, the one thing they need and deserve above anything else is trust, which comes from consistency and reliability of all products and services. We put a premium in earning, maintaining and enhancing this trust in every interaction and chance that we have to serve our customers.

How will your FY21-22 plans continue to contribute to this most admired quotient?

We endeavour to earn the trust of our consumers by enriching their lives with innovative products and solutions that serve their needs. We will continue to listen closely to our customers and focus on responding to their needs. Last but not the least, we will continue to strengthen our relationships with our partners in our endeavour to serve our customers.

“**It is our partnership and strong relationship with all the stakeholders in the ecosystem that help us serve our customers in a way that is second to none within the domain.**”

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Equipped and Back!

With the pandemic bringing a halt to the offline experience for over two years, EXCON successfully made a post-COVID entry on the BIEC ground in Bengaluru. **CW** team was present to witness the success of the 11th edition.

This year, EXCON spread across 300,000 sq m and attracted over 800 exhibitors from India and abroad including countries such as Belgium, Czech Republic, France, Germany, Italy, South Korea, Spain, Sri Lanka, UAE, UK and the USA. The theme this year was 'Building India for a New World: Competitiveness, Growth, Sustainability, Technology'. The Indian Construction Equipment Manufacturers' Association (ICEMA) was the Sector Partner and the National Highways Authority of India (NHAI) and Builders Association of India (BAI) the supporting Partners for EXCON.



Photo courtesy: Shriwing Sretter India



Basavaraj Bommai, Chief Minister, Government of Karnataka, inaugurating EXCON.

"The infrastructure sector is receiving an intense push from the Government, propelling India's overall development and GDP. The new policies announced by the Government would ensure the time-bound creation of world-class infrastructure in the country, making it India's new identity globally," said **Basavaraj Bommai, Chief Minister, Government of Karnataka.**

Delivering his inaugural address, Bommai said that the construction sector will have a major contribution to the Prime Minister's vision to make India a US\$5 trillion

economy. To achieve this goal, the government is embarking on major infrastructure and industrial projects worth ₹100 trillion. "Though our major focus should be growing exponentially in the country by advancing our technologies, inclusion of people at the bottom of the pyramid is also critical since they are the movers of the economy. We urge the industries to collaborate with them to further enable the CE sector."

Guest of Honour, **General VK Singh, Minister of State for Road Transport & Highways, Government of India**, said, "India is an emerging hub for construction equipment, component outsourcing base and design base. The private players in the construction industry must concentrate on automation, adoption of advanced technologies and global best practices, usage of alternate fuels, and innovations in using waste materials as raw

materials for their construction projects to diminish the cost of construction and rate of pollution." He added, "Infrastructure must be sustainable and the industry should take measures to enhance the quality at an affordable life cycle cost. India is working hard on hydrogen fuel technology and solar energy since we consider it as the future of the country. The CE industry must be prepared for the competitive market situation and focus on Industry 4.0 for revamping itself."

Deepak Shetty, Chairman, CII EXCON, said, "India must become less dependent on imports to build large scale infrastructure projects, roads, and ports. Hence, developing and embracing technologies is crucial so that we can expand our innovations and become an export hub globally. The three key strategies that will help us to fast-track developments are – focusing on new growth drivers,

understanding the significance of rural economy and curating a roadmap for alternate fuels."

While proposing the vote of thanks, **Dimitrov Krishnan, Co-chairman, EXCON**, said, "The Indian construction equipment industry, being the third-largest market in the world, has shown remarkable progress over the years. EXCON will set the pace for Atmanirbhar Bharat in infrastructure development in the country."

During the inaugural session, dignitaries at EXCON presented the "Women Building India Awards" to recognise the inclusion of women in the infrastructure industry. Women champions from Cummins India, Volvo CE India, Schwing Stetter India, and L&T Constructions & Mining Machinery were recognised for their efforts towards the same.

Read on for highlights from EXCON, followed by interviews from key industry experts and a photo feature...



EXCON inauguration

EVENT REPORT - EXCON

Highlights from EXCON

- **BEML** exhibited its construction equipment models of different capacities embedded with latest technologies. The equipment showcased included Model 'BD85' and 'BD50HST' in the Dozer Category, Model 'BG5051' & 'BG405A' in the category of Motor Graders with emission norms compliant BSIV engines and Model 'BL30-1' in Loaders category.
- **CASE India** celebrated its 180th Anniversary. The highly anticipated 770 NXe 49.5 hp Loader Backhoe made its debut alongside the 770 EX Plus and 851 FX CP variants. The CX220C LC Excavator, 1107EX Compactor and 845C Motor Grader were also launched to the public.
- **Caterpillar** announced the addition of two Next Gen products – Cat 303 CR Mini Excavator and Cat 120 GC Motor Grader – into its portfolio of integrated solutions to deepen the company's presence in the infrastructure, mining, and energy sectors in India.
- **ELGi** launched the electric-powered PG 110E-13.5, and the diesel-powered PG 575 – 225 trolley mounted portable air compressors to deliver reliability, low maintenance costs, high energy efficiency, and industry leading productivity for drilling operations.
- **Escorts Construction Equipment** launched NXT13DC CNG, India's first Hybrid Pick-n-Carry Crane, with dual fuel (diesel & CNG) and RC2522, India's first Mono Chassis Safe Crane with 25T lift capacity.
- **JCB India** introduced the industry's first fully electric excavator, the JCB 19C-1E; a 22-tonne hydraulic excavator on the NXT Platform specially designed for Indian applications; a 4-tonne Telescopic Handler; an Articulated Boom Lift AJ48 D; two new mini excavators for smart infrastructure – the 35Z HD and 37C HD; and JCB's Natural Gas Genset, the G125 NG.
- **JK Tyre & Industries** launched four new offerings in their off-the-road tyre segment – 45/65-45 58PR VEM 63 L5 TL, 14.00-24 GTL Champ 16 PR G3 TT, 12.00-24 Hard Rock Champion 20PR E4 TT and 16.00-25 VEM 045 44PR E3 TT.
- **Larsen & Toubro, Komatsu India and Scania India** put together an impressive display to showcase their technological strengths and service capabilities and reaffirm their strong commitment to sustainability. Four new environment-friendly, B20-biodiesel ready, hydraulic excavators – Komatsu PC205-10MO Hydraulic Excavator, Komatsu PC500LC-10R Hydraulic Excavator, Komatsu PC210LC-10M0 Super Long Front and Komatsu GD535-6 Motor Grader – were launched. The show has Komatsu, Scania and L&T displaying 18 machines and eight special attachments.
- **Mahindra** unveiled its disruptive product innovation, the brand-new 'G75 Smart' Motor Grader.
- **MSRvantage** showcased the use of technology like blockchain and cloud computing in infrastructure development along with big data, AR/VR, IoT and automation. Another highlight was the Track and Trace system that enables players to efficiently manage their supply chain.
- **Perkins** participated along with its distributors GMMCO and Powerparts. Among its highlights were the Perkins 404D-22, a compact engine with multiple operations; the Perkins 1104D-44TA, well-known for its smooth and quiet interface; the Perkins 1206J-E44TA, which delivers a powerful performance and the Perkins 4006E, one of its most popular engines for generator sets in India.
- **Powerscreen** launched its much-awaited Hybrid range – Powerscreen PT410E and MT1010E Hybrid powered machines.
- **Sany Bharat** strengthens its technology line with 22 new launches.
- **Schwing Stetter India** unveiled 14 new products.
- **Shell** showcased its complete range of digital and fluid reliability solutions.
- **Tata Motors** commercial vehicles showcases top-of-the-line, high-performance trucks and exhibits three exclusive zones – Surface Tipper Zone, Mining and Quarry Zone, and Ready-Mix Concrete Zone.
- **Terex India** unveiled eight brand new products from six of their brands – Franna, Powerscreen, Finlay, MPS, TWS and EvoQuip.
- **Valvoline Cummins** showcased some of its innovative and ground-breaking products – Premium Blue, Zerex, Power Select Ultra and AIRShield DEF (AUS 32), among other innovative, high-quality products.
- **Volvo Trucks India** showcased two of its latest industry-leading trucks – Volvo FMX 500 8 x 4 off-road dump truck and Volvo FM 420 8 x 4 23 cu m construction tipper.



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ACE

“We plan to double our production capacity.”

Action Construction Equipment (ACE) showcased the new upgraded backhoe loader models in different engine horsepower categories at EXCON along with award-winning products like a special crane for piling, a 360° slew pick-n-carry crane, and a man lift crane. **Sorab**



Agarwal, Executive Director, ACE, tells us more...

At EXCON: We displayed various models including our new and higher tonnage next-gen cranes. Moreover, we commissioned one of the largest crawler and truck crane manufacturing plants, which will double our production capacity. We will add more and bigger products to our portfolio, and follow lean manufacturing processes to improve production and save wastage and undertake continuous upgrades of our products as per market expectations.

In the pipeline: We have ample scope for expansion and are open to JVs. In pick and carry cranes, we will increase capacities from the current 30 tonne to 35-40 tonne, which will be the largest in the world. We will also add to our capacity in the tower cranes and forklifts to 25 tonne and 32 tonne, respectively. We have a range of 49-74 hp backhoes and the only 95 hp 4x4 backhoe in the country. We will introduce a butterfly-type outrigger backhoe model for the international market in the next two to three months and are also developing 100 to 160-tonne crawler cranes, which will be launched in the first half of 2023.

Addressing customer needs: We believe that every market evolves as per customer requirements. When there was a demand for 8 to 20-tonne pick and carry cranes with a longer boom, we provided it. The new generation 360°, platform and telehandler cranes, which can do multiple tasks, have been developed as per customer requirements. So, our R&D focuses on what the customer wants and is willing to pay for it. Automation and IoT will add value to machines provided they are of practical use.

Skill development: ACE is offering attractive schemes for small contractors and operator training on its new machines. For small contractors, it offers various schemes related to finance, buyback and refurbishment. We also provide operator training on all our new series.

For every new model or type of machine that we supply, experienced operators offer 15 days' training. We also ensure onsite training for operating our high-end machines. Simulator and hands-on training are provided at our facility in Faridabad on all types of machines, along with troubleshooting and preventive maintenance.

Areas of opportunity: The government clearly understands that investing in building infrastructure is going to help improve the economy, hence its strongly focusing on the construction industry. This year, it has announced investments in building roads, bridges, airports, pipelines, and industries, which will help grow the country's economy, create employment, and drive the growth of related industries like steel and cement.

Demand drivers: We are catering to many sectors with our products. We have started working with the Indian Defense, where we are providing some special machines, cranes, and 4x4 tractors. Most of these machines were being imported at three times the price. We have also designed missile and torpedo handling cranes mounted on special 10x10 and 8x8 Tata and Leyland vehicles. Our target is to achieve 15-20 per cent of our total revenue from exports. We have expanded our reach to the Middle East, African, South American, and Southeast Asian markets, and we have plans to explore Central Asia and East European markets.

AMMANN INDIA

“India offers a huge opportunity for the growth of the construction equipment industry.”

Ammann is a world-leading supplier of mixing plants, machines and services to the construction industry with core expertise in road building and transportation infrastructure. **Anand Sundaresan, Managing Director, Ammann India,** speaks on the various technological displays during EXCON.



At EXCON: We are displaying all our latest products and have invited every customer from all the parts of the country. In the pipeline: Ammann Schweiz AG has invested about ₹2 billion and has set up a state-of-the-art manufacturing facility in Mehsana, near Ahmedabad. The old production halls have been replaced with newer buildings, additional structures,



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and production halls. The investments included a state-of-the-art fabrication facility with modern cutting and welding machines, and robotic welding machines.

Areas of opportunity: Undoubtedly, India offers a huge opportunity for the growth of the construction equipment industry, due to the government's focus and thrust on infrastructure development. The recent Budget has been quite encouraging for the industry. It is an investment-oriented one with over a 35 per cent increase in CAPEX outlay for infrastructure development covering road, river linking, railways, and affordable housing, amongst others. The Gati Shakti master plan will spur road construction activity.

AXLE SHAFT INDIA

"Our focus is on digitisation."

Axle Shaft India is one of the leading manufacturers, suppliers, and exporters of a wide range of industrial products. **Vikrant Soni, CEO, Axle Shaft India**, shares more on the company's plans.

On display: We are displaying excavator pins and bushes. They are high-wearing parts. We are also displaying rock breaker chisels. Our products have two times better life compared to our competitors. The product, which one of our customers is using right now, has been in use for over 2,000 hours and is still working fine. So, it is actually the combination of the right raw material and heat treatment, which we look after. Every single item displayed at the expo is Made in India.

The price rise challenge: We don't see the increase in raw material prices as a challenge; however, the price-conscious market is. The market keeps fluctuating. Earlier there used to be a difference of only ₹5 to ₹7. Else, selling our product has never been a challenge.

Demand drivers: South India has always been my focus. People in North India are price conscious. We are not directly exporting, but are planning to. We do supply materials to some of the export members.

In the pipeline: Expansion has always been something that we at Axle Shaft look forward to. Recently, we have shifted to the new plant that is supported with a new set of machines. We are focusing on digitisation. We are already working on a new ERP software for our complete system.



BKT

"Automation is the top priority in all our plants."



India has done a marvelous job in road building and irrigation, which is opening new doors for infrastructure equipment. **Ashok Chhajer, Senior General Manager, OE Sales, Balkrishna Industries (BKT)**, shares how all these initiatives have been boosting sales.

At EXCON: It is an excellent platform to connect with customers – both current and prospective. We hope the young generation from the college come and develop curiosity about these types of equipment and end up taking up careers that help in building and boosting skilled human resources for the future.

On display: This time, we have showcased some of its finest tires for construction and earthmoving equipment namely the E4 EARTHMAX SR468 TL and L5 EARTHMAX SR53 TL. Along with the newly introduced rubber tracks for the compact track loaders. BKT is the first company in India to have designed and indigenously developed rubber tracks for agricultural applications, which we introduced in the year 2021, and for construction equipment, introduced recently in 2022.

Addressing customer needs: Being a global company, we do not look at what is going to be beneficial for either our Indian or global clients – we cater to everyone. We foresee the rubber tracks business to grow multifold and hence, have entered into agriculture and construction, simultaneously.

Harnessing technology: Automation is top priority in all our plants, which emphasises technological upgradation of existing equipment and installation of



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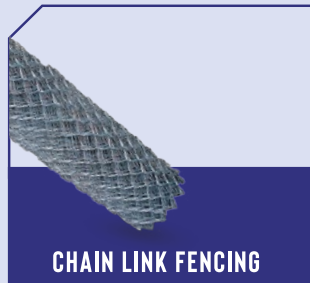
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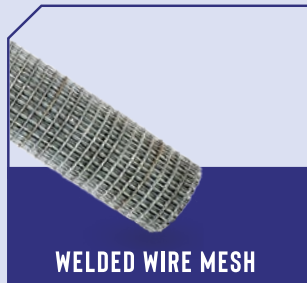
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Areas of opportunity: Gati Shakti and Make in India are some fantastic initiatives by the Government of India. We are already doing well in the mining sector allowing us to keep expanding our range – such as the 240-tonne giant dump truck, the largest dump truck available in India.

The price rise challenge: Price rise is a challenge not only from the raw material cost perspective but also in inbound logistics as well as outbound logistics. It has impacted us too and has forced us to increase our prices.

CASE CONSTRUCTION EQUIPMENT “We are leaders in compaction equipment.”

In the business of earthmoving for 180 years, CASE sells and supports a full line of construction equipment around the world, including the first ever factory integrated backhoe loader right through to today's excavators, motor graders, wheel loaders, vibratory compaction rollers, crawler dozers, skid steers, compact track loaders and rough-terrain forklifts. **Alok Jha, Director-Sales and Marketing, India and SAARC, CASE Construction Equipment,** shares his views.



At EXCON: We are optimistic that the construction industry in India is entering a sustained demand phase. We are taking this momentum by introducing next-generation machines to our range of designed, developed, and manufactured products in India. We are confident that CASE with new and existing products has a solid potential to be a trusted supplier of construction equipment to the world.

On display: CASE India displayed 10 models at the exhibition from its existing range of equipment, including 952 EX and 450 DX vibratory compactors, and a 2050M dozer.

Addressing customer needs: We have two unique programmes – the CASE Care, which talks about annual service contracts, and CASE Protect, which talks about maintenance contracts. Today, buying equipment is not as important as maintaining equipment. We at

CASE believe that during the lifecycle of the equipment, we must be engaged and ensure that the customer benefits from low cost of operation.

Market scenario: In backhoe loaders, we have a market share of 7 per cent. We are leaders in compaction equipment with a market share of 28 per cent. We are spread all across the country and have more than 200 touchpoints, 66 dealers, one factory, and a couple of retail offices.

CATERPILLAR INDIA

“We are targeting aggressively to be gender inclusive.”

At a point in time, India had been a market to test waters for Caterpillar with a limited product line.

Vivekanand Vanmeeganathan, Director, Caterpillar India, shares that now it is turning out to be one of the significant markets, both in terms of production as well as opportunity.



Areas of opportunity: The flagship programmes rolled out by the Government of India such as the Gati Shakti, the Master Plan and the National Infrastructure Pipeline are the major areas of opportunity. The quantum of investment that the Government is planning is going to directly translate into equipment demand in the coming years. In terms of numbers, the IEC mark projects that the industry will have doubled in the next 10 years potentially making India the second-largest equipment market globally.

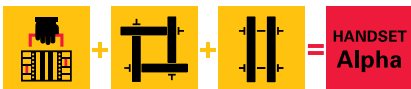
Skill development: Safety is the number one priority for Caterpillar globally – not just for the people working at the plant but also for our products – and safety starts with training. Training involves equipping people with the right amount of knowledge, understanding of processes and constant reinforcement.

Embracing diversity: An important aspect we intentionally focus on is embracing diversity. We ensure diversity across the whole workforce, from grassroots levels to senior management. We are still a long way from achieving gender balance, but we are targeting aggressively to be gender inclusive. We have vendors and operators that are women and processes that are gender-neutral.



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EPIROC MINING INDIA

“We are planning to have more production lines in India.”

Epiroc provides sustainable and safe equipment like drill rigs, rock excavation and construction equipment, and tools for surface and underground applications with world-class service support. They are known to be the productivity partner for mining, infrastructure and natural resources industries. **Mandy Che, Managing Director, Epiroc Mining India**, tells us briefly about the company culture.



At EXCON: It is really exciting to meet with so many customers, partners and it was great interacting together.

On display: Considering the space constraints, we have come up with an efficient design that gloriously highlights our numerous hydraulic attachment tools and some rock drilling tools. These offerings are high on productivity and performance.

Demand drivers: Now is the right time for our business to reach new heights with the Indian policies and government supporting the infrastructure and mining segments.

Addressing customer needs: Service is one of the greatest strengths of our company. We strive to provide a superior service experience to all our customers – either through our offices or through our partners’ offices.

In the pipeline: We are planning to have more production lines in India apart from the existing ones in Nashik and Hyderabad, and have an R&D centre in Hyderabad with 385 people working there. It is a big facility that supports not only requirements in India but globally as well.

Sustainability: Epiroc group has announced our sustainability goals for 2030 – we are aiming to halve CO2 emissions by 2030, from our own operations, and also from our customer’s operations who are using our machine. We also aim to use 90 per cent renewable energy in own operations. Epiroc Group is strongly committed to achieving the sustainability goals for people and planet.

Embracing diversity: We strongly promote inclusion and diversity and aim to double the women employees in operational roles by 2030. I see a great female talent pool from India with exorbitant potential, which will bring more productivity in the company.

GS CALTEX

“Over the last five years, our CAGR has been 23-24 per cent.”

GS Caltex India was established in 2010 and have partnered with global and Indian OEMs to develop and launch innovative products that keep up with technological advancements and requirements. **Rajesh Nagar, CEO & Managing Director, GS Caltex**, shares more.



On display: In the last two years, we have launched a number of new products, which include a fully synthetic range of products for gear oils and compressor oils. Among other products, we have also launched the latest CK-4 engine oil meeting the latest BS6 norms. EXCON is an excellent platform where we get an opportunity to interact with our customers and showcase all the latest products we have and the new technologies we are working on at a global level. In our ‘Future-Ready Corner’ we have displayed products launched in South Korea, demonstrating the technological capabilities we are ready with for the fast-upgrading automobile market. Additionally, as a responsible corporate we are continuously working on technology that is sustainable and products that are biodegradable like the Kixx Bio 1 fully synthetic engine oil made with 100 per cent plant-based base oil.

Smart lubricants: We term our product portfolio smart because they have been developed with our proprietary technologies and our own Group II plus and Group III base oils, imported from our refinery in Yeosu, South Korea. These base oils improve the overall efficiency and performance of the products. Most of our products are long-drain ones such that less oil may be used for a longer duration.

Demand drivers: Our products are used in the energy sector. We have two products for the windmill segment – normal gear oil and anti-micro pitting gear oil. We launched a new full synthetic product called Kixx Gear EP S Wind 320.

Harnessing technology: The last two years have forced the world to go digital whether it is interacting with customers, selling propositions, or training them. Although it is still work in progress, we will be investing more towards the use of artificial intelligence, digitisation, and technology in our business to add



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We value and appreciate your contribution in nation's development.

The exhibition allowed us to showcase
our vision for **Sany Bharat**

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SANY HEAVY INDUSTRY INDIA PVT. LTD.

HEAD OFFICE

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value to our products and services. We have so far launched several apps that have made the interface between customers and the sales team almost instantaneous. All our processes are integrated with the SAP system. From a B2B perspective, we have a presence on platforms such as IndiaMart to meet our customers online and make our products available.

In the pipeline: Over the last five years, our CAGR has been 23-24 per cent. In future, our aim is to have a sustainable business both in terms of product and customers. We hope to add more customers who would appreciate the bio-friendly and long drain products that we have to offer them. The market has the potential since the customers are looking for quality and getting better efficiency in their products.

HYUNDAI CONSTRUCTION EQUIPMENT INDIA

Localisation is one of the key priorities for the company.

Hyundai Construction Equipment India has come a long way since the time it started operations in 2008, when it started manufacturing operations in Chakan, Pune. The company has always strived to build Smart, Sustainable and Safer solutions in line with its

mission. **Rajiv Chaturvedi, Vice President-Sales & Marketing, After Service & Parts**, points out to one way the company has achieved this is by building a smart factory that is developed with futuristic manufacturing technologies and processes. Its state-of-the-art R&D centre at Hinjewadi is a testimony to its commitment to developing products that can be promoted globally apart from India.

Smart technology: Hyundai is incorporating the latest technologies in its Smart Plus series of Excavators, such as the CAC system (Charged Air Cooled system), which ensures to give higher productivity coupled with 10-15 per cent saving in fuel over competition machines, dual SIM telematics for better connectivity, multi-lingual cluster in the cabin for operators ease of understanding, forged swing ring body and reinforced bucket links, heavy duty undercarriage and superstructure for excellent durability and reliability of



its machines in diverse applications.

The new Global Green Grey SMART Plus series excavators launched in January 2021, have all been built-in with advanced research and technologies, digitally smart features to ensure best in class production and fuel economy, and most importantly offer the lowest operating cost over the life cycle of the equipment as compared to any competition in its class. We will keep innovating solutions for enhancing customers' profitability and will strive to be the market leader in the served market.

Localisation: Localisation is one of the key priorities for the company. Currently, it imports nearly 50 per cent of its major hydraulic components and other parts but it expects to increase localisation to 70-80 per cent levels in times ahead.

Customer centric approach: The company not only believes in offering smart products but also smart services that have made them the most popular choice of customers. Prompt service is given through its Customer First App, wherein the customer can log in and seek prompt service at the touch of a button on their mobile phone, howsoever remote the location may be. Customers can log a call and can close the service call. By Customer First App in its Service Management, Hyundai has clearly demonstrated that it is a customer driven organisation. Interestingly, Hyundai CE is one of the leading companies, to create unique deals for all its customers, wherein it offers to take back their old equipment and replace it with an advanced new one, at a much more attractive price.

Sustainability: It also offers its customers to rebuild their Hyundai old excavator and enhance its life to make customers much more profitable and competitive in their business. For this purpose, it has built a modern state-of-the-art XL (Extended Life) rebuilding centre, within the Chakan plant premises. The company is also increasing the capacity of XL rebuilding centre from 7-8 machines to 12-15 machines per month this year. The XL rebuilding centres will also come up in several other parts of the country at Hyundai Authorised Dealerships, so as to give faster response and solutions to customers located in far-flung geographies. There will be at least One XL rebuild centre in each region (East, West, Central, North, South) to start with.

JCB INDIA

"Our machines are getting smarter."

Innovation and sustainability have always remained

critical to JCB's operations. **Deepak Shetty, CEO & Managing Director, JCB India**, shares more.

On display: At EXCON, JCB India introduced the industry's first fully-electric excavator, the JCB 19C-1E. It is a zero-emission machine and has four lithium-ion batteries that power the machine for a full day on a single charge. With a significant focus on safety and productivity, JCB's 2GO system safely isolates all controls as a secondary safety system. Its auto-idle and auto kick-up redistribute power to preserve battery life. The machine has been introduced after rigorous testing and validation.



In addition to the JCB 19C-1E electric mini excavator, the company also launched two more mini excavators, the 35Z HD, and the 37C HD. Both machines come with heavy-duty structures and have easy manoeuvrability due to their compact size. The 5-tonne mini excavator range comprises the 50Z and the 55Z, which were also on display. These machines are designed for higher adaptability to work in confined areas, with high-strength heavy-duty booms and excellent operator comfort features like a full-suspension seat, smooth joystick operations, and electronic engine speed control with mode selection.

Sustainability: We continue to introduce products that significantly limit their impact on the environment. The JCB 19C-1E is the industry's first fully-electric excavator in India and is integral to JCB's 'Road to Zero' initiative, a programme that we have been working on for the past few years. The machine has been tested extensively and has various built-in features that enhance safety and performance. With zero emissions and low noise, this is ideal for infrastructure development in urban areas and indoor working.

With sustainability being a key attribute at JCB, the company also launched its first Natural Gas Genset, the G125 NG – 125KVA Genset powered by Natural Gas. Along with the Genset having best-in-class aesthetics, it is also designed to work in extreme environments. This Natural Gas Genset has a compact size and reduces CO2 emissions significantly. The carbon footprint is lesser by up to 6 tonne per annum. Infrastructure development and commercial activities today operate round the clock, due to which the requirement of generators is also expected to remain strong. This range will be manufactured in India and

will also be exported around the world.

Demand drivers: JCB machines are getting smarter. These are used to build roads in urban and rural India, schools, hospitals, and airports. An embodiment of the vision of Atmanirbhar Bharat, our Made in India products are at par with the rest of the world and are used in over 110 countries. Our products are designed to consume lesser fuel and have lower maintenance costs, thereby improving the profitability of our customers.

Harnessing technology: We have integrated digital technology such as Telematics and Parts App into our products and services. Additionally, our network of over 60 dealers, over 6,500 dealer service engineers, and almost 700 outlets mean that our customers are never far away from professional product support

KOMATSU INDIA

"We have launched four new models."

With mega launches of new models by Komatsu India during EXCON, it is expecting the expansion of product range by end of this fiscal in India. Komatsu



is doing R&D continuously on the technologies and product development. **Yasunori Fujii, Managing Director, Komatsu India**, informed on what has been offered so far to the construction equipment industry from their Oragadam manufacturing facility.

On display: Komatsu India launched four new environment-friendly B20 Biodiesel ready models introducing – Komatsu PC205-10M0 Hydraulic Excavator, Komatsu PC500LC-10R Hydraulic Excavator, Komatsu PC210LC-10M0 Super Long Front and Komatsu GD535-6 Motor Grader. These Hydraulic Excavator models are manufactured in India. Usually, we only release about two new models in any exhibitions, However, this time, we had launched more number of new products in EXCON.

Demand drivers: The government policies for infra investment and increased production in the mining sector has made strong demand for equipment.

Areas of opportunity: General construction is driving the market for the newly launched products due to the investments done by the Indian government. We

EVENT REPORT - EXCON

can meet India's demand growth by offering quality and technological products to boost the infrastructure and also support mining industry largely.

