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Editorial

FY20-21: Year of Revival

The Indian economy has shown its intent towards the much-needed 'privatisation' of coal mining. The announcement of the auction of 41 coal blocks for commercial mining is a welcome move as the Union Government has taken the first step towards reducing our dependence on imported coal and other minerals. In this regard, the Government has shown its commitment to the development of the industry, which is critical to our economic growth.

However, in order to leverage our agriculture and mining capabilities and their subsequent growth, we need to have a robust rail, road, and irrigation infrastructure, which are the second-highest job generators. If we put our maximum resources into these sectors, consequently, other sectors will also begin to feel the positive impact, and also see resultant growth.

Many international companies are planning to decentralise their manufacturing from China and looking for other low-cost manufacturing hubs. For many multinationals, India may be the best bet, but their priority is ease of doing business, single window clearance, friendly government policies, a conducive work environment, and so on, which may currently be relatively difficult for India. India is facing competition from many small but emerging Asian economies like Vietnam, Cambodia, Thailand, Bangladesh, Malaysia, and Indonesia as their production cost is cheaper, and being small countries, the business modalities of setting up and operating a facility are easier to manage at the government level. Between 2018 and 2019, of the 56 companies that moved out from China, 26 went to Vietnam, 11 to Taiwan, 8 companies moved base to Thailand, and 3 set up their base in Bangladesh. Meanwhile, only 3 companies moved to India during the same period.

In India, our infrastructure construction industry can attract multinationals, not only to invest in projects, but also in building materials and equipment manufacturing. We are not only a big market but also have a highly skilled workforce, with our strategic geographical locations, our high domestic consumption, and our large reserves of natural resources—all of which can make us a strong manufacturing cum export hub. Industries and economies cannot be run on emotions. Rather than simply calling for a boycott of Chinese products, we should expand our product development capacities and capabilities—just the way the Chinese did from 1985 to 2005. In the mid-1980s, they opened their doors to investments by anyone from anywhere, but with a well-planned strategy; they let all international businesses thrive in their country for the next 15-20 years and alongside began to invest in R&D and in helping entrepreneurs to set up industries. Most importantly, the Chinese government helped these new mushrooming industries to not only become competitive, but to also dream big like the foreign multinationals. And in just 20-30 years many Chinese companies have acquired many of the world’s top brands like Schwing, Putzmeister, Wirtz… the list is quite long.

My contention is that we must keep our emotions aside and learn to invest in R&D, build capacity, focus on quality, promote aggressively, then outpace and outbid global products—not only in India but across the world. To become a truly industrialized country we need to “be competitive”, and since India is a young country, we have a large employable workforce and at a much lower rate of hiring. We need to set a target, ask the government to set policies for investments in R&D, and to help and support entrepreneurs to set up shop.

With every Anniversary of NBM&CW, we review the year gone by, and are grateful for the opportunity to know and work with wonderful people like you. I, along with my Team, thank our readers and advertisers for their unconditional support over the years and especially during this pandemic that has caused unprecedented havoc across the world.

Hope you will enjoy our 26th Anniversary issue and do send your feedback and suggestions at editor@nbmcw.com.

S. K. Ford
Managing Editor
Reassessing India’s Infrastructure Needs & Demand

Clearing the clutter in the infrastructure space, clarity in policy by the government, and a more efficient legal system to expedite dispute resolution are the key elements for a vibrant infrastructure sector of the future.

Elias George, Partner and National Head - Infrastructure, Government and Healthcare, KPMG in India

Infrastructure is the backbone of any economy as the extent and quality are amongst the most crucial characteristics defining the productive capacity of a nation. In fact, quality physical and digital infrastructure have a major impact on productivity and inclusivity within an economy. One of the major differences witnessed between the developed and developing world is the stark difference in infrastructure capacity, which inhibits the productivity of all its people further leading to loss of economic opportunities.

Infrastructure Creation: Quality & Sustainability

Countries with strong physical infrastructure can sustain dense populations in comfort and can ensure a lower cost of transaction for people as they exchange goods and information. This, as a central theme and thought, is not lost on the Indian planners’ mind and hence, there will continue to be a sustained focus on creation of quality infrastructure. Research suggests that the world is on the path to face a USD 15 trillion deficit in infrastructure by 2040 and India is part of the group that faces major shortages in infrastructure provision.

The domestic economy, which is now in midst of an unprecedented shock, with economic growth anticipated to fall at a fast clip during the year, can witness a number of scenarios playing out in the coming times all dependent on the effects of the fiscal and monetary stimulus. This too will have a major impact on how infrastructure creation takes place. However, one aspect is clear, we need to live more lightly on the planet and infrastructure creation also needs to be looked at with fresh eyes.
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We will need to find new ways of ensuring the greatest good of the greatest number and focus much more on preserving that ever-diminishing thin layer of soil and sea and sky which sustains life on the planet. The central idea has to be about building infrastructural assets that are robust, resilient and intelligent while also being more sustainable by virtue of being better integrated with local environments, including the communities around which they are located.

**Evolution of fourth generation technologies**

Infrastructure in the coming time will inherently have digital qualities and also be compatible with other emerging technologies, in fact, it would imbibe some of the key advantages that we derive from newer technologies. The evolution of fourth generation technologies like Artificial Intelligence, Internet of Things (IOT) and Big Data have already shown the benefits in the form of more efficient infrastructure. For instance, the embedding of cheap IoT devices has opened possibilities of creating lighter infrastructure which can be better maintained as IoT devices are able to dynamically send data regarding the health of the structure or system. Analyses of traffic patterns via big data has enabled more efficient creation of physical infrastructure such as bridges and housing assets across cities resulting in positive social outcomes.

Shared models of consuming services are increasingly becoming popular thanks to internet connectivity and a new mindset of the younger generations, some of whom prefer experiences rather than ownership.

Cab aggregation services in urban public transport and online community marketplaces connecting people looking to rent homes, and options to rent empty homes for vacations could lead to reduced demands on infrastructure that needs to be freshly created in these domains.

**Shift towards greener, sustainable, resilient infrastructure**

There is also likely to be a shift towards green infrastructure, at least in the cities that have become a hotbed for virus transmission. Some of the best examples of green infrastructure are permeable surfaces, green roofs and walls. These have a number of benefits such as reduced energy demand, improved storm water management and are more eco-friendly by being carbon efficient.

The pandemic is just the latest in the long list of disasters that have affected the economy over the past few years. Given the situation on climate change, we are likely to see increasing incidences of natural disasters, which increases the need for resilient infrastructure creation. According to the UN’s 2019 Asia-Pacific Disaster Report, 28 per cent of energy, 30 per cent of transport, and 34 per cent of ICT infrastructure are exposed to multiple hazards. With increasing and potentially overlapping risks, governments have no choice but to create more resilient development rather than just cover the deficits in infrastructure.

Infrastructure creation is likely to be more risk informed and in consonance with the contours of a particular region. A combination of looking at previous climate-related events along with an estimation of future challenges is likely to result in the creation of more sustainable and resilient infrastructure.

**Opportunities for Bridging India’s Infrastructure Gap**

In the near term, we are only likely to see construction of infrastructure that is deemed necessary or critical for the functioning of the society. As we move out of the lockdown and come back to normalcy there is a possibility that people reconsider their economic demands, which may result in a reassessment of infrastructure needs and tone down the overall demand.

That said, the dual shock to demand and supply in the economy, dealt by the pandemic, will mean lesser credit demand overall from the system and the continuance of lower interest rates for an extended period of time in the Indian economy. Further, global investors would be looking towards countries such as India to create assets that support growth while also provide investment avenues for savers. With the government looking at ways to effectively mobilise savings into productive usage, this could potentially be a golden opportunity for the domestic infrastructure sector. As such, despite the negative effects of current crisis, the current global and domestic scenario offers India a fresh start towards bridging its infrastructure gap.

The Central Bank has already expanded liquidity in the system to ensure that firms do not starve for want of liquidity and money flows smoothly into sectors where there is actual need. However, one must be cautious as there also needs to be prudence in lending especially as the banking system is still dealing with a huge load of NPAs from previous excesses.

The Indian economy can benefit immensely in a world of collapsing fixed income returns as the economy can be one of the first large economies to recover from the ongoing crisis. Clearing the clutter in the infrastructure space, clarity in policy by the government and a more efficient legal system to expedite dispute resolution are the key elements for a vibrant infrastructure sector of the future.
EXPERIENCE THE 360° SOLUTIONS
India’s real estate market has grown tremendously in the past decade. Robust occupier interest, the rise of organised real estate developers, and the entry of institutional capital have acted as catalysts for the growth. Owing to the current situation and fluidity of COVID-19, the way we will live, work and play in the future is likely to undergo unprecedented transformation. However, this could be viewed as an opportunity to influence the future—and undergo focused innovation.

Recent years have seen the development of a wide range of technological solutions enabling companies to enhance resilience, maintain stability and ensure business and real estate continuity. The adoption of the digital tools has been gradual in some companies as they lacked the urgency or compelling reasons to alter their approach. However, COVID-19 has re-aligned companies to adopt digital solutions at an unprecedented pace in recent months, with the outbreak appearing to be a catalyst for change.

**Commercial real estate to remain robust and evolve**

Commercial Real Estate has witnessed strong interest from sectors such as technology, banking, financial services, research, and consulting coupled with operators providing flexible space resulted in a sustained annual growth in office absorption. In 2019, gross office space absorption crossed the 60 million sq.ft mark for the first time ever and touched a historic high of 63.5 million sq.ft, registering a growth of almost 30 percent compared to 2018. Office stock across seven leading cities crossed 640 million sq.ft and it is expected to cross 660 million sq.ft. by the end of this year.

While the commercial real estate market in India is evolving and the dynamics of the industry are changing rapidly, there is a need for corporate occupiers to plan for the future, specifically post-Covid-19. Reopening of commercial spaces will require a clear focus on employee and visitors’ safety, sanitisation, technology, and restructuring among other changes. This may add to operational expenditure, but it will ensure that occupiers are prepared for disruptions.

Offices are expected to focus on the distribution of core and flexible spaces in their premises and some might even want satellite offices or use a temporary hub, aiming to lower their capex and improve agility. Occupiers will take time to decide on long-term changes to workspace design such as the use of collaborative spaces or using hot seats. Developers might look at securing
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their entire assets, including completed properties and those under construction, by following strict sanitisation measures. Working from home was a reaction to the nationwide lockdown to contain the coronavirus outbreak and it is unlikely to become a permanent concept in the future. Overall, we expect demand for commercial real estate to remain robust and the sector to emerge resilient and inevitably reinvent itself.

**Technological advancements likely to abound**

Technological innovation has brought in tremendous opportunity to transform reality spaces. In the retail sector, e-commerce has been critical to ensuring business survival, while in the office sector, cloud-based working tools and video-conference systems have facilitated remote and home-working. Various commercial real estate sectors have or are looking at utilising virtual reality technology to conduct site visits and interior viewings, while artificial intelligence-enabled people-flow controls have been deployed by facilities management teams to monitor the body temperature of building visitors and mitigate the spread of the virus. Given the growing requirement for limited human touchpoints, companies would have to take a relook at their digitisation strategy. Adoption of touchless technology is expected to be a focus area. For instance, corporates in China have deployed technologies such as holographic projection, elevator controls, temperature scans, mask scans; infrared thermal scanners at entry and exit points; UV sterilization devices in elevators and escalator handrails; and facial recognition access control to limit human interface. Moreover, in the long run, innovative technologies would also pave the way to streamline sanitisation costs being borne by developers and occupiers alike.

**Industry will continue to attract investors**

As diligence for the disease takes center stage, developers and investors will also increasingly focus on making their portfolios resilient against not just environmental shocks but also pandemics. It is expected that “pandemic clauses” would be a part of all building resilience strategies in the coming future. Most investors have kept commitments they made before the disease’s outbreak, as they step up due diligence of projects and developers. Investors will continue to collaborate closely with developers to ensure an effective implementation of sanitisation, security, wellness, sustainability and other preventive norms. Global investors would in fact implement lessons learnt from other markets to ensure a standardisation of measures across assets worldwide.

The appetite for sustainable commercial real estate is expected to strengthen, especially for those looking at more stable rental revenues. Traction from private equity capital, especially in core assets, will strengthen further due to volatility in other segments. We also expect real estate investment trusts (REIT) to continue to gain traction, even though there will be greater scrutiny on quality of assets, sustainability elements and portfolio resilience.

**Government measures to support real estate sector**

The ₹20 lakh crore (USD 266 billion) economic package announced by the Prime Minister will not only provide relief but will also ensure a faster turnaround. The five pillars for a ‘self-reliant India’ – stronger economy, better infrastructure, technology driven system, vibrant demography and demand – will position India on a stronger footing in the long run.

The Finance Ministry has provided certain incentives to the construction and housing sector to reduce the stress it is currently under. It has extended all central agencies’ contracts by up to 6 months (without costs to the contractor), with the agencies asked to partially release bank guarantees to the extent contracts have been partially completed, so as to ease cash flows for contractors. Further, COVID-19 would be treated as an ‘Act of God’ and ‘Force Majeure’ can be invoked to secure a six-month extension of registration and completion timelines for all RERA-registered projects whose registration was expiring on or after 25 March 2020. This will provide relief to the developer community which was facing issues due to labour migration and lack/delayed supplies. Further to this, the government strengthened the affordable housing segment by extending the Credit Linked Subsidy Scheme (CLSS) for the middle-income group up to March 2021 and by opening a new investment class in the form of an affordable rental accommodation scheme for migrant workers and urban poor.

The government will provide incentives to manufacturing and other industries to build affordable housing units. The government has launched a ₹30,000-crore special liquidity scheme for NBFCs, MFIs and HFCs – which will involve investment in both primary and secondary market transactions in investment-grade debt papers of these companies. This is likely to alleviate the short-term liquidity woes of these companies.

Developers will conduct a holistic review of business requirements and portfolio implications, thereby optimize their business model and options considering anticipated changes to infrastructure in a post-COVID-19 world. We anticipate most developers will settle on a balanced approach and focus on building greater resiliency by introducing a combination of physical and virtual solutions, backed by advanced technologies. Wellness and sustainability are likely to become more centrestage at a pace quicker than anticipated. Once the situation is contained and the lockdown is lifted, companies will re-invent themselves and adapt technology and FM operations at a much faster pace to become resilient.
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India was already struggling with a slowdown when COVID-19 pandemic struck, and now it faces a period of significant economic disruption as the country has been locked down since 23rd March to decelerate the spread of the virus. There are deep impacts of the lockdown across all the sectors of the economy, albeit with varying degrees of severity. While there has been a direct and severe impact on the services sector, especially segments such as retail, aviation and entertainment; the manufacturing sector has also suffered due to production shutdowns, labour and supply chain disruptions - especially for companies exposed to international trade, as well as falling consumption.

Impact of COVID-19 on Infrastructure and Financial Sectors and Steps taken by Government

Devendra Kumar Vyas, MD
Srei Equipment Finance Limited

The Infrastructure sector, which was already buckling under immense stress, has been amongst the worst hit with stoppages in toll collections; distribution companies struggling to pay the dues to the power generation companies; and complete shutdown of air travel hitting airport operators. The dramatic fall in demand across most infrastructure segments has further compounded the sector’s woes. Impact on Infrastructure Sector

Even though growth in the construction sector slouched between 2011 and 2015 with demand for construction equipment witnessing a complete collapse, the sector managed to grow post-2015 and the signs were good, until the lockdown imposed across the country brought unprecedented challenges, and, in many cases, business continuity plans are being put to test for the first time. It is being believed that the coronavirus outbreak’s impact on the infrastructure and construction segment is expected to be worse than that of the 2008 financial crisis-led economic slowdown. The lockdown has resulted in various infrastructure project sites staring at closure, mainly due to its impact on labour movement and supply chain disruption. Construction halt, revocation of toll collection, labour crunch, and severe working capital pressure – these nightmares for any infrastructure company - have become a reality.
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The more imminent challenge for the construction players remains working capital management. Operational issues owing to the lockdown have also slowed down outstanding payments to contractors by the principals. In most places, milestones have failed owing to the lockdown, hence, milestone-based payments also cannot be received.

Having said that, India’s long-term growth story remains intact. The government realises that economic growth cannot be achieved without growth in infrastructure. Worldwide, redoubling of investments in infrastructure is a key strategy to counter the impacts of a downturn. The government has begun the exercise of creating a national infrastructure pipeline with a vision to invest ₹100 lakh crores in infrastructure over the next five years. Already, highway projects worth approximately ₹15 lakh crores have been identified. Once these investments materialize, we will soon see positive impacts in sectors such as cement, steel and automobiles, besides, of course, the infrastructure and construction equipment sectors.

The good news is that we are already witnessing the Government’s intent of reviving infrastructure. The Ministry of Road Transport and Highways (MoRTH), in consultation with the National Highways Authority of India (NHAI), is drawing up a 10-point agenda to get the construction activity up and running, and even as the lockdown is partially lifted, MoRTH is in talks with the state governments to re-start highway construction projects where migrant labourers can be gainfully employed. We see construction activity already starting in UP.

Impact on Non-Banking Financial Sector

Non-banks largely cater to the self-employed borrower segment in the retail space, where the cash flows are expected to be more volatile in the current situation vis-à-vis their salaried counterparts. Other non-banks (non-retail), which mostly have exposure to entities or SMEs with relatively moderate risk profiles, are likely to witness an increase in their credit risk in the current scenario. Further, most of these borrowers have limited funding avenues and typically don’t have banking relationships for their credit requirements.

Non-banks, which are already facing funding constraints and an expected increase in delinquencies, are likely to focus more on collections, at least in the near term. Therefore, lack of additional credit funding could have a significant negative impact on these borrowers as their cash flow mismatches would compound with the passage of time. If the COVID-19-related movement and business restrictions continue for a longer period (i.e. 2-3 months) vis-à-vis the current expectation of a few weeks, the impact would be more adverse.

The biggest challenge in the coming months will be redeeming bonds and meeting other loan obligations at a time when cash flows will be hard to come by. According to industry experts, corporate bonds worth approximately ₹92,000 crore and commercial papers worth around ₹78,000 crore were up for repayments towards the end of May.

While all non-banks are facing significant headwinds because of the current evolving situation, their ability to keep the asset quality under control would be the key differentiator. Deterioration in the asset quality could further throttle the fund flow to the sector as bank credit to the sector is already high, and funding from other sources like mutual funds, insurance, FIIs, etc., are likely to be quite muted vis-à-vis the levels witnessed so far in the current fiscal.

On March 27, RBI, had, in its first COVID-19 package, announced a 3-month moratorium on term loans. However, NBFCs faced a double whammy because they have been offering moratorium to customers despite not getting one themselves from their lender-banks, thereby putting significant pressure on liquidity profiles of many NBFCs. It is only in May first week that banks have agreed to pass on moratorium to NBFCs – that too on a case-to-case basis. Further, the risk aversion of banks towards NBFCs was evident from the poor auction results of Targeted Long-Term Repo Operations, which were far off from their desired intent.

Meanwhile, the NBFC sector has sought one-time restructuring of loans to tide over the crisis. They have also demanded relaxation on provisioning norms, and additional funding from SIDBI and NABARD through refinance mechanism.

In conclusion, the current situation is one that has a deep impact on key segments of the economy and is unlike anything we have seen in recent times. The global nature of the pandemic, coupled with its high intensity and long duration, will fundamentally alter the business landscape through changing trade flows, asset prices and consumption patterns. This will impact all key stakeholders, including banks, financial institutions, investors and corporates. The need of the hour is to put in place a comprehensive action plan that addresses potential impact, from short-term cash flow concerns to longer term balance sheet adjustments.
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CDE unveils Combo Multi – its latest manufactured sand plant with internet

CDE Asia, a leader in inventing wet processing equipment, has launched its new multiple-product manufactured sand plant, christened as Combo Multi. The demand for sand and aggregate is growing exponentially with rapid urbanisation in India and the whole of South East Asia. The need of the hour is to have an eco-friendly solution capable of producing superior quality manufactured sand and clean washed aggregates from a mixed feed grade. Combo Multi is designed to equip users do just that; it comes with the cutting-edge Command Center that allows users to oversee the entire production from anywhere in the world - contact-free.

Produce Several Products from Single Feed

Combo Multi builds upon all the innovations of the original Combo and makes it more robust and smart. It has the ability to process a variety of mixed feed grades and produce two washed aggregates and two manufactured sand out of it. Its inbuilt Turbo Dual Wash Technology ensures that the sand is of high quality and specifications. Combo Multi can produce 4 different types of sand and aggregate products simultaneously from a single feed. This is extremely useful, especially where the quality of feed is of mixed nature, allowing the customers to produce washed aggregates in addition to manufactured sand.

Like all other Combos, it combines feeding, grading, washing, water recycling and stockpiling onto one compact chassis. And it does all this, with an impressive capacity range of 100-200 tph depending on the feed characteristics.

Simple Process. Powerful Processing

Combo Multi uses CDE’s patented washing technology. The raw feed is fed into the equipment through the Hopper Feeding System. The feed hopper features an integrated belt feeder to ensure efficient transfer of material from the hopper to conveyor to screening and the segregation process. Ultra-fines sticking to the surface of the aggregate are blasted with high pressure water jets, after which, two products of required sizes are discharged as cleaned washed fractions.

The balance smaller size particles along with water are passed on to the sand washing and processing zone. This material is thoroughly washed, graded, and dewatered, then stockpiled through two dedicated product conveyors for two different qualities. Rejected silt particles along with wastewater, move to the water management system where 95% of the process water is recycled for reuse, while the ultrafine materials move to the sludge collection bay as a waste. CDE Asia’s unique sludge management technology accelerates the drying time of the tailings for a smaller footprint and allows recycled water to be returned to the Combo washing plant quickly and efficiently.

Smart Contact-Free Technology with Internet Inside

The Combo Multi is pre-installed with multiple IoT sensors and internet capability that communicates with CDE Command Center servers throughout its operations. This allows customers to operate their business from anywhere in the world. They can start and stop their Combo remotely, receive daily report of production, power usage, water usage and more, all from the comfort of their homes/offices. Combo Multi is always connected with CDE Command Center by internet, making it possible for the CDE Service Team to assist its customers 365 days a year.

Focus on Continued Innovation

The Combo Multi is the latest addition to the formidable Combo range that was first introduced 7 years ago. Over the past 7 years, Combo has seen major performance upgrades and new feature additions. Today, it is one of the most robust mobile washing plants available in the marketplace and CDE’s dedicated product development team is constantly working to keep its customers steps ahead of their competition, both in terms of quality and efficiency.

Founded in 2006, CDE Asia is one of the leading manufacturers of wet-processing equipment serving a constellation of 24 countries in the Indian subcontinent and South-East Asia, and is part of the CDE group that has its global headquarters in Northern Ireland. The company provides best-in-class breakthrough solutions for the growing shortages of natural sand, recovering value from low-grade minerals through beneficiation, and solving the age-old industry problem of C&D waste disposal by offering novel recycling techniques to recover useful construction materials.

Over the years, the Group has invented and patented many technologies in the above fields and demonstrated its ability to create new products that have redefined the construction, mining, and waste management industries. Solutions are designed to suit local conditions, and they enjoy the irreversible tailwinds of government policies of supporting the green way forward. It is exporting its products to 11 countries, including technologically advanced countries like Japan and South Korea.

“We wanted to give our customers even more reasons to include Combo in their fleet,” says Manish Bhartia, MD of CDE Asia. “CDE promotes new technologies and our R&D team is constantly innovating to exceed customer expectations. Our customers wanted a solution that would help them produce washed aggregates and high specification sand using a single equipment. The Combo Multi delivers it all with an added advantage of contact-free remote monitoring capability, which is an essential feature during these Covid times. It is also an eco-friendly solution that recycles up to 95% water and is extremely energy efficient.”
The world over, CASE is known for innovation, power, superior technology and reliability. Empower your business with construction equipment, customized by the geography, climate and terrain of your operations. Contact your nearest CASE dealer and unlock progress and prosperity.
Terex announces expansion of Franna brand in India

Franna – a Terex brand – is a leading provider of mobile pick and carry cranes; it is now set to expand its global manufacturing footprint in India to support its international growth plans. In addition to production at the Brisbane facility in Australia, a new Franna pick and carry crane designed specifically for India will also be manufactured at the state-of-the-art Terex Materials Processing facility in Hosur, with production expected to commence in early 2021. Terex already has a strong manufacturing presence in India, having first entered the region in 2009.