Increasing telematics: Komatsu is one of the most advanced manufacturers of products with telematics in the world. Using drones, we can monitor the scale of the design and the procedures for any construction along with automation. Most of our equipment are installed with data transmitter and GPS along which we can track the performance of the machine. Based on the data gathered, we can inform the customer about the performance and which area needs to be improved for better operation and production.

MAHINDRA CONSTRUCTION EQUIPMENT

"A machine is only as good as the operator."

Mahindra has been working towards introducing products for the construction sites and other segments like road grading and trucking. **Jalaj Gupta, Business Head, Commercial Vehicles Business Unit, Mahindra Construction Equipment,** shares more...



At EXCON: It's a good opportunity to see these machines in person. Because of the kind of machines these are, you cannot comprehend them on the website or any other virtual medium. Seeing the machines in self is a good personal experience.

On display: This is for a categoric creator. A lot of work is happening on highways. Forty-eight per cent of Indian roads are rural and plenty of work is needed on those. Our grader allows small grade contractors to carry out that work in an organised manner – irrespective of the type of work. The operating cost of this grader is about 17 per cent lesser and we have a 13 per cent market share presently.

R&D to market: For completely new products, it takes about a couple of years. But for products like these graders, it takes about 24 months. Testing and validation, however, is the bigger aspect than creating. To run these in real-life conditions, we need constant feedback to keep improving.

Skill development: Bad operators can lead to low

productivity even with good machines. So, we consider the skill development of operators and customers important. We have training centres across the country as well as mobile service vans. Additionally, we focus on providing repeatable training done by our service teams along with a one-time training which is formally offered via the service vans. We also have specialised training programmes offered at our training centres.

SANY HEAVY INDUSTRY INDIA

"Our products are biofuel compatible"

With new launches expected by the end of this year to expand their product range, Sany is continually expanding. **Deepak Garg, Managing Director, Sany India & South Asia,** tells us in detail what they have to offer so far.



On display: The products are compatible with biofuels. The excavators that we have launched here are much more economical in terms of fuel consumption and backed with advanced technology. Their cost per cubic unit stands to be 10-12 per cent better than before. These excavators have inbuilt AI features that improve the productivity and economies of customer operations and also have launched three new excavator attachments namely pile driver, pile breaker and ripper. On the other equipment front, we have launched 173 hp and 250 hp motor grader. We also launched a 160-tonne all-terrain crane and different truck cranes, and for mining, we have launched a new 580 excavator with a 3.6 cu m bucket and a new 105 truck with a 70-tonne loading capacity. Additionally, we have launched a range of piling rigs which had not been available before. Now, to cater to the rising demand, we have two models of small rigs and a diaphragm wall attachment for special projects like metro systems.

Harnessing technology: Digitalisation is the need of the hour. Everybody has server connectivity for excavators. We are the first to have that connectivity for cranes, rigs and other equipment and powered with AI. At the next level, we are working on driverless machines and looking at entire projects being controlled by AI.

Demand drivers: The road sector, railways sector, metro projects and port development activities under the Sagarmala project will drive demand. Another area

Gen V

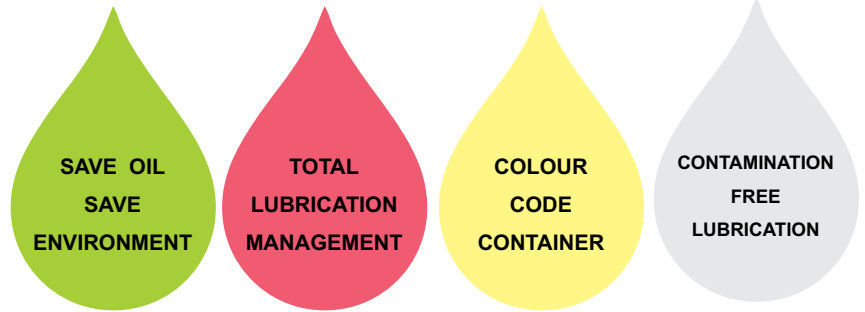
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Lubricating oil contamination is main reason why 80 % of the rotating assets encounter premature failure. Mechanical failures in any Industry are predominantly due to contamination leading to loss of production & revenue.

Industry operates in extreme conditions. Modern machines have sophistic design to deliver high outputs with very fine tolerances & clearances, this increases the requirement of lubricant cleanliness. Lubricants are manufactured with stringent performance specifications are subjected to contamination even they are put into use. As per a study 60 percent of contamination in lubricants happen due to wrong dispensing and handling.

GLOBETECH 5th generation Dust Free Container (DFC) have been designed by the worlds best Lubrication and Maintenance engineers. With **DFC** oil top-up in machine is convenient, easy, safe with elimination of contamination.

Use **DFC** and save on expensive breakdowns and losses.



is the mining sector which has been booming due to demand for coal and iron ore.

SCHWING STETTER INDIA

“We have launched 14 new products.”

Being a pioneer in the construction equipment manufacturing industry, Schwing Stetter India has been growing exponentially during the pandemic. The company strongly believes in being customer-first. Over the past few years, **VG Sakthikumar, Managing**



Director, Schwing Stetter India, informs us that the company has observed a growing need to become increasingly cost-effective for customers.

On display: We have launched 14 new products during EXCON. These include: batching plant M45Z, Boom pump S 47, SLM (Mahindra) 4600 SV (CEV-IV), mobile service van, conveyor on wheels, wheel loader ZL33FV (CEV-IV), wheel loader ZL55GV (CEV-IV), motor grader GR 1705, piling rig XR 330 I, crawler crane Xgc150-1, truck crane XCT150 Y, excavator XE 38U, excavator XE 215-I LC, and bricks and blocks plant SSI-154-E.

The pandemic challenge: At Schwing, we used this period for research and to recalibrate ourselves for the new normal. In fact, what we have displayed at EXCON, is a true testimony of our hard work during the pandemic. Schwing Stetter India has been growing exponentially and is still focusing on quality and innovation. Our customer’s trust in us helps us continue to make machines that are technologically superior, efficient, and cost-effective.

The price rise challenge: The fluctuating steel prices are dampeners in our ambitious sales projections. Also the availability of chip-based control systems hampers the supply chain functioning. The price increase to these factors and the CEV IV engine adaption is a challenge for the customers. Schwing Stetter’s strategic management team has come up with a slew of measures to tackle these issues.

Market scenario: Schwing Stetter India has appointed close to 26 dealers for our excavator market and is continuously expanding the dealership network for our SLM sales. The product portfolio encompasses the complete range of concreting, road construction,

earthmoving, and mining applications. We foresee a 53 per cent increase in sales for 2022.

TITAN CRUSHING EQUIPMENT

“The crushing equipment industry has reached its peak.”

Titan Crushing Equipment designs and manufactures equipment under the brand name – Diamond Crushers. The company specialises in producing jaw crusher, which is widely used in mining, quarry, and material handling. **Vishvaroop Anand, Managing Director, Titan Crushing Equipment**, shares...



Market scenario: The crushing industry has probably reached its peak in terms of products that were manufactured. The need of the hour is to create more plaster sand. However, it is quite challenging for any company to manufacture machines that create this. We are planning to make cost-effective solutions because ultimately India is a price-sensitive market. The new solution should be available in the next three to four months. It’s a screening solution rather than a crushing solution. The market for this screening solution has quadrupled in the last year or two.

Harnessing technology: We have introduced a lot of PLCs or sensor-based machines, and temperature control machines in our sand machines. So, it has to be simple to understand and service.

In the pipeline: We set up three new units in Hyderabad and one in Bengaluru. So, we are predominantly a home base company but we found manufacturing in Hyderabad more cost-effective, shifted our entire unit to Hyderabad.

THYSSENKRUPP INDUSTRIES INDIA

“During the pandemic, we focused on digitalisation.”

With customers getting smarter, creating value is the focus for thyssenkrupp Industries India. **Vivek Bhatia, Managing Director & CEO, thyssenkrupp Industries India**, tells us more about how technology and equipment performance are the keys to achieving this.

At EXCON: It is great to personally interact with customers again. In a setting like EXCON, you get feedback in a broader sense after interacting with people from the supply chain, customers and the industry.



On display: We launched a new cone crusher RBC 4000 at EXCON 2019 which was a much higher capacity crusher compared to our existing range. This product has been well received in the industry due to its versatility. During the pandemic, we focused on digitalisation and have engaged with customers even in remote locations and have understood their needs. We have also relied on it to monitor equipment from its settings and operations point of view, as well as to help us to better manage our inventory base ensuring that spares are available in advance and even sending them ahead of time.

Harnessing technology: We use technology at a basic level to gain a clear line of sight into the equipment performance. The second layer is to track what is unusual using parameters like vibration or abnormal settings. The final layer is gaining insights into the equipment based on all the data collected. Additionally, customers can reduce their downtime and we can demonstrate equipment performance in a more transparent way.

Addressing customer needs: We focus on customer fulfilment in a combination of sales and after-sales. So, we know how the equipment is performing, its on-site working conditions and also when it fails. This helps us explain to the customer why this happens and how to avoid these. We have an engineering team working on product development, product engineering and system engineering, and an R&D team working on other perspectives such as how to optimise, and become leaner and superior.

- With Inputs From SHRIYAL SETHUMADHAVAN and KARTHIK MUTHUVEERAN

FACILITIES WE PROVIDE

Suryavanshi Machine Tools is one of leading manufacturers & suppliers of Heavy Fabricated Components & Machining with the facilities of Welding Shop along with various CNC, VMC, HMC, Boring Machines & conventional Radial drilling Machines



CUTTING FACILITIES

Laser, Oxy and Plasma cutting machines



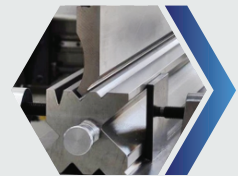
MACHINING

SMT has a wide range of machining capabilities to deliver complex jobs with machining center Kafo along with various CNC, VMC, HMC, Boring and conventional radial drilling machines.



FABRICATION

SMT provides heavy fabrication solutions as per ISO 3834-2 with highly skilled and experienced team including welding inspector & welding lab makes it an excellent option for customers with extensive quality welding requirements



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SURYAVANSHI MACHINE TOOLS

Global Automotive OEM's, Heavy Fabrication & Construction Equipment Industry

EVENT REPORT - EXCON



Larsen & Toubro and Komatsu showcased their technological strengths and service capabilities and reaffirmed their strong commitment to sustainability.



BKT's EARTHMAX SR 57 is an all steel radial tyre specially engineered for loaders, dozers and utility vehicles operating in underground mines.



CASE Construction Equipment celebrates 180th anniversary.



Team Elgi Equipments (L-R): Dheerendra Deshmukh, Head, C&M; Ramesh Kumar G, Head, Portables; TT Paranthaman, MD, PRD Groups; Rajesh Premchandran, Director, ISAAME (India, South Asia, Africa, and the Middle East); and Ajit Singh, Director, PMMO, ELGi



Team Trimble (L-R): Roshan Purohit, Regional Manager, Civil Engineering & Construction Division-SAARC Region; Didier Collins, Senior Director-Sales and Distribution, CIS division; Vivek Bansal, VP, Pan India Consultants; Rajan Aiyer, Vice president and Managing Director, South Asia Region; Sudhir R. Kamath, Senior Director-Finance; and Anand Sirohi, Director-Key Accounts and Large Projects



PERI India at EXCON



SANY's new SY225C-10HD GENe is a next generation 10-Series hydraulic excavator that is truly an energy-efficient machine.



Hyundai Construction Equipment's spare parts store inauguration during Excon.



Deepak Shetty (Left), MD & CEO, JCB India, inaugurated two mini excavators - 35Z HD and 37C HD.



VK Misra (Right), Technical Director, JK Tyre & Industries, launched four new offerings in their off-the-road tyre segment.



Perkins team during the inauguration of their stall during Excon.



Schwing Stetter's all new SLM 4000 will cater to higher output requirements of concrete batching, mixing and placing in the urban development segment.



Shell is one of the leading lubricant suppliers.

GLIMPSES OF EXCON



Tata Motors exhibits its wide range of construction vehicles.



Tata Hitachi's ZW 225 comes with a powerful, efficient and reliable CEV-IV compliant Cummins engine.



The Powerscreen Hybrid option gives customers an alternative energy source, letting them choose which fuel to use depending on cost, location, and availability.



Trimble offers a complete line of machine control systems – from laser or sonic-based through to 3D.



Escorts' F35 crane in 35 tonne class for the pick and carry safe segment.



Gulf Oil India is a leading lubricant manufacturing and marketing company in India.



HDFC Bank provides funding for purchasing a range of construction equipment; earthmovers, compactors, loaders, concrete and material processing machines, and others.

CW |

Share your views at feedback@ConstructionWorld.in

MOVING YOU
FURTHER

HYUNDAI
CONSTRUCTION EQUIPMENT
INDIA

LEADING WITH AWARD WINNING INNOVATION





**BEST DESIGN
INNOVATION
OF THE YEAR**



Celebrate with Hyundai as our R215L Smart plus - Mining Crawler excavator - won the **Best design innovation of the year** award by Yellow Dot Awards, at Excon 2022. The smart design enables efficient performance even in tough conditions, making it a winning machine for excavation jobs!

Hyundai Construction Equipment India Pvt. Ltd.
Plot No. A-2, M.I.D.C. Chakan, Phase II,
Village: Khalumbre, Taluka: Khed, Dist: Pune-410501

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 **1800 209 8600**



3i EXPO & Conference

Date: May 20-21, 2022 | Venue: Mumbai

Hosted by Industrial Products Finder (IPF), the event received a rousing response from the manufacturing industry; IPF presented awards to 19 SMEs from across India.

With 40 exhibitors displaying more than 100 innovative products for automation and modernisation of the Indian manufacturing sector, 3i EXPO witnessed 1,167 visitors over the two days.

The event received an arousing response from the Indian manufacturing sectors with senior representatives from some of the leading companies like Emerson, Godrej & Boyce, Aditya Birla Group, Reliance Industries and Mitsubishi Electric visiting the event. During the two-day 3i Conference, about 35 industry leaders deliberated on the future course of the manufacturing sector and how modern technologies can play a big role in achieving the goals of making the "Make in India" scheme. During the event, IPF presented the 6th IPF Industrial Excellence Awards to 19 SMEs across various industrial sectors.

Highlighting the significance of 3i EXPO, **Pratap Padode, Editor-In-Chief, IPF**, said, "The stage is all set for the adoption of smart manufacturing and Industry 4.0 technologies with the government actively supporting the cause. IPF has completed 50 years in 2022 and is proud to present its first edition of 3i EXPO in the quest to help MSMEs scale the next industrial revolution."

Speaking at the inauguration, Chief Guest **Sanjay Bhatia, Upa-Lokayukta, Government of Maharashtra**, stressed on the need for digitalisation for the industry as



Sanjay Bhatia, Upa-Lokayukta, Government of Maharashtra, inaugurating the 3i EXPO in the presence of Anna Lekvall, Consul General, Consulate General of Sweden; Mike Pal, Trade and Commercial Attache, Consulate General of Hungary; and Pratap Padode, Editor-In-Chief, Industrial Products Finder (IPF)

well as government agencies. "Introduction of digital technologies in government departments like port, town planning and railways has brought in immense amount of efficiency in terms of planning and execution of projects. Adoption of modern technologies are must to raise the productivity."

While Maharashtra Industrial Development Corporation (MIDC) was the Presenting Partner of the 3i EXPO and Conference, Union Ministry of MSMEs and National Small Industries Corporation (NSIC) were the

Supporting Partners of the EXPO. IFM and Robro Systems were the Associate Partners of 3i EXPO.

Various industry associations and organisations extended their wholehearted support for the event. While Automation Industry Association (AIA) was the Knowledge Partner of the expo, CareEdge and T Hub were Analytics Partner and Start Up Partner, respectively. Other associations like PPMAI (Process Plant & Machinery Association of India), ITAMMA (Indian Textile Accessories and Machinery Manufacture



Panel Discussion 1 on Day 1 (L-R): Nitin Sawant, Partner, Ernst & Young; Rajeev Solanki, DGM - Manufacturing Technology and Process Development Schneider Electric; Sunil Mehta, GM – e-F@ctory Strategic Planning, Mitsubishi Electric, and President of AIA (Automation Industry Association); N C Chakrabarti, VP and Head - Smart Manufacturing, Reliance Industries; Zurvan Marolia, Sr VP, Godrej & Boyce; and Khushal Kalra, Head-Smart Factory, Wipro PARI



Anil Bhatia, VP and MD, India Automation Solutions, Emerson



Panel Discussion 2 on Day 1 (L-R): Shrikant Teli, Dy GM, Stratasys; Anurag Srivastava, Sr VP, Findability; Sandeep Shukla, Regional COE Head – Digital Manufacturing, Tata Technologies; Priten Bhadrakumar Bangdiwala, Sr VP and Head-Industry 4.0, Aditya Birla Group; and Nimish Danani, Director-Consulting Services Global Strategy, Sales and Operations, Hitachi Vantara



Vivek Bhatia, MD, Thyssenkrupp Industries India



Panel Discussion 3 on Day 2 (L-R): Seewraj Nundlall, Counsellor (Investment and Trade), Consulate of the Republic of Mauritius; Deepak Panda, Sr GM, Schneider Electric; Nandakumar K, CMD, Chemtrols Industries; Sudipta Ghosh, Partner and Leader Industrial Products, PwC India; Sajiv Nath, MD, Yokogawa India; and Sanjeev Dharwadkar, Sr Director-Manufacturing, Sanofi India



Zurvan Marolia, Senior VP, Godrej & Boyce



Winners of the IPF Industrial Excellence Awards 2022



Priten Bhadrakumar Bangdiwala, Sr VP and Head-Industry 4.0, Aditya Birla Group



Sajiv Nath, MD, Yokogawa India

Association), MAIT and Association of Multi-Modal Transport Operators of India (AMTOI) also participated in the event.

IPF Awards: Rewarding the performers

The 6th IPF Industrial Excellence Awards were presented to 19 SMEs across various industrial sectors in categories such as Fastest Growing Manufacturing Companies; Product Excellence; and Entrepreneur of the Year (Male and Female).

List of Winners of the 6th IPF Industrial Excellence Awards

IPF Female Entrepreneur of Year: Dr Dnyanada Bhandodkar, Director, Hindustan Monomers

IPF Male Entrepreneur of Year: Shreekant Patil, Founder, Paramount Enterprises

Winners of the IPF Product Excellence Awards 2022

Categories	Winner
Building and Construction Material	JSW Steel Coated Products for its High Tensile GP for torque tube used in mounting of Solar panels
Machine Tools	Maharashtra Engineers for its 7 Axis 2 Spindle CNC Horizontal Machining Center (HMC)
MRO and Consumables	Hindustan Monomers for its patented product – 2,4' – dihydroxydiphenyl sulfone (24BPS)
MRO and Consumables	Minimac Systems for its special Coalescer purifiers used for lubricating oil and transformer oils
MRO and Consumables	PGE Industries for its unique Fluid Sealing Solution that can handle both dangerous acids and gases effectively
Testing and Measuring Instruments	Subtronics (India) for its breath alcohol analyser Alco-Booth Pro (for Truck Management Software use)

Winners of IPF Fastest Growing Companies Awards 2022

Categories	Winner
Agri and Food Processing (Small)	Alfavision Overseas India
Auto Ancillary (Small)	IST
Auto Ancillary (Medium)	Hindustan Composites
Engineering (Large)	Pix Transmissions
Engineering (Small)	Thejo Engineering
Fertiliser and Chemical (Large)	Aries Agro
Pharma (Large)	Kwality Pharmaceuticals
Pharma (Medium)	Syncom Formulations India
Plastic, Paper and Packaging (Large)	Mold-Tek Packaging
Plastic, Paper and Packaging (Medium)	Hindustan Adhesives
Steel and Non-Ferrous Metals (Small)	Raghav Productivity Enhancers

CW |

Scan for full version



INTERVIEW

"Our objective is to obtain 10 per cent market share of highway tyre manufacturing in India."

- Rajiv Poddar, Joint Managing Director, Balkrishna Industries

With revenue close to ₹10 billion in India, **Balkrishna Industries (BKT)**, an Indian multinational group and a global player in the off-the-road (OTR) tyre market, has announced a brownfield ramp-up of its Bhuj plant to increase tyre and carbon black capacity, including advance carbon black and modernisation and automation of

existing facilities. **Rajiv Poddar, Joint Managing Director**, elaborates upon the company's strategies to overcome challenges and the growing market in a conversation with **Pratap Padode, Editor-in-Chief, CW**.

As the pandemic is clearing up, can you share the challenges and opportunities that BKT has encountered?

The past two years have been unprecedented and challenging, both physically and mentally. There was so much anxiety among people as they spoke about the new normal. There have been many changes and we may take some time to adjust. Luckily, we are back in the real world and things have eased out. It was different for us in the past two years. First, we had to make many changes in our manufacturing site. There was social distancing at canteens, insistence on hygiene and sanitisation and the need to transport them from their homes to the site.

These were the factors we had to overcome; now that things are back to normal, people have

adjusted. Today, we are at our highest from the pre-pandemic – nearly about 35 per cent.

That must have hit your supply while demand was still there.

Fortunately, we were able to supply since there was a good demand during the pandemic. Steps were put in place; we focused on diminishing stress on our manufacturing units and reducing physical labour by combining best of modernisation and automation.

Can you give us any examples of automation that you have introduced during this time?

With a focus on seamless service, we continue to improve our world-class offerings that are infused with the best quality, durability and reliability. To further integrate connectivity into its workings, BKT recently undertook an estimated capacity expansion of ₹4.5 billion which emphasises technological upgradation of existing equipment and installation of automated material handling systems. Like at the final finish area, we have inserted more cameras to give a better picture to the workers, who check each and every tyre before its shipped. There is motorisation on the drums, so the tyre turns and revolves on its own reducing physical labour. We also try to motorise any kind of material



INTERVIEW



Rajiv Poddar, Joint Managing Director, BKT, in a tête-à-tête with Pratap Padode, Editor-in-Chief, CONSTRUCTION WORLD.

movement by introducing machines to help reduce physical stress on the workers and their physical load. This ensures upscaling to integrate digital and physical aspects of manufacturing, giving customers nothing but the best.

Furthermore, we continue to use technology to transform the industry. Every tyre we produce undergoes 500 tests in its production cycle at our state-of-the-art R&D centre.

Fuel and rubber prices are going up, shipping containers are at an all-time high, plus there are blockages in shipping. How do you cater to all this?

The biggest issue is availability of raw materials, keeping aside the costing. We need to get the raw material into the manufacturing plant to manufacture tyres – that is my first victory. Pre-pandemic, we invested in carbon black and we have our own carbon black manufacturing facility. So, 30 per cent of raw material is self-manufactured. That is a huge chunk and has given us a major advantage today. Also, BKT is one of the few companies with in-house tyre mould production facilities, which allows us autonomy and ensures enhanced quality control

throughout the supply chain. Second, rubber prices are going up. So, you absorb a little bit and pass it on to the end-users. That is how you offset it. You cannot do it overnight and in the long run there is a lag, but you pass some on.

Is the overseas market accepting the 'passing on'?

They are, as it is a natural phenomenon. Everyone is aware of the commodities price rise; we cannot pass on the 100 per cent price rise. You absorb some and try to pass on some.

Tell us about your latest Bhuj factory and how you are looking at the Indian market.

India, as a geography, is of growing importance to us. We are developing India-centric products, be it for agricultural tyres or mines. For instance, we have a new range of mining tyres – Mineforce – specifically designed for the Indian market, keeping in mind the requirements of the end-user and the soil and weather conditions here. The products are established in both sectors and are being manufactured in our units in Bhuj and North India. Speaking of the Bhuj factory, we just

announced our next brownfield project to go on stream. The plant is ready and being ramped up slowly for commercial production, which has started in phases to reach full capacity.

Also, our channel partners are the same and distribution is now pan-India. We have over 1,200 active dealers across India selling to end-users. In terms of brand promotion, we have just signed Mr Ranveer Singh as the face of the brand. During the ongoing Indian Premier League, we sponsored eight teams out of 12. Now, you have the product and distribution in place and the promotion as well. So, the whole cycle will come together again.

What do you aim to achieve in the Indian marketplace and what are your objectives?

Our objective is to have the top 10 per cent market share across the globe and same in India in the off-highway tyre manufacturing segment. Currently, we are at 5-6 per cent globally and roughly 6 per cent in India. There are good opportunities and a scope to grow.

Tell us about the new 'largest' tyre that you have developed. What was your research on this as a gap that needed to be filled?

The journey of these tyres started way back in 2007-08, when we saw the gap in OTR tyres for mining. We started off with smaller 25-inch tyres and went up to 29, 33 and then 35-inch. Gradually, we went to giant 49 and 50-inch tyres. Now, we have launched the super-giant 57-inch tyre and will soon be coming up with a 63-inch as well. These tyres were already present in the industry and we are the first Indian company to produce and manufacture these in India.

How do you plan to work with the OEMs in this segment?

BKT has been constantly developing newer products and increasing capacities to meet the requirement of varied machine and equipment operating parameters, in line with OEM upgrading and innovations. We are already working with the top two in the mining sector companies (across the globe) and it becomes easier for them as well to have a local manufacturer. It's a win-win situation for both and that's where we score.

You have special features in the tyre; for instance, it does not cut.

We have developed a cut-resistant compound, and we offer these products with a heat-resistant compound so that when you do longer and higher runs, the heat generation of the tyre is handled by

the compound.

What are the new tyre trends?

The trend is to make the tyre smarter. This basically means better communication on the heat they are generating and the pressure. If you are able to get this information before the tyre is deflated, you can better combat the outer conditions. Hadronisation is also happening in the industry, such as for our radial tyres for the mining sector. Low aspect ratio (low pressure on the soil) is there on the mining side and that is again something we are working on. We are not just followers but also developers at par with anybody from the West for tyres that have the capability to exert lower pressure on the soil.

With the ongoing European situation, are there any disruptions

in your global strategy?

The markets we are strong in continue to be strong and are not yet affected by the war. Overall, Europe and Western Europe continue to remain strong, so we do not envisage an issue. We hope the war gets over soon as we are not sure about the market in the future. But as of now, we are unaffected.

Do you also see opportunities in overseas acquisitions?

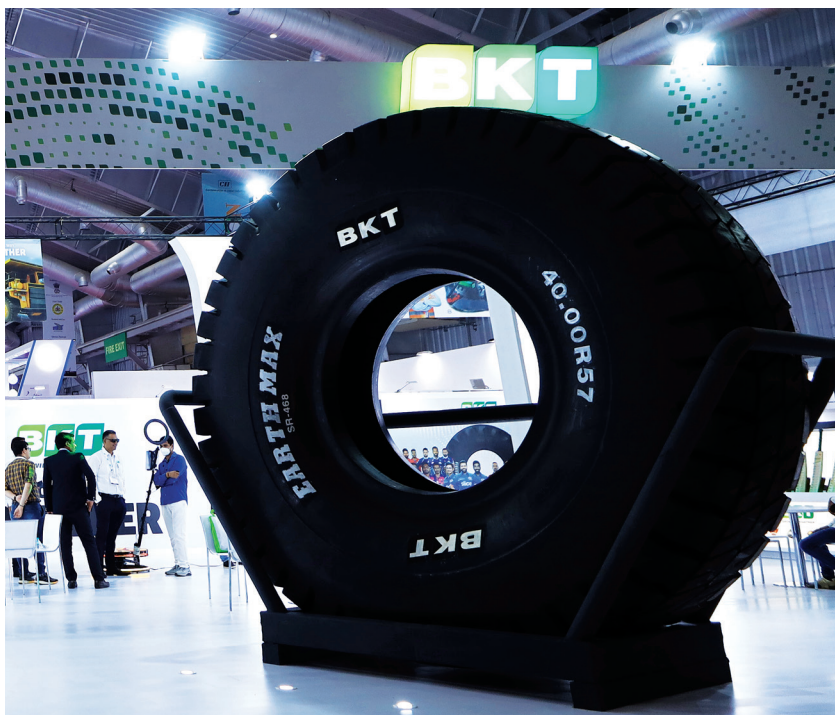
We believe in organic growth and are not actively looking into acquisitions. We will continue our manufacturing in India and grow through the brand of BKT itself. But we are always on the lookout if the government looks to infrastructure build-up or redevelopment. That spells an opportunity for us as more tyres will be consumed and we are always ready to supply, whether in India or overseas.

Given the Government's National Infrastructure Pipeline and the emphasis on infrastructure, where do you see the growth between India and overseas?

If you see the journey in the past five years from our product basket in India, our revenues were close to a couple of ₹1 billion; this is now in excess of ₹10 billion. India will always be the market we will focus on, especially with the opportunities from the infrastructure development plan.

What about skilling of people? Is it a challenge as well?

BKT has a firm belief in training. We are conducting various types of training as per the requirements from clients and customers. These include in-house training, outdoor training, user training and also fleet owner's training.



Seeing the gap in the OTR tyres for mining, BKT started with the 25-inch tyres and have now launched the super-giant 57-inch tyre presently.



“We have floated a tender for additional cameras and a traffic management system.”

- **Pradeep Singh Sangawat**, CEO, Udaipur Smart City

Udaipur, the City of Lakes, has been making headlines to be among the seven cities set to be declared India's first set of 'smart cities' by the end of 2022. In the recently released ranking of 100 smart cities, it has bagged the second position in the country. So far, 93 projects have been completed, while 15 projects are ongoing and expected to be completed by the end of the year. Pradeep Singh Sangawat, CEO, Udaipur Smart City, shares more...

Tell us about the Udaipur Smart City's achievements, key projects initiated and amount invested.

After being selected in the first round of smart cities, we have taken



Pradeep Singh Sangawat,
CEO, Udaipur Smart City

numerous initiatives to depict the vision, ambition and needs of city dwellers for the Udaipur Smart City. We have conducted several rounds of meetings with different groups of city dwellers including women,

senior citizens and students, and conducted various surveys and seminars as well as collected valuable inputs and advice from prominent public representatives like Honourable Member of Parliament (MP) and Members of the Legislative Assembly (MLAs), councillors and so forth. Based on the feedback received, we have designed projects that can be classified into six major categories: Integrated Infrastructure Package, Heritage and Façade Conservation, Solid Waste Management, Development of Parking Spaces and Junction, Public Bicycle Sharing, Redevelopment Schools and Anganwadis.

We laid new sewerage lines,

underground electricity cables, provided 24 x 7 water supply, strengthened the storm water management system and improved roads and historical Bazaars in the old city area of Udaipur under the Area Based Development (ABD) Initiative. Along with this, we have also implemented projects for the conservation and restoration of prominent heritage walls, gates, ghats, and buildings. Additionally, we are also developing two smart roads in the city, strengthening solid waste disposal system and introducing city buses and public bicycle sharing facilities.

The total project budget allocation for the city was ₹10 billion. Of this, ₹5 billion is from the Government, ₹3 billion from state, ₹1 billion from local municipal corporation and ₹1 billion from Urban Improvement Trust (UIT). Till date we have incurred an expenditure of ₹8.55 billion.

How did the pandemic impact the work completion?

It was tough. In a major project in the ABD area, about 1,400-1,500 labour was engaged, of which 60-65 per cent was from Bihar, West Bengal, Madhya Pradesh and Uttar Pradesh who went back to their states in the pandemic. However, to maintain the pace of work and ensure timely completion of works, we invested in sourcing, engaging and training local labours from neighbouring areas like Banswada, Pratapgadh, and other remote areas of Udaipur. Plus, the local administration, collector and mayor gave us the support and required permissions to work despite the pandemic. Although there were delays, we managed completing most of them.

Tell us about the pending work.

In the ABD area (Old City), we



Fort walls, heritage buildings, gates, ghats and bazaars in the city have all been restored by using old methods and building materials.

have done underground cabling, rehabilitated sewerage, constructed new electrical lines with 13 kV and 11 kV underground distribution lines of electricity, water supply, and storm water lines. The budget is around ₹5.4 billion with the civil work complete. Pending work includes the commissioning of electricity, water and sewerage connection to the people.

One of our prominent projects, the flyover that connects the airport, is almost 85 per cent completed and we will hand it over in June 2022. We have also taken up a few important projects like the conservation and renovation works of the Collectorate Building, and the redevelopment of ring road surrounding Govardhan Sagar Lake to convert it into a tourist spot. We are planning to construct cycle tracks and footpath, beautification of places to increase tourist footfall. We are also working on connecting outer areas with ICCV surveillance cameras. We have floated a tender for additional cameras and a traffic management system.

What were the challenges faced and how did you overcome them?

Geographically, Udaipur is not a plain area – it has a hilly component. The Old City area, which has a population of 120,000, is a challenge because it has narrow lanes where construction and renovation are not easy. Working in those areas was a big challenge where we had to provide underground cabling, sewerage and other facilities while ensuring smooth traffic movement for citizens and tourists. For the flyover project, the major challenge was diversion of the traffic, which we had to overcome; the construction work will be finished soon.

For the civil work, before starting a project, we took the people into confidence by showing them pictures and 3D images of the project and informing them about the timelines. Almost 85 per cent of the civil work is completed and commissioning in progress.

What are the efforts taken to maintain the city's heritage?

Udaipur has received the award

CIVIC SENSE



Udaipur has installed LED lights in the old heritage structures and other places to enhance beauty and also reduce electricity bill.

for the best city in the 'Conservation of Heritage' category. The people are attached to the city's heritage and before every new restoration or renovation project, we have to assure the public that the old structure will be kept as it is. When it comes to the approach, the first step we took was to study old photos of the city and the old structures by visiting state libraries. The next step was to remove encroachments from some heritage buildings and restore them as seen in the old photos. We have restored all the historic gates, fort walls, heritage buildings, gates, ghats and bazars in the city by using old methods and building materials, which help maintain the old charm. Even the lighting of the heritage buildings has been done by using old designs.

How does CPM-PERT help monitor projects and achieve targets?

Whenever you are working on a major project worth ₹10 billion, you cannot use basic monitoring systems. With the CPM-PERT technique, projects get reviewed on a monthly basis. In this technique, the project work is distributed in

20 parts. We used it to monitor big projects like the flyovers, ABD and solid waste projects. This helped us complete projects as the engineers and contractors were under pressure to achieve the timeline.

Can you detail projects completed or planned in various areas?

- **Smart roads and transport:** The two major arteries of the city have been converted into smart roads, including amenities like footpath, cycle track, underground utility wiring, sitting benches, water ATMs and smart toilets. Smart roads enable smooth movement of traffic and have increased the footfall at nearby shops. We have also developed gardens nearby and digitised smart city buses and bus stops. Another important project is the improvement of Suraj Pole junction, where we have created a roundabout to solve traffic issues.
- **LED and street lights:** We have installed LED lights in heritage and other spaces which has enhanced the beauty along with reducing the electricity bill. We

have also installed 4,500 street lights in the old city out of the target 6,000 lights, and the rest will be completed in the next two to three months. We have also installed 250 street lights on Hiran Magri Smart Road.

- **Safety and surveillance:** We have completed the Abhay Command Centres, which is a mandatory part of the Smart Cities Mission. Under the first phase, we have installed 450 surveillance cameras across the city. For the second phase, we have floated tenders for 900 cameras to be installed in the nearby areas. We have installed an ITMS to keep a check on red lights, traffic and speed violations and are looking to install PTZ and box cameras.
- **Parking spaces:** We have constructed a total of eight parking lots across the city with a capacity of 1,529 vehicles. Of these, three are multi-level and one is puzzle parking. Our PWD parking has a capacity for 286 vehicles, and Nada Khada for 290. The puzzle parking will accommodate 85 vehicles.
- **Solid waste project:** We have implemented 24 projects worth ₹430 million for waste management. Currently, we have a transfer station for efficient waste transportation, weighing bridges to measure daily solid waste collection, and C&D waste plant to dispose used construction materials. We have installed sanitary vending machines and automatic bottle crushing machines across city. Furthermore, we are also earning revenue by producing CNG Gas from the same. We are also constructing and selling bricks out of the C&D waste, and manure from the kitchen waste.

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The Project Charter

In the next in a series of articles, NAUSHAD PANJWANI and JAGDISH SHENOY explain the development of a project charter as the foundation for all project activities.

Having established the merits of project management (PM) as a science necessary to every project in the first article in this series, lets delve deeper in the subject.

The maxim goes, 'Well Begun is Half Done'. So is the case with any project. It's a simple principle but ignored by many. There could be many reasons, all valid and genuine, for skipping this stage, such as:

- Stiff project deadline
- Immediate start date
- Need to show visible efforts and tangible outputs immediately to establish credibility.

As planning is invisible to clients, there appears to be a lull or inactivity when observed from outside. Hence, to pacify the client, the project team often engages in a flurry of activities without complete application of mind. However, if you believe in planning, commit time and engage the client in the development of the project charter, the results will be astonishing.

There's a method to this that takes a 360° view.

The primary aim is to establish the WHY. Why is this project being undertaken?

Some project objectives

- Developing a new concept or idea.
- True for R&D projects.
- Can work even in management projects in other fields like marketing and sales where new ways of performing a function are designed. The innovation team would be small and



A good project charter will always be written, formal and simple.

different from the execution team.

- Implementing an ERP.
- Construction or development.
- Creating facilities in and around a project.
- Focus is often given only to the parent project and other smaller service projects are ignored or left to inadequate resources, leading to bottlenecks down the line. A debris disposal system is a small case in point in one of our projects. In this project, the focus was entirely on the five-star superstructure and the excavation was left to a relatively junior resource. The project was in the city centre next to VIP structures. Truck movement would be allowed only for few hours a day and the debris disposal site was a few kilometres away. We began the project on a sour note

owing to this lapse in engaging with the municipality, traffic and experienced contractor. Thankfully, we implemented PM processes immediately, much against the wishes of our experienced project manager, and then the recoup and subsequent smooth sailing was to everyone's delight.

- Enhancement or beautification.
- Redevelopment or overhauling.
- Adherence to rules and regulations regarding environment.
- Is it statutory?
- If not, is it of importance to the client?
- Is the client's global and local team aligned with this?

Need for the project

- Market demand or customer requirement
- Organisational need

- Government or societal pressure
- Legal requirement

Knowing the purpose will help choose the correct path and assess the need for requisite resources, which would lead to a better planned HOW.

Stakeholder identification

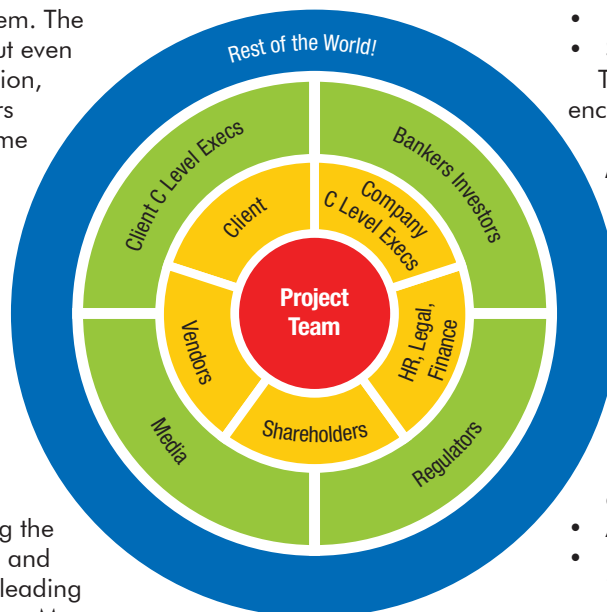
In any project, there are many stakeholders, internal and external. It is important to identify them. The obvious one is the client. But even within the client's organisation, there are many stakeholders that affect the project at some stage. Take the accounting and bill processing team: A simple prior engagement to understand things like billing requirements, dates, mode, attachments, person receiving, bill processing, approving and finally payment processing will go a long way in establishing relationships, understanding the process and knowing when and how to escalate, ultimately leading to a smooth fund flow system. Many projects get into a funds crunch not because the client has no funds or has no intent or because their staff is incompetent or careless. A simple stakeholder identification and engagement exercise will help tweak your processes to incorporate client needs. Don't make the mistake of only engaging with the procurement head. There are many other stakeholders that may be invisible or seem inconsequential at the time of starting the project but can delay or derail the project at some time which could have been addressed at the beginning itself.

External stakeholders of the project and their influence can impact cost, quality and time, both positively and negatively.

Some examples:

- Land owners
- Many infra projects face delays and abandonment for lack of clarity and engagement with this stakeholder.
- Government authorities
- Pre-empt all possible

Project Stakeholders



departments that could influence the project, understand their requirement and incorporate approvals and compliance in the processes.

- Who will manage this stakeholder? The client? You? Outsourced consultants? Costs and responsibility need to be assessed and responsibility assigned to avoid future conflicts.
- Environmentalists and society
- Not only government, even social groups need to be engaged – Friends of Trees, environmental activists, social activists and, in a few cases, even local citizen groups.

- Layers within the customer's organisation
- Contractors, vendors, architects
- Investors and partners
- Technical and legal experts

Developing a good project charter

A good project charter will always be:

- Written
- Formal
- Simple

The idea is to identify, engage, encapsulate and communicate.

A project charter should include:

- Statement of Work (SoW) provided by the sponsor (development authority, customer or investor).
- Requirements of stakeholders and stakeholders' influence.
- Business case for taking the project (purpose, justification and Rol).
- Assumptions and constraints.
- Project success factors: infrastructure, systems, people, marketplace conditions.
- Tip: Always ask clients and stakeholders to give their top 10 parameters of success of the project and rank them according to their importance.
 - You may find clients not being clear themselves. Prompt them from your experience. At times, timely completion with best quality at lowest cost does not work in congruence. The pursuit of one may lead to deviation from the other. What does the contract say? Is time of the essence? Is adherence to a tight budget sacrosanct? Is quality paramount at any cost?
 - The client may say all are

PROJECT MANAGEMENT

top priority – discuss, debate and illustrate the pros and cons of each criterion and suggest your ranking based on the dialogue.

- Once you have the project success criteria listed and ranked (or even better, weightage assigned), you know exactly what resources to apply and where.
- This exercise will help align various stakeholders. What's on mind is now on paper.
- The project success criteria would be akin to Pareto's Principle (the 80:20 rule) – 100 per cent success of the top three criteria will gain the whole project overall success

– hence giving you a clear indication of where your maximum focus should be.

- Summary milestones.
- Summary budget.
- Assigned project manager and authority level.
- Project team structure.

This process will entail investment of time at the earliest stage of the project, at times even when the project is still not awarded or conceived. In my experience, I have used this tool as early as the business development stage, leading to greater engagement with the client. Sometimes, it has even led to clients incorporating our process in their bidding process itself, working to our advantage.

Thus, a project charter forms the foundation for all further activities.

About the authors:



Naushad Panjwani, Chairman, Mandarus Partners, brings with him almost 30 years of experience, having donned the hats of entrepreneur, consultant and senior management, spanning the areas of finance, tax, strategy, retail and real estate, and now M&A.



Jagdish Shenoy, Founder, Flourish Performance Advisory, has been a consultant for over 30 years helping 100+ corporates and SMEs excel through various management systems.

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FEATURE-MATERIAL HANDLING EQUIPMENT

Material Opportunities

While demand hasn't significantly jumped, users identify gaps in the availability of material handling equipment that can be plugged to spur growth.

Despite the ups and downs of the overall business, a reason for cheer is the stable sales of material handling equipment.

Quoting ICEMA's Annual Data Report 2021-22, Dimitrov Krishnan, President, Indian Construction Equipment Manufacturers Association (ICEMA), and Managing Director, Volvo CE India, points out, "The material handling equipment segment, which accounts for about 9 per cent of the construction equipment industry's sales, remained largely stable during FY22, witnessing about 2 per cent YoY growth to about 7,895 units."

Mobile cranes upswing

Mobile cranes are a leading constituent of the material

QUICK BYTES

- Material handling equipment segment in FY22: witnessed 2% YoY growth to about 7,895 units.
- Sales forecast for mobile cranes to peak at 12,000 units in 2026.
- Digital demand for machines that offer data logs, past maintenance history records, and fuel consumption rate.

handling equipment segment.

From a peak of 11,827 units in 2018, the overall demand for mobile cranes fell through 2019 and 2020, only to recover 34 per cent to 9,549 units in 2021, according to Off Highway Research.

That said, Off Highway Research's outlook for mobile cranes remains optimistic in the long term. Sales are forecast to peak at 12,000 units in 2026.

Pick-'n'-carry domination

"Within the mobile crane category, locally manufactured pick-'n'-carry cranes are the dominant seller," explains Samir Bansal, General Manager, Off Highway Research.

"Pick-'n'-carry cranes accounted for 93-96 per cent share during 2017-2021 with peak sales of over 11,400 units in 2018 and 8,893 units in 2021."



Pick-'n'-carry cranes, which form the largest segment of the domestic material handling equipment market enjoying about 95 per cent share, saw about 1 per cent YoY growth, adds Krishnan.

"Exports contributed around 3 per cent of overall sales and grew approximately 38 per cent YoY driven by the equivalent increase in demand for pick-'n'-carry cranes."

Moving on, sales of conventional cranes, which include truck-mounted, all-terrain, rough-terrain, crawler and industrial cranes, peaked at 656 units in 2021, according to Off Highway Research.

"Telescopic handlers saw about 3 per cent YoY growth," adds Krishnan.

What's missing?

Now that the demand for material handling equipment is gradually increasing, let's evaluate what new products could boost demand still further.

"While we don't see a gap in the availability of cranes applied for material handling, there is a void in the availability of cranes required for foundation duty applications such as diaphragm walls, deep compaction, pile driving, boring and dredging," says **Arup Deb, Senior Vice President, Plant Head, ITD Cementation (I)**. "In the latter category, we rely on imported cranes with long delivery and cost."

Tower cranes of more than 16 tonne capacity aren't made in India; 16 tonne, 18 tonne and 25 tonne models are mainly imported, which makes them expensive in India, according to **Munish Taneja, Executive Director, Store One, Indiabulls**.

"Manufacturing these models in India would make the prices more reasonable and increase the options available to customers."

Passenger and material hoists



- **Samir Bansal**, General Manager,
Off Highway Research

"Locally manufactured pick-'n'-carry cranes are the dominant seller."



- **Dimitrov Krishnan**,
President, Indian
Construction Equipment
Manufacturers Association (ICEMA),
and Managing Director,
Volvo CE India

"Telescopic handlers saw about 3% YoY growth."

- **Dimitrov Krishnan**,
President, Indian

were imported until a few years ago, he adds. "While a few Indian manufacturers have entered the segment, the range needs to be increased. We use the 2 tonne and

3.2 tonne models. The 3.2 tonne passenger and material hoist model isn't made in India but demand for it is increasing for super tall and tall building projects and large infrastructure projects."

India needs automated material handling devices to enhance industrial safety and improve viability, believes **Suprabhat Sarkar, Vice President, Teknomin Construction**. "Battery-operated automated devices would strengthen the Government's carbon emission reduction drive as well as help improve the occupational health of employees."

While Sarkar can't see the dependency on cranes reducing, he sees other conventional material handling methods like diesel tippers being replaced by sophisticated electrical dumpers. Conveyors are eco-friendly but sometimes unable to carry high loads.

Training gaps

Like other parts of the construction industry, the material handling equipment operator



Onsite physical training is essential for the operating crew; digital or virtual training does not give the feel of the machine and operating conditions onsite.

FEATURE-MATERIAL HANDLING EQUIPMENT

Digitalisation is in but why are some users not opting for it?

Digitalisation is the 'most wanted' tool in the modern global industry today; it eases the process flow and supports optimisation and assessment, which helps to easily implement a business expansion plan, observes **Suprabhat Sarkar, Vice President, Teknomin Construction**.

Digitisation helps to know the health of equipment, its utilisation and failure history, and triggers fault alarms, adds **Sachin Chilana, Director, Time Equipment**.

"We prefer machines that offer data logs, past maintenance history records and fuel consumption rates; and which facilitate remote monitoring and trigger alerts when preventive maintenance is due," says **Arup Deb, Senior Vice President, Plant Head, ITD Cementation (I)**. "Essentially, data must be available at the push of a button without any dependence on the service engineer."

The main challenge associated with digitalisation is the cost of deployment. This acts as an impediment to the wide adoption of digital-enabled models.

Users want digitisation and the benefits that come with it, such as fuel consumption data, productivity data and alerts on the health of equipment. This information helps users to monitor productivity and reduce operational costs. These options are available in some equipment, but customers are not utilising them owing to the additional cost they have to pay for using such software, observes **Munish Taneja, Executive Director, Store One, Indiabulls**. "Digitalisation of material handling equipment with safety alerts would help make workplaces safer and reduce unfortunate incidents."



"India needs automated material handling devices to enhance industrial safety and improve viability."

"India needs automated material handling devices to enhance industrial safety and improve viability."

- **Suprabhat Sarkar, Vice President, Teknomin Construction**



"We need skilling initiatives to create a bench of operating crew who can maximise equipment productivity."

"We need skilling initiatives to create a bench of operating crew who can maximise equipment productivity."

- **Munish Taneja, Executive Director, Store One, Indiabulls**

segment is suffering from a shortage of manpower after COVID, both operators as well as maintenance staff, says Taneja. He proposes that OEMs or industry organisations should come forward and conduct training camps in Tier-III towns or rural areas to train unemployed youth for a reasonable fee, who can then be employed by the construction industry. "We desperately need such skilling initiatives to create a bench of operating crew who can maximise equipment productivity."

Don't OEMs conduct training?

Training at the time of commissioning is common but subsequent training isn't uniform across companies, responds Deb. "Only a few reputed companies offer training for middle level technicians and even publish a training schedule. Another challenge is that after COVID-19,



Photo Courtesy: Time Equipment

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FEATURE-MATERIAL HANDLING EQUIPMENT



" Local training is the need of the hour."

- **Sachin Chilana**,
Director,
Time Equipment

"Operators must be trained on prototypes to get an understanding of the machine."

- **Arup Deb**, Senior Vice President,
Plant Head, ITD Cementation (I)



"Large projects and infrastructure are utilising automated material handling methods for high safety and reliability."

- **Siva Kumar Bannuru**,
General Manager, Development,
Mining and Bulk Material
Handling, Sanghavi Industries

training has been pushed online, which doesn't work. Operators must be trained on prototypes to get an understanding of the machine."

Onsite physical training is essential for the operating crew; digital or virtual training doesn't give the operators the feel of the machine and operating conditions onsite, agrees Taneja.

"Train the trainer (coordinators) should be the concept in future, which means we need simple videos that can be used by coordinators to impart training locally," proposes **Sachin Chilana, Director, Time Equipment**. "Retaining manpower is as much a challenge as is allocating

Automated machine handling: How far has it made inroads?

In power plants, steel plants and cement plants, automation involves connecting Internet of Things (IoT), artificial intelligence (AI) and machine learning (ML) systems with the logic control systems of material handling equipment such as conveyors, cranes, dozers, lifting elevators and skip hoists, observes **Siva Kumar Bannuru, General Manager, Development, Mining and Bulk Material Handling, Sanghavi Industries**. "Large high-rise building projects and infrastructure such as dams, flyovers and bridges are also increasingly utilising automated material handling methods to adhere to high safety, reliability standards, tight timelines and to give remotely located owners and investors better control on people and processes. But we see a gap in the deployment of automation, especially in smaller construction projects in the residential segment."

Government support to small-scale industries to produce innovative technological handling methods would help further this industry, he adds. "Such support could include special policies and procedures."



Manufacturing in India will make prices reasonable and increase the options available.

time for training, so local training is the need of the hour."

For his part, Sarkar points out, "Depending on manufacturers for training and after-sales services isn't an intelligent move as they often can't meet industry needs." He recommends developing one's own maintenance team with master trainers to keep the momentum

going, emphasising that "being self-sufficient is more sustainable".

After-sales snags

After-sales service is another area where gaps need to be plugged.

Reputed manufacturers were sourcing main components from outside India; such imports pose a concern in the light of supply chain disruptions after COVID-19. Lead times have increased significantly, translating into higher inventory carrying costs and blocked capital; this has led to an increase in the cost of spares, says Taneja. "Greater indigenisation would help reduce prices and overcome such supply chain disruptions." After-sales service teams must realise that faster, on-time response is essential for any industry to flourish and meet its customer expectations, adds Chilana.

We couldn't agree more.

Disclaimer: Views expressed by Arup Deb are in his individual capacity and don't represent the perspective of the organisation he works for.

- **CHARU BAHRI** | CW |

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Material costs have been spiralling with no relief in sight. In conversation with PRATAP PADODE at a recent FIRST Construction Council roundtable in Hyderabad, stakeholders and experts weigh in on the matter.

Sectors across all industries have been reeling under the relentless rise in prices. Cement prices have surged by 25 per cent from April 2020, bitumen 87 per cent, MS plates 115 per cent and tor steel by 78 per cent. This rise has been attributed to the ongoing Ukraine-Russia war which has caused a severe economic shock to global economies and adversely affected the availability of steel and other commodities.

Why have prices risen?

"We are not inflating prices to improve our margins," says **Akshat Saraf, Director, Radha Smelters**. "It is purely a response to market conditions." While geopolitical turbulence is one aspect, other factors have pushed up steel prices, including China's upgraded environmental policies that no longer allow their mills to function owing to environmental

damage, shortage of coal and the resulting price volatility, and dependency on iron ore exports.

"While the situation of cement is the same as steel, the problem is that the price increase is not getting absorbed in the market," explains **K Gautam, Joint Managing Director, NCL Industries**. "The rise of cement prices also funnels down to coal, transportation and power. Although other raw material costs such as limestone have increased too, transporting these does not have a huge impact as most mines are usually adjacent to the cement plant."

Coal costs first inched up in October 2021, shooting up drastically after December 2021. The cement industry largely relies on imported coal, pet coke and other alternative fuels because domestic coal is of inconsistent quality. A lack of stable supply of alternative fuels could also help

save costs, which India presently lacks – the Indian cement industry uses only 30-35 per cent while other leading countries use 80-85 per cent.

Disruptions like the flooding of mines because of rains and the diverging of coal to the power sector recently have also led to hiked demand and, hence, a hike in prices. The current international coal index does not seem to be declining any sooner either. "The way out would be to bolster domestic coal production or increase the supply for alternative fuels," adds Gautam.

Solutions or reactions?

To give passage for the increased load on coal supply, passenger trains have been cancelled. Affordable housing and the real-estate industry stand to be impacted owing to the domino effect of increased raw material prices on the

price of labour and the final offering. As interventions, the Government has offered duty reliefs to the steel industry and relief for the housing sector as well.

However, these interventions are not stable. "While power is important, other sectors need to be running as well," reasons **Vijay Agarwal, Executive Director, Equirus Capital**. "The Government diverted trains from other industries to transport coal to power plants, which is a knee-jerk reaction. Instead, the allocation could have been increased by 10-20 per cent rather than removing stakes completely." India imports 20 million tonne of coal while having one of the largest coal reserves in the world itself, which remain untapped.

To pause or not to pause?

Infrastructure projects are timebound and have strict guidelines. "With that mindset, even though builders have stopped procuring raw materials because of the price jumps, infra has not stopped," Saraf observes. National Highway programmes have been proceeding in full swing, for example. "The industry is at a point where even if one delays execution, prices are going up anyway. So, project completion is a logical priority."

Initiatives like stamp duty reduction have helped boost interest rates, which has helped the housing sector. The construction industry also needs such an intervention. Seeing the nature of demand-driven commodities like steel and cement, combined with the cyclical nature of the cement industry, most suppliers budget for price volatility into their costs. "However, this year we are seeing some historic prices," says **Rajarama Rao, Vice President, NCC**. "We didn't see this surge

coming and nor did our commodities experts. With raw material and fuel prices going up, margins need to come down. For small players involved in government projects, these price surges usually go uncompensated for the most part. As a result, while big players may survive on the back of private projects, smaller companies with lesser project variety are in danger of getting washed out."

Quick Bytes

- Rising cement prices also funnel down to coal, transportation and power.
- Current affair: If one delays project execution, prices are going up anyways.
- Reduce production cost by reducing fuel cost or considering alternate modes of transportation.
- Way forward: innovating, relooking at old practices, updating technology.

Is there a way out?