“This is an exciting investment for Terex as we continue to promote and grow the Franna brand globally,” said Danny Black, General Manager of Franna. “Now, we have the ability to directly bring our market-leading Franna technology, with local homologation to improve safety and performance, for the Indian market. This expansion will allow us to support our growth plans without causing any disruption to our production capacity in Australia and will allow us to be a valued competitor in India. Given our proven manufacturing capabilities with the success of other Terex brands in India such as Powerscreen® and Terex Finlay®, we are confident that this decision will provide a positive outcome for Franna.”

India is one of the largest mobile crane markets in the world, according to market research organisation Off-Highway Research (OHR). In 2018 there were record crane sales in India with almost 12,000 units being sold in the region, of which about 96% were locally manufactured pick and carry cranes.

Michael Atherden, Principal Engineer at Franna, explains, “From an engineering perspective, legislation for mobile cranes varies by region and by country. For example, the AT 22 which we designed for the US market, was a left-hand drive with a Tier 4 final engine; and say we wanted to enter the European market, we would be looking at a Euromot 5 engine. The expansion into India gives us a strong entry point for new and developing markets along with the flexibility to meet the ever-changing design requirements of each country.”

“Franna’s expansion in India will give the company access to the Indian mobile crane market, which is considered as one of the largest in the world and the geographic location of the Franna plant will allow us to better serve countries in the Middle East and Africa also,” says Jaideep Shekhar, MD – Terex Asia & EMEAR.

Since the inception of Franna over 40 years ago, hundreds of their pick and carry cranes have been directly exported to over 30 countries across the globe. As the business continues to grow, the Franna team is keen to speak with international equipment dealers.
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Power Technique
KYB Conmat Concrete Mixer Creating a Benchmark in the Construction of Nepal’s Nagdhunga-Naubise tunnel road project

Project Description
The Nagdhunga tunnel construction project is the first road tunnel construction project in Nepal. It is being built with Japanese loan assistance of 16,636 billion yen. The project aims to improve the road condition around Nagdhunga pass for smooth transportation between Kathmandu and other principal areas/cities in Nepal, and thereby contributing to local socio-economic developments.

The total length of the tunnel is 2.69 kms and its estimated completion date is August 2022. Hon. Prime Minister of Nepal Shri KP Sharma Oli laid the foundation stone of the project — the first of its kind in the country. The government had inked an agreement with Japanese firm Hazama Ando Corporation to construct the tunnel. Japan International Cooperation Agency (JICA) is the development partner of the project and had earlier done the final evaluation of both the technical and financial proposals that were submitted by the Japanese contractor.

JICA is providing loan assistance of $141.41 million to the government for the project, which has an estimated cost of around $188.19 million. The remaining cost will be borne by the government, which has allocated Rs 6.27 billion for the project in the budget for the ongoing fiscal year.

KYB-Conmat supplied 4 concrete mixers to Ando Corporation
KYB’s concrete mixers are successfully deployed worldwide, whenever demand arises in infrastructure development where concrete is involved. The company’s presence is very strong in the construction of concrete roads, metro rails, high rise buildings, dams, and many other crucial areas.

KYB-Conmat is proud to be associated with one of the most prestigious projects of all time, which is also the pride project in Nepal – the Nagdhunga-Naubise Tunnel. KYB Conmat supplied four concrete mixers to the Hazama Ando Corporation.
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to construct the tunnel. The project is quite challenging, since this type of long tunnel construction is happening for the first time in Nepal.

“The Ando Corporation team was looking for a concrete partner who would be committed to the project and would perform as per their expectations. We are honoured to be associated with this project in Nepal. Our machines are designed to work with no barriers and they not only save time and workforce, but also the capital cost overall,” says Sailaj Verma, Senior Vice President - Sales, at KYB-Conmat.

KYB committed for offering reliable products & services

KYB-Conmat concrete mixers are produced in India with technology developed and tested by KYB in Japan. The mixers are developed and tested for many years by simulation under Indian working conditions and they go through rigorous trails with Conmat using advanced sensing and monitoring devices. The company’s MR series of Concrete Mixers have very high-speed concrete charge and discharge for increased productivity, and can handle very low slump concrete, which means that they can be used in a variety of construction jobs. The products are delivered to customers around the world with high quality and safety propelled by Japanese Technology.

“KYB-Conmat products are the most versatile and robust, and also the most reliable. The company is also the best service provider with a good after sales service and easy supply of spare parts to its customers. In view of all these aspects, Ando Corporation is using our machines for the construction of the most challenging tunnel project in Nepal,” says Verma.
INNOMAC Designs, manufacture and installing the world class Building Maintenance Units in India (BMU’s). 

The State of the art manufacturing facility at Bangalore having the in-house team of experienced design professionals having decades of experience across the globe on BMUs, we are working to provide state of the art BMU’s designed to Architecture and structural needs. Our Products are with CE compliance. Following are the types of BMU’s we can offer:

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- Davit system (Fixed/Swing/Traversing type)
- Lift line system
- Extended pressure cleaning poles
- Gantry and Ladders
- Self powered cradles
- Special Cradles (Panoraph)
- Annual and periodical maintenance contracts

Our Other Products Range:

- Bar Cutting Machine
- Bar Bending Machine
- IRM 800
- Home Lift (Hydraulic)
- Rope Suspended Platform
- Building Maintenance Unit
Sandvik CovidAssist Package for Crushing & Screening Plant Users

These are tough and challenging times for the Construction Industry as there is a general nervousness around resumption of businesses, safety of its people and machines, the availability of service support, and the financial strain of stalled projects.

Amidst this chaos, Sandvik is standing strong with its customers and introduced a comprehensive CovidAssist package that offers a host of benefits, especially for the crushing and screening customers.

The pandemic has had an extreme and unprecedented impact on almost all businesses across the globe. And due to a dramatic liquidity squeeze and the lockdown of human resources, it has impacted the construction and Infrastructure sector the most. While the businesses are restarting, people are getting back to work, the economy is inching back, the real impact of Covid-19 is starting to become more and more evident. The climb back to normalcy is going to be challenging and the industry will need all the help it can get.

As the industry gears up for a restart, with screening and crushing plants springing back to life, it is important to smoothen the process. Resolving their commitment of being a partner you can always bank on, Sandvik has launched the CovidAssist program which is extending many benefits:

• A comprehensive six-month extension in your active warranty (as of 20th March, 2020) on any of Sandvik’s Crushing and Screening machinery.
• A special discount on consumables and spares
• An exclusive site visit by a Sandvik service champ (to help you increase the plant’s efficiency, and pre-empt any impending service needs)
• A dedicated Zonal helplines for quick query support resolution
• A comprehensive SOPs manual for this restart amidst the Covid-19.

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Construction Industry

Economic Disruptions, Growth Prospects, and the Way Forward

Industry stalwarts from the CE industry – developers, contractors, consultants, manufacturers, service providers, etc. share their views on the challenges that their businesses are facing due to the nation-wide lockdown, the impact of which is being felt across all the connected industries, including the supply chain, labour shortage, and liquidity crunch. They share their optimism for the future revival of the economy and give solutions that could mitigate the problems and bring long-term growth and profitability.

While they are hopeful that government interventions with concessions and stimulus packages etc, will bring some relief to the construction sector.
and allied industries, they also believe that the government needs to look at the critical areas for speeding up infrastructure construction, bring accountability, and strengthen project execution to stop cost overruns, delays in completion, and avoid arbitration.

The good news is that MoRTH is keen to adopt advanced technologies and equipment to expedite road construction projects and improve quality; which will drive demand for new and technologically advanced equipment. MoRTH has plans to invest ₹15 lakh crores in the next two years on roads and highways and NHAI is set to build 30,000 km of roads in the next five years.

On the downside, the OEMs are no longer confident of timely supply of critical components/parts from sources outside the country. However, given the Government's call for 'Make in India' and an 'Amanirbhar' India, they are gearing up to meet high demand in the coming years by localizing components/parts so that the demand-supply imbalance would be minimal in times of any unprecedented crisis in the future. This could lead to making India a global manufacturing hub of high quality products for both domestic consumption and for export to world markets.

Digital transformation of the Construction Industry is also becoming apparent - from planning and designing to construction and selling/marketing. Foreseeing upcoming demand for equipment, forward-looking companies are adding more high-tech features to their products. In fact, use of disruptive technologies is increasing and its benefits can be seen in every department and industry. In fact, adapting to the 'new normal' by digitizing construction processes and management seems to be the way forward.

While the construction industry seems to be the key to India's economic revival, major issues like unavailability of man, material, and machine (3Ms) will assail the industry. This will drive companies to adapt to the new normal by digitizing their construction processes and using technology to better manage the 3Ms. Companies that are quick to adopt technologically advanced construction equipment with the support of the OEMs will get a first-mover advantage by making up for the time lost and completing stalled projects.

In the Real Estate sector, survival is a major issue today for most of the developers and builders. No doubt, the Government has come up with a good relief package and infused some much-needed liquidity and positivity into the market, but the current calamitous situation calls for out-of-the-box thinking, and solutions that would be sustainable for the long-term.

Over and above all this, the need of the hour is a real-time collaboration between developers, contractors, OEMs, rental companies, and financial institutions for the ‘revival’ of projects and, most importantly, for their ‘survival’. 
Government support, revival of a sustained supplier-OEM relationship, and a suitable business ecosystem will help in a rapid recovery of the construction industry.

Presently, we are dealing with the global Covid-19 pandemic, which has evidently brought with it the most challenging and testing times for people and economies, across the world. In India, the entire construction and manufacturing industry has come to a standstill with the nationwide lockdown to combat the pandemic kicking in.

However, when the global crisis subsides, and things return to near normalcy, construction and infrastructure projects are expected to pick-up momentum. The Government's support, coupled with the revival of a sustained supplier-OEM relationship and a suitable business ecosystem, would aid the rapid recovery of the industry. With this, the demand for construction and earthmoving equipment is expected to grow in the coming years. They will be widely used in large scale infrastructure projects such as roads and highways, railways, dams, ports, airports, and in rural infrastructure development projects.

Due to the migration of workforce from urban to rural areas, building rural infrastructure will gain immense focus in the foreseeable future, which, we feel, will create opportunities for the construction equipment industry.

In the recent past, restriction on movement in view of the nation-wide lockdown to contain the spread of the coronavirus, had adversely impacted the business cycle and the demand-supply chain in India. The industry is down by almost 80% currently as compared to last year.

The ongoing stress on the economy has also created liquidity related challenges - both for buyers and manufacturers of goods and services. Furthermore, movement of workforce back to their villages, could also bring new challenges in resumption of construction activities. However, with the gradual relaxation in lockdown norms, and opening up of businesses, we are hopeful of a brighter future. The Government has already announced a slew of measures to stabilize the impact on the economy, especially the construction and manufacturing industry.

Taking the road to economic recovery, the recent stimulus announced by the Government has started off with some steps in the right direction like - focus on building infrastructure, reforms in coal and the mining sector, and support to MSMEs, etc. The Agri sector is also set to benefit from its opening up. With such support, we are certain that the Government will be able to mitigate the pressure and stress on the sector, in the near future.

OEMs have been actively supporting MSMEs through business, skilling/training initiatives, and with funds for new technologies, etc.

The MSMEs play a very critical role in India’s economy. From generating employment to maintaining consistency in the domestic and global supply chain, the sector is the backbone of our economy. However, the
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recent pandemic has taken a toll on the MSME sector as well as due to the liquidity related challenges.

Under the recent economy stimulus package, the Government has announced a slew of measures such as allocation of ₹3 lakh crore for collateral-free automatic loans, subordinate debt, and equity infusion through MSME Fund of Funds. These are aimed at reducing the stress on medium and small enterprises and support their growth potential and viability. The OEMs have also been actively supporting the MSMEs through business, upskilling and training initiatives, and with funds for adopting new technologies, etc.