As Gautam suggests, one way to reduce production costs is to look at reducing fuel costs or consider alternate modes of transportation. The Railways, for example, can act as a significant cost-curber, he believes. Containerising cement instead of transporting it loosely can help achieve cost-effectiveness for transportation for distances larger than 400 km. "Industrial consumers pay a higher price for diesel than domestic consumers, which was earlier the opposite. But the Railways have innovative ways to tackle that. Konkan Railways has hop-on-hop-off infrastructure that allows a truck to get on and off the wagon." This eliminates the need for secondary freight and could be a solution for

other landlocked industries in other parts of the country as well.

Another way is to turn to technology. It is possible to re-evaluate designs and look for opportunities to cut costs. "Initially, TMT bars were released in Fe415 grade, followed by Fe500 and are now available in Fe550," says Saraf. "When you go from Fe500 to Fe550, for an amount of load-bearing capacity, the quantity of steel used decreases, easily saving 6 per cent. However, the problem is that all infrastructure is designed as per Fe415 grade." The norm is to plan for one grade lower – or, in other words, to factor in the usage of inferior products. Similarly, in cement, M100, which can reduce structural weight significantly, is a common grade abroad but not in India. This is used to ensure safety.

India's codes demand a safety factor of four or five while other countries have a lower factor of safety, with Japan's as low as one. "We are over-designing our structures four to five times," Gautam points out. Additionally, he emphasises that it is not a question of relaxing the codes but understanding the requirement. As the codes do not allow usage for these higher grades of material, instead only specifying a certain range, the industry is missing out on a 15 per cent savings on the price of cement, in Gautam's view. It is possible to reduce 30-35 per cent of material wastage as well, adds Agarwal.

Further, it isn't as if our country is not employing innovation. The drawback is that any innovation is slow to get replicated.

To get ahead of the cost curve, innovating with what we have, relooking at old practices and updating our technology constitute the way forward.

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FEATURE-CONCRETE EQUIPMENT

Filling in the Blanks

CW identifies missing technologies in the current line-up of concrete equipment in India.

The line-up of key concrete equipment available today spans pumps, vibrators, batching plants and mixers. Do these machines adequately meet user demands or are some features missing? Should this line-up include other equipment? **CW** provides some answers.

Concrete pumps

While all the equipment needed is available in the current market, **Concrete Consultant Riyaz Patel** points out that from the perspective of the progression of the industry, concrete equipment across the board must be made more efficient. "Most of all, we need incremental improvement in concrete pumping technology," says Patel.

Why's that?

Concrete pumps available today have been designed to pump existing concrete, explains Patel. Whereas, in the near future, he sees a need for the opposite approach, for pumps to be designed and, thereafter, for the material to be re-engineered by concrete consultants capable of performing complex analysis to suit the pump action. This alternate approach would

QUICK BYTES

- Concrete pumps in future: designed, then re-engineered to perform complex analysis.
- To maximise productivity: a shift from intermittent pumping to continuous pumping.
- Digital technology for accuracy and precision in quantifying loads and generating online records.

help pressure raw material suppliers to manufacture technically correct material.

"Shotcrete is an excellent example wherein materials have to be specifically sourced to suit the machine requirements," says Patel.

The construction industry already has concrete pumps that can pump from 30 to 150 cu m per hr, horizontally, to more than 500 m and, vertically, more than 150 m, protected by new safety features, observes **Chaitanya Bhagde, Manager Plant and Machinery, Shapoorji Pallonji and a Chartered Mechanical Engineer.** "But with buildings touching new heights, concrete pumps must perform better."

Bhagde elucidates the need for higher pressure capacity pumps and pumps that can efficiently push various grades of concrete, which are also in the process of upgradation. Also, wireless remote-control technology is a useful



solution when a pump is used at a height and distance where the operator can't see the actual picture.

"We need better safety features in the concrete pump such as a limit switch for the hopper to stop the agitator immediately," says Pramod B Joshi, Additional General Manager (P&M Head, All India), Ahluwalia Contracts India.

Concrete pumps choke when we use them for concreting 10 m below the ground, adds Joshi. "Some special arrangement should be made so that this doesn't happen."

Ideally, the concrete pump should calculate the quantity of concrete needed so that the productivity and the concrete received from the ready-mix concrete (RMC) vendor or batching plant can be calculated, Joshi continues. "At present, we calculate the quantity of concrete manually. Also, concrete pumps and boom placers should display the quantity of concrete pumped. Without this, we cannot figure out the quantity of concrete wasted or received from the RMC vendor. An energy meter with the RMC plants would help calculate the electricity consumed to identify the cost of production."

Pump productivity

To maximise the productivity of concrete equipment, Patel proposes a shift from intermittent pumping to continuous pumping and innovation in the material used to prepare concrete pipes so as to reduce their drag and friction.

How does continuous concreting work? Bhagde shares his experience: "We placed the concrete pump directly below a concrete batching plant with the arrangement of a revolving chute. After some trials and errors, we started continuous concrete. This approach helped maximise the productivity of the plant and pump, and save on



"Most of all, we need incremental improvement in concrete pumping technology."

- Riyaaz Patel, Concrete Consultant



"We need higher pressure capacity pumps and pumps that can efficiently

push various grades of concrete."

- Chaitanya Bhagde, Manager Plant and Machinery, Shapoorji Pallonji and a Chartered Mechanical Engineer

time and concrete transportation costs. As some concrete pumps don't have a cable remote, we developed and used a remote

control to operate the pump from a distance where the operator could monitor the placement and pump. This helped avoid communication errors."

Concrete vibrators

Compaction directly impacts the strength and performance of concrete. "While we are using advanced high-frequency vibrators for compaction, which deliver speedily, further development would make vibrators lighter in weight and easier to handle without compromising the output desired," notes Bhagde. "Ideally, the electronic components should be easily replaceable to avoid downtime and repair lead time."

Concrete vibrators that are currently available don't show how much compaction has been done; this is handled by the workers, adds Joshi. "This can be improved."

The use of needle vibrators is questionable because they cause the aggregate to settle, which, in turn, brings about internal changes



Manufacturers now offer automated versions of batching plants that yield more precise results than the typical old configuration of analogue controlled machines.

FEATURE-CONCRETE EQUIPMENT

in the concrete matrix and affects its structural behaviour, opines Patel.

The efficiency of vibration depends more on the operator than the machine itself, he continues. "However, code limitations for working conditions for laying and spreading concrete are never followed and, frequently, non-technical people are involved in the process, which is counter productive."

Batching plants

So far, we have mainly seen only stationary batching plants but this is slowly changing, according to Patel. Soon, he expects more efficient mobile batching plants to become increasingly popular to improve the quality of fresh concrete and reduce the multiple costs associated with keeping fresh concrete usable until it is fully consumed.

Almost all manufacturers now offer automated versions of batching plants that yield more precise results than the typical old configuration of analogue-



"Concrete vibrators that are presently available don't show how much compaction has been done, this is handled by the workers."

- **Pramod B Joshi**,
Additional General Manager
(P&M Head, All India), Ahluwalia
Contracts India



"Manufacturers should offer training in the use of machines as well as its interaction with concrete."

- **Rupesh Kumar**, Corporate Quality
Head, JMC Projects India, A Kalpataru
Group Enterprise

controlled machines, notes Bhagde. While the production cycle time can't be modified much, as IS standards must be adhered to, he believes the lead time and other contributory factors can be taken care of to increase the productivity and dependability of the plant. Compact design installations could be introduced for congested locations.

When concrete is pumped directly from a batching plant, a special chute should be provided by the plant manufacturer to allow pumping operations to continue even while a transit mixer is simultaneously being loaded, adds Joshi.

Missing technologies

Rupesh Kumar, Corporate Quality Head, JMC Projects India, a Kalpataru Group Enterprise, lists the missing concrete equipment as follows: "An ampere metre, which checks current indicating resistance or workability of the mix, scanners to measure the temperature of concrete, camera or sensor to check the mix quantity and condition in the mixing drum and similarly in the transit mixer drum, robotic pipeline cleaners, placers fixable at the end of a pipeline to place concrete in a wider area, surface vibrators and finishers for large surface areas like slabs, laser grids to maintain the level of large surface areas like slabs, screeds, and curtain systems to cover placed concrete to reduce the evaporation of water."

While existing mixer technology is useful, Patel is hopeful of advancement in the efficient and frictionless mixing of concrete.

Digitalisation in demand

Incorporating digital technology in machines underlies data collection and analysis that can help introduce more efficient operations,



Efficient mobile batching plants are expected to become increasingly popular to increase the quality of fresh concrete and reduce multiple associated costs.

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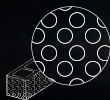
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Photo: For representational purpose

Training by OEMs should include quarterly or half-yearly refresher sessions to upgrade operator skills and knowledge.

increase productivity per person and make quicker decisions about the design of equipment and operations, notes Patel.

“Digital technology in equipment augurs more accurate measurements and precision in quantifying loads and generating online records,” adds Bhagde. “This, in turn, can help improve the quality of the outcomes and safety; reduce the cost and time taken to do a job; increase profit; and predict the need for machine maintenance.” Coming to examples of digitisation in concrete equipment, he points to automation in the controller system of batching plants, programmable logic controller (PLC) units in pumps and mixer motors and automated greasing system in pumps.

While examples of digitalised equipment exist, “the concrete equipment models currently available do not incorporate digital technology sufficiently,” says Kumar. He believes digital is now well understood by everyone onsite including the workmen and, so, it must be promoted. Digitalisation clearly shows if things are going

right or wrong. At present, this is left to the understanding of the workmen. Further, digitalisation makes it easier to work with machines and handle complex tasks and thus reduces the need for in-depth training while increasing productivity and accuracy.

Training gaps

Most operators cannot afford training and construction companies don't send their operators for training; so, yes, we are seeing a training deficit, acknowledges Joshi. He advocates a training centre in each major city where leading manufacturers can promote their product and train Indian operators.

“India seriously lacks the training infrastructure required to make people industry-ready”, adds Patel. He believes the construction industry is in a nascent stage as far as training is concerned. The construction industry needs to learn from the IT industry and adopt its continuous in-house training models and induction programmes.

Training by OEMs should include quarterly or half-yearly refresher

sessions to upgrade operator skills and knowledge, proposes Bhagde.

Operators are inadequately trained today, affirms Kumar. “Most operators engaged with making, transporting, pumping and placing concrete don't know concrete well and only focus on machine care. This leads to concrete being mishandled at critical times.”

Manufacturers should offer training in the use of machines as well as interaction with concrete, believes Kumar. “Operators must be provided an understanding of concrete, control measures and procedures for handling adverse situations, including variations in concrete.”

Service gaps

In Joshi's view, after-sales services by the major companies are poor and delayed because they don't have sufficient staff. “The availability of spares is also of concern; some imported parts can take a month to get delivered. Involving Indian manufacturers would help fill this shortfall.

- CHARU BAHRI | CW |

How do you view the market for Concrete Equipment in India? Write in at feedback@ConstructionWorld.in

PERSPECTIVE

“We forecast a great boost in the sales of concrete equipment in upcoming years.”

- **Ramesh Babbar**, President and Director, Columbia Machine Engineering (I)

Ramesh Babbar, President and Director, Columbia Machine Engineering (I), speaks about the rising demand for concrete equipment as infrastructure activities pick up and about the recent trends.

How is the market for concrete equipment post-COVID?

The government's focus on infrastructure growth has given a boost to construction equipment sales in India. Growth in industrial and real estate sectors has compelled our customers to add additional capacities resulting in more orders for us. Leading infra and soil stabilising companies have added our equipment production lines to cater to their additional requirements. Since Columbia Machines produces retaining wall blocks which are used to substitute RCC panels in flyovers for faster construction and economic production.

We forecast a great boost in the sales of concrete equipment and the plant in the upcoming years.

Tell us about your offerings.

Columbia is a leading manufacturer of automatic plants to produce concrete products catering to infrastructure and real estate sectors. We have designed and developed our existing range of concrete block machinery for manufacturing cored retaining wall blocks and cored bricks. These RE blocks have recently been supplied for the construction of a flyover in Mumbai.



Ramesh Babbar
President and Director, Columbia
Machine Engineering (I)

Which equipment has been seeing a specific demand?

We manufacture and sell automatic concrete block plants. Both, our existing and new customers have started buying higher output automated block plants which come with an added capacity for batching and mixing. We hope to see this trend continuing, increasing the sales of our batching mixing plant.

Introduce us to the company's new launches.

Columbia has recently introduced a new concrete block machinery model SPM20+ in its current range of concrete block equipment. This is an advanced version of SPM20 to produce a wider range of products. It comes in the same pallet size as SPM20 of 508 x 508 x 6 mm and can manufacture products in the range of 25 to 250 mm in height

such as tiles, pavers, bricks, blocks and kerbstones. We have developed this model to enable our customers to meet the versatility of the product requirements of their end-users. SPM20+, designed as per the company's patented CVT technology, combines over 80 years of innovative engineering and field-proven designs with industry-leading manufacturing capabilities, enabling producers to create the highest quality and widest range of concrete products. Located centrally in Vadodara, Gujarat, the factory and after-sales support caters to customers pan-India. We have a wide range of spares and moulds ready to be shipped for the convenience of our customers. Additionally, we provide service support in other South Asian countries like Nepal, Sri Lanka and Bangladesh, East and West Africa and more.

How do you integrate technology in your offerings?

Automation is the need of the hour and automatic Columbia plants are the perfect solution for this. We have the best available design software and manufacturing technology to meet our customers' requirements. In addition to this, we have introduced IoT for our machines to assist our customers in ordering moulds and spares and for online troubleshooting. We will also remain updated on the new products developed by our customers. The entire portal will be a one-stop solution which can be handled remotely.



“Technology should become affordable, cost-effective and easy to use.”

- **Greg Demchak**, Director-Digital Innovation Lab, Bentley Systems

Greg Demchak has had an illustrious career path aligned with technology – from being involved with Revit back in the early 2000s to SYNCHRO about five years ago and is now the **Director-Digital Innovation Lab, Bentley Systems**. He tells us about the state of construction software today.

How have construction technology solutions evolved over time?

When I began my career at Revit technology, later acquired by Autodesk, it began my path to get the market interested in 3D modeling as something that architects and contractors should be doing, setting a foundation for BIM. Once architects started using it, construction companies started leveraging the 3D models. This led me to SYNCHRO.

You can take a BIM model into SYNCHRO, import the schedule, link the two together and produce a digital simulation of construction. But, we would not have gotten to the capabilities of SYNCHRO if we did not have 3D modelling and BIM first.

There is another aspect to BIM too, in that you have all the quantities coming through the elements – the numbers, square footage, volume of materials – and you can use those quantities in BIM to compute the production rate of installation, i.e, amount of steel installable or amount of concrete pourable per day. Knowing those quantities directly impacts your construction schedule, which leads to a model-based planning using



Greg Demchak
Director-Digital Innovation Lab,
Bentley Systems

production rates. You can also track your production against the 4D model, called production monitoring.

What is the future of the Digital Twin technology?

What we call a digital twin will be the evolution of BIM. It is not just a static model that you build with 3D tools. The next evolution – just as SYNCHRO was a natural evolution of BIM – would be the digital twin, and that’s where the asset will be tracked and monitored in real time and updated, where the 3D model becomes a context for real-time information. How a building is being used and its current state is all the information possible to get through the IoT and sensors.

The 3D model then will become a live database rather than a static snapshot. If anyone hasn’t already adopted BIM or 3D modelling as a

way to deliver a project, we will reach a point where everyone is. I’ve seen everyone from big mainstream tier-one architecture firms using BIM to small two- or three-person shops getting value for it. So, even in the construction space, you will see that the adoption of 4D will trickle down into mid-range contractors and not be reserved for just the tier-one firms.

How does 4D enhance BIM and what is the scope for future?

There is immediate value when using 4D, even if you are using 2D graphics to start. From a top-down perspective, you can identify clashes in a work area, such as lay-down zones or access routes, by linking those graphics to a timeline. You can instantly visualise the points of conflict in a way that you would never see on a Gantt chart, and resolve it.

As you start ‘growing up’– you can start with simple 3D massing to identify where the major work is happening – almost like the master planning level, visualising the sequence at any level. As you add more resolution to your 3D model, you add more resolution to the sequencing in the schedule. You can go from the master planning schedule – big tasks – all the way down to the scale of workface planning and construction work packaging, in other words, daily or weekly work packages that have to be installed. 4D works across all dimensions leveraging whatever level of detail you have modelled, getting value by linking it to the

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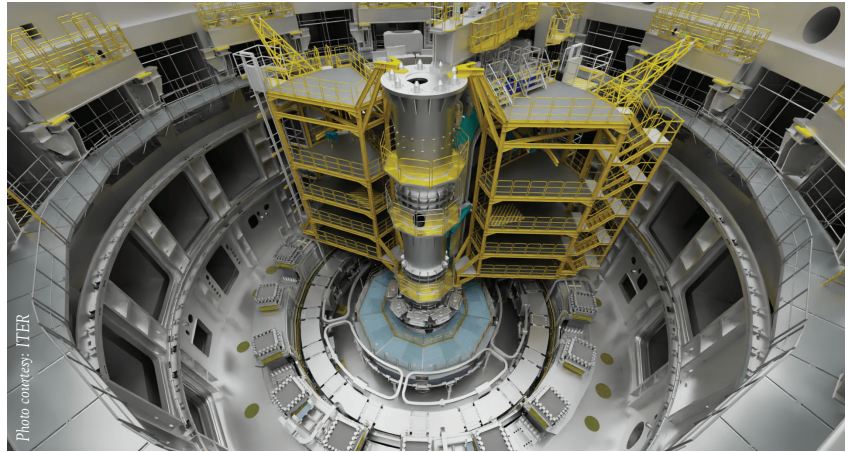
INTERACTION

schedule. Because it is visual in nature, you can see where things won't work.

Typically, illogical sequences or unsafe or hazardous situations might become apparent. People will often find missing scope and will have to add new tasks that wasn't captured by the planners which will impact the schedule. You can identify clashing spaces between one crew and the next based on how they are installing works, allowing you to negotiate access to space for different crews, just by seeing the 4D model. 4D planning is also used heavily for communications and in the tender phase as well. A lot of contractors will generate a 4D sequence and present that to the owner and try to use that to win the bid.

What can reality-plus technology, offer to the infrastructure sector?

There is a spectrum of interactions for extended reality that goes all the way from full immersion to augmented immersion. The full immersion is what you would think of as a virtual reality headset, like the Oculus Quest II or a Vario, and in that case, you are fully immersed in an extended reality. You can experience 3D models and photogrammetric meshes which give you that one-to-one sense of immersion. On the other dimension, you have what we call mixed reality, like the HoloLens, where you are seeing your physical environment and then you are overlaying and aligning digital models with your physical space. You are not fully immersed in the digital – you are seeing your physical surroundings, but now you are seeing your view augmented with digital content. Somewhere in the middle you also have augmented reality. That is, for example, holding up an iPad or your phone and also seeing



ITER facility being built by a consortium of 35 nations in the south of France: the 4D visualisation was created with LumenRT for NVIDIA Omniverse and powered by the Bentley iTwin platform.

computer graphics, but still projected onto a screen. It is not fully immersive like you would get with the HoloLens or VR.

Where I am seeing mixed reality has the most value is for operations or if you have to go to a physical facility where there is a need to have a digital alignment of content or a QR code. You can walk up to a QR code and then BOOM, information about that object can pop up in a hands-free way without having to use a phone or an iPad. When they stand in a physical reality and look through this device, they will see what the future superimposed in real time with the physical environment. From the VR perspective, you can dive into a project from anywhere. You don't have to be on location and you can be fully immersed in the 3D model. So, I think multi-user in a VR experience will be coming next.

What is the future of architecture and construction tech in India?

I would hope that the technology becomes affordable, cost-effective and easy to use. I wouldn't want this technology to be reserved for tier-one contractors or Western

nations who might have the budget to support it. I would love to see this technology be accessible and scalable across the whole market. And we are starting to see that. I think the price of these will continue to fall and that is pretty exciting.

In future, the architecture that is built – there will be a whole lifecycle angle here, which is the 3D model – will continue into operations and maintenance, and 'live' and 'grow' beyond the design and construction phase. It will become a smart building outfitted with sensors so that we can know how it is performing and where it is broken, tying directly into operating and building sustainably. If the building becomes more aware, it can start to manage itself and maybe operate itself more efficiently.

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INNOVATIVE PRODUCTS

Beyond comfort, interiors can also play a part in being efficient, sustainable and mindful of the environment. **CWDB** speaks to interior designers and architects in trying to understand what innovations they are on the lookout for.

ALSO READ:

- Startup Innovation: Delhi-based Strawcture Eco
- Interview: KONE Elevators India
- IGBC Platinum Certified: ABB India's Integrated Campus, Bengaluru

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Photo courtesy: A Square Design

Pick & Choose

CWDB digs into the mindset of architects and interior designers and their preferences while selecting products that fit their design plan.



The space we reside in impacts us in more ways than one. It affects our physical and mental well-being and sets the stage for most of our everyday activities. It also has an effect on the environment in how the elements are manufactured and sourced. In this age of social media, the appeal of aesthetic, 'instagrammable' spaces has been on a high.

Product selection

Every element making up the decor, its design, material and texture, is decidedly chosen by the designer depending upon a variety of factors that collectively make up

the context of the space. "Everything depends on the design concept for the project," says **Meenu Agarwal, Founder and Interior Designer, MADS Creations**. "It is a result of our vision for the project after many rounds of discussions with the client."

"The product has to go with the ethos of the project we have created," agrees **Pooja Bihani, Principal Architect and Founder, Spaces & Design**. Durability, workability, availability and budget play a part too.

Additionally, products should offer good value for money. "The simplest things are the best," says **Amit Aurora, Partner, groupDCA**. And when it comes to incorporating value addition, he gives an example. "Say, we design the layout for a living space or bedroom and the residents want a TV. However, there is a good view outside the window on the only available wall. We can provide a simple set of windows, but then where do you put

QUICK BYTES

- Key considerations in product selection: Durability, workability, availability and budget.
- Products using artisanal workmanship and that improve the rural economy are also preferred.
- An interior product stands out as innovative when it solves a problem that is identified but not yet addressed.



"Government can focus on making products safer for both, human health and

the environment."

- **Ajay Arya, Founder, A Square Design**

the TV? Here, we can design hardware for the TV to lower into a cabinet or go inside the ceiling and bring down when needed."

Innovation factor

Often, products are incorporated into a space in such a way that they optimise the space, enhancing its functionality.

According to **Rudraksh Charan, Principal Architect, 42mm Architecture**, an interior product stands out as innovative when it solves a problem that is identified but not yet addressed. "It can be a slight modification in the product that can change its shelf life or some technological equipment that can function with maximum efficiency and yet be concealed."

Innovation is anything out of the ordinary in the way of value addition. "Providing premium at a reasonable cost is also an innovation," says **Priyanka Khanna, Principal Architect, 42mm Architecture**. Apart from being aesthetic, products should make practical sense and be functional. Agarwal shares an example:



"The product has to go with the ethos of the project we have created."

- **Pooja Bihani,**

Principal Architect and Founder, Spaces & Design

“We have used vertical linear lights to separate the living and dining areas in one of our projects. It adds a unique feature to the space and looks good, while obstructing vision and successfully bifurcating the two spaces.”

Flexibility of material usage is another aspect of innovation. “Any material that comes in larger sizes allows for the flexibility of joints as per design,” says Bihani. “If the number of joints is reduced, the look changes.”

Innovating through design to achieve unique finishes is also a route. “A lot of products are getting minimal. It is possible to have a minimal switch panel with four switches that carry out the function of 16 switches,” says **Ajay Arya, Founder, A Square Design**. “Flooring innovations include experimental flooring where it is possible to combine two or three materials to achieve a hybrid flooring. Further, in windows, the aluminium profile is getting slimmer



the user.”

- **Rudraksh Charan**, Principal Architect, 42mm Architecture

and sleeker. Glazing is also getting designed as per the climatic context to withstand pressures on the higher floors of skyscrapers owing to the wind.”

In Aurora’s view, innovation adds an interesting value to the whole package, “and that value is never just sheer aesthetic. For instance, you have toilet fixtures that are user-friendly for people with special needs.” Some products may offer innovation by enhancing the acoustics, soundproofing, sound absorption and ventilation and optimising a space in tangible ways.



“We promote sustainable products that do not compromise on quality.”

- **Priyanka Khanna**, Principal Architect, 42mm Architecture

Origin story

For most designers, the quality of the product is the prime deciphering factor. “We look into the brand’s background and its manufacturing processes to estimate their technological advancement and ability to innovate, and also to see a cost margin,” says Khanna. Factors like time of procurement and access to maintenance play an important role in decision making too.

All designers prefer to rely on well-known brands for the quality guarantee but some prefer locally handcrafted products as well. Bihani relies on brands because in many places, especially in eastern India, there is a dearth of variety and range, and availability is an issue. Going with a well-known brand helps her gain and maintain customer trust. **Kanhai Gandhi, Partner, KNS Architects**, agrees, saying, “Apart from the look and feel, it is important to have a product that delivers on longevity. For example, if you’re buying a sanitary fitting or fixture, we ensure it has a life of 15-20 years without giving any trouble to the client, apart from just serving as an aesthetic component. When it comes to the fabric, veneer or any type of wood, brands play a huge role because they are known for quality.”

For his part, Aurora prefers to seek quality among local suppliers. “Anything handmade is better,” he avers. “Products using artisanal workmanship and helping to



Apart from being aesthetic, interior products should make practical sense and be functional.



“I want to have products that are more inclusive in terms of their production systems.”

- Amit Aurora, Partner, groupDCA



“Apart from the look and feel, it is important to have a product that delivers on longevity.”

- Kanhai Gandhi, Partner, KNS Architects



“What matters to us is using local craftsmanship to achieve end products on par with finest brands.”

- Meenu Agarwal, Founder and Interior Designer, MADS Creations

It is possible to use any product judiciously and make it aesthetically driven – that is the role of an architect or designer.

improve the rural economy in any way are better. The USP of these products is that they are unique and not mass produced.” Agarwal adds, “What matters most to us is using the best local craftsmanship and high quality of materials and finishes to achieve end products that are on par with the finest brands in terms of style, construction and function. We might include a brand if the client so desires. In that case, it would totally depend on the client’s wish.”

So, with aesthetics more or less understood as the prime decision driver, how much of a sway does sustainability have over pricing? “If an initial capital investment can reduce the overall cost spent during the lifetime of the product, or significantly reduce maintenance, the cost margin is covered by the client,” responds Charan. “However, if the higher cost margin offers an additional aesthetic value, which holds precedence for the client too, the cost margin gets neglected.”

“Here, it’s a little contradictory that you want it to be affordable, but handmade products will always

be more expensive,” explains Aurora. “I wouldn’t spend money on doing intrinsic panelling on the wall but I would spend money on somebody doing wall art, painting that wall. An aesthetically driven product is up to us as architects. We can use any product judiciously and make it aesthetically driven – that is the role of an architect or designer.”

Indian companies are now stepping up to meet market demands and deliver good quality at a good price. “Many local products – be it furniture, light fittings – have a similar output as international ones,” says Gandhi. “There are a lot of good Indian companies that deliver good quality at a good price. It is just a matter of time that people start realising the brand value of products produced in India.”

Sustainability

Product selection plays a crucial role in making a space sustainable. “Products that pose a choice between sustainability and aesthetics are not successful sustainable products,” says Khanna.

“Sustainability in product choices is personal to a client; as designers, we promote sustainable products that do not compromise on quality.” Meanwhile, Bihani says, “If the project calls for sustainability, it is better to keep sustainable products as the primary factor but if the client is looking for a project with a high-end look, aesthetics become more important. What would be a better practice is to introduce a sustainable product in a high-end project in ways that accentuates the project.”

“Thoughtfully designed and manufactured products using materials and finishes sourced

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Photo courtesy: KNS Architects

There is a need for manufacturing products that are backed by R&D to make them suitable for India and its weather conditions.

responsibly do play a role in making a space sustainable," says Agarwal. "Today, most luxury brands follow all environment-friendly norms, making them equally sustainable as the products labelled as such." How a designer uses interior design and interior design products is what makes them sustainable, believes Aurora, "For instance, if I am using an

expensive marble and tomorrow the space is being renovated, the marble goes to waste whereas a handmade carpet that can survive for generations will never go to waste."