With JCB’s intelligent and smart machines and services spread across 60 products and 8 product categories, the company has been speeding up India’s infrastructure development. Going ahead, we shall continue to utilize smart technologies and bring in more innovations to help our customers and end-users to recover fast from the current market slowdown.

There is a significant scope of digitization and automation as we move forward. Newer concepts like Telematics, IoT, Big Data and Machine learning have the capability to play a major role in increasing the efficiency of the sector. This is because big-ticket infrastructure development projects not only demand the best quality output but also work on tight timelines, thus creating a need for specialized, intelligent, and technologically advanced construction equipment.

Aligned with the same, we have pioneered the integration of digital technology in our ‘Intelli’ series of construction equipment. This has improved productivity, reliability, and efficiency of our machines, to ultimately benefit our customers with ease of operation and cost profitability. All our machines are also equipped with world-class remote monitoring telematics technology-LiveLink, which has made machine maintenance seamless.

With such intelligent and smart machines and services spread across 60 products and 8 product categories, JCB has been helping pace up India’s infrastructure development till now. As we go ahead, we shall continue to utilise these smart technologies and bring in more innovation and technology to offer unmatched benefits to customers and end users, who need these even more now to recover from the market slowdown.

The Government has shown clear intent to support manufacturing across different segments, and it is the time now to seize the opportunity to invest, innovate, create, scale up and export.

The Government’s ‘Make in India’ program was launched six years ago, it focused on making India a hub for manufacturing and an exporter to the world. Today it is definitely a significant opportunity for India to become a part of the global supply chain. For this, local manufacturing is critical and would require business-friendly policies and reforms at the state level.

Today, the program has dovetailed into India adopting ‘Vocal for Local’ and following the ambition for becoming ‘Atmanirbhar’ (self-reliant). The Government has shown clear intent to support manufacturing across different segments. It is now time to seize this opportunity to invest, innovate, create, scale up and export.

JCB India has been an embodiment of the Government’s ‘Make in India’ program. We have always remained committed to India’s growth story and have contributed to the building of world-class infrastructure in the country. JCB products made in the country are being exported to over 110 countries around the world and are manufactured to One Global Quality.

At JCB, we are re-aligning our business priorities.

The first and foremost priority for us shall remain the health and safety of our employees at manufacturing facilities across India. Preparedness includes regular employee screening as well as employee safety, care and well-being programs to ensure adherence to social distancing norms. The second priority shall be to re-boot the supply chain and ensure that the supplier and the dealer network becomes seamlessly operational once again. We are fully committed to offering world-class products for our customers. Even during the lockdown, we have remained committed to providing customer support for equipment that was engaged in essential services.
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In the medium term, the overall capex budgeted by both state & central governments is likely to witness a steep cut, which will impact the infra sector industry in the medium term.

The COVID-19 pandemic onslaught on the global economies and universal health have perplexed the economists and health specialists. Its detrimental impact on the economy has cast a negative growth of GDP and huge revenue deficits in the wake of significant contraction of gross tax collections, and a dip in other allocations are staring at central and state governments. Thus, in the medium term, the overall capex budgeted by both state & central governments is likely to witness a steep cut, which will impact the infra sector industry in the medium term.

Construction industry players who have a good mix of projects from States, the Centre and funded corporations, will have a better cash flow as compared to those who are exposed to projects solely funded by State governments.

Projects dependent solely on state budgetary allocations are likely to suffer the most. Not only is the awarding activity for these projects likely to reduce sharply, but the receivable cycle is also likely to get elongated by 60-90 days. The recently launched National Infrastructure Pipeline involving ₹111 lakh crore of investments by FY2025 envisages funding from the states to the extent of 40 per cent, while 39 per cent would be the Centre’s contribution and the remaining 21 per cent would come from private sector.

With strain on state finances, the private sector investment is found wanting; the funding for NIP will be lower, thereby slowing the award and execution pace. Construction industry players who have a good mix of projects from states, centre and funded corporations, will have a better cash flow as compared to those who are exposed to projects solely funded by state governments.

Hence, growth in the medium term is likely to be flatter as the monetization program of NHAI may get delayed due to the present economic environment. However, the long-term appears to be bullish as the government has already cleared and taken up special Economic corridors, NHAI’s Bharatmala Paryojana project, Urban Metro flyovers, River Linking projects, and state-level Highway projects funded by multilateral financing agencies. The financial/capital market for monetizing assets is expected to ease, so more resources will be deployed in the infra sector.

Indian construction companies are facing labour shortages, supply chain issues, and financing pressures, which is having a ripple effect across the CE industry.

Labour: The Indian economy needs huge infrastructure development to sustain its growth. Indian companies are working on hundreds of huge projects like special economic zones (SEZs), power plants, airports, railway corridors, highways and bridges. The construction industry is one of India’s largest employer, with thousands of construction workers employed across the length and breadth of the country. It is estimated that nearly 300 million migrant laborers in the infra sector have been affected by the lockdown and about 70% of them have returned to the home state due to loss of employment. With the expected delay of their return to project sites, execution of infra projects will be delayed. Developers, and the central and state governments have to make concerted efforts for their return, at least by July/August ‘20.

Supply chain: With the reopening of inter/ intra state movement of vehicles, the supply chain activities are slowly coming back to normalcy.
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Financial pressures: Banks have been permitted to provide interest and principal moratorium till August; provide excess of sanctioned limit by 10%; and group exposure has increased to 30%. These measures will improve the credit availability to a certain extent.

**Professionally managed companies can meet the challenges of COVID-19 with the following opportunities:**

- COVID-19-related notices claiming extension of time (force majeure claim) and cost consequences (as a change of law, government risk/action or political force majeure claim), potential relief under the contract.
- Notifications to lenders under information covenants in finance documents.
- Consideration of efficacy of time limits on claims notification and review of termination rights based on COVID-19.
- Leverage full technological capabilities of project management platforms to facilitate remote working and make digital capital products and cloud collaboration the standard in projects.
- Revisit procurement strategy and consider whether delaying certain procurement activities (commodities, fuel, service providers, subcontractors) may yield more competitive pricing.

During project shutdowns or a slower construction market, it is essential to plan to revisit or develop project governance strategies and review guidelines on the planning, design, and management of construction projects, based on project status, scope, and location. It is essential to develop a mitigation plan for potential slowdowns, shutdowns, and project restarts, including identification of work that needs to be mothballed, and how to do so strategically. It is important to decide on the services that can be continued off-site to limit schedule delays.

When restrictions are eased, the project re-mobilization should be done in an efficient manner and, correspondingly, shoring up contracts have to be designed to de-risk uncertain schedules. The project should be proceeded as per the start-up plan that was drawn before the shutdown, and be ready for onsite work with project management monitoring through software platforms.

**The Covid-19 relief package of ₹20 lakh crore brings opportunities for making bold reforms to make India self-reliant, such that any other crisis that may emerge in the future can be handled efficiently.**

The Government has announced relief packages to various sectors such as MSME, Discoms, Agricultural infrastructure, Mining to be commercialized, indigenous Defense production, start-ups, rural roads, etc. and also across various strata of society. RBI has announced a moratorium up to 6 months for payments, increase in sanctioned limit up to 10%, and up to 30% group exposure. NHAI has agreed to consider extension of time, and in the case of toll projects, the concessional period shall be extended from 3 to 6 months.

However, some areas have not been addressed - the RBI has reduced bank rate significantly, but borrowings cost has not reduced that much. The bank rate that will be applicable for HAM projects will be post-Covid, when the company receives the first annuity, which will have an impact on valuations. A corrective measure has to be taken by NHAI to safeguard the HAM developers.

**Companies that are researching and implementing construction technology are reaping the rewards with increased productivity, better collaboration, and are completing projects on time and within the budget — resulting in higher profit.**

Projects are becoming more demanding and complicated in their construction and in the deployment of equipment for earthmoving, hauling, hoisting, conveying, aggregate and concrete production, pile driving, tunneling and rock drilling, pumping and de-watering, etc. Tower cranes and Laser Screeding Paving machines are already in vogue. Companies should make further efforts in adopting digitization and mechanization.

Artificial intelligence (AI) and machine learning systems can improve worker productivity in construction sites by retrieving tools, materials, and equipment to perform better. AI can also help in estimating and bidding projects gainfully. Drones can also be put to use for monitoring the progress of the projects, movement of workers.

Sensors can be installed on materials and equipment for tracking their movement in construction sites. With the data collected, AI can help analyze how workers move about and interact with the site, and come up with solutions to reorganize the placement of tools and materials to make them more accessible to workers and reduce downtime.

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projects easier. Instead of driving to the office for impromptu meetings, firms can use mobile technology to facilitate meetings to reach definitive conclusions, without interrupting the day’s work. Being able to communicate in real time ensures that any issues on the jobsite get resolved quickly and effectively and every stakeholder can have a say. Integrated solutions that sync in real-time allow different stakeholders to add notes, change drawings and respond to RFIs instantly, and then share the information with everyone involved in the project, at the same time.

Mobile technology allows for real-time data collection and transmission between the jobsite and project managers in the back office. Cloud-based solutions enable on-site employees to submit timecards, expense reports, requests for information (RFIs), work records, and other verified documentation. This can save hundreds of hours per year in data entry and automatically organize critical files — no more shuffling through files looking for old reports.

Today, more and more software providers are forming strategic partnerships to allow companies to seamlessly integrate their data with other software solutions, making construction firms that are using data to make better decisions, increase productivity, improve jobsite safety, and reduce risks.

**Use of IPD principles, which help deliver high performing projects by creating a collaborative system, can address the stakeholders’ relational problems in traditional construction procurement.**

Contractors, manufacturers, rental companies, and financial institutions have to converge to contribute meaningfully for the revival of any project through correct and timely construction processes while improving the value of the project and enabling timely release of resources.

To achieve collaborative working, a qualitative and a quantitative approach should be followed. One must explore any problem in the relationship between the main contractor-OEM-subcontractor and financial institution, and an effective solution arrived at.

In order to derive innovative ideas to reinvent the delivery process of traditional construction procurement, the principles of integrated project delivery (IPD) and the last planner system (LPS) were studied to seek ideas that could be employed to improve collaboration between the stakeholders.

The effectiveness and performance of the supply chain and contractors to improve their cash flow and of the OEMs and others are important for the successful delivery of projects.

Use of IPD principles, which have helped deliver high performing projects by creating a collaborative system, can address the relational problems in traditional construction procurement. Integrated Project Delivery administered projects are easy to manage because all project participants (the IPD team) sign a single principal contract with the client.

**FY 2019-20 projects in hand & order book.**

KNRCL’s thrust on NHAI’s national highway projects in EPC and HAM formats, state highways, and projects in irrigation, flyovers, and bridges shall continue. As on date, the company’s order book position is around ₹8000 crores, and includes Highway and Irrigation projects in Telengana. KNRCL is at present executing 5 HAM projects out of which 4 are from NHAI and one from Karnataka, and two are Annuity projects.

With our strong balance sheet and proposed monetization of assets, there shall be enough liquidity to bid for NHAI’s HAM projects.
We expect the market may shrink further by 30-40% over FY19-20.

Clearly, the first quarter is deeply impacted because of the lockdown due to the pandemic. Post the unlocking, we believe that the second quarter will see the monsoons and therefore, we will see better results in the second half of this fiscal year. Hence, any recovery that is expected will only be in the second half of the year. Given these conditions we expect the market may shrink further by 30-40% over FY19-20.

We are bullish from next year onwards when investment in infrastructure will accelerate rapidly.

As the government has reiterated, India will be a land of opportunities and the NIP confirms the same. It’s just a matter of time before investment in infrastructure accelerates rapidly to meet the needs of its citizens. Therefore, we are bullish from next year onwards.

If you look at the package, there are some good pointers: With the redefinition of the coverage of MSMEs, a lot of our customers will come under its fold. This will help them in getting loans at a lower interest rate from banks as well as priority in payments from Central government departments, which is very crucial in the current times.

Apart from that, they also have access to collateral free loans to the extent of 20% of their outstandings in February at an attractive interest rate of 9.25% pa. There are other measures announced which will also help them sustain and expand business.

Special liquidity measures for NBFCs/HFCs/MFIs and NBFC Partial Credit Guarantee 2.0 scheme will infuse liquidity in them and aid lending to business.

However, there are areas where more clarity is required. The investment figures as per budget are now doubtful, given the challenges in revenue collection. Hence, clarity on focus and means of achieving these targeted investments were lacking in the announced package. Further, a considerable amount of money is still stuck in disputes and although measures have been announced by the Ministry of Roads, there has been very little movement in payments to construction companies.

The reform measures in mining will encourage more investment and drive demand for equipment in mining.

The reform measures in terms of the opening of commercial coal mining, seamless exploration to production of both coal and other minerals, removal of distinction between captive and non-captive blocks will encourage more investment and drive demand for equipment in mining.

We have gone through many downturns in the past and are fully geared up to face the current challenge with full confidence. Our primary concern is the safety of all our stakeholders – employees, customers, partners, vendors - and all measures are being taken keeping their safety in mind.

Most of our dealer outlets have resumed operations. We were also providing service using digital means during the lockdown: helping customers maintain their operations. Our support team was available at our FMC sites keeping the machines fully functional and we continue to use both the digital as well as our physical network to support our customers.

Our sales teams were engaged with customers to apprise them of our offerings and how these help their business, going ahead. We even conducted webinars to counsel and instill confidence in customers, dealers and vendor partners and to spread a positive word around the opportunities in infrastructure in the country as well as in their area of operation.

We are constantly engaged with our employees – at the plant, corporate and regional office – to help them utilize the
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lockdown time effectively; to keep them motivated; and sharpen their skills to be prepared to combat the new challenges that will emerge from the fallout of the Covid-19 pandemic.

Due to the measures announced by the RBI, financers have been engaged with customers to explore the way forward and this has helped a lot of hirers in availing the moratorium for 6 months from March. Therefore, the trio of contractors, OEMs, financers have been fully engaged to tide over this situation as well as convert this into an opportunity to explore new methods of conducting and sustaining business.

Given the uncertain scenario, customers are cautious of purchasing new equipment.

Construction activities in major projects were allowed from 20th April and activities have started at most of the large national highway projects. We do see significant recovery in activity this month also. However, given the uncertain scenario, customers are cautious of purchasing new equipment.

Further a large number of laborers at most sites have returned to their native places and customers have to make do with whoever is available. If there are no operators / mechanics - they are unable to execute the projects.

There is still the issue of free movement of goods, especially cement and steel, as these were most affected due to the lockdown. Hence, the construction industry is very cautious and sees normalcy coming back only after the monsoons.

Our telematics products with digital capabilities have enabled continuous communication with our customers.

Even before Covid-19 broke, we have been selling most of our products with digital capabilities. Our EX-series excavators, SHINRAI backhoe loaders and TL340 wheel loader are InSite enabled and ZAXIS series excavators have ConSite telematics suite. These telematics products have enabled continuous communication with our customers.

Under the current circumstances, we believe customers will greatly appreciate these digital technologies to get the best out of their equipment.

Sometimes, a crisis also brings opportunities and we are glad the way our team as well as our customers have embraced and transitioned to digital means, and we plan to build our engagement in this direction, as this is going to be the way the entire industry will engage in the near term and realize its efficiencies.

Many components can be easily manufactured in India with technology that is already available globally provided the industry is sufficiently incentivized. Also, if the right conditions for global investment are created, we can enter into partnerships with global players and service the Indian market as well as the global supply chain.

From a Construction Equipment standpoint, more than 90% of the volume of machines manufactured in India are localized to an extent of 50%. Again, this is an average figure and some manufacturers have a higher degree of localization. These include the equipment sold in the largest volumes such as Hydraulic Excavators and Backhoe Loaders.

A large base of vendors has been developed over the years of whom many are in the MSME category. In the first phase of supply constraint, these vendors were trying to ramp up their manufacturing capacities with infusion of capital investment in Capex and employing skilled workers. Their ability to deal with demand volatility was severely tested. This time around, the challenges are completely different. Inadequate working capital, supply chain disruption, and depletion of skilled manpower are some of the key issues that need to be dealt with. The government has announced several steps to ease liquidity and provide ameliorating conditions for them to restore normal operations.

As far as global sourcing of components is concerned, one area where there is dependence on imports is precision components such as valves, certain motors, sensors etc. These can be easily manufactured in India with technology that is already available globally if the industry is sufficiently incentivized. Also, if the right conditions for global investment are created, we can enter into partnerships.
with global players and service the Indian market as well as the global supply chain. We will have to grow our competitiveness to attract these opportunities against other countries doing the same. Some of the inherent common manufacturing disabilities that we have, such as land acquisition, cost of capital and logistics need to be addressed.

The key is to unlock the potential of the domestic market and grow volumes to a level where it is commercially feasible to manufacture equipment here and also grow the export market.

Another area where there is still import of some order is in low volume equipment categories as also very high value capital equipment which could be very specialized by nature. The key here is to unlock the potential of the domestic market and grow volumes to a level where it is commercially feasible to manufacture this equipment here as well as growing the export market to enhance volumes further. This will require a boost to the infrastructure plan and accelerated execution.

In summary, we have the advantages of a young workforce, technical capability, and entrepreneurial energy. If we could enhance national competitiveness further by building on gains made in the ‘ease of doing business’ parameters, there is no reason why we can’t become a major manufacturing hub.
Liquidity is the biggest crisis we face today, and it will continue to be there post lockdown.

A big hole in the economy has been created due to the Covid-19 situation, which will take a long time to fill. We see growth in the industry, but it will not be soon, and nobody knows for how long it will go on. May be a couple of month later when things become normal and up and running, we will know. Time alone will tell whether the relief packages of the government will serve the purpose or not. We should wait for things to improve and in the meantime, we should work towards creating a better future, rather than blaming the present or past.

Our supply chain is still intact, and we are producing in our factory at 60 to 70% capacity; this was possible only due to the processes we follow for manufacturing. We plan to improve further post lockdown to go to Lean and 6-Sigma manufacturing processes. Labour is a shortage due to which we are unable to produce at 100% capacity; we are running short by 30 to 40%.

The government will need to take a faster and more advanced approach to make up for the time lost

We have always supported the authorities and institutions with our expertise, and we will keep doing the same. We will always be available for the Government with our suggestions and solutions.

Today, survival is of the utmost importance for which we are taking all the required steps. Our rental and manufacturing divisions have been playing a vital role of being the link between the contractors, financers, and institutions for the revival of our projects. There has been a disruption in the currently used technologies which need to be replaced with highly advanced and new technologies.

Ardent Group

Ashok Tanna, Chairman

Our rental and manufacturing divisions have been playing a vital role of being the link between the contractors, financers, and institutions for the revival of our projects. Our supply chain is intact and we are producing in our factory at 60 to 70% capacity; this was possible due to the processes we follow for manufacturing.
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Covid-19 has brought many challenges for the CE Industry in addition to the sluggish demand experienced in the last fiscal year. A revival will depend on many factors such as workers and operators returning to work post-lockdown, lending from financiers, construction activities gaining pace, and release of payments by the authorities to infrastructure firms.

The Government has already announced a ₹100 lakh crore National Infrastructure Pipeline to be completed by 2025. MoRTH and NHAI have assured award of 4500 km highway construction contracts during the year. RBI too has intervened with various monetary policy measures – these should translate into demand pick-up through the year. While demand for Construction Equipment may remain subdued in the next 2-3 quarters, in my opinion, the Government’s focus on infrastructure development, providing employment opportunities and other steps to boost economic activities will result in a gradual recovery. However, there could be contraction in the overall annual demand for CE during this fiscal as well, and we will have to prepare for that eventuality.

**If the Government could accelerate award of contracts and also take steps for early release of payments that are due to contractors, it would help rebuild confidence in the sector.**

The economic stimulus package announced by the Government of India is largely focussed on providing adequate capital at lower cost and higher liquidity to the Industry. It also includes six months moratorium on EMIs. These are welcome steps and will help in restarting the economy post-lockdown. Many vendors and dealers, who form an important link in the supply chain, would have faced difficulties without these initiatives.

While the Government of India has already announced the National Infrastructure Pipeline Project, we do hope that these infra projects will receive funding in time from the Government. Earlier, there have been issues relating to land acquisition and environment clearances which have delayed project execution and escalated the project cost. These also need to be addressed to ensure that the projects are moving ahead as planned.

**There is a need to overcome the challenge of institutional risk aversion in lending.**

More than 95% of Construction Equipment is financed by banks and NBFCs; hence, availability of finance to customers will be the key to revival of CE demand. We are working closely with our finance partners and customers in order to address their concerns on an ongoing basis. Credit appraisal by finance companies has become stringent, which is good, since...
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money will flow to disciplined and capable customers. While Government of India has taken measures to ease credit availability, we continue to witness a great amount of caution among financial institutions, which is the biggest challenge being faced by the CE industry. Transmission of lower rate of interest to the end-customers will also help ease the situation. Another issue facing the industry will be the availability of skilled workers. This could be addressed by close coordination between Government and employers to ensure that the workers regain confidence and feel safe to return to the worksites.

With the new equipment demand likely to be subdued for some time, we expect utilization of the existing machine population to be stepped up. As machines are becoming operational, our teams at L&T are ensuring prompt supply of parts and service.

Along with our principals, Komatsu and Scania, we are committed to customer care 24/7. We remain focused on after-sales support by extending service and supplying parts across India wherever machines are operational. Our dealers too have been fully supportive and committed in the field. All our service centres are operational pan-India. We are also focusing on skill development amongst our customer staff as well as society. Our service centres are accredited by IESC and conduct regular training programmes under PMKVY. We will scale this up to meet the shortage of skilled personnel in the industry, post Covid.

We are also relying on digital solutions to share visibility of machine operations with the finance companies to help them in taking quicker and well-informed decisions on funding.

Since the last few years, almost 40% of the demand for new equipment is stemming from the Road Sector. Increased mechanization and using best-in-class equipment will help deliver safe, serviceable, and sustainable roads.

Roads and Highway construction is a major driver in the infrastructure link, and it brings together a spectrum of technologies, equipment and skilled labour to revive the economy. The Government considers the road network as critical to the country’s development, social integration, and security needs of the country. Their vision to increase the construction of highways from 30 km per day to 60 km road per day can only be realized by accelerating mechanization and using the best-in-class equipment.

The rebooting of the road sector post-lockdown is expected to generate employment, revive demand for material and equipment, it will open up employment for migrant workers in a big way and absorb equipment lying idle in various projects across the country.

Telematics and other intelligent technologies enable higher efficiency and productivity of equipment as well as reducing lifecycle cost. These digital initiatives are being welcomed by Infra companies.

Increased pace of highway construction is expected to give a boost to the contracting demand for construction equipment. MoRTH has been promoting the use of advanced technologies in road construction. For example, use of telematics is visible in various spheres of the road construction activity. Almost all models of excavators come with remote monitoring systems. Komatsu has its own patented system called Komtrax, which facilitates on-line performance analysis and machine health monitoring.

Similarly, L&T compactors come with DigiEye and the option of being fitted with Intelligent Compaction System (ICS). This helps the operator to determine when the required density has been achieved and compaction is complete. ICS also increases speed and reduces time required for supervising and inspecting the compacted areas. We have several contractors who are keen to procure these digitized models.

With the Government of India now maintaining a sustained pace in infrastructure projects, we expect the demand for construction equipment to stabilise and grow year-on-year.

Almost all global brands in Construction Equipment have manufacturing plants in India. Their indigenous content in high-volume products viz., Backhoe Loaders, Hydraulic Excavators, Wheel Loaders, and Vibratory Compactors is well above 50%. Some critical components of Power Train continue to be imported. I am sure, as the demand grows and volumes increase, these components would also be indigenised.

CE demand growth in India has often been compared with that of China’s, where the CE industry grew exponentially riding on the relentless spend on Construction and Infrastructure building activities promoted by the People’s Republic of China for over two decades and continuing even now.