In future

While the current market for innovative products is still developing, the designers we interviewed help



Photo courtesy: MADS Creation

Thoughtfully designed and manufactured products using materials and finishes sourced responsibly play a role in making a space sustainable.

identify some potential gaps:

Rudraksh Charan: "For the makers of innovative products, it is important to observe and study the user. Every person appropriates and uses a product differently. Studying the habits of the user can help modify and evolve the designed product. A product developed as a response to the user's psychology tends to be an innovation and a value addition to the quality of life."

Amit Aurora: "I want to create contemporary, modern spaces but I also want to have products that are more inclusive in terms of their production systems. I don't want to use every product that is factory made and wish there were more people using crafts to create more contemporary products."

Kanhai Gandhi: "A lot of stuff seen on social media is not apt for our weather conditions. A little more time needs to be given to R&D because then we'll actually be manufacturing for the country and its weather conditions."

Priyanka Khanna : "There are only a few people identifying modified products to suit a person with disability. Moreover, the cost implication for such modifications also makes the product out of reach for a large number of the disabled public. When inclusivity is not seen as a privilege rather than a fundamental need, it becomes a distinguishing factor."

Ajay Arya: "Certain products are harmful for human health, such as some paint finishes banned in other countries, but we lack awareness about them. The construction community can help make people aware of this and the Government can also move towards making these products safer for both human health and the environment."

- INPUTS BY SHRIYAL SETHUMADHAVAN






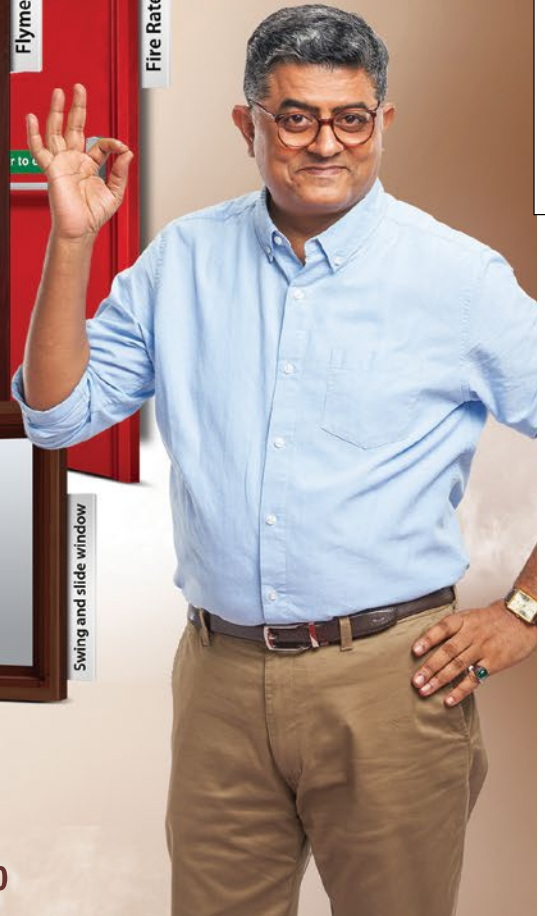
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“We become a consultant to our customers to identify their requirements.”

- **Amit Gossain**, Managing Director, KONE Elevators India

The world’s largest passenger elevator has been launched, and it is in India! KONE recently officially announced the launch of this 16-tonne, five stop engineering marvel at the Jio World Centre in Mumbai, India. What’s more, the centre is home to 188 world-class elevators and escalators installed by the company. The world’s largest was carefully designed, built and tested for the most optimum people flow analysis, with high quality and safety aspects built in. During the launch in Mumbai, SHRIYAL SETHUMADHAVAN in a tête-à-tête with **Amit Gossain**, Managing Director, KONE Elevators India, delved into the company’s focus, key offerings and growth predictions in the coming months.

What is the biggest technology innovation in the largest elevator?

Our customer, Reliance, wanted to ensure a smooth flow of people and goods at the world-class Jio World Centre. This was going to be a venue for weddings and some major brand launches. The idea was to design an elevator keeping in mind safety as well as the aesthetics. There should be some uniqueness and we created a marvel in this centre. This elevator was primarily designed based on the traffic and goods flow. The machine, designed by KONE and used in this elevator, has the capability to have an absolutely safe, experiential, tried and tested design globally.

How were the touchless elevators, launched during the pandemic, accepted by users?

The biggest launch was the KONE 24/7 Connected Services. Amid the pandemic, people realised that it was best to be safe and opted for this IoT-based, artificial intelligence, cloud connected service, which would enable them to fix problems and errors before they

occurred. Our touchless solutions continue to be popular and digitally connected elevators too. There is music, the lights can be changed, and these are digitally automated 24/7, which means these are constantly being monitored and that is important. While the touchless solutions grew popular, the 24/7 Connected Services took off because the bigger question was a solution for the existing equipment. Our service portfolio is huge, which led to immense demand and everybody wanting to pay extra and having it installed.

Tell us about the success of the first digitally connected elevators, the KONE DX Class Elevators.

The demand is evident. But at the moment, this offering is not localised enough for the Indian market, and this will be achieved in the next two to three months.

What is the digital technology transformation that the brand is looking forward to in the future?

Sustainability and innovation are our priority. We innovate every day, but what we need to consider is designs our customers like. In the larger and taller buildings, the preference and demand are for elegant-looking elevators. Independent bungalows, which have three to four floors, demand an elevator that is supported by a security system, as that is the first point of entry for the house. To secure the house, a code is built into the elevators and the door directly opens to the house itself.



But to plan all of this, we become a consultant to our customers to identify their requirements.

The increase in commodity prices has pushed up the cost of manufacturing...

The cost of manufacturing has gone up by about 20 per cent or higher. In the last two years, steel has witnessed price rise by about 70 per cent. And steel is one of the primary materials used in the production of elevators due to its solid rigidity. With an increase in cost of steel and cement, the cost of real estate properties has witnessed an increase in the cost too. While initially, the customer would have been reluctant but they were equally aware of the scenarios leading to the price rise. The impact on our business has not been much. Our focus is on customer success and while we did increase prices, it was marginal and reasonable. Now, the question is do we see this cost coming down in future – I don't think so.

Your views on the need for a Lift Act to be implemented in all the states as a means to ensure basic safety standards.

This is extremely important! A new standard is being introduced to ensure safety and quality of elevators across India. The Lift Act has already been outlined in states like Maharashtra, Haryana and Madhya Pradesh. At the same time, there are several states that do not have a Lift Act or minimum safety standards in elevators. This can result into safety and quality issues. At KONE elevators, all our offerings are automated to address safety concerns. It is critical that the Government mandates the Lift Act to be adopted by states.



The world's largest elevator at the Jio World Centre, Mumbai, is primarily designed based on traffic and goods flow, considering safety and aesthetics.

How can companies like KONE India support in bringing in such regulatory measures?

Currently, our technology team is working on the new standards for India. However, its adoption lies in the hands of the Central and the state governments. Bringing in such standards could lead to rise in cost but there would be absolute assurance in terms of safety. While travelling in an elevator, one would be fearless with the confidence that minimum standard has been considered and it is not going to break down.

Any specific sector where you see maximum demand coming for KONE Elevators now?

With Housing for All, the residential buildings are our biggest segment. There has been demand from the luxury housing as well. In terms of market share, in the residential sector, we are the leaders. However, most important is that our customers see value. We measure success by our repeat customers. Service becomes important here as well. What the customer wants is the best elevator backed by the best service. We are present across segments and have

the widest range of elevators – from small to the largest – is our unique proposition.

Even the most established brands do face challenges. Tell us the KONE story.

We identified one of the biggest challenges during the pandemic. KONE Elevators was among the first companies, at least in our industry, to go virtual. We did it as soon as COVID hit. And the challenge lies in constantly training manpower to ensure world-class offerings and service. Employee well-being is critical and we constantly work towards ensuring good health and safety of the employees.

How did the company perform in the last fiscal?

Our growth dipped about 30 per cent in 2020, but we revived in the pre-pandemic last year. The growth going forward depends on how the pandemic treats us. I am not even predicting what is going to happen next year. All I would say is that even a 10-15 per cent growth for last year is good, which we can achieve, but ultimately it all depends on the current situation and commodity prices.



Sustainable Campus

ABB India's Integrated Campus in Nelamangala, Bengaluru has recently received the Platinum Certification from IGBC. **CWDB** takes a look at the functioning of the campus.



The campus has adopted sustainable measures to provide for an energy-efficient ecosystem that reduces carbon footprint and preserves natural resources.

ABB's integrated Nelamangala campus spans over an area of 52,609 sqm area. The campus has been recognised green by IGBC, winning the highest-rating – Platinum. It is in fact one of the eight in Karnataka, and one among 63 in India having earned the Platinum rating. Catering to the varied needs of customers from across industries, the campus houses eight diverse shopfloors including global feeder factories, a digital switchgear manufacturing facility, a smart factory and a leading-edge robotics factory shop floor that delivers robotic applications and digital solutions.

For recognising its initiatives toward conserving water, the campus has also been certified as a 'water positive location' by TERI. The phrase indicates replenishing more water than being consumed for the operations. The smart factory in the campus deploys ABB robots



Jayakeerthi Anand,
Senior Vice President, ABB India

to streamline operations optimising efficiencies, reducing energy usage and material waste. The campus has more than 30 per cent green cover and runs 100 per cent on Renewable Electricity (RE100).

Jayakeerthi Anand, Senior Vice President, ABB India, shares, "In line with our Sustainability Commitment 2030, the campus has adopted sustainable measures to

provide for an energy-efficient ecosystem that reduces our carbon footprint while preserving natural resources. The campus has been recognised for such sustainable practices that significantly contribute to ABB's journey towards sustainability." He shares more...

Design approach

The Nelamangala campus was constructed in 2009 with the idea to have an integrated manufacturing campus serving diverse manufacturing needs that holds employee wellness and safety core to its design. From a design perspective, 80 per cent of the shop floor area gets daylight through skylights. And the campus has a good green cover, more than 30 per cent to provide for clean air. In fact, the site location too was consciously chosen to ensure minimal impact on the biodiversity.

Materials used

Most of the construction materials used such as cement and steel were sourced locally (within a radius of 400 km) to reduce carbon imprint, while alongside contributing to social progress. A conscious effort has been made to use recycled and reused material, leading to minimal waste. High Reflective Materials used in the campus minimises solar heat absorption. We are committed to minimising carbon emissions, preserving resources, and bringing about social progress. We continue bringing in more sustainable, green technologies and measures wherever possible to ensure we are moving towards a better, more sustainable tomorrow. The lighting and HVAC solutions for instance, were upgraded to make them more energy-efficient. The campus now fully runs on renewable energy accelerating our progress on RE100. Having a smart factory with ABB robots, within campus, helps us further bring down our energy consumption, and waste generation.

Energy savings

At the Nelamangala plant, we have tried to turn everything including the diversity of operations, the sheer campus size, and the arid nature of the surroundings into opportunities. To optimise energy usage, the campus design must allow for maximum natural light and adopt more efficient technologies and practices. We focused on improving overall energy conservation by improving lighting efficiency and enhancing energy-efficiency of AHU and HVAC systems with high efficiency motors. The campus uses 100 per cent green electricity (RE100) and a high solar reflective index roof (100 per cent of the exposed roof) while 80 per cent of the shop floor area gets daylight through skylights.

Indoor air quality

We have provided adequate ventilation requirements for all occupiable spaces such as regularly occupied, non-regularly occupied, and unconditioned areas as defined by ASHRAE 62.1-2010. Our office spaces are conditioned through variable refrigerant flow (VRF) and the shop floors are ventilated through optimised hybrid ventilation. The installed ventilation system ensures that an appropriate amount of fresh air enters the workplace to provide oxygen and remove carbon dioxide to make a safe and healthy working

FACT FILE

Location: Nelamangala, Karnataka.

Features: Received a 'Water Positive' certification from The Energy and Resources Institute (TERI) and the Platinum rated Green Factory Building certification from the Indian Green Building Council (IGBC)

environment. Furthermore, usage of low VOC materials within offices and shop floors ensures employees get access to a clean and safe workplace.

Water conservation

At the Nelamangala campus, we have implemented an innovative 6R approach towards 'Water Positivity' to replenish more water than it consumes at the location. This includes initiatives such as rainwater use and recharge, reduction in the use of freshwater, water recycling, and real-time monitoring of water consumption, recharge, and saving. The Nelamangala unit currently has 17 rainwater recharge wells, two recharge ponds along with five cross wave technology-based recharge tanks. ABB products such

as water flow meters were installed in the rainwater recharge system to capture real-time data.

To reduce consumption of water, we have installed water-efficient fixtures, restricted the use of turf in the landscape area, and planted drought-tolerant plants in 81 per cent of the landscape area. The unit has provisions of rainwater tanks for rooftop runoff along with TERI-approved filtration to get suitable water for a variety of end-uses. The campus has achieved close to 85 per cent of water recyclability with the help of efficient Sewage Treatment Plant (STP) and recycling the treated wastewater for use in gardening and washrooms. The water positivity index for Nelamangala plant is 1.24, which demonstrates the enhanced dependency on secondary water sources such as treated wastewater and rainwater and lesser dependency on groundwater sources for our operation.

Add-ons

Intrinsically through its design, the campus has ease of access for differently abled people. There are dedicated parking slots, non-slippery ramps for access close to the main entrance, uniformity in floor level, DAP rest rooms and lifts with braille buttons. The campus also promotes e-mobility, provisions for electrical car charging points and environment friendly mode of transport. Towards employee well-being, the campus has provisioned for several break-out areas. A location doctor is available during working hours to cater to any medical needs. The housekeeping chemicals used in the project comply with Green Seal standard (GS-37).



Straw Matters

This Delhi-based startup brings the feel of an eco-conscious indigenous material into the modern housing space.

The construction industry accounts for 39 per cent of energy and process-related CO2 emissions. This quantifies to 14.16 billion tonne, which is so astounding that stakeholders have begun to take heed. There is an increasing demand for an eco-conscious approach and while organisations are choosing to build their projects to be environment-friendly, several existing brands and startups have been extending their support to India's green building movement.

One such entrant is the Delhi-based startup **Strawcture Eco**. A civil engineer by education, **Shriti Pandey, Founder**, on her year-long residency fellowship in Pandhurna, Madhya Pradesh, witnessed stubble burning by the local farmers. Seeing this as an irritant that adversely impacts the environment, she set out on a journey to look for opportunities that would help convert this waste generated into an alternative resource.

Unearthing the solution

Discovering that straw can be converted into a bio-material owing to its mechanical properties that are similar to wood, Pandey quit her corporate job to establish Strawcture Eco. "Cement and steel are fairly new materials while mud and straw have been used for years. They only get used in a coarse manner, which I realised could be modified," she shares. "Straw is a flexible material, does not have the right strength and burns easily. We made a more durable version of it by compressing



Shriti Pandey,
Founder, Strawcture Eco

it at high density to get a material that is more durable than wood and which is moisture-resistant, termite-resistant and fire-rated." The manufacturing process for these panels is similar to that of ply or MDF. What differs is the pressure and temperature required for straw compared to wood. And the binding proportion and formula of R resin are different from formaldehyde.

The resulting product, known as AgriBioPanel, has been on the market commercially for the past two years. "We offer our customers a product that is 100 per cent carbon-negative and an alternative for interior applications such as walls, ceilings and doors, furniture and acoustics instead of the traditionally used brick, wood, engineered wood, plasterboards and fibre cement boards," she shares. These boards have minimal VOC emission and formaldehyde presence. Compared to synthetic products, they offer a better U-value, acoustics of up to 40 dB, low thermal insulation value of 0.02, two-hour fire rating and a high breaking load capacity.

The product is currently manufactured in Maharashtra and Uttar Pradesh, with a stock point in Delhi. While the current capacity is 30,000 sq ft per day of

production, the company is manufacturing around 30 per cent in one shift. "We are looking to get to 50 per cent by the end of next year," shares Pandey. "Our raw material does not travel more than 25 km from the source. However, while selling in South India, our product is presently travelling a lot more, unnecessarily offsetting the CO2 storing." Hence, plans are in the pipeline to set up a factory in Mysore as well.

Growing a market presence

Strawture Eco decided to establish its presence by catering to CSRs like SELCO Foundation and C-Camp NGO for the initial months, who are conscious of the socio-environment impact of their activities. With SELCO Foundation, the company made a 75-bed COVID hospital in Bihar in less than 60 days. Further, it reached out to commercial clients only after successfully developing a CSR-backed portfolio of seven to eight projects across varied geographies. Now, about 80 per cent of its B2B customers are from the commercial sector.

"We have covered over

Cost Matters

"Our 18-mm panel is ₹65 per sq ft, which when compared to commercial-grade plywood or a high-density HDF is competent," says **Shriti Pandey, Founder, Strawture Eco**. "Specialised products like acoustic panels offering 40 dB insulation are ₹120 per sq ft, making them 20 per cent more cost-effective than other international acoustic products."

12 states with sellers in Nagaland and Manipur as well," she informs. "Any architect or builder pan-India can use our product, which gets specified as per different geographies." She observes that architects are more approachable when it comes to accepting innovation, especially products that meet their design and aesthetic needs. Builders and contractors only need to be convinced about the pricing.

"In the past two years, we have sold over 1 million sq ft of this product for a revenue of more than ₹40 million. We plan to go three

times the sale in last three years within this fiscal year," says Pandey. In the next three years, she is looking forward to crossing the ₹1 billion mark while simultaneously becoming the go-to brand for green building materials in the country. The next step is also transitioning from E1 to E0. "Currently, 4 per cent of our product is chemical even though it is not formaldehyde. With R&D, we aim to have a product range that is completely biodegradable."

The future

The company has recently closed its first pre-seed funding of \$0.5 million from Social Alpha, DLF Family Office, Brigade and Villigro. "DLF and Brigade will support us to penetrate the commercial real-estate sector and hospitality," shares Pandey. Villigro and Social Alpha would help us expand into the international market." What's more, it has recently procured certifications in compliance with European Standards, in addition to Indian standard testing, with a vision to expand its footprint to the Netherlands, Germany and the Middle East this year. "We have most of our certifications done, including GRIHA certification, LCA analysis and EPD certification, which is something not many building materials have," she says. "We are also looking to get our product LEED-verified and IGBC-certified."

The company is looking at warehouse applications for flooring and racking, and fire-rated doors for both commercial and multi-storied residential buildings. Its upcoming launch of a 100 per cent organic fiber baer product range for felt and acoustic panels will absorb VOC emission, instead of emitting.



With SELCO Foundation, Strawture Eco has made a 75-bed COVID hospital in Bihar in less than 60 days.

CW PROJECT UPDATE

NATIONAL



India to build second-largest dam as China seeks to divert river



India has planned to build its second-largest dam at Yingkiong in Arunachal Pradesh to counter China's ambitious water diversion scheme of the river that pours downstream into the Brahmaputra river. The proposed dam will store around 10 bn cu m of

water, built at an investment of around ₹500 bn, is part of the proposed Upper Siang multi-purpose storage project to also generate hydropower. China's 14th Five-Year Plan proposed a dam over the Brahmaputra river, Yarlung Tsangpo, raised concerns in India about the strategic ramifications. India plans to release water from the dam for security if China diverts water. In case the country releases water from its upper reaches, India will use the dam to store water and prevent floods.



CIL exceeds supply commitment to electricity plants

Coal India (CIL), to minimise the shortage of dry fuel for thermal electricity generating plants, is supplying more coal than its commitment, pushing the non-power sector to brace for more challenging days. With several states facing an unusual power outage, CIL is forcing more fuel into power plants than its commitment of 1.65 mn tonne per day. As of last month, a total of 85 thermal power plants dependent on domestic coal and 11 factories dependent on imported coal have critical stock levels.

Contact: Coal India (CIL)
Tel: 033-2324 5555
Website: www.coalindia.in



NHAI, DDA propose to develop three logistics parks

National Highways Authority of India (NHAI) and Delhi Development Authority (DDA) have included proposals to develop three logistics parks or freight villages along the Urban Extension Road-II as a part of the proposed Delhi Master Plan. The parks are aimed at moving large share of trucks and heavy vehicle traffic onto the new highways from significant arterial stretches of Delhi to decongest its roads. The Delhi Lieutenant Governor has directed DDA to work out strategy with NHAI for the development of these parks.

Contact: National Highways Authority of India (NHAI)
Tel: 011-2507 4100
Website: www.nhai.gov.in

GUJARAT



State floats tender for 2.5 MW solar project

Surendranagar Mahila and Bal Vikas Mandal in Gujarat have requested tenders for the survey, installation, testing and commissioning of a 2.5 MW grid-connected ground-mounted solar power plant. The winning bidder is not required to offer solar modules but must provide ten years of full operation and maintenance service. The project is expected to cost \$80 mn. Within 240 days of receiving the letter of intent, the project must be commissioned. The deadline for proposal submissions is June 4. On June 8, bids will be accepted.

Contact: Surendranagar District Sarvodaya Mahila Vikas Sangh
Tel: 02752-9228 09
Website: surendranagar.nic.in

HARYANA



GMDA adopts new water management system

Gurugram Metropolitan Development Authority (GMDA) has conducted a pilot project of the centralised integrated water management system on the Basai-Dundahera (1,200 mm) pipeline to ensure that even the last sectors get an adequate supply of water in the summer months. The advanced system comprises of flow meters to gauge water flow, control valve to set data on the quantum of water to be supplied in any area, pressure transmitters to gauge water pressure, level transmitter to measure water level in underground tanks, wherein all data is transmitted daily to the Integrated Command and Control Centre established at GMDA.

Contact: Gurugram Metropolitan Development Authority (GMDA)
Website: www.gmda.gov.in

JHARKHAND



L&T bags water project in state

The project envisages providing water to irrigate 22,283 ha of Culturable Command Area (CCA) in Dumka district of Jharkhand by way of pumping water from the Sidheshwari river. The scope includes survey, design and construction of a barrage across the river. L&T has already been executing a similar lift irrigation project in Jharkhand's Garhwa district. This is a repeat EPC order from the Department of Water Resources, Government of Jharkhand, to execute the Masalia Ranishwar Megalift irrigation scheme on a turnkey basis.

Contact: L&T Construction
E-mail: infodesk@larsentoubro.com
Website: www.lntec.com

ODISHA



Rooftop solar systems and solar streetlights up for bid



Odisha Renewable Energy Development Agency (OREDA) has issued a request for proposals for the design, engineering, supply, installation, testing and commissioning of 1.058 MW of rooftop solar systems and 44 solar street lighting systems at government buildings. The winning bidder will also be responsible for the project's operation and maintenance for the next five years.

Contact: Odisha Renewable Energy Development Agency (OREDA)
Tel: 0674-2588 260
E-mail: ceoreda@oredaorissa.com
Website: oredaodisha.com

MADHYA PRADESH



Indian Oil issues tender for a 2.25 MW solar project

Indian Oil Corporation (IOCL) has issued a request for proposals for consulting services to help it build up a 2.25 MW solar project at its Jabalpur LPG bottling plant.

Consultants are needed to assist with long-term open access and project registration with Madhya Pradesh's renewable energy department. The anticipated cost of the project is \$493,240. From the 15th day of the work order, the contract will be for four months.

Contact: Indian Oil Corporation (IOCL)
Tel: 011-2653 1082
E-mail: dsrivastava@indianoil.in
Website: www.iocl.com



MAHARASHTRA



Aurangabad to ban use of freshwater for construction activities

Aurangabad Municipal Corporation has decided to ban use of freshwater for construction activities to tide over water scarcity with the civic body seeking 3 mn litre additional water supply per day from the Maharashtra Industrial Development Corporation. It will be compulsory to use water from sewage treatment plants for at least the next two to three months, as per reports and restrictions can be brought on swimming pools if required, but the municipal corporation does not want to upset the gradual return of the city to normalcy post the COVID-19 pandemic.

Contact: Aurangabad Municipal Corporation
Tel: 0240-2333 536 **E-mail:** contact@aurangabadmahapalika.org
Website: aurangabadmahapalika.org

MAHARASHTRA



Pune civic body introduces robots for scavenging

Pune Municipal Corporation (PMC) has launched three advanced robots named 'Bandicoot' to clean and maintain city manholes safely without workers entering the manholes. Manual scavenging needs humans to enter manholes and clean them physically, and this practice has claimed the lives of many workers. To solve this issue, PMC is now employing robots to clean sewers. This initiative will provide more safety in the maintenance of city manholes utilising advanced technologies.

Contact: Pune Municipal Corporation (PMC)
Tel: 020-2550 1000 **E-mail:** info@punecorporation.org **Website:** pmc.gov.in



PUNJAB



Tata Steel to install its first EAF facility

Tata Steel has planned to install its first electric arc furnace (EAF) facility in Punjab and bring online similar plants in west and south India. The 750,000 tonne per year EAF facility in Punjab will be aided by the company's 500,000 tonne per year steel recycling plant at Rohtak in Haryana state started last year. There are even plans to collaborate with domestic auto dismantlers to purchase scrap for the facility.

Contact: Tata Steel
Website: www.tatasteel.com



TAMIL NADU



Dalmia Cement to invest ₹26 bn in three years

Dalmia Cement (DCBL) has planned to invest ₹26 bn in Tamil Nadu over three years to set up three grinding facilities. The new facilities, each with a capacity of 2 mn tonne, would more than double the state's current capacity, which is currently 5.9 mn tonne. An additional ₹1.2 bn would be invested for the waste heat recovery system. The plants will be established at Sattur in Virudhunagar district, Arakkonam in Chennai, and Salem-Coimbatore area in the west.

Contact: Dalmia Cement (DCBL)
Tel: 04329-2351 27 **Website:** www.dalmiacement.com

UTTAR PRADESH



Agra becomes first city to have vacuum-based sewer systems

Agra has become India's first city to have vacuum-based sewer systems to be used in public places. The municipal corporation has linked 240 such houses near the Taj Mahal with vacuum-based sewers, where conventional sewer systems could not be used. Around 112 chambers have been made in this region with sensors installed. The vacuum sewer system will automatically issue a warning if there is a choke or any other issue and will be used in the Kochi civic body as well if the trial in Agra becomes successful. The estimated cost of sewer connection work is ₹1 bn.

Contact: Agra Nagar Nigam
E-mail: amcagra1@gmail.com **Website:** nagarnigamagra.com

INTERNATIONAL



UK, Indian companies announce commercial deals of €1 bn



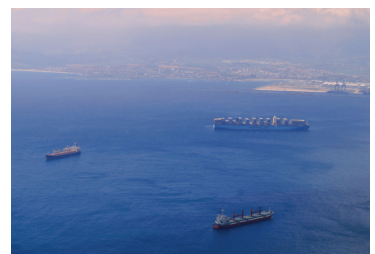
The British government has finalised a €1 bn deal of trade and investment with India, creating over 6,500 jobs in the UK. The investments form part of an Enhanced Trade

Partnership (ETP). The ETP will set the ambition to double the value of UK-India trade by 2030 and declare a shared intent to begin work towards a comprehensive Free Trade Agreement. They discussed strengthening cooperation in crucial areas, including defence and commerce, and sharing perspectives on the Ukraine situation. The media sources revealed that the UK did not lecture India on its role in the war.



Oman to push PTA with India to boost ties with Gulf

Oman's Minister of Commerce and Industry and Investment Promotion is eyeing to push the Preferential Trade Agreement (PTA) close on



the heels of the India-UAE Comprehensive Economic Partnership Agreement (CEPA) opening up possibilities for India in the resource-rich Gulf region. The Oman Minister intends to highlight the importance of a strategic partnership in the Indian Ocean Region. Oman has potential in many industries such as tourism, fisheries, logistics, mining and manufacturing, and vigorously promotes foreign direct investment, using the proceeds from oil and gas to develop Indian infrastructure and human resources.

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INDEX

INTERIORS | ARCHITECTURE | DESIGN

22.23.24 JULY, 2022

International Exhibition cum Convention Centre (IECC), Pragati Maidan, **NEW DELHI.**

26.27.28 AUGUST, 2022

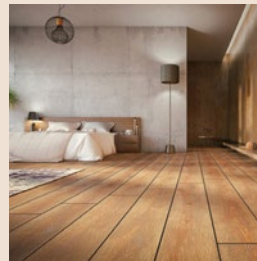
Jio World Convention Centre, Bandra Kurla Complex, Bandra East, **MUMBAI.**



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AIRPORTS



AAI to conduct EIA of new terminal at Bagdogra



Airports Authority of India (AAI) will be carrying out an environmental impact assessment (EIA) of the new terminal building and ancillary infrastructure that will come up at Bagdogra airport in Bengal. It is essential to conduct an EIA before the project is started. It would help in evaluating certain environmental problems associated with the operation of the airport, which includes noise pollution, emission of greenhouse gases, land utilisation and waste disposal. Tenders have been floated for consultancy companies so that the EIA can be carried out at the site.

Contact: Airports Authority of India
Tel: 0281-2451849 **Website:** www.aai.aero



Ahmedabad Airport gets EV charging station

Sardar Vallabhbhai Patel International (SVPI) airport in Ahmedabad has installed an EV charging station executed by Adani Total Gas. The EV charging station has been set up near the entry/exit of the domestic terminal of the airport and incorporates two chargers both with dual gun system. The main objective is to provide charging services to more vehicles. Thus, both the chargers installed are of different protocols. One is CCS2 (combined charging system) (60KW) with dual gun and other is GBT (40KW) dual gun.

Contact: Sardar Vallabhbhai Patel International Airport
Website: www.adani.com/svpia-ahmedabad-airport



Patna gives 21 acre of land for airport development

Patna district administration has given the Airports Authority of India (AAI) 21-acre land to create a parallel taxi track (PTT) which will boost aircraft frequency at Jayprakash Narayan International Airport. The new municipal airport will require 26 acre of land for development. Around 21 acre of the 64 acre property leased by the state government to the Indian Council of Agricultural Research (ICAR) has been handed to the AAI. The remaining land belonging to transportation and animal husbandry departments is being transferred and will be completed soon.

Contact: Patna District Administration
Website: patna.nic.in



AAI to open new terminal building at Jabalpur airport



AAI has planned to open a new terminal building at the Jabalpur airport in Madhya Pradesh by March 2023. It will be equipped with world-class passenger amenities and handle 500 people during peak hours. The terminal building will span 115,315 sq ft and will feature three aerobridges, an innovative baggage screening system, a food court and a parking for over 300 automobiles and buses. The project would cost ₹4.12 bn in total.

Contact: Airports Authority of India
Tel: 0281-2451849
Website: www.aai.aero



OLS Survey to be held at two sites in Chennai

Ministry of Civil Aviation has announced that the Obstacle Limitation Surface (OLS) Survey has to be carried out at the two sites, Pannur and Parandur, which have been shortlisted for Chennai's second airport because they have obstructions. After the survey, officials will check for obstructions around the site and look at the feasibility of operations. The authorities might finalise either of the locations for the second airport. AAI had shortlisted Parandur and Pannur and sent a pre-feasibility study to Tamil Nadu Industrial Development Corporation (TIDCO) after inspecting four sites.

Contact: Ministry of Civil Aviation
Tel: 011-2461 0364
E-mail: shankra.bharti@nic.in
Website: www.civilaviation.gov.in

PORTS



Shipping Ministry calls for 0% wait time by 2025

Shipping Ministry (MoPSW) has directed all major ports to establish enough infrastructure by 2025 to achieve 0% waiting time for inbound and outgoing goods. MoPSW has stated that port capacity requirements in 2047 will be six times the current capacity. In case of limitations on waterfronts or land availability, the major ports will consider establishing satellite ports. A comprehensive master plan has been asked to be drafted encompassing freight predictions, warehousing and other aspects, with the ultimate goal of achieving efficient logistics for economic development.

Contact: Ministry of Ports, Shipping and Waterways

Tel: 011-2335 4007

Website: shipmin.gov.in



Visakhapatnam to be a transshipment hub soon

Visakhapatnam Port Authority (VPA) has declared the completion of the expansion of its container terminal billed as one of the best facilities with the deepest natural depth of 16 m which will be transforming into a transshipment hub. The expansion undertaken at a pre-revised expenditure of ₹6.33 bn by the build-operate-transfer (BOT) operator JM Baxi Group allows the terminal to handle a small vessel and two large liners of 350 m length with a capacity of 20,000 20-foot equivalent units (TEUs) containers.

Contact: Visakhapatnam Port Authority

Tel: 0891-2876 001

E-mail: fa.vpt@gov.in

Website: vizagport.com



Port monetisation drive delayed due to security clearance



Centre's ambitious drive for port monetisation has gotten off to a rocky start with the MoPSW (Ministry of Ports, Shipping and Waterways) being able to award projects worth 14 per cent of the total target amount in 2021-22. It has been able to monetise three projects worth ₹10 bn, falling short of the target of ₹69.24 bn from the 13 projects for this fiscal year. The national monetisation pipeline for ports encompasses nine of the country's 12 major ports. The projects have been processed but yet to get security clearance from the Ministry of Defence, Ministry of External Affairs and Ministry of Home Affairs since the projects fall in strategic areas.



PPP terms for ports revised

MoPSW has come out with detailed guidelines to deal with stressed public-private-partnership (PPP) projects at major ports, a move expected to unlock 27 mn tonne per annum cargo-handling capacity. For projects which became stressed during the construction stage, the concessioning authority, usually the major port, would pay, as full and final settlement, for taking over the useful assets. The amount would be lower the value of the work done and found useful or 90 per cent of debt due as per the concession agreement. Projects where the work is unable to continue with the borrowings having been categorised as non-performing assets or proceedings initiated, the due processes will be followed as per the Insolvency and Bankruptcy Code 2016 or the Companies Act 2013.

Contact: Ministry of Ports, Shipping and Waterways

Tel: 011-2331 8127

Website: shipmin.gov.in



Three direct lines launched from Chabahar port to India and UAE

Three direct container shipping lines have been launched from Chabahar Port in Iran to Nhava Sheva and Kandla ports in India and Jebel Ali Port in UAE. The Chabahar port allows India to bypass Pakistan and transport goods directly to Afghanistan and Central Asia, while Afghanistan can get linked to India via sea. India has been awarded the project for installing and operating modern loading and unloading equipment including mobile harbor cranes in Shahid Beheshti Port in Chabahar by Iran. The strategic Chabahar port in southeastern Iran is the only ocean port on the Makran coast and has a special place in the country's economic affairs.



RAILWAYS



K-Rail gets approval to construct 27 ROB's

The Railway Board has given K-Rail the approval for the construction of 27 railway over bridges (ROB) which will help in tackling the traffic in the state. The construction of overbridges will be a major development initiative which will be executed by K-Rail. The social impact assessment, ahead of land acquisition, for seven ROB's has already been completed for which reports have been submitted to the respective district collectors as well. Other than five ROB's in the starting phase, SIA for the Uppala and Vellayil gates have also been completed. The ROB's construction is being carried out as per the MoU signed between the state government and the railway ministry last July.



Contact: K-Rail
Tel: 0471-2326 330 **E-mail:** info@keralarail.com
Website: keralarail.com



IR to connect 27 more ports

Indian Railways (IR) is preparing to lay a 3,000-km rail line connecting 27 ports at ₹1 tn, with the goal of increasing cargo flow. Survey work is underway to connect these ports with rail lines to all operating ports in the country. MoPSW currently recognises 226 ports, of which 69 are operating. The railway network connects 29 significant and busy ports out of the 69 operating ports. The majority of the surviving functioning ports are near railway terminals.

Contact: Indian Railways
Tel: 011-2338 2531
E-mail: bmpr@rb.railnet.gov.in
Website: indianrailways.gov.in



Somnath temple railway station to be upgraded



Rail Land Development Authority (RLDA) has issued a Request for Proposal (RFP) for the major upgrade of Gujarat's Somnath railway station of the Bhavnagar Division's Western Railway. Somnath is a Hindu pilgrimage site that attracts visitors all year. Tourists and visitors visiting Somnath Temple and the surrounding areas would benefit from the improved train station.

Contact: Rail Land Development Authority
Website: rlda.indianrailways.gov.in



Chennai MRTS, Metro Rail merged by IR

Due to massive losses and lack of cooperation between the two administrations, the Southern Railway of the Indian Railways (IR) has approved the long-awaited merger proposal of the Chennai Mass Rapid Transit System with Chennai Metro Rail. Due to conflicts between the Tamil Nadu government and IR's Southern Railway over land acquisition to lay a new MRTS line between Beach and Park Stations, the plan to integrate MRTS with Chennai Metro Rail (CMRL) was put on hold after 2018, an issue which will not be connected to Metro's acquisition of MRTS. Every year, MRTS has reported an operational loss of ₹1 bn.

Contact: Chennai Metro Rail (CMRL)
Tel: 044-2379 2000
E-mail: chennai-metro-rail@cmrl.in
Website: chennai-metro-rail.org



RK Ashram Marg metro station to be interchange hub

Delhi Metro Rail Corporation (DMRC) has recently announced the construction of a new interchange hub at the RK Ashram Marg metro station which will provide a shorter route from central to north Delhi. The RK Ashram Marg station on the Blue Line will be connected to the metro station of the same name on the Magenta Line. The interchange facility will provide a convenient mode of transit and help in decongesting the busy Blue Line. The new underground station will be constructed adjacent to the existing elevated station. At present, the DMRC is working on 65.1 km of phase-IV priority corridors and Tughlakabad to Aerocity (23.62 km) which has been christened 'Silver Line'.

Contact: Delhi Metro Rail Corporation
Tel: 011-2341 7910/12
Website: www.delhimetro-rail.com

ROADWAYS

NHA prioritises new technologies for quality roads

National Highways Authority of India (NHA) has been emphasising newer technologies to build better quality roads in less time and cost stating that good quality roads are made quickly at less cost and are convenient for citizens to run their vehicles on them. The Ministry of Road Transport and Highways (MoRTH) also stressed the importance of agreement between the central government and the states to ensure development. The Bharatmala Pariyojana project has addressed this concern.



Contact: National Highways Authority of India
Tel: 011-2507 4100
Website: www.nhai.gov.in

Country's first underwater road-cum-rail tunnels to be in Assam

The road and railway Ministries and the Border Road Organisation (BRO) have come on board for construction of the country's first underwater road-cum-rail tunnel across the Brahmaputra in Assam. The project is expected to be an engineering marvel and will also reduce travel time between Assam and Arunachal Pradesh. This is the first project where integrated tunnel construction will be undertaken. The tunnels will be inter-connected with cross passage for evacuation in case of any emergency.

Contact: National Highways Authority of India
Tel: 011-2507 4100
Website: www.nhai.gov.in

Delhi approves new flyovers at ₹7.24 bn

Delhi government has approved a budget of ₹7.24 bn for two new flyovers. The first flyover is to be constructed between Anand Vihar ISBT and Apsara border in the east and the second one between Punjabi Bagh and Raja Garden in the west. Both the flyovers will provide relief to commuters at the receiving end of frequent snarls in the wake of a significant rise in the number of private vehicles. Infrastructure works on the Punjabi Bagh-Raja Garden corridor will cost ₹3.52 bn and the Anand Vihar-Apsara border project will entail an expenditure of a little over ₹3.72 bn.

Contact: Government of National Capital Territory of Delhi
Website: portal.delhi.gov.in

NHA sets ₹200 bn monetisation target in FY23

Despite continuous economic uncertainty and geopolitical turmoil, the National Highways Authority of India (NHA) is hopeful about attaining its asset monetisation target of ₹200 bn this fiscal. Infrastructure Investment Trust (InVIT) and toll-operate-transfer routes will be used to raise funds for the national road infrastructure development entity. Through the first tranche of InVIT, NHA raised ₹80 bn for five projects totaling 400 km in the previous fiscal year. InVITs are collective investment vehicles that allow investors to make direct monetary investments in infrastructure projects in exchange for a small percentage of income.

Contact: National Highways Authority of India
Tel: 011-2507 4100
Website: www.nhai.gov.in

NHA to convert seven roads into 4-lane highway



NHA has proposed to convert seven roads connecting the under-construction Delhi-Mumbai Expressway into four-lane highways. There are eight roads connected with the 1,350 km Delhi-Mumbai Expressway, of which only one is a four-lane highway. NHA has finished the initial survey and the proposal has been sent to Delhi for approval. The expressway is under construction and is likely to be finished in March 2023 with an estimated expense of ₹1,000 bn.

Contact: National Highways Authority of India
Tel: 011-2507 4100
Website: www.nhai.gov.in



Credberg to invest over ₹10 bn in India



Credberg has planned to invest over ₹10 bn in income-producing office assets across India's top six property markets. It is branching out into investment management and raising money for its first fund, Credberg Real Estate Office Opportunities Fund 1. The company's new platform for entering the fund market, Credberg Investment Management, has already been founded. The anticipated investment will be backed by a \$75 mn fund (₹5.70 bn) and project-level leverage through lease rental discounting.

Contact: Credberg
Tel: 022-6734 6700 **E-mail:** contact@credberg.com
Website: www.credberg.com



Revocation of GO-111 to boost Hyderabad real estate

Telangana Government has unlocked land in Hyderabad by revoking 26-year-old government order GO-111, following which the city's developers have been eyeing a big boost for the real estate sector in the coming days. By revoking the GO-111 that prevented big constructions and industries in the 10-km radius of two Nizam-era water reservoirs, the Telangana government has

unlocked 132,000 acres across 84 villages connecting Hyderabad for development. The water reservoirs have their catchment on the city's outskirts. This translates to as much as 538 sq km of land close to an ever-expanding urban agglomeration called Greater Hyderabad, which in itself is now spread across 650 sq km.

Contact: Government of Telangana
Website: www.telangana.gov.in



Macrotech Developers to set up industrial park funding platform

Macrotech Developers (Lodha Group) is in talks with two global investors to set up a platform that will invest over \$1 bn to develop warehousing and industrial parks across the country. Discussions are in the advanced stage for establishing a platform for warehousing and industrial parks.

There will be three partners in the platform, including the firm and two other global investors. The company would mainly supply assets, including land and ready warehousing space, in the platform while the two partners will bring in equity investments to develop warehousing and light industrial parks. The three partners are likely to have an equal shareholding in the proposed platform.

Contact: Lodha Group
Tel: 022-6773 7373 **E-mail:** enquiries@lodhagroup.com
Website: www.lodhagroup.in



Tata Realty leases office space to Johnson Controls, PepsiCo

Tata Realty and Infrastructure (TRIL) has given on lease over 156,000 sq ft of office space in its commercial projects at Gurugram to Johnson Controls and PepsiCo. The leasing will gross an operating income of approximately ₹270 mn in the next two years. Johnson Controls has taken on lease 85,000 sq ft office space in Intellion Park Gurugram is spread over 25 acre and comes with LEED Platinum Pre-Certification. PepsiCo has signed for about 71,000 sq ft of space in Intellion Edge, which is spread across 8 acre in Gurugram's Sector 72. The leased space stands to help PepsiCo in relocation and will enable Johnson Controls to create over 800 job opportunities in the region.

Contact: Tata Realty and Infrastructure
Tel: 022-6661 4444
E-mail: tatacare@tatahousing.com
Website: www.tatarealty.in



Maharashtra to reallocate stuck slum projects to new builders

Maharashtra is set to reallocate stuck slum redevelopment projects to new builders in a move that can potentially give relief to up to 40,000 families. The Slum Rehabilitation Authority has reportedly cancelled 520 such stalled projects which would be handed over to new developers after evaluating their financial strength and commitment to take it to a logical end as an amnesty scheme.

Contact: Slum Rehabilitation Authority (SRA)
Tel: 022-2656 5800
E-mail: info@sra.gov.in
Website: sra.gov.in



TARC receives funding from Bain Capital

TARC, a real estate development business based in North India, has raised ₹13.30 bn from Bain Capital in the US. Bain Capital Credit provided the cash in the form of secured long-term NCDs. TARC has used a portion of the freshly injected cash to retire all of its previous debt with several domestic lenders, achieving the twin goals of lowering the cost of capital and replacing short-term debt with patient long-term capital. This cash would be used to expand the company, maintain its recent growth rate and to develop TARC's notable New Delhi centric property parcels intended for residential development and other landholdings strategically positioned in the satellite town of Gurgaon.

Contact: TARC
Tel: 011-4124 4300/44
Website: www.tarc.in



Casagrand announces a kids-themed community in Bengaluru

Casagrand has launched Casagrand Aquene, the first-ever kids-themed community of Kengeri, sprawled across 3.77 acre housing 333 2 & 3 BHK lifestyle apartments. The project includes amenities like a kids pool, skating rink, science park, arts and crafts corner, magnetic games wall, multipurpose court, outdoor hobby zone and many more. Additionally, there is a vehicle-free zone with basement car parking, digital lock, non-breakable kid's safe window and french doors, kid's safety railings on balconies and more keeping in line with their theme.

Contact: Casagrand
Mob: (0)98848 00062
Website: www.casagrand.co.in



Prestige Group launch multiple projects in Mumbai

After a record pre-sales collection of more than ₹100 bn in FY22, the Prestige Group is establishing its presence in Mumbai with the launch of multiple commercial and residential projects in BKC, Mahalaxmi, Yogi Hills (Mulund) and Bandra. The 'maximum' city Mumbai makes it the opportune real estate market for the Prestige Group to foray into due to its recording the highest GST collections in India, contributing 15 per cent of GST of the overall Indian economy.

Contact: Prestige Group
E-mail: properties@prestigeconstructions.com
Website: www.prestigeconstructions.com



WeWork India, Bhutani Group sign a landmark deal

WeWork India and Bhutani Group have recently announced their long-term partnership. Following this, WeWork will be taking up a tower comprising 25 leasable floors at Bhutani Alphatum, in Noida. Set to open in Q4 2022, WeWork Alphatum will be spread over 660,000 sq ft and will house over 8,500 desks over multiple phases driven by demand to offer a spectrum of flexible workspace solutions.

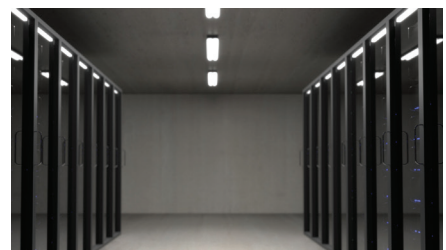
Alphatum is equipped with world-class amenities including access to a rooftop infinity pool, bowling alleys, dining areas and more. Designed as a steel structure, the building consists of three high rise towers interconnected by a common terrace and is tailor-made to meet the workplace requirements of businesses of all sizes.

Contact: WeWork India
Website: wework.co.in



NTT launches hyperscale data centres in Navi Mumbai

NTT has recently announced the launch of its latest hyperscale data centre campus NAV1A in Navi Mumbai, the first one in the satellite city. The campus will have up to four data centres with 150 MW of facility load. The Mahape campus or NAV1A data centre is spread across 4,00,000 sq ft with the capacity to host 5,000 racks and support over 30MW of IT load. With this, NTT will have 12 data centres across India. NAV1A has deployed alternative cooling solutions including Liquid Immersion Cooling and Direct Contact Liquid Cooling to improve the data centres PUE (Power Usage Effectiveness).



Contact: NTT
Website: www.global.ntt

Avant launches compact wheel loaders

Avant Tecno announced its new compact articulated wheel loaders which are among the most powerful in their size class. The 645i and 650i loaders run on new 44 hp Kubota engines, an 18 hp boost over the earlier 600 series machines, including the 630 and 635. It gives the new loaders 203-pound ft of pulling force and 87-pound ft of torque. The wheel loaders weigh around 3,600 pounds, which can easily transport and ride on sensitive terrain. It has 23.6 inches telescopic lifting booms and can reach 9.3 ft



height to the hinge pin of the attachment coupling plate. The tipping load is 2,624 pounds, achieved by a low centre of gravity and a rigid articulation joint.

Contact: Avant Tecno
Website: www.avanttecno.com

Volvo CE launches new electric compact excavators and wheel loader

US contractors can now pre-order any of Volvo Construction Equipment's newest electric machines: the L20 Electric compact wheel loader and the EC18 and ECR18 Electric compact excavators. The machines join the L25 Electric compact wheel loader and ECR25 Electric compact excavator, which are being delivered to North American customers in the coming weeks in the Volvo electric machine lineup. Deliveries of the three newest models will begin in 2023.

Contact: Volvo Construction Equipment
Website: www.volvoce.com

Hindustan Zinc, Sandvik sign MoU for underground mining fleet



Hindustan Zinc has signed an MoU with Sandvik AB to introduce battery powered loaders and trucks in underground mining. During the first phase of the partnership, Hindustan Zinc will deploy two different categories of Sandvik BEV machines - TH550B truck and LH518B loader in underground mining operations. The partnership will help Hindustan Zinc get one step closer in achieving carbon neutrality.

Contact: Hindustan Zinc
Website: www.hzindia.com

Komatsu India bags large mining equipment order in India



Komatsu India (KIPL) has secured orders for large-sized mining equipment from a major mining company in India along with its distribution partner Larsen & Toubro (L&T). The order comprises of over 80 units of Komatsu mining equipment. These include dump trucks, hydraulic excavators, bull dozers, motor graders, wheel loaders and wheel dozers. The scope of the order includes supply of equipment along with full maintenance contract (FMC) for up to 10 years of equipment operation. These equipment are scheduled for deployment at the customers jobsite starting May.

Contact: Komatsu India
Website: www.komatsuindia.in

Caterpillar expands service replacement engine program

Caterpillar has announced the expansion of its service replacement engine program for owners of equipment powered by Cat engines. The program consists of four options: new replacement engines, Cat Reman engines, short block engine replacements and heavy-duty long blocks. Replacement options are available for equipment using engines up to Cat C7.1 or 320 hp. New replacement or Cat Reman engine solutions are faster and easier than a complete rebuild. Brand-new replacement engines are built to factory specifications that meet emissions standards, deliver same-as-original performance and offer extended warranty protection.

Contact: Caterpillar
Website: www.caterpillar.com

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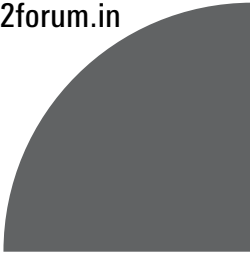


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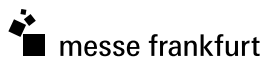
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Cement prices set to increase as expenses surge



Cement prices are set to increase as costlier Asian thermal coal and a higher gas price outlook in Europe is expected to surge expenses for cement manufacturers. Power and

fuel prices are likely to rise by 10 per cent in the April-June quarter because of a steep rise in coal and pet coke costs in March. These price hikes would be passed on to consumers for profitability to enhance sequentially. Cement makers tried a ₹15-20 a bag hike pan-India, led by sharper growths in the south and the east for April. Only a portion of this stands to get absorbed with more such increases expected in the coming weeks.



Dalmia Cement to infuse ₹2-3 bn in Belagavi plant

Dalmia Cement is planning to invest ₹2-3 bn in its Belagavi plant over the next two years in a bid to increase cement production. This will create about 1,000 jobs and support Dalmia Cement in promoting its national production capacity to 48.5 mn tonne by 2024 and then to 100 mn tonne by 2031, from 36.9 mn tonne presently. The company will also be spending some of the promised amounts to establish a solar power capacity of about 9 MW. In 2015, Dalmia Bharat had forayed into Karnataka via its ₹15 bn greenfield facility and has already generated nearly 3,000 direct and indirect jobs across the state.

Contact: Dalmia Cement
Tel: 04329-2351 27
E-mail: investorrelations@dalmiabharat.com
Website: www.dalmiacement.com



JK Lakshmi Cement, TARA to integrate calcined clay tech

JK Lakshmi Cement has planned to tie up with the Society for Technology and Action for Rural Advancement (TARA) to integrate calcined clay technology into its operations to begin the production of limestone calcined clay cement. This type of composite cement decreases the product's clinker factor by 50 per cent and its carbon footprint by 40 per cent. This collaboration will be giving impetus to JK Lakshmi Cements' efforts in combating climate change, mitigating emissions and bringing a holistic transformation in the surrounding communities to form sustainable livelihoods in large numbers. JK Lakshmi Cement has partnered with TARA by signing an MoU to introduce the decarbonisation process in cement production.

Contact: JK Lakshmi Cement
Tel: 011-6600 1112
Website: www.jklakshmicement.com



Tinplate to expand capacity by 300,000 tonne

Tata Tinplate (TCIL) is embarking on a massive development programme with the help of its parent company –Tata Steel. To increase the share of value-added products in the sales mix, the capacity of TCIL is being expanded by 300,000 tonne at a capital expenditure of ₹200 bn. After the completion of a three-year project starting this fiscal, TCIL's capacity in Jamshedpur will go up to 679,000 tonne from the present level of 379,000 tonne. Used mostly in the food processing industry and beverages as a packaging material, the expansion comes on the back of strong demand from these sectors.

Contact: Tata Tinplate
Tel: 033-2243 5401
E-mail: kaushik.seal@tatatinsplate.com
Website: www.tatatinsplate.com



Tamilnadu Cements to set up new grinding mill



Tamilnadu Cements has announced plans to construct a new grinding mill in Alangulam, Tamil Nadu. The new unit will be facilitating the adjacent Arasu cement factory and cost around \$5.23 mn and will quadruple capacity from 0.28 mtpa to 0.56 mtpa in ten months, enabling it to fulfil significant demand in the southern areas and expanding production of Tamilnadu Cements' Valimai brand.

Contact: Tamilnadu Cements
Tel: 044-2852 5461
E-mail: cscoc.tancem@tn.gov.in
Website: tancem.in

SMART CITIES UPDATE



India's first set of smart cities to be declared by 2022-end

Bhopal, Surat, Bhubaneswar, Udaipur, Ahmedabad, Varanasi and Indore are set to be declared India's 'first set of smart cities' by the end of the year, seven years after the launch of a flagship urban renewal mission to make 100 cities sustainable and citizen-friendly. The Smart Cities Mission had been launched on June 25, 2015, to smarten up cities with eco-friendly hi-tech solutions to urban problems and is in its last year of implementation. The mission period ends in June 2023. Of the 100, the



seven to have taken a lead with the most projects completed are Bhopal which has completed 92 per cent of projects, Surat 82.44 per cent, Udaipur 78 per cent, Bhubaneswar 76 per cent, Indore, Varanasi and Ahmedabad 70 per cent.



APSRTC to operate its first 50 electric buses



The Andhra Pradesh State Road Transport Corporation (APSRTC) is set to operate its first 50 electric buses in Kakinada and the connected destinations under the Smart City Mission. Fifty electric vehicles would be hired by the APSRTC under the Smart City Mission of the government. The tenders have been floated for the electric bus services. The trial run for e-buses is yet to be conducted. The vision is to ply electric vehicles in the Kakinada and its connected destinations.

Contact: Andhra Pradesh State Road Transport Corporation (APSRTC)
Mob: (0)91009 41742
Website: www.apstrc.ap.gov.in



Bhubaneswar gets India's first sensory park



India's first sensory park for differently-abled persons of all age groups was inaugurated in Bhubaneswar's Sahidnagar area. The 1,368 sq m sensory park was inaugurated under the Bhubaneswar Smart City Project. The park was developed at an investment of around ₹10 mn and offers facilities like insulated pathways, playing equipment for children, an open-air gym, and other child-friendly services that comply with the universal access guideline. This initiative will benefit physically-challenged children especially those with hearing and vision impairment.

Contact: Bhubaneswar Smart City
Tel: 0674-2548 508
Website: www.smartcitybhubaneswar.gov.in



Amritsar to set up 1,218 CCTVs

Under the Amritsar Smart City project, the Municipal Corporation (MC) has proposed to set up 1,218 CCTV cameras at 466 locations in the city. The MC would also establish an Integrated Command Control Centre to keep a check on the movements of the whole city. The ₹950 mn project will be financed by Amritsar Smart City (ASCL). At the Integrated Command Control Centre, the whole city would be observed 24 x 7 on multiple screens, wherein the firm hired by ASCL will look after the operation and maintenance work for four years. There would be complete monitoring to trace crime and control traffic in Amritsar.

Contact: Amritsar Smart City
Tel: 0183-5015 048
Website: www.smartcityamritsar.com



Monuments in Lucknow to get facelift

In a recent meeting chaired by Durga Shankar Mishra, Chief Secretary, Uttar Pradesh the authority announced that several protected monuments in Lucknow will get a facelift under its Smart City Mission. The heritage sites would undergo an assessment by the conservation architecture experts to get a detailed analysis of the strength and life of the structure before its renovation. The monument can be used like the Minto Hall in Bhopal, which has now a convention centre. The department might also display naval equipment in the exteriors of the monuments while the interiors will work as museums.