The Government is also promoting export worthiness and competitiveness in a big way. Sustained demand in India, coupled with export opportunities should help the component industry to attract technological partnerships, enhance capabilities, and build scale for high-quality import substitution.
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Real Estate to be a major contributor of country’s GDP in years to come

The corona crisis has certainly impacted the short-term outlook for the Indian Real Estate sector. Sale of residential properties and leasing of office spaces have suffered setbacks during the lockdown period. The retail and hospitality sectors are very severely impacted. PE, VC investment decisions in Real Estate have been put on hold for some time. Moreover, the buyer and investor sentiments have been dampened further. As it is, the sector was facing a liquidity crunch following the NBFC crisis and a demand slowdown. The massive exodus of workers, halted work, and impaired economic activities during the lockdown have taken a toll on the industry.

Despite the corona-induced setbacks, we do not see a long-term adverse impact on the Real Estate market. India has a huge economic opportunity in the coming years. With increasing per capita income and a population of about 1.30 billion, the Indian economy will continue to prosper, aided by digitization, globalization, favorable demographics, and reforms. In addition, increased government spending on infrastructure and rising urbanization will provide plenty of opportunities for the construction sector.

As the Indian economy transitions and our workforce expands, we will see vast development and investment opportunities in the Real Estate sector. The growth of cities is going to further influence the country’s built environment, while technology, demographics, and environmental issues will become the new value drivers. The ideas, trends, and behaviours that will shape the Real Estate sector in the next decade are already perceptible today. Some are clearly evident while others are emerging quietly around us. By 2030, the Real Estate universe would have expanded tremendously as today’s new asset classes such as co-living, warehouses, data centers, will become mature segments.

In the years to come, the Real estate sector in India will continue to be a major contributor to the country’s GDP. Emergence of nuclear families, rapid urbanisation and rising household income are likely to remain the key drivers for growth in all spheres of real estate, including residential, commercial and retail. India continues to attract Private Equity and Venture Capital investments in the sector. Office space has been driven mostly by growth in ITes/IT, BFSI, consulting and manufacturing. Recent initiatives like Smart Cities, raising of FDI limits for townships and settlements development projects and for real estate projects within SEZs and Real Estate Investment Trusts (ReITs) will augur well for the real estate sector. Further, the Government of India’s ‘Housing for All’ initiative is expected to bring huge investments in the housing sector in the years to come. The Real Estate (Regulation & Development) Act is making the sector more transparent.

Although the actual growth figures may vary from the projected figures over the long term, the long term outlook for the Indian Real Estate sector remains intact.

Insufficient labour strength could severely impact the construction operations

The government has recently relaxed the nation-wide lockdown norms and conditionally permitted the migrant workers to travel to their home states. This has led to an exodus of construction workers from the metropolitan cities. The local authorities are facilitating these workers and are arranging their rail travel to their home states. All these days, in the absence of a transport network during the nation-wide lockdown, the workers had no option but to be confined to the worker accommodations provided by the construction companies near the construction sites.

Most of these migrant workers are skilled in construction trades like carpentry, barbending, masonry, plastering, fabrication, etc., and are crucial to ensuring work progress. Although organised players like Shapoorji Pallonji E&C were taking care of their workers by providing them wages, rations and medical facilities in the camps, there was growing anxiety among them with news of the lockdown getting extended. The construction companies are now finding it difficult to convince their sub-contractors and the workers to stay back and resume work. Now that the government has conditionally permitted some of the construction sites to resume work, the construction companies are facing this new challenge of resuming construction activities without having adequate worker strength. Also, due to the mismatch of skills amongst
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the remaining workers, output and productivity is seriously impacted. Even as the supply chain for construction materials supply is slowly getting streamlined, insufficient labour strength could severely impact the construction operations of these companies in the weeks to come.

Just before the nationwide lockdown began, Shapoorji Pallonji E&C had about 1,50,000 construction workers across all our projects in India - which include government and private sector projects. Depending on the volume of the project, the strength on each project ranged from 150 workers to 4,000. Currently, we are left with only 15 to 30% of the original worker strength.

Shapoorji Pallonji E&C is taking multiple steps to convince its workers to stay back and continue working. We are assuring them about our preventive and welfare measures, even post-lockdown, for their safety and well-being. We are conducting motivational talks to allay their anxiety as we believe that constant communication and engagement will keep them motivated. We are incentivising them financially and releasing timely payments so that they know that they can continue to earn their livelihood in a safe way. We are getting good support from some of our clients in these efforts.

We are continuously engaging with our regular labour subcontractors to ensure that the worker strength improves in the post-lockdown scenario. We are persuading them and addressing their grievances to ensure work continuity. However, a section of the workers is anxious to return to their home states. Some of these workers could also get diverted to agricultural work in their villages. This could pose an additional challenge in mobilising an adequate number of workmen for construction work in the near future. It is expected that it would take at least 6 months for the worker strength to return to normal.

**The Government can play a crucial role in reviving India’s Real Estate Sector**

The construction contracting fraternity was already reeling under severe financial stress from the last 3-4 years, and especially so in the last one year. The corona crisis will seriously impact the revenues of the construction companies and almost all will face huge financial losses in the months to come. The financial stress is expected to worsen over the coming year as the contracting companies continue to be burdened with onerous clauses in contracts. Many government contracts involve contractual risks that are far higher than the margins that can possibly be earned through efficient project execution. Companies are required to furnish bank guarantees from 15% to as high as 30% of the contract value. The project execution itself is dependent on many key decisions and approvals that need to come from the employer or the authority’s engineer.

The liquidity constraints being faced by all construction companies and their supply chain are likely to delay the recovery efforts. Most companies have already represented to their clients – both government and private - to help ease the situation by expediting release of payments towards certified bills, arbitration awards, retention releases, etc., and also by considering additional advances. These payments can then be channelized by the companies to their suppliers and subcontractors, which would be very crucial to mobilize and retain their workers after the lockdown is called off.

In addition, the government can derive immense economic benefits through adoption of standardized and equitable contracts, relaxed payment terms, a rationalized contractual risk structure, and reasonable bank guarantee requirements. The government needs to build accountability within its project implementation teams for giving timely decisions and approvals to the contractors in order to expedite project completions. These measures can revive the construction sector, generate massive employment, and thus have a multiplying effect on the national economy.

Considering the current crisis that the Real Estate industry is facing and its impact on the nation’s economy, it would be worthwhile for the government to consider some relief measures for the industry. Some of the proposed measures include one-time restructuring of loans, additional institutional funding, waiver of penal interest, policy innovations to trigger demand, operationalisation of government’s last mile funding, controlling cartelisation of raw material, and changing the criterion of affordability for GST applicability.

The government can also consider increasing the limit of principal deduction on housing loan under Section 80C to ₹2.5 lakh from ₹1.5 lakh. The interest deduction under Section 24 on housing loan for homebuyers could be increased to ₹10 lakhs from ₹2 lakh. The pace of Real Estate project completion could be expedited by simplifying the processes for building permits and approvals, granting expeditious approvals and environmental clearances. This will instill confidence amongst buyers and generate new demand.

Beyond Real Estate, there is a huge scope for India to attract manufacturing investments from across the globe. The government can also play a pivotal role in launching mega infrastructure projects. These projects can generate huge demand for construction services and involve massive employment.

The government should also streamline its procurement processes to allow fair competition for tenders. Some of the areas that need attention include formulating realistic budgets for projects, adopting pre-qualification criteria to allow competitors of equal standing, and adopting QCBS
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system. This will lead to sensible bidding for government projects and improve the chances of project success.

**Technology can help overcome labour challenges and also save time and cost**

The evolving landscape of new technologies in the Real Estate and construction sector are transforming all stages of the project delivery process. The new technologies are changing how companies design, plan, and execute projects. By adopting advanced software, construction-focused hardware, analytics capabilities and advanced construction technologies, the companies are eliminating many of the problems that have dogged the sector for decades.

Such improvements could not have come at a better time, as construction projects are becoming increasingly complex and expensive, putting managers under greater pressure to improve costs, timelines, and efficiency.

The major companies use enterprise-resource-planning systems. In addition, new digital tools and solutions are being used for the design, preconstruction, or operations and management phases. In the construction phase, on-site execution, digital collaboration, and back-office integration are being reimagined with the use of such digital solutions.

The digital tools that support on-site execution enable the companies to mitigate some of the most pressing problems and in the process enhancing field productivity, safety monitoring and quality control. Some new applications help managers inspect remote sites by providing pictures and image tags, while others allow them to update and track their punch lists in real time. This, in turn, increases efficiency and accuracy during on-site execution.

The digital tools that support collaboration allow stakeholders - architects, designers, and site engineers (who are more numerous and widely dispersed than in most other industries) to work together. They need to communicate and align frequently, since certain changes, such as a seemingly minor modification to a materials order, could significantly increase timelines or costs if made too late. All related processes viz., design management, contract management, performance management and document management can be managed very effectively through digital collaboration tools.

The digital tools that support back-office integration allow companies to access and exploit valuable project data on finances, costs, and schedules by involving functions such as accounting, finance, and human resources. These tools give managers immediate access to real-time back-office data. Many back-branches focus on scheduling, managing equipment, and enterprise resource planning.

E&C companies are applying new hardware and software solutions for predictive analytics and for project monitoring, enabled by drones and the Internet of Things (IoT). These solutions apply advanced analytics and machine learning to data - both structured and unstructured—to optimize decision-making for multiple topics, including workloads, staffing levels, and strategies for minimizing inefficiencies. Some companies are using these technologies to improve 5-D BIM—the process companies use to create digital representations of physical structures - and then consider this information in combination with cost and scheduling data.

Companies most frequently use drones to capture site images and aerial survey data, while IoT primarily helps with monitoring equipment and preventive maintenance.

Incidentally, Shapoorji Pallonji Real Estate employs its digital platform Virtuo to provide a seamless buying experience. This platform puts a sales representative in the driver’s seat and equips him with key information like location, USP, Google Street View, sample flat photographs and other project-related information under one roof. Our aim is to provide an actual site visit experience to the prospective buyer on our virtual platform.

Many technologically advanced construction equipment are now available or can be imported into India at very competitive prices. The vendor base for such equipment has developed over the last few years and the post-sales service standards too have improved a lot. Such equipment are crucial to enhancing productivity of construction operations and also help save manpower costs, besides improving quality. The equipment are being used at a variety of projects from buildings to infrastructure.

As the operation dynamics of the Real Estate business in India are evolving and innovating at a pace much faster than envisioned, it is almost imperative that innovations be applied to the most basic as well as most important step in the value chain – construction techniques. It is expected that there will be wider use of technology in construction and construction management in the future as companies realise the long-term efficiency and cost savings of such techniques. Technology in construction space has coincided with growing demand for faster construction and world-class quality.

Therefore, construction organisations would have to increasingly adopt newer techniques (and devise ways to mitigate/share the high costs associated with these new technologies) to meet the client’s changing demands.

Adoption of advanced technologies such as monolithic concrete construction (shear wall technology) using aluminum formwork, or precast construction, is slowly becoming the norm. These technologies reduce cycle times and the requirement of labour, reduce project duration vis-à-vis conventional construction, reduce material wastage, and improve construction quality and safety. These technologies also eliminate labour-intensive activities such as masonry and plastering, thus leading to time and cost savings. A high degree of modularity of designs that ensures a higher repetition of formwork and higher productivity of mobilised resources is an added advantage.

A lot of research and development efforts today are directed towards emerging technologies in precast construction that enable the manufacture of the whole dwelling unit as a monolithic module (with no joints) and complete with interior finishes.

Similarly, 3D printing is set to revolutionize housing construction. It won’t be long before these technologies become affordable, especially for large volume constructions, and become commonplace in India. In fact, these technologies can emerge as credible solutions to address India’s affordable housing challenges.