Contact: Lucknow Smart City
E-mail: lkosmartcity@gmail.com
Website: www.lucknowsmartcity.com

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POWER UPDATE

Himachal Pradesh invites bids for 27 hydro projects

Himachal Pradesh government has planned to allot 27 hydropower projects having a combined tentative generation capacity of 722.4 MW, proposals for which have been invited for implementation. These projects are located in Chamba, Kangra, Lahaul-Spiti, Kullu, Shimla and Kinnaur districts and will be executed on build, own, operate and transfer (BOOT) basis. The developers will provide free power from the project as royalty to the government for surrendering the site at 12 per cent for the agreement period.



Contact: Government of Himachal Pradesh
Tel: 0177-2622 204 **E-mail:** group1-hp@nic.in **Website:** himachal.nic.in

EPC tender floated for 14 MW solar project



Gujarat State Electricity Corporation (GSECL) has invited bids for the design, engineering, supply and procurement, construction, erection, testing and commissioning of a 14 MW grid-connected solar power

project located at the Vasundhara substation of the Gujarat Energy Transmission Corporation in the Morbi district. The successful bidder will be taking care of the operation and maintenance of the project for five years. The scope of work reportedly includes 66 kV underground cable or overhead line work, 66 kV substation, construction, erection, testing and commissioning of the complete 66 kV bay and busbar extension. The estimated cost of the tender is ₹560 mn and the last date for submitting is June 6, 2022.

Contact: Gujarat State Electricity Corporation (GSECL)
Tel: 0265-6612 016 **E-mail:** gsecl@gebmail.com
Website: www.gsecl.in

Tata Power bags 300 MW solar project worth ₹17.31 bn

Tata Power Solar Systems has reportedly won an order to build a 300 MW solar project for state-owned utility major NHPC at an all-inclusive price of ₹17.31 bn. The project, located in Rajasthan, will be developed under the CPSU scheme, and will be completed in 18 months. It will reduce around 6,36,960 carbon emissions and is expected to generate approximately 750 mn units annually. For project installation, cells and modules made in India will be used.

Contact: Tata Power **Tel:** 022-6665 8801
E-mail: corporate-communications@tatapower.com
Website: www.tatapower.com

SJVN bags 90 MW solar project worth ₹5.85 bn

State-run SJVN has bagged a 90 MW floating solar project worth ₹5.85 bn at Omkareshwar, in Madhya Pradesh at the rate of ₹3.26/unit on a build, own and operate (BOO) basis in a tender floated by REWA Ultra Mega Solar. After commissioning, the project is estimated to generate 219 mn units in the first year and 5,158 mn units over a period of 25 years.

Contact: SJVN
Tel: 0177-2660 002/03/04/05
Website: sjvn.nic.in

World's largest integrated RE storage construction kicks off

Greenko Group is setting up world's largest and first of its kind, single location, co-located renewable energy storage project in Andhra Pradesh. The 5,230 MW renewable energy generation project of 10,800 MWh per day pumped storage capacity, requiring about six hours per day of hydel power pumping and storage, is coming up by 2023, at an investment of \$3 bn. This reportedly includes \$1 bn investment in the storage capacity and \$2 billion in setting up 3,000 MW of solar power generation, 550 MW of wind energy generation and 1,680 MW of hydel power generation capacity. Greenko believes the project will play a key role in helping India achieve energy security and enabling a global energy transition.

Contact: Greenko Group
Tel: 040-4030 1200/1000
E-mail: info@greenkogroup.com
Website: www.greenkogroup.com

UPCOMING PROJECTS

SL No.	COMPANY	PROJECT DETAILS	BUDGET (IN ₹MILLION)	CONTACTS	TYPE
Airport					
1	Airports Authority of India	Airports Authority of India has undertaken the work of constructing a Greenfield Airport in Hollongi, 15 km from Itanagar considering the importance of air connectivity to the capital city. The project includes the development work that is construction of airport pavements, air side work, terminal Building and city side works.	6,450	Rajiv Gandhi Bhawan, Safdarjung Airport, New Delhi-110003, Delhi. Tel: 011-24632950	Under Implementation
Housing					
2	Lucknow Development Authority	Lucknow Development Authority (LDA) is planning to construct housing projects on the lines of the Light House Project being constructed at Awadh Vihar Yojana. A detailed project report (DPR) consisting of all the details related to the project will be submitted to the state government.	1,310	Amit Kumar Rathore-Special Executive Officer (NB-1), Rajeev Kumar-Special Executive Officer (NB-6), Pradhikaran Bhawan, Vipin Khand, Gomti Nagar, Lucknow, Uttar Pradesh. Tel: 070-8031 6078. E-mail: mailldavc@rediifmail.com, Website: www.ldaonline.co.in	Conceptual
Metro					
3	Bangalore Metro Rail Corporation Limited (BMRCL)	A new metro line will be constructed from Sarjapur to Hebbal. The proposed line would cover many areas in the Central Business District as well.	150,000	Sri Prashantha D R, AGM HR (PIO)/ Shri D.Radhakrishna Reddy-Director (Project & Planning), III Floor, BMTC Complex, K.H.Road, Shanthinagar, Bangalore 560027, Karnataka. T: 080-22969200, 22969300, 22969301, 22969206, 22969231, travelhelp@bmrcl.co.in, www.bmrcl.co.in	Conceptual
4	Jaipur Metro Rail Corporation (JMRC)	The Rajasthan Government to construct a 4.85 km extension of the Mansarovar to Badi Chaupar Metro Corridor on both ends. The East-West Metro Corridor will be extended from Badi Chaupar to Transport Nagar by the Jaipur Metro Rail Corporation (JMRC).	11,850	Sanjay Kumar Yadav-Director (Project), Admin Building, Metro Depot, Bhrigu Path, Mansarovar, Jaipur-302020, Rajasthan. Tel: 0141-282 2756, E-mail: cmd@jaipurmetrorail.in, dos@jaipurmetrorail.in	Under Implementation
5	Gujarat Metro Rail Corporation Limited	Gujarat Government to provide services of Metro Rail and Metrolite in municipal corporations of the state and for Ahmedabad, Vadodara, Surat, Rajkot and Gandhinagar corporations and Dahod municipality under smart city.	7,720	803 8th Floor, GNFC Info Tower, Sarkhej-Gandhinagar Highway, Bodakdev, Ahmedabad, Gujarat. T-079-26800000/23248572, info@gujaratmetrorail.com (Sahadeva Singh Rathi, Director-Project & Planning/Jatinder Kumar Shukla, General Manager-Under Ground-Construction)	Conceptual

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UPCOMING PROJECTS

SL No.	COMPANY	PROJECT DETAILS	BUDGET (IN ₹MILLION)	CONTACTS	TYPE
Port					
6	Department Of Fisheries	The Fisheries Department has begun preliminary work to construct fishing harbours at Alambaraikuppam in Chengalpattu district and Alagankuppam in Villupuram district. The facilities are to be constructed in 30 months time.	2,350	Chief Engineer, FHPC, Integrated Animal Husbandry and Fisheries Building, Nandanam, Chennai-600035, Tamil Nadu. Tel: 044-29510390, E-mail:tnfisheries@nic.in, fisheriestn@gmail.com	Under Implementation
Power					
7	Public Works Department, Govt. of NCT of Delhi	The Public Works Department (PWD) has received the approval to set up 600 LED screens on arterial roads and major road junctions in Delhi.	4,757.80	Pradeep Kumar Parmar, Chief Engineer, 12th Floor, MSO Building, IP Estate, New Delhi-110002, Delhi. Tel: 011-2349 0121. E-mail: cepwdflyover@gmail.com	Conceptual
Roads and Highways					
8	National Highways Authority of India (NHAI)	The Union Ministry of Road and Transport has approved for the upgradation of 87 km area of National Highway No 346 passing through Madhya Pradesh. In addition, three bypass roads are proposed to be constructed in an area of 13 km around Ahmedpur, Barkheda Hassan and Berasia city which will be helpful in connecting East West Corridor NH-27 to Dinara and Bhopal-Nagpur corridor NH-86 to Jhakharkheda.	3430	N N Giri, Project Manager, G-5&6, Sector-10, Dwarka, New Delhi-110075. Tel: 011-25074100 - 200, 25093507, 25093514.	Under Implementation
9	Brihanmumbai Municipal Corporation (BMC)	The Brihanmumbai Municipal Corporation (BMC) is set to start work on the 5.6 km long Link road connecting Dahisar and Bhayander. The linking road project is expected to decongest traffic at Dahisar checkpoint. The tender for construction will be awarded in June 2022 and work will start in October 2022.	24,000	Vijay Zore, Sub Engineer, (Coastal Road), 3rd Floor, Municipal Engineering Hub Building, Dr. E. Moses Road, Worli, Mumbai-400018, Maharashtra. Tel: 022-24958258. E-mail:che.coastalroad@mcgm.gov.in	Under Implementation
10	National Highways Authority of India (NHAI)	National Highways Authority of India (NHAI) will build vehicular underpasses (VUPs) with service roads at four places on the national highways from Tiruchi to Karur, Madurai and Dindigul with a view to curbing accidents. Principal approvals have been obtained from NHAI headquarters, New Delhi, for construction of the vehicular underpasses.	1,000	N N Giri, Project Manager, G-5&6, Sector-10, Dwarka, New Delhi-110075. Tel: 011-25074100, 25093507, 25093514.	Under Implementation

SL No.	COMPANY	PROJECT DETAILS	BUDGET (IN ₹MILLION)	CONTACTS	TYPE
11	Chandigarh Municipal Corporation	The Engineering Department of the Municipal Corporation (MC) has identified 431 km length of roads to be recarpeted. These roads include all kinds of internal and external stretches, parking areas, and market spots. The engineering department will issue a tender in the next few weeks, setting the target to allot the works in April so that they can be started soon.	750	Chief Engineer, Suprintending Engineer (B&R), New Deluxe Building, Sector 17, Chandigarh. Tel: 0172-2787200, E-mail:cemcmc-chd@nic.in	Under Implementation
12	Brihanmumbai Municipal Corporation (BMC)	The BMC administration has tabled a proposal to paint 438 roads in the city before the standing committee and under the painting work, the dividers and zebra crossings will be painted.	200	Vijay Zore, Sub Engineer, (Coastal Road), 3rd Floor, Municipal Engineering Hub Building, Dr. E. Moses Road, Worli, Mumbai-400018, Maharashtra. T: 022-24958258/66,, Ext -8194, M: 9167937206, 9869443508, che.coastalroad@mcmgm.gov.in, coastalroadcell.mcmgm@gmail.com, (Mohan Machiwal, Chief Engineer-Coastal / Roads)	Under Implementation
13	Kerala Infrastructure Investment Fund Board	The state cabinet gave its nod for constructing the proposed tunnel of 7.82 km to reach Wayanad. The tunnel that aims to end the roadblock on the Thamarassery ghat road, passes through Anakkampoyil, Kalladi and Meppadi.	21,340	Vikramjit Singh, IPS, Deputy Managing Director, 2nd Floor, Felicity Square, MG Road, Statue, Thiruvananthapuram, Kerala-695001. Tel: 0471-2780900, E-mail: financeadmin@kiifb.org	Under Implementation
Smart Cities					
14	Government of Chhattisgarh	Chhattisgarh Government to sanction funds for 97 development works for Bilaspur which includes academy building, roads and boundary walls constructed in Bilaspur University, 264 houses built for police personnel at Tifra, Vyapar Vihar Smart Road and the Planetarium built in Vyapar Vihar.	3,530	Office of CHIIPS, Civil Lines, Raipur, Chhattisgarh-492001. Tel: 0771-4014158, E-mail: ceochips@nic.in	Conceptual
15	Public Works Department, Government of Puducherry	The Centre has sanctioned funds for execution of smart city projects in Puducherry.	930	34, Lal Bahadur Sastri Street, Puducherry, Tamil Nadu-605001. Tel: 0413-2338233, 2336394, 2336395, E-mail: cepwd.pon@gov.in	Conceptual

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DIARY

EXHIBITIONS, CONFERENCES AND SEMINARS

SL No.	EVENT	DATE	ORGANISER	LOCATION
JUNE 2022				
1	Architech & Interior Expo 2022	12-14 June 2022	Big3 Exhibitions	Chennai Trade Centre
2	Project Qatar 2022	6-9 June 2022	IFP Group	Qatar Doha
3	India Wood 2022	2-6 June 2022	NürnbergMesse	BIEC, Bangalore
JULY 2022				
4	INDEX 2022 - Delhi	22-24 July 2022	UMG Index Tradefairs	Pragati Maidan, Delhi
5	Construction Technology Summit	22 July 2022	KHL Group	New Delhi
AUGUST 2022				
6	IMHLS 2022	19-21 August 2022	Reed Exhibitions	Pragati Maidan, Delhi
7	INDEX 2022 - Mumbai	26-28 August 2022	Universal Media Group	BEC, Mumbai
8	Smart Urbanation 2022	26-27 August 2022	ASAPP Info Global	Mumbai
9	CWAB awards 2022	26 August 2022	ASAPP Info Global	Mumbai
SEPTEMBER 2022				
10	Construction Indonesia	14-17 September 2022	PT Pamerindo Indonesia	Indonesia
11	Intermat India 2022	19-21 September 2022	Comexposium	Mumbai
12	IEE Expo	6-8 September 2022	Messe Frankfurt India	BEC, Mumbai
OCTOBER 2022				
13	Concrete show India - World of Concrete	13-15 October 2022	Informa Markets India	BC, Mumbai
14	ACETECH Bangalore	14-16 October 2022	Asian Business Exhibitions & Conferences	Bangalore
15	Light + Building Construction Materials 2022	2-6 October 2022	Messe Frankfurt	Frankfurt, Germany
16	India Construction Festival 2022	14-15 October 2022	ASAPP Info Global	-
NOVEMBER 2022				
17	Bauma China	22-25 November 2022	Messe München Shanghai	Shanghai, China
18	ACETECH Mumbai	10-13 November 2022	Asian Business Exhibitions & Conferences	Mumbai
19	6th Bangladesh Buildcon International Expo 2020	24-26 November 2022	Futurex Trade Fair and Events	Bangladesh
DECEMBER 2022				
20	Zak Doors and Windows Expo	1-3 December 2022	Zak Trade Fair and Exhibitions	Pragati Maidan, Delhi
21	The Big 5	5-8 December 2022	DMG Events	Dubai World Trade Centre, Dubai
22	ACETECH Delhi	8-11 December 2022	Asian Business Exhibitions & Conferences	Delhi

Communication Feature

Advanced Engine Technology and Best Compaction for Earthworks

Hamm compactor models by Wirtgen Group feature a highly efficient Eco mode that reduces fuel consumption by 20 per cent.

Hamm presents new compactor models from the HC series. The machines are available with and without a drum drive. All machines fulfil the requirements of the CEV Stage IV. At 90 kW, they bring power to the construction site while consuming lesser fuel than their predecessors, and feature a modern, convenient operating platform, excellent driving and handling properties.

Premium compactors for India

The HC 119i and HC 119i D compactors are manufactured in Pune, Maharashtra. They are completely homologised and comply with the Indian laws and specifications in all details, from the engine and the lighting system to their dimensions.

Compaction performance

With a 2,140 mm drum width and large static linear load, the compactors are fit for inner-city projects and compaction of motorways, airports and other large areas. The Cummins engine ensures maximum compaction force and immediate vibration once

the nominal frequency is activated, keeping it imperceptible for the driver. The automatic vibration system shuts off as soon as the compactors stop moving, stopping over-compaction and ensuring high-quality surfaces.

Operation and workstation

The engine hood design ensures that the driver has a clear view of the construction site and the drum. The operation is self-explanatory and does not require any special language skills. A USB socket, 12 V socket and a bottle holder, along with bright work lighting with durable LED lights rounds off the high-quality environment.

Future-proof engine

The models are driven by a water-cooled 4-cylinder engine in accordance with CEV Stage IV. The 90 kW (121 HP) power unit features two fuel filters. The machines are equipped with SCR and DOC to clean the exhaust gas. During operation, the operator can choose between three preset engine speeds. If the driver selects the average speed, the machine operates in ECO mode which reduces fuel consumption by up to 20 per cent, as well as lowers CO₂ and noise emissions, while also maintaining the frequency, centrifugal force

and compaction power, enabled by the large-sized hydraulic components and smart control system. The compactors come with an air duct and large radiator allowing them to be used in temperatures of up to 53 °C.

Three-point articulation

The three-point articulation in the new compactors guarantees directional stability, stability when negotiating curves and safety against overturning, even on uneven terrain. The D model (HC 119i D) also has a drum drive that helps it to scale gradients up to 53 per cent with confidence.

Numerous options

As optional components for ICS systems, Hamm offers a speedometer for comprehensive compaction inspection and the Hamm Compaction Meter (HCM) for continuous measurement of the load-bearing capacity. The HC 119i D can also be equipped with pad foot shells. Further options are available for lighting and the operator platform.

Convenient maintenance

The compactors also prove to be convenient when it comes to daily checking and regular maintenance. All access points can be easily reached due to the open able engine hood.

(Communication by the management of the company)



Communication Feature

Inclusive and Energy Efficient Elevators

Manish Mehan, CEO and Managing Director, TK Elevator (India), elaborates on the need for elevators in the light of the booming infrastructure in Tier 2 and 3 cities.

Indian elevator Industry stands second throughout the world after China at \$1,351.53 million in FY21 and is likely to grow at a CAGR of 5.22 per cent until FY27. India has a demand of about 56,000-57,000 elevators a year. The industry itself is changing aspects within the country with increasing demand due to urbanisation and rising residential areas, especially in tier 2 and tier 3 cities.

Demand for elevators in Tier 1 cities

The tier 1 cities like Pune, Bengaluru, Chennai, Delhi, Hyderabad, Kolkata, Mumbai and Ahmedabad contribute over 60 per cent of the elevator market as they are highly populated and lack land resources. Hence, these cities are developing high rise residential and commercial buildings, which in turn



demand high-speed transaction elevators. Various manufactures are looking into improving and upgrading the industry with technology to fulfill and enhance the consumer trends.

Demand for elevators in Tier 2 and 3 cities

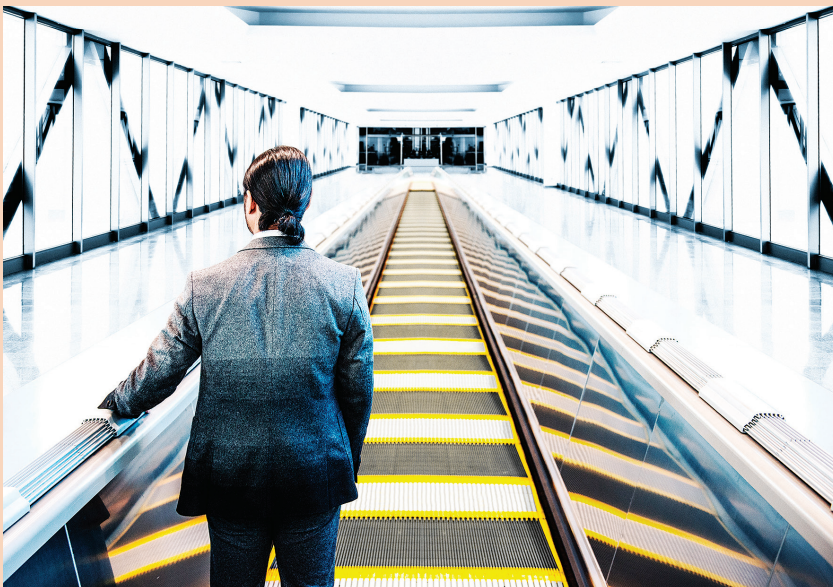
India has more than 100 Tier 2 cities and remaining Tier 3 cities. Both are at different phases towards development. They are developing through government push through infrastructure projects like smart city and are coming up with superior infrastructures like residential complexes, highly facilitated hospitals, commercial buildings, malls and many more. These upcoming infrastructures require smart and efficient elevators for the convenience of the users and gain a more elite foundation.

The total number of elevator requirement from one city might be low. But considering the number of cities, the national market requirement is significant.

The necessity of elevators in all the cities

Sustainable elevators: Green or energy-efficient elevators with standby modes have the potential to reduce power consumption which will help achieve sustainable goals. TK Elevator also supplies units that can be equipped with regeneration drives, which convert mechanical energy of a descending elevator to electrical energy. These elevators are eco-friendly and deliver significant savings.

Adequate movement of people: Elevators help people move efficiently while also making buildings more inclusive and accessible for those with mobility barriers.



(Communication by the management of the company)

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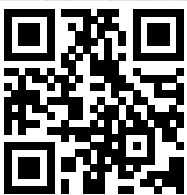
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Communication Feature

“Indian cement industry likely to add 80 million tonne capacity by 2024.”

– Vishal Kanodia, Managing Director, Kanodia Cement

India is not only one of the fastest-growing economies in the world but also is the second-largest producer of cement globally, which accounts for more than seven per cent of the global installed capacity. **Vishal Kanodia, Managing Director, Kanodia Cement**, tells what's on the horizon for the Indian cement industry.

How do you view the current market for cement in India? Which sectors have been driving key opportunities for the company?

Consumption of cement globally mounts to 530 kg while in India the sole per capita consumption of cement is 240 Kg, highlighting a huge economic opportunity for the cement manufacturing industry to cater to the unmet demand in the future. The cement industry had a record growth of 18-20 per cent volume over the last financial year. As per the ICRA Report of 2021-22, cement production and despatch reached the level of 355 million tonne, surpassing the pre-COVID levels by more than 6 per cent. As per Crisil Ratings, the Indian cement industry is likely to add 80 million tonne capacity by 2024, driven by the flourishing housing and infrastructure sectors. With this, Indian cement production capacity will reach 550 million tonnes per annum.

Despite the increase in net



sales, however, realisations dipped by five per cent and the OPBITDA per metric tonne declined by 10 per cent YoY in the last financial year to Rs 1,124. The reason behind this is the current manifold increase in inputs cost.

How does the new cement grinding unit in Amethi contribute to the company's overall manufacturing capacity and how does this help in meeting the demand-supply gap?

Uttar Pradesh has emerged as the largest cement-consuming state in the country, but the state has always remained a cement deficient state where out of the total consumption of 4.5 million tonne per month, hardly 50 per cent of the demand is met, with the balance met with the help of other states. There has been a huge demand-supply gap which

was a major reason for setting up a cement grinding unit in Amethi, Uttar Pradesh. Currently, our annual cement production capacity is 4.3 million tonne per annum with five cement grinding units across the country.

What is the company's current market share in the state? Any plans to expand footprint across the country?

At present, Kanodia Cement has installed a capacity of 2.8 million tonne per annum with four cement grinding units spread over Uttar Pradesh and Bihar. Three cement grinding units are established with a 100 per cent automatic grinding technique at Sikandarabad and one plant in Kaimur Bhabua. Fifth is the one at Amethi. Last year our capacity growth was more than 50 per cent and we are in process of establishing more cement grinding units in Uttar Pradesh and the other parts of the country to make the best quality of cement available to the consumers easily, thereby creating more job opportunities.

What kind of growth do you expect for the company in the next five years?

We are looking at expanding our capacity to up to 535 million tonne by the year 2024-25.

(Communication by the management of the company)

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CONCURRENT SHOWS



Communication Feature

“It is time to make the shift towards battery operated machines.”

– Vishal Sharma, Business Partner, Reach International

Sandwiched between the price surge and the infrastructure boom, **Vishal Sharma, Business Partner, Reach International**, talks about the rental equipment scene in the Indian equipment market.

What is driving rental demand?

The surge in rental demand of AWP and MHE in India is both due to a increase in demand and shortage in supply, there is huge demand especially post-COVID, with investments pouring across sectors – both by the government and private companies.

How is the rental market for construction equipment?

There is a huge demand for rental equipment throughout the CEQ category. It is the best time since the last decade for a rental company in terms of rates, timely payments and higher utilisation rate. It is also a good time for a global player to enter the domestic market as well as for domestic players to expand their fleet size.

What innovations do you offer?

Keeping environment and cost in mind, most big companies are making the shift towards battery operated machines. Clients have welcomed the Lithium-ion Forklift with open arms. Apart from being environment friendly, lithium-ion helps save battery cost for 2-3 shift operations. Additionally, OEM Hyundai provides additional benefits like maintenance free machines and long term warranties.



Tell us about equipment finance.

Equipment Financing Banks and NBFC are vital stake holders of a rental organisation. Last two years have been a rollercoaster ride for all. With low demand and uncertain future, financing companies have been a great support by offering MSME loans and other ECLGS programmes guided by RBI. Within a year there has been a huge demand for machines which has again been supported by financing companies with funds and good rates. Be it LC, domestic credit, suppliers' credit and more, banks and NBFCs have a product for all. The base is all set for huge demand of equipment in near future and beyond that too.

How is renting equipment better than buying?

There are advantages in getting a machine on hire than purchasing it. Weather it is a construction of a

new factory, airport or some site or be it running a plant or warehouse, timely completion and delivery is the key. To achieve that, it is a proven fact that rental companies have always outshined. Entrepreneurs like us have always believed in going the extra mile in satisfying their customers with the best service and high quality equipment.

Good quality updated equipment and timely services help in completion of a project and achieving daily targets.

A big advantage of getting equipment on rent is also saving on the capital expenditure.

What will be the scenario of the industry in 2023? Where does your company foresee itself?

There has been a paradigm shift in the construction equipment rental industry. Profession approach, after-sale or after-rental services and quality equipment with safety features have become a must for an equipment provider to be an industry leader.

Reach International has always practiced a safety first approach and has open ears for customer feedback. With Hyundai (MHE) and Genie (AWP) supporting us in training our engineers and day-to-day guidance for achieving safe work culture, we can proudly say that we are at the top when it comes to customer satisfaction.

(Communication by the management of the company)

TENDERS

SL No.	ORGANISATION	LOCATION	TENDER VALUE (₹)	EMD/ DOCUMENT COST (₹)	DOCUMENT SALE DATE	SUBMISSION/ OPENING DATE
AIRPORT						
1	Airports Authority Of India	Rewa Madhya Pradesh	339,500,000	5,895,000 / 5,900	13/05/2022	13/05/2022 / 17/05/2022
Details: Tenders are invited for development of Rewa Airport, Madhya Pradesh SH detailed designing, engineering, procurement and construction of airport infrastructure for operation of ATR 72 type of Aircraft.						
CONSTRUCTION						
2	Bihar State Educational Infrastructure Development Corporation Ltd	Patna Bihar	28720000	574400 / 10000	18/05/2022	18/05/2022 / 19/05/2022
Details: Tenders are invited for Construction of new building (G+4) at Government Urdu Library, Ashok Raj Path, Patna.						
HOSPITAL						
3	Bihar Medical Services And Infrastructure Corporation Ltd	Patna Bihar	1,711,600,000	181,000 / 11,800	12/05/2022	12/05/2022 / 13/05/2022
Details: Tenders are invited for Construction of 400 bedded specialized orthopedic hospital at LNJP Hospital Rajvanshi Nagar, Patna, Bihar.						
POWER						
4	North Bihar Power Distribution Company	Madhubani Bihar	79,700,000	1,581,000 / 25,000	18/05/2022	18/05/2022 / 19/05/2022
Details: Tenders are invited for turn contract for design, engineering, construction, testing and commissioning of two nos. of 33/11 kv PSS of 2x10 mva along with associated 33 kv and 11 kv lines state plan.						
ROADS AND HIGHWAYS						
5	Rural Development Special Division, Government of Jharkhand	Chaibasa Jharkhand	60,072,250	1,202,000 / 10,000	09/05/2022	09/05/2022 / 11/05/2022
Details: Tenders are invited for construction work of bridge and high level bridge on the river at various places. construction work of culvert on river						

BAGGED IT!



J Kumar Infraprojects

Contract value: ₹6,047.5 mn
Particulars: River rejuvenation
Work order received from Pune Municipal Corporation for development of Mula Mutha river, from Bund Garden Bridge to Mundhwa under the Pune River Rejuvenation Project.

Power Mech Projects

Contract value: ₹21,200 mn
Particulars: Water
The firm has been awarded a contract for the construction of ground water based piped drinking water schemes in rural areas of Meerut and Prayagraj Mandals, under Jal Jeevan Mission.

Kalpataru Power Transmission (KPTL)

Contract value: ₹32,760 mn
Particulars: Ports
The firm has received the Lol for an order that involves design, engineering, supply and construction of a HVDC power transmission line of 700 km.

PNC Infratech

Contract value: ₹8,640 mn
Particulars: Roads and highways
The company has emerged lowest bidder for an NHAI road project of improvement and upgradation of a section of NH-731 to four-lane with paved shoulders in Uttar Pradesh on Hybrid Annuity Mode (HAM).

L&T Construction

Contract value: ₹4,500 mn
Particulars: Railways
The company has emerged as the lowest bidder for the 750 V DC third rail electrification system of the Agra Metro Phase 1 project. Agra Metro's AGE-1 & 2 is one of the few packages that have been tendered separately.

Satluj Jal Vidyut Nigam (SJVNL)

Contract value: ₹5,000 mn
Particulars: Power
The company has secured 100 MW grid-connected solar power project in Gujarat through tariff-based competitive bidding conducted by Gujarat Urja Vikas Nigam (GUVNL).

Sainik Mining and Allied Services (SMASL)

Contract value: ₹1,936.4 mn
Particulars: Coal
The company to hire surface miners and allied equipments for mechanical excavation and cutting of coal and deployment of dozer for 784 days at DIPKA OCM, SECL.

TATA Projects

Contract value: ₹4,664.5 mn
Particulars: Construction
Contract awarded for detailed design, construction testing and commissioning of National Maritime Heritage Complex at Lothal, Gujarat Phase 1A through EPC mode.

Sterlite Power Transmission

Contract value: ₹243.5 mn
Particulars: Power
Contract awarded for survey, design, supply, erection, testing and commissioning work for replacing existing ACSR Lark conductor by HTLS conductor for Ramgarh- Patraru line. | **CW** |

Communication Feature

Engineered Rolling Shutters for Safety and Durability

Gandhi Automations brings automated rolling shutters fabricated as per unique user specifications and requirements.

Rolling shutters have been considered as one of the most dependable addition to any building due to its safety, durability, maintenance and ease of operation. Additionally, it also provides optimal privacy without compromising the aesthetic appeal of the property. Modern rolling shutters are outperforming the traditional doors and erstwhile prototype rolling shutter option. This is due to the innovative designs, handiness and material strength which are far better than the earlier roller shutter models. These rolling shutters are ideal for situations where side room is at a premium and security is required. They need little headroom above the structural opening and are designed for both external and internal applications. The shutters are fabricated in interlocking galvanised insulated and non-insulated profile, stainless steel



profile, patented aluminum profiles and patented MS rolling grills.

Gandhi Automations is a certified manufacturer of rolling shutters of ISO 9001: 2015, ISO 14001: 2015, ISO 45001: 2018 quality management system. This has resulted in the implementation of continuous improvement in personnel training, production technique, inspection, equipment calibration, machinery maintenance, logistics and customer relations. The product engineering team uses the latest software combined with technologically advanced machinery to offer to the customer a well-engineered product.

Over years of meticulously working on the design, fabrication and installation, the company has developed technical expertise in manufacturing various kinds of

automated rolling shutters. The research and development team with their extensive know-how and experience have been able to produce specific rolling shutters unique to certain sites and client requirements. A consistent quality product has thus become the hallmark of their manufacturing process right through installation to after-sales service.

Each of Gandhi Automations' rolling shutters are designed to client's specifications and solidly constructed to promote trouble-free operation and long life. All rolling shutters are automatic using vigorous drive expertise with manual override in case of power failure and are dense, noiseless and dependable.

(Communication by the management of the company)



PROPERTY RATES

RESIDENTIAL AND COMMERCIAL

MUMBAI

South Mumbai	Residential *₹/sq ft	Commercial *₹/sq ft
Churchgate	48,500-52,000	27,000-3,0000
Cuffe Parade	51,000-62,000	25,000-30,000
Colaba	37,000-45,000	25,000-30,000
Dadar	34,450-40,000	27,000-35,000
Prabhadevi	30,000-42,000	26,500-35,000
Nariman Point	58,000-92,000	32,000-35,000
Napean Sea Road	55,000-75,000	30,000-45,000

Western Suburbs	Residential *₹/sq ft	Commercial *₹/sq ft
Andheri (E/W)	18,000-26,000	15,000-21,000
Andheri (East)	14,000-18500	13,500-16,000
Bandra (E/W)	33,000-4,2000	25,000-35,000
Borivali (E/W)	12,000-15,000	9,800-11,300
Kandivali (E/W)	13,000-17,500	13,000-18,000
Khar (E/W)	33,000-39,000	18,000-25,000
Mahim (E/W)	25,000-34,000	15,000-22,000
Malad	13,500-18,500	12,700-14,500
Goregaon (E/W)	14,000-19,500	12,000-15,000
Vile Parle (E/W)	26,000-31,000	17,500-24,000

Central Suburbs	Residential *₹/sq ft	Commercial *₹/sq ft
Chembur	15,500-21,500	16,000-22,500
Ghatkopar (West)	16,000-18,000	14,800-17,500
Kurla	10,600-14,200	8,000-12,000
Sion (West)	16,500-21,600	15,000-22,000
Wadala	19,000-21,500	18,000-20,000

Navi Mumbai	Residential *₹/sq ft	Commercial *₹/sq ft
Airoli	8,000-9,200	4,000-6,000
CBD Belapur	8,000-10,000	4,000-8,000
Kharghar	10,550-12,200	5,500-6,900
Nerul	15,750-18,600	7,000-10,000
Panvel	7,250-9,000	2,900-5,700
Vashi	14,100-18,000	6,000-9,000
Kamothe	7,950-8,400	6,000-12,000
Kalamboli	5,000-6,500	2,500-4,200
Sanpada	11,500-15,800	9,500-15,000
Juinagar	8,000-10,000	5,000-10,000
Koperkhairane	11,550-13,750	5,500-6,900

Contact: Bhavin Kanabar, Space Realtors (India), Mumbai. Tel: 022-4299 9999. Mobile: (0) 99677 80009. Website: www.spacerealtors.in
 Neeraj Agarwal, Sunny Real Estate Consultants, Navi Mumbai. Mobile: (0) 97027 33333. Website: www.sunnyconsultants.com

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KOLKATA

Kolkata	Residential *₹/sq ft	Commercial *₹/sq ft
Alipore	12,000 - 17,500	13,500-14,000
AJC Bose Road	14,000 - 18,000	12,000-15,000
Ballygunge	10,000 - 13,000	9,200-11,500
Behala	4,200 - 5,000	6,500-8,000
Bhawanipore	10,600 - 13,750	10,582-12,934
Belvedere Road (Alipore)	13,000 - 20,000	10,000-11,000
Garcha Road	9000 - 11500	5,000-6,000
Kaikhali VIP Road	4,050 - 5,400	7,000-7,500
Lake Town	5,700 - 6,500	4,545-5,555
Naktala Road	4,500 - 6,000	8,500-10,000
New Alipore	6,800 - 7,692	13,000-16,000
Park Street	16000-18000	16,000-22,000
Prince Anwar Shah Rd	12,550 - 14,750	7,857-11,225
Salt Lake (Sec V)	7,400 - 9,000	4,000-5,500
New Town (Rajarhat)	5,600 - 6,750	4,687-6,695
Shakespeare Sarani	16000 - 19500	16,000-20,000
Thakurpukur	3,550 - 4,250	5,696-6,732
Baguihati	3,000-3,800	7,134-8,153
Sealdah	8,750 - 9,950	5,999-6,998
Park Circus Connector	6,800-9,800	11,000-15,000
Garia	5,865 - 7,352	5,400-7,560
Shyambazar	8,500 - 11,000	9,500-14,000

Contact: Pioneer Property Management, Kolkata.
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RESIDENTIAL AND COMMERCIAL

CHENNAI

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Alwarpet	16,116-20,757	15,715-19,227
Anna Nagar	8,245-12,125	6,987-9,782
Ashok Nagar	8,350-9,250	11,270-12,250
Basant Nagar	12,444-16,830	9,663-12,299
Egmore	11,689-15,860	17,025-18,704
Kilpauk	14,280-18,360	15,300-20,400
Guindy	10,043-13,134	13,580-16,490
Kodambakkam	13,872-19,074	13,872-19,074
Lloyds Road	16,005-18,430	16,490-18,915
Mylapore	18,207-22,542	19,380-23,460
Mogappair	6,742-7,275	10,009-15,570
Perungudi	6,375-8,619	7,952-9,823
Nungambakkam	14,841-18,964	16,490-19,400
Anna Salai	18,360-19,890	19,380-21,420
Thanikachalam Nagar	13,580-17,460	13,580-17,460
Tambaram	4,400-5,550	5,207-7,574
Thiruvanmiyur	8,850-11,400	8,986-11,981
Velachery	11,900-15,300	12,000-16,000

Contact: Prabhu B, Atlas Estates. Tel: 044-4861 6554.
Mobile: (0) 99419 45554. Website: www.atlasestates.in

DELHI

Delhi	Residential *₹/sq Yard	Commercial *₹/sq ft
Connaught Place	29,468-35,700	18,564-45,390
Chanakypuri	21,777-31,331	33,465-63,438
Defence Colony	19,508-26,270	29,992-51,505
Dwarka	3,725-15,830	6,984-22,535
Greater Kailash	14,870-19,941	25,296-44,166
Hauz Khas	21,643-31,743	21,146-37,054
Janpath	25,500-40,800	24,174-42,126
Kalkaji	8,245-10,234	12,100-16,613
Karol Bagh	16,320-20,400	13,770-35,700
Rajendra Nagar	2,959-3,395	14,527-30,365
Saket	12,400-15,450	23,141-43,463
Vasant Vihar	14,000-17,650	19,872-36,768

NCR

Lajpat Nagar-Ghaziabad	2,975-4,462	4,500-6,600
New Gurgaon	5,610-6,834	6,704-56,428
Greater Noida West	3,587-4,082	4,365-37,539

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ACC								
Grade 43	8,424	8,956	8,956	8,667	7,858	8,263	8,667	8,205
Grade 53	8,424	8,956	8,667	8,667	7,858	8,436	8,667	8,205
PPC	8,263	8,956	8,956	8,667	8,234	8,436	8,956	8,089
Ambuja								
Grade 43	8,424	8,956	8,956	8,667	7,858	8,263	8,667	8,205
Grade 53	8,424	8,956	8,667	8,667	7,858	8,424	8,667	8,205
PPC	8,263	8,956	8,956	8,667	8,234	8,424	8,956	8,089
Ultratech								
Grade 43	8,424	8,979	8,979	8,898	7,858	8,263	8,898	8,205
Grade 53	8,424	8,979	8,898	8,898	7,858	8,424	8,898	8,205
PPC	8,263	8,979	8,979	8,898	8,234	8,424	8,979	8,089
Birla Super								
Grade 53	8,424	8,263	8,979	8,979	8,898	9,187	8,898	8,205
White Cement								
Birla	33,512	26,579	27,734	27,734	23,112	24,268	24,268	28,312
JK	33,512	26,579	27,734	27,734	23,112	24,268	24,268	28,312
Coromandel Cement								
Grade 43	8,263	NA	8,979	8,424	7,858	8,898	8,424	8,205
Grade 53	8,263	NA	8,979	8,424	7,858	8,898	8,424	8,205
PPC	8,263	NA	8,979	8,436	8,234	8,898	8,898	8,089
Vasavadatta Cement								
Grade 43	8,424	NA	8,956	8,424	7,858	NA	NA	8,667
Grade 53	8,424	NA	8,956	8,424	7,858	8,667	NA	8,667
PPC	8,424	NA	8,956	8,436	8,234	8,667	NA	NA

Including GST 28% for all cities

Mumbai: Tejas J Vora, Recons Group of Companies. Tel: 022-6169 1000, 2617 3045. Mobile: (0) 98336 73045. Shekhar, Neelesh Industrial Agency. Tel: 022-2408 2121. Mobile: (0) 93247 16192. Kirti Shah, Paras Sales Corporation. Mobile: (0) 92241 87800. **Delhi:** Girish Agarwal, Mahabir Building Material Store. Tel: 011-2664 2348. Mobile: (0) 98100 62315. **Chennai:** C Vijay, Chendur Murugan Cements. Mobile: (0) 96001 67888. **Pune:** Ravindra, Kamal Distributors. Mobile: (0) 98224 28574. **Hyderabad:** Ramesh, Sai Ram Steel Traders. Mobile: (0) 93934 57676, 93927 47575. **Bengaluru:** A Vinod, Sri Kodikrupa Enterprises. Mobile: (0) 97311 16894. **Ahmedabad:** PD Agrawal, Agrawal Traders. Tel: 079-2585 1616. **Kolkata:** Pintu Roy, Arun Distributors. Tel: 033-2557 8632. Mobile: (0) 98309 97677, 98309 97672.

PAINTS: ENAMEL-WHITE

(4 litre: Price in ₹)

	Mumbai	Delhi	Chennai	Pune	Hyderabad	Bengaluru	Ahmedabad	Kolkata
Asian Paints	1,319	1,304	1,214	1,196	1,377	1,334	1,169	1,261
Kansai Nerolac	1,319	1,304	1,214	1,166	1,377	1,334	1,169	1,261
Berger	1,319	1,304	1,201	1,172	1,377	1,334	1,169	1,261
Shalimar	1,319	1,304	1,208	1,172	1,377	1,334	1,169	1,261
ICI	1,319	1,304	1,208	1,342	1,377	1,334	1,169	1,261

Included GST 18% for all cities

Mumbai: Pragmesh Kapasi, Poojan Colour Point. Mobile: (0) 78755 18999. **Delhi:** KL Wasan, Wasan Enterprises. Mobile: (0) 98105 81561, 98716 66577. **Chennai:** Umesh Dave, Tamilnad Traders. Mobile: (0) 72000 97550. **Pune:** Tejas Vora, Shahabad Cement Depot. Tel: 020-2445 9238. Mobile: (0) 99608 00820. **Hyderabad:** Mukesh Chaudhary, Tirupathi Hardware. Mobile: (0) 99633 47374. **Bengaluru:** GV Balakrishna, Balaji Paints and Hardware. Mobile: (0) 94487 55711. **Ahmedabad:** Shanti Prajapati, Swastik Traders. Tel: 079-2646 4766. **Kolkata:** Saif Alam, Hindusthan Paints. Tel: 033-4060 5635, 36. Mobile: (0) 80480 05598.

CLEAR GLASS

(Unit: 1 sq ft; Price in ₹)

	Mumbai	Delhi	Chennai	Pune	Hyderabad	Bengaluru	Ahmedabad	Kolkata
4 mm	55	40	44	63	46	53	55	53
5 mm	64	45	56	86	56	65	63	63
6 mm	77	56	66	100	68	79	76	74

Included GST 18% for all cities

Mumbai: Shabbir, Galaxy Glass Dealers. Tel: 022-2568 4351. Mobile: (0) 98207 69157. **Delhi:** Ajay Dhaniya, Ajay Glass. Mobile: (0) 98102 65787. **Chennai:** Mohammed Inaamullah, Metro Glass Corporation. Mobile: (0) 98400 30316. **Pune:** Nomani Kachwala, Poona Glass Depot. Tel: 020-2445 9238. Mobile: (0) 99602 50786. **Hyderabad:** Firoz Hussain, Safe Glass Store. Tel: 040-6515 2786. Mobile: (0) 90006 52786. **Bengaluru:** AV Stayanarayan, Sri Venkateshwara Glass and Plywoods. Mobile: (0) 93437 05809. **Ahmedabad:** Anil Maken, Rajkamal Corporation. Tel: 079-2220 4090. Mobile: (0) 93761 12220. **Kolkata:** Pradeep Khetan, RP Glass Traders. Mobile: (0) 93304 60999.

BUILDING MATERIAL PRICES

WOOD

(Unit: 1 cu ft; Price in ₹)

	Mumbai	Delhi	Chennai	Pune	Hyderabad	Bengaluru	Ahmedabad	Kolkata
Sal Wood	775	2,000	2,100	700-2,300	700-1,500	600-1,300	500- 1,300	2,400
Silver Wood	650	1,500	520	600	1,300	450-1,200	400-1,200	1,700
Sagwan Wood	1,500	1,600-4,000	2,450	1,700	1,000- 4,500	2,000	1,400	2,350
Pine Wood	750	525	1,200	425	650-800	410-6,900	NA	600-1,200

PLYWOOD

(Unit: 1 sq ft; Price in ₹)

	Mumbai	Delhi	Chennai	Pune	Hyderabad	Bengaluru	Ahmedabad	Kolkata
Commercial								
4 mm	27	39	27	39	35	41	36.38	34
6 mm	35	49	39	50	45	43	38.5	42
12 mm	49	46	56	61	55	55	63.13	52
18 mm	52	92	76	68	62	80	81.42	58
Waterproof								
4 mm	34	33	40	44	46	45	56.16	50
6 mm	50	43	59	55	62	57	64.2	58
12 mm	61	52	86	74	64	90	90.86	74
18 mm	75	70	106	88	94	95	73.83	90

MDF

(Unit: 1 sq ft; Price in ₹)

	Mumbai	Delhi	Chennai	Pune	Hyderabad	Bengaluru	Ahmedabad	Kolkata
6 mm	33	22	26	33	35	35	52.43	50
9 mm	34	24	30	35	50	45	71.69	58
12 mm	41	34	40	44	48	51	73.83	79
18 mm	48	47	54	54	61	65	89.88	78

Included GST 18% for all cities

Mumbai: Lucky Ply & Laminates. Tel: 022-6113 0000, 2871 2556. Mobile: (0) 74981 88777. E-mail: umesh@timexply.com. Bharat Kothari, Kunal Timber. (Wood, Plywood, MDF). Tel: 022-2836 5879. Mobile: (0) 98696 20982. **Delhi:** Gangan Mohan, Ashu Plywood. Mobile: (0) 98117 16949. **Chennai:** Deva Kumar, BIS Building Interior Solutions. Mobile: (0) 90430 72221. **Pune:** Pratul Chaudhary, Kailash Shah, Mayur Plylam. Tel: 020-2638 6678. (Wood, Plywood, MDF). Harshid Jain, Shree Vinayak Plywood & Hardware. Mobile: (0) 98237 48729. **Hyderabad:** Ali Mohammed, New Fame Timber Traders. Tel: 040-3951 7454. Mobile: (0) 98480 43123, 98853 78122, 90000 10700. **Bengaluru:** Poonam Kumar, Laxmi Home Studio. Tel: 080-3376 3006. Mobile: (0) 97425 55195. (Plywood, MDF). Shahabuddin Ali, Inaam Timber and Steel. Mobile: (0) 98453 40921. (Wood). **Ahmedabad:** Sumit Bagrecha, Virshakti Plywood. Mobile: (0) 98791 66731, 96620 04353. **Kolkata:** Ratanlal Khemka, Shree Chaitanya Timbers. Tel: 033-2560 4129. Mobile: (0) 98302 73976.

ELECTRICAL WIRES

(Unit: 1 m; Price in ₹)

	Mumbai	Delhi	Chennai	Pune	Hyderabad	Bengaluru	Ahmedabad	Kolkata
1.5 sq mm	21	22	21	19	26	20	19	20
2.5 sq mm	24	29	29	25	41	38	27	34
4 sq mm	38	50	44	34	64	46	41	44

Included GST 18% for all cities

Mumbai: Sushil Electricals & Company. Tel: 022-2208 4491. **Delhi:** Sanjay Taneja, Taneja Electrical & Lights. (Polycab). Tel: 011-6622 3747, 4644 0016. JS Electricals. Mobile: (0) 98111 56558. (Finolex). **Chennai:** Askhok Kumar, Sree Tambaram General Stores. Mobile: (0) 97890 50501. **Pune:** Hitesh Parwani, Parwani Enterprises. Tel: 020-3993 6427, 4276 5947. Mobile: (0) 98904 76754. **Hyderabad:** Ramesh, Ramesh Electrical. Tel: 040-2770 0809, 6638 5400. Mobile: (0) 93488 88088. **Bengaluru:** Muni Raj, Amar Electricals. Tel: 080-2225 8173. **Ahmedabad:** Anil Patel, Darshna Electricals. Mobile: (0) 99980 11000, 99743 18982. (Finolex). **Kolkata:** Anand Singh, Sinha Electric Stores. Tel: 033-2235 4821. Mobile: (0) 90070 30333, 98302 70590.

STONES and TILES

(Unit: 1 sq ft; Price in ₹)

	Mumbai	Delhi	Chennai	Pune	Hyderabad	Bengaluru	Ahmedabad	Kolkata
Granite	140-1,800	65-250	80-285	62-8,100	70-215	62-400	92-320	64-791
Marble	70-210	65-210	65-270	75-450	62-250	50-460	65-335	70-4,000
Makrana	600-1,000	200-1,200	180-850	100-1,500	75-1,000	50-450	62-700	105-1,500
Kota	45-75	36-54	40-74	47-77	50	54	50-69	37-70
Cuddappa	47	49	42-67	42-60	35-45	42-67	42-74	41

GST extra 18% for all cities

Mumbai: Sushil Vohra, Vikas Marble & Granite. Tel: 022-2846 4150. Mobile: (0) 98923 43332. **Delhi:** Alok Hasija, Meera Marbles. Mobile: (0) 98111 11569, 92120 43662. **Chennai:** Sunil Agarwal, Sunshine Marbles & Granites. Mobile: (0) 91766 14499. **Pune:** Santosh Ganeshkar, Mohan Stone Depot. Tel: 020-2612 8805. Mobile: (0) 98605 03142, 98220 24803. **Hyderabad:** Mohammad Abdul Muqet, Super Stones & Marbles. Mobile: (0) 99662 83516, 98855 13354. **Bengaluru:** Mohammed Ali, Avon Granite and Marble Company. Mobile (0) 98805 92017. **Ahmedabad:** Rakhi T Neema, Rudra Ceramic and Stone. Tel: 079-3049 5171. Mobile: (0) 78785 01212. **Kolkata:** SK Singh, Durga Marble and Tiles Co. Tel: 033-2552 1425. Mobile: (0) 94333 56962.

STEEL (Unit: 1 mt; Price in ₹)

	Material	Mumbai*	Delhi*	Chennai*	Pune	Hyderabad*	Bengaluru*	Ahmedabad
Reinforcement								
MS	6 mm dia	64,300	52,635	52,124	68,522	51,440	73,358	52,083
TMT	8 mm dia	64,300	52,013	51,507	65,682	50,154	76,618	51,467
↑	10 mm dia	63,800	52,226	51,719	64,563	50,361	75,529	51,678
TMT	12 mm dia	63,800	52,157	51,651	64,494	50,293	75,460	51,609
TMT	16 mm dia	63,800	52,157	51,651	64,494	52,330	75,460	51,609
TMT	20 mm dia	63,800	52,226	51,719	64,563	50,361	75,529	51,678
TMT	25 mm dia	63,800	52,157	51,651	64,494	53,007	75,460	51,609
Angle	50 x 50 x 6	64,700	49,400	47,799	67,402	50,968	68,067	52,135
	150 x 150 x 12	68,000	49,466	47,731	67,466	50,900	76,134	52,067
Channel	75 x 40	65,300	49,554	47,883	68,013	51,061	68,950	51,696
	100 x 50	65,000	49,696	48,020	68,183	51,204	68,451	52,510
	125 x 65	66,000	50,052	47,321	68,714	50,886	68,714	52,185
	150 x 75	66,000	50,052	48,907	68,714	50,886	68,714	52,185
	200 x 75	66,700	49,901	48,759	69,809	50,732	69,146	52,025
	300 x 90	69,000	50,073	48,927	72,077	50,908	70,744	52,208
	400 x 100	70,000	49,447	48,316	72,461	50,921	72,461	51,551
Beams	125 x 70	66,000	46,909	47,026	66,134	48,929	66,775	51,973
	150 x 75	66,000	48,720	48,972	68,714	50,952	69,380	54,117
	200 x 100	66,500	49,827	49,278	69,972	51,272	69,972	54,461
	250 x 125	67,500	49,713	49,297	71,852	51,290	70,509	55,146
	300 x 140	68,500	49,733	49,184	71,853	51,176	71,853	55,162
	400 x 140	70,000	48,678	48,272	72,985	50,223	71,015	54,131
	450 x 150	71,000	49,013	47,828	71,826	49,764	71,174	53,642
	500 x 180	73,000	49,851	48,711	75,041	50,679	74,379	54,492
	600 x 210	75,000	50,068	55,524	NA	52,222	78,735	54,734
Plates	5-12 mm	73,000	40,911	45,362	75,947	NA	73,008	43,631
	12-20 mm	73,200	38,523	42,722	72,583	NA	69,814	41,602
	21-40 mm	73,200	39,478	44,814	72,553	NA	73,603	42,628

GST 18% extra is applicable for all cities

Mumbai: Sunil Nagori, Viswanathan Iyer, Sansui Steels. Tel: 022-2867 3673. Mobile: (0) 98211 13673, (0) 98211 10010. **Pune:** Ashish Kasat, Manish Industrial Corporation. Tel: 020-2566 8682, 2612 4182. Mobile: (0) 94220 15212. **Chennai:** Kunal Maheshwari, Kapil Metal Processing Agencies. Tel: 044-2522 5443. Mobile: (0) 95000 95902. (Ravi Sanker). **Hyderabad:** Sushil Kumar, Sanjay Agarwal, Tulja Bhavani Ispat. Mobile: (0) 92477 85403, 98480 14420. **Bengaluru:** Umang Agarwal, Kaushalesh Steels. Mobile: (0) 98450 22217. **Ahmedabad:** Ankit Mehta, Shree Mallinath Steel Traders. Tel: 079-6524 7800. Mobile: (0) 99254 60170.

*Figures are approximate and subject to change

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NEWSMAKERS

DEAL SEALER

Asia's richest man, **Gautam Adani**, Chairman, Adani Group, has signed India's largest-ever M&A transaction in the infrastructure and materials space. The \$10.5 billion deal signed post the Holcim divestment, has made the conglomerate India's second-largest cement maker! The company has acquired 63.19 per cent of Ambuja Cements and its subsidiary ACC after the fierce bidding battle that saw participation from large players such as Sajjan Jindal-backed JSW Cement and Aditya Birla Group's UltraTech Cement. With this, the Adani family now has a combined capacity to produce approximately 70 million tonne cement per annum, second only to UltraTech Cement! This is the largest-ever acquisition done by Adani.



INNOVATOR

It is a moment of pride for **Amit Gossain**, Managing Director, KONE Elevators India, as the company sets a world record by unveiling the world's largest passenger elevator! Located at Jio World Centre in BKC, Mumbai. This elevator spans over a floor area of 25.78 sq m with five stops and weighs 16 tonne. It has been carefully designed, built and tested for the most optimum people flow, with high quality and safety aspects built-in. The elevator has been designed as a centrepiece of the collaboration-focused design between the KONE India and KONE Global Team of Major Projects experts. Kudos to KONE for this pure engineering marvel!

MASTER PLANNER

Lt Gen Rajeev Chaudhary, Director General, Border Roads Organisation (BRO), after having already spearheaded some of the organisation's remarkable feats like successfully completing the 'World's highest motorable road' and 'World's longest highway tunnel', has now secured another impressive achievement. Under Chaudhary's leadership, BRO has now taken up the ambitious project which will give India its first underwater tunnel. The underwater road-cum-rail tunnels have been planned by the Railway and the Road Transport Ministries and are to be located in Assam across the Brahmaputra river at an estimated cost of ₹70 billion. Three tunnels will be made in the project, out of which one will be for roadways, second for railways and third for emergency purposes.



RECORD BREAKER

Having ranked as the no. 1 rooftop solar brand for six years, **Dr Praveer Sinha**, CEO and Managing Director, Tata Power, adds another feather in the company's cap as Tata Power Solar bags India's largest single solar EPC order! The 1 GW EPC order secured from SJVN is approximately estimated at ₹55 billion. The order has been designed keeping in mind the innovative use of 'Make in India' cells and modules and will be developed under the CPSU scheme of MNRE to be completed within a period of 24 months. Spread over 5,000 acre in Rajasthan, this project aims at reducing around 2.29 million kg of carbon emission and is expected to generate around 2,500 million units annually. What a feat!

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