**Shapoorji Pallonji E&C’s projects in hand and order book during FY2019-20.**

Shapoorji Pallonji E&C received new orders worth ₹22,500 crores in FY2019-20 in the domestic contracting business. These projects are primarily in the buildings, factories, and water plants. Almost 90% of these projects are for government organisations – both central and state. Some of the prominent projects are:

- IIT, Hyderabad Campus in Telangana
- IIT, Palakkad campus in Kerala
- Development of four seawater desalination plants in Gujarat
- New Passenger Terminal at Petrapole, West Bengal
- Chhindwara Institute of Medical Sciences in Madhya Pradesh
- IKEA Store in Bengaluru
- Phoenix Business Hub, Hyderabad
- Ascendas IT Park, Hyderabad
- RMZ Ecoworld IT Park, Bengaluru
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- CIDCO Housing in Navi Mumbai
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The Government needs to front-end infrastructure investments to instigate private investments and attract foreign capital.

The recent announcements by FM and RBI have been very positive and have addressed the challenges related to improvements in liquidity. The land, labour, liquidity and stimulus/reforms announced by the Government are expected to help the Industry, MSMEs and the labourers in both the organized and unorganized sectors. Emphasis on self-reliant India would surely go a long way in building a strong supply chain. This stimulus will help the supply side and help respond to the current economic challenges. The next stages - recover and grow – will need to stimulate the demand side, and I feel that this can be majorly achieved through investments in infrastructure. The Government needs to front-end infrastructure investments to instigate private investments and attract foreign capital. To become a strong contender and provide an alternative supply chain possibility to the international companies, we need to provide workable infrastructure, besides ease of doing business.

Infrastructural investments will also help in creating employment opportunities for the migrant labourers and will help in propping up the economy. Globally, economies have grown by leveraging infrastructure sector spending. NHAI has been one of the strongest growth engines for India in the last 5-6 years. To realize our objective of becoming a US$ 5 trillion economy by 2025, India needs to spend about ₹20 trillion in the next couple of years on road projects. Though various studies peg the current infrastructure deficit rate at 1.5 – 2 times the above projected spent of ₹20 trillion, I am confident that once the Government pushes ahead and starts to seed these projects, the private and foreign capital will follow.

NHAI has recently decided to get majority of the projects executed under EPC contracts, which I feel is a step in the right direction, based on past experience. Also, in the current scenario, where the unemployment rate is rising, this will also help in finding jobs under MNREGA. In the last two months of this fiscal

Escorts Construction Equipment

Ajay Mandahr, CEO

Covid-19 has enhanced the role of connecting digitally the entire ecosystem of an equipment. We have already started to integrate and test a newly developed software and hardware and the results are exciting. Now, by using an app, customers can get all the after-sales services with the click of a button. We are further improvising and adding self-diagnostic and quick-fix procedures for our customers on this App. This will be over and above the machine performance monitoring and location tracking, which is available as a standard across our product range.
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These equipment are relatively inexpensive as preferred companions for any construction site. Excavators and vibratory compactors are versatile and low-cost equipment like pick-n-carry (PNC) cranes, backhoe loaders, mid-size excavators, and tractors. This shows the potential offered by this industry. The current rental penetration in India is around 650,000-700,000 units, with >50% being owned by service providers (both in organized and unorganized sectors). These machines need to be actively put to some economic value at the earliest. Covid-19 pandemic has created a novel challenge as regard the availability of operators and technicians due to their migration to their native places. A reverse exodus or an alternative solution would be possible only when the pandemic situation improves, and the current cloud of uncertainty goes away.

Construction companies are under a lot of pressure to trim capital outlay and this will surely benefit the Rental companies as most of the contracting companies would prefer to hire.

I will refrain for commenting on the short-term implications for the Rental Industry as the uncertainty of demand, liquidity availability, labour immigration etc., would remain a challenge in the immediate future. Having said that, during uncertain time, most of the contracting companies would prefer to hire. Construction companies are under a lot of pressure to trim capital outlay and this will surely benefit the Rental companies.

Given that the current rental penetration in India is low (at around 8 to 10%), as compared to the global standards of 50 to 80%, this shows the potential offered by this industry. The versatile and low-cost equipment like pick-n-carry (PNC) cranes, backhoe loaders, mid-size excavators and vibratory compactors are the preferred companions for any construction site. These equipment are relatively inexpensive as compared to specialized equipment, and hence, are an easy pick for smaller rental companies.

The increasing number of infrastructure development projects across India will drive the construction equipment rental industry growth. Contractors and construction companies are shifting their preferences toward equipment rental services to avoid the high initial purchase cost of construction machines. Furthermore, the efficient selection, transportation, and installation services offered by rental providers will propel the market size.

A confluence of OEMs, financial institutions and contractors will help all the stakeholders to sail through this rough weather.

Economic activities need to be kicked started at the earliest to mitigate the economical implication for the country and the resultant massive unemployment. I think that we have passed the first phase of "initial response" and are into the phase of "recovery". The Government is trying to stimulate demand and has already announced the stimulus package equivalent to 10% of our GDP, amounting to around US$ 300 billion. Given the government’s intent, we are confident that the demand side will be suitably addressed and gradually the infrastructure projects would gain the necessary velocity. This will surely help the industry to get rolling. Escorts is ready for meeting the demand that will rise and so are our partners in business.

India has the highest rate of adoption of digital technology.

Covid-19 and travel restriction have further enhanced the role of connecting digitally the entire ecosystem of an equipment. Now, by using an app, customers can get all the after-sales services with the click of a button. We are further improvising and adding self-diagnostic and quick-fix procedures for our customers on this App. This will be over and above the machine performance monitoring and location tracking, which is available as a standard across our product range.

All our machines are built with the best of technology and are at par with any other contemporary technology available in the respective product segments.

As we move to the new BS-IV emission norms, which are likely to be postponed to April 2021, the ECU would be mandatory, and this gives us the leverage for having a fully connected product. We have already started to integrate and test the newly developed software and hardware and the results are exciting.
The long-term outlook for the infrastructure sector is optimistic and a number of projects announced earlier are getting implemented.

The infrastructure industry has suffered majorly both in terms of reduced business and inordinate delays in project execution due to the lockdown and acute shortage of labour force. The lockdown may have helped India contain the outbreak, but it has put a lot of stress on the economy.

The issue now is of limiting the damage and making use of the new opportunities that may come our way. The Government of India announced a ₹1.7 lakh crore relief package in March followed by steps taken by the Reserve Bank of India to facilitate increased lending by the financial institutions. The stimulus package of ₹20 lakh crore may help take the Indian economy towards the recovery path and will also help the infrastructure industry to rebound.

The government is working on developing the infrastructure sector with numerous projects, and plans and schemes for increasing the country’s growth momentum towards becoming a $5 trillion economy.

A recent report by Kearney suggests that there will be an investment opportunity of US$ 575 billion (₹4.35 lakh crore) in the transport infrastructure sector in India in the next five years, driven by investments in flagship projects such as Sagarmala, Bharatmala, dedicated freight corridor, high speed rail, and metro rail, etc. Then there is the planned investment of ₹1 lakh crore in setting up 100 new airports by 2024 to connect smaller towns by adding 1,000 new routes. The ₹3.6 lakh crore announced for Jal Jeevan Mission to supply piped water to every rural household by 2024 is another large water infrastructure development scheme that will be put to implementation.

The Atal Bhujal Yojana with an allocation of ₹6000 crore for a five-year term was announced by the Hon’ble Prime Minister with the principal objective of strengthening the institutional framework for sustainable groundwater resource management in seven States, viz. Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan and Uttar Pradesh. Implementation of the scheme is expected to benefit nearly 8350 Gram Panchayats in 78 districts in these states. With the above schemes and initiatives such as Housing for All, Swachh Bharat Mission and Smart Cities Mission, the government is working on developing the infrastructure sector for increasing the growth momentum towards reaching a $5 trillion economy.

We expect that the highly technical material and services required for complex projects’ execution will cost higher than the pre-pandemic period, and companies also risk exceeding budgets for construction.

The restrictions on construction activities, halted production of materials, supply chain disruptions, migrating workforce and slowing down of other related activities has had a cascading effect on infrastructure development projects. The financial stability of many companies has been challenged beyond the current fiscal with substantial downgrade in earnings and imminent challenges in the working capital management.

Many construction companies in India are facing liquidity crunch with pending payments and mismatch in fund inflow and outflow. As the focus of the government has shifted to the welfare and safety of citizens in the wake of the pandemic, infrastructure investment has been deferred. The high level of migration of labourers to their native places has made the situation grim at construction sites and the working cost is bound to escalate. The input cost of raw materials may also see an impending increase due to short supply from abroad and closure of manufacturing for a long period in the country. We also expect that the highly technical material and services
required for complex projects execution will cost higher than the pre-pandemic period. Regardless of the contracting methodology, the companies risk exceeding budgets for construction.

We are monitoring the emerging business scenario due to the liquidity crunch and mismatch of cash flow and taking every possible step to mitigate the crisis.

We have started our project execution with utmost care after the lock down situation eased. There is more stress now on the safety and well-being of our employees with very strict protocol related to regular health check-ups, cleaning and disinfection of work places, maintaining proper distance between each employee, thermal checking and wearing face masks at all times.

In business terms, we are monitoring the supply chain to ensure availability of material at our project sites, getting the workforce back, monitoring the emerging business scenario due to liquidity crunch and mismatch cash flow and taking every possible step to mitigate the crisis.

The State governments have been asked to use the Building and Construction Workers Welfare Fund to provide relief to construction workers and relief under the Pradhan Mantri Kisan Yojana will be reaching over 87 million farmers for their sustenance during the period.

The government and RBI are working to combat the slowing GDP growth and help the construction sector as it forms the backbone of several other sectors. We are hopeful that the government will come out with more relief measures for distressed businesses including a long-term moratorium on debt repayments and redefinition of non-performing assets for giving an opportunity for distressed businesses across sectors. We also expect that the government and development agencies should increase the spending on infrastructure projects as soon as the situation becomes normal to reinvigorate the industry and regain the momentum of the economy.

Infrastructure issues need timely intervention and proper solution to move ahead from the declining curve.

In India, litigations are the main cause of delay in construction projects due to various reasons. Then there are other pain points that need attention and fast remedial actions. The major bottlenecks are delay in
land acquisition, litigation and arbitration, clearances from authorities, local agitation, execution delays by the contractor, poor project planning and monitoring, geological surprises, and inadequate funding and estimates. All these issues need timely intervention and proper solution to move ahead from the declining curve.

The pandemic has presented an opportunity for the infrastructure sector to transform with digitization and automation of project execution and with greater use of disruptive technology. We expect, that in the next three to five years there will be a good integration of digital technologies in the construction industry.

The construction industry is considered to be the least digitized in comparison with other industries but with this pandemic creating widespread disruptions; the world of construction too will undergo a transformation. It is estimated that within the next three to five years there will be a good integration of digital technologies including Internet of Things (IoT), Cloud Computing, BIM, Machine Learning, 3D Printing and Robotics in infrastructure development projects.

The construction equipment too will not only provide safety features, but also automation would now become an essential feature of the fleet. The next wave of digitization is coming through newer technologies, including general ledger technologies like block chain and smart artificial-intelligence (AI) that will revolutionize the construction industry and I believe that we are not far away from using these in our projects as, post the pandemic, there will be a greater desire for contact-less working with lesser human intervention. Drone technology would become necessary for remotely monitoring the projects’ progress.

A study by Ministry of Statistics and Programme Implementation suggest that out of 1,698 central infrastructure development projects worth ₹150 crore and above, 578 projects have reported delays, 400 projects reported cost overruns, and 202 projects reported both time and cost overruns with respect to their original project implementation schedules, while 374 are on schedule, as in November 2019.

It is a distressing situation that most of the large infrastructure development projects get delayed because of several reasons that sometime may also be attributed to lack of automation and technology. The government’s efforts in addressing project delays are becoming increasingly proactive and it should also make advanced technology and automation as an integral part of the projects that can deliver business benefits.

An efficient infrastructure is the biggest enabler for growth and India is set to become the fastest construction market in the world by 2030.

For any large project to be successfully accomplished, collaborative approaches are vital for achieving performance improvements. The construction industry is so specialised that no single firm can provide all the specialisms; in fact, several associated firms with fine expertise continue to work together to meet the industry’s varied and complex demands. A collaborative approach amongst project participants is an appropriate way to overcome problems and improve the overall performance. In this age of a complex and ever-changing business world with fierce competition, reduced profitability, financial constraints, and ever emerging issues, failing to collaborate means failing to survive.

A confluence of all vital players for a range of implements in any large project is necessary to increase business and profitability.

Halt in construction activities, invocation of bank guarantees, revocation of contracts, late payments, labour crunch, and severe working capital pressure are the nightmares for any infrastructure company. In such a scenario further influenced by the economic ambiguity, a good collaboration is indeed required for efficient business management and increasing productivity. Collaboration fuels development and can effectively eliminate the occurrence of several issues that hinders the infrastructure sector.

FY 2019-20 projects in hand & order book. SPML Infra Limited, a leading infrastructure development and management company, is providing drinking water facilities to over 50 million people in the country. Our 24x7 urban water supply projects in Delhi and in 6 cities of Karnataka are helping 1.5 million people with clean drinking water. With an order book of more than ₹4000 crore, the company is hopeful of getting new projects under the Jal Jeevan Mission and other water supply and irrigation projects. Our power division is executing 16 power substation projects in Tripura, which are being funded by the World Bank, apart from a number of projects under the Eastern Region Strengthening Scheme for augmenting substations to 400 kV capacity in 7 districts of West Bengal, Jharkhand and Odisha.

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Over the short term until August 2020, we expect the activity in the infrastructure sector, the road sector and also the equipment sector to be at a lower level and we expect things to start picking up from September onwards and for the situation to perhaps come back to normal could possibly be around the same time next year.

Every calamity pushes us to look at new ways, innovative ways, and at alternate ways of doing the same things. We shall be much stronger once we come out of the Covid crisis. Currently, for the CE industry, demand shortage and demand uncertainty is our biggest challenge. The second challenge is with regard to our supply chain - getting various components from within India and from abroad – on time, to meet the demand - as and when it picks up. The third challenge is trying to meet our customer expectations in terms of service and spare parts support due to the various restrictions imposed due to the pandemic.

The need of the hour is more long-term investments at low interest rates for infrastructure development.

NHAI and the government have taken a lot of initiatives to help the contractors. One of them is to release all the pending payments which will help the liquidity for the contractors as their revenues have come down dramatically in the last 2-3 months. There is a need to get more long term investments at low interest rates for the infrastructure like roads which will help this sector. We definitely need more investments to come from outside as well for the government to fulfil its ambitions plans that are in the pipeline for national infrastructure development.

Digitization and mechanization are the only way forward for a healthy and prosperous construction industry.

Over the past several years, MoRTH has been encouraging the use of new technologies and equipment to speed up the construction work and also to take care of the aggregate shortage. This trend will continue and definitely benefit the sector in terms of speedy constructions and quality jobs. Beginning next year and over the next 3-4, years there will be good work done in the road sector.
Mechanization is the only way to ensure that cost, time, and quality are optimized.

I have been a strong advocate of offline or mechanized construction for quite some time, primarily because that is how the world does it, and it is the only way to ensure that cost, time and quality are optimized. However, this approach is still at a very nascent stage in the real estate industry of India. Post lockdown, getting the labour force back will be a mammoth challenge, and could drive the industry (out of compulsion and not choice) towards the mechanized form of construction (be it precast or other mechanized techniques).

Starworth has invested heavily in design and build of precast buildings, and other forms of mechanized construction like fair finish or plaster-free concrete surface. The idea is to get maximum productivity at site, as productivity alone will be the main differentiator in the construction industry in times to come.

The paradox in Indian construction industry is that though it is massive (contributing to more than 5% of the GDP), is not organized or structured.

In my view, the long-term solution for us to have world class construction would be:

- Introduction of Health, Safety and Environment in engineering courses.
- Compulsory internship for engineering graduates.
- Continuous assessment (continuous professional development) of practicing engineers as mandatory.
- Bringing focus on industrial training institutes so as to get qualified carpenters, barbenders, tile masons, electricians etc.
- Mandatory use (complete or to a large extent) of offline or mechanized construction at sites.
- Establishing a competent authority BCA (like the Building Construction Authority of Singapore) which does dynamic ranking of players across the country.
- Every project, especially Government, should be time bound with minimum inconvenience to the public (it is painful to see the mess around construction sites).
- An integrated approach for infrastructure within cities should be given priority.

If we adopt these measures, we will be able to achieve world-class construction of housing, infrastructure, and other projects, earlier than at the current rate.
Unless a progressive, medium- and long-term integrated approach is taken for infrastructure development, the real estate industry will continue to struggle between cost of the project and affordability of the customer.

Unlike the developed countries where the development of the city happens after the infrastructure happens, in our country, the infrastructure happens after the city develops. A classic example is the Kuala Lumpur Airport which was built 30 year back, almost 70 kms away from the city centre. The first thing that the Malaysian government did was to build the necessary infrastructure between the airport and the city centre, and it subsequently promoted various housing schemes in that zone. Because of this, it was easy for the real estate players to develop a piece of land which was cheaper but had all the essentials for the affordable segment of buyers.

So, unless a progressive, medium- and long-term integrated approach of infrastructure (this includes roads, rails, water connectivity, electricity, sewage etc) is taken, the real estate industry will continue to struggle between the cost of the project and the affordability of the customer.

For successful project management, one should tie up with OEMs and use their vast knowledge and experience to our advantage.

Today, the construction industry is no more the domain of civil engineers. Rather, to complete a project successfully, a mix of civil engineering, mechanical engineering, instrumentation engineering, and computer science are required. Fortunately, we have many of the large construction equipment manufacturers of the world based in India. For a successful project management, it is important to tie up with these OEMs and use their vast knowledge and experience to our advantage. I have tied-up with companies like Vollert from Germany and found that a collaborative approach always helps.

Like all other industries, the real estate industry has also adopted digital technology, be it for project designing, planning, monitoring, marketing etc. However, this industry has a limitation for being virtual. But if productivity is going to be the key measure of success, then it is only possible by digitalizing to maximum extent.


We are currently engaged with some of the landmark projects in Bangalore like precast construction of a 2.2 million sqft residential project - Provident Parksquare – which is designed and is being built by us. We are also engaged in construction of metro stations and expansion of the Taj Hotel at Bangalore Airport. Currently, we have orders that are close to 7800 cr. Our focus is to provide health, safety, and the best environmental practices along with advanced global construction solutions.
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The big question today would be the ability of the Government to put in place the required resources and funding to ensure the revival and continuity of Infrastructure development.

Covid-19 is a once in a lifetime event and is causing unprecedented effects on the economy and livelihood of people across the globe. The month of April was more or less a complete wash-out for the Construction and the CE Industry and partial activity started only in the month of May.

There is going to be pain in the short-term for the Infrastructure as well as the CE Industry, as both of them are currently reeling under the ill effects caused by the lockdown: migrant workers being the prime constraint for the construction industry, and the temporary evaporation of demand for equipment being the most prominent one. This phase is expected to continue well into Q2 of this year and hopefully the second half of the year will be better, but I am sure that the situation will normalize around the same time next year.

Sorab Agarwal, Executive Director

Equipment funding is a very important aspect and the recent lockdown and subsequent moratoriums have created an array of problems for the NBFCs and the reason why the CE Industry at the current juncture is feeling a constraint. This needs to be addressed as soon as possible for the benefit of all associated with the infrastructure sector to ensure the desired availability of equipment at the project sites.

Infrastructure development has always been on top of the agenda for the Government, as it is perhaps one of the meaningful ways to churn the wheels of the economy. So, I am sure that the Government will continue to take all possible steps to ensure the health of the Infrastructure sector. But the big question today would be the ability of the Government to put in place the required resources and funding to ensure the revival and continuity of Infrastructure development.

Contractors, OEMs, Rental Companies and Financial Institutions will have to work hand-in-glove to ensure the viability and sustenance of each other’s businesses.

The demand scenario post Covid-19 lockdown has been bleak so far and is the biggest challenge being faced by the CE industry in the short term. The other two major challenges would be to ensure liquidity and viability of the ventures with 50% reduced business scenario. Contractors, OEMs, Rental Companies and Financial Institutions will have to work hand-in-glove and ensure the viability and health of each other’s businesses and their sustenance.

Equipment funding is a very important aspect and the recent lockdown and subsequent moratoriums have created an
array of problems for the NBFCs and the reason why the CE Industry at the current juncture is feeling a constraint. This needs to be addressed as soon as possible for the benefit of all associated with the infrastructure sector to ensure the desired availability of equipment at the project sites.

Our country is already using technologically advanced machinery for road construction, which is comparable to that of our global peers.

Going forward, further digital inclusions in the machines for mapping, controlling, and assisting in increasing productivity and reducing costs, will be the need of the hour, and we are working on the same at ACE.

Over the years, a lot of high-end and critical components have been indigenized and this is a continuous process, which primarily depends on the consumption patterns of such components and aggregates within the country. Most of the leading global component manufacturers have set up shop in India and we really do not foresee much of the demand supply gap over the next few years.
The focus should be on bringing ongoing projects back on track to meet the urgent needs of the nation’s infrastructure, which would also boost economic growth and generate mass employment.

In the short term, due to the pandemic-related lockdown, the focus should be on bringing ongoing projects quickly back on track. The government has already extended a helping hand to contractors and other stakeholders in the infrastructure sector in an attempt to offset to a large extent losses that the firms have incurred as a result of their inability beyond their control to progress with ongoing works.

All stakeholders would also have to work together to identify solutions for the labor shortage resulting from the movement of labor back to their homes across the country. In the medium and long term, the government would need to urgently infuse funds into the infrastructure sector to get much-needed projects off the ground. Apart from serving the urgent needs of the nation’s infrastructure, such steps would boost economic growth and generate mass employment.

Relief to contractors and other stakeholders would need to be expedited for the management of cash flow before a crippling situation is reached.

In the short term, contractors and other stakeholders would need much-needed relief in accordance with contractual Force Majeure provisions to overcome the loss of revenue while incurring costs during the lockdown period. Such relief would need to be expedited for the management of cash flow of the contractors and other stakeholders before a crippling situation is reached. It is important for ongoing projects to resume as quickly as possible, for which the vast majority of firms would need a helping hand, all in accordance with respective contracts. In addition, issues with the availability of labor at pre-lockdown levels would need to be urgently addressed.

New infrastructure projects could potentially be delayed to some extent depending on the availability of funds since health and social programs would also need undivided attention during and in the immediate aftermath of the COVID-19 pandemic.

The lockdown and 100% WFH drove us to identify ways in which we would be better structured and organized. We used technology solutions to the fullest, and devised ways and means through which we actually boosted daily communication between teams through video conferencing tools.

As a consultant, the most lasting impact of the lockdown is likely to be from the experiences since 23 March 2020 of ‘Working from Home’ to the 100% extent for our head and design offices. Our experience in this regard has been largely positive. We used technology solutions to the fullest, and devised ways and means through which we actually boosted daily communication between teams through video conferencing tools. The lockdown and 100% WFH drove a need for us to identify ways in which we would be better structured and organized. WFH also cut out the largely unproductive,
long and exhausting daily commuting in metro areas for a large segment of our staff. More productive hours were therefore available in a typical day. This, of course, depends on high professional ethics and integrity of individuals. Staff were also able to spend quality time at home with families and loved ones. In an overall sense, therefore, there are productivity gains on the work front as well as on the “happiness index”.

Post-lockdown, we intend to retain a WFH element perhaps to the extent of 30-40% for our head and design offices. We hope that clients would also require less travelling on the part of consultant staff, adopting a suitable mix of physical attendance at meetings and video conferencing. Technology solutions are poised for rapid advancements since ours is not the only company thinking along these lines. Finally, this approach on the part of consultants as well as clients would be beneficial for the environment. We have all seen how quickly the air in metro areas turned clean, with low pollution levels not experienced in recent memory.

The government should look at critical areas to speed up infrastructure construction and bring accountability, and strengthen project execution to stop cost overruns, delay in completion, and avoid arbitration. The simple steps outlined below will greatly reduce project disputes, bring greater accountability, and streamline project delivery to a large extent.

First and foremost, contractors and consultants must bid sensibly on projects. All too often the bidding process reveals relatively inexperienced firms resorting to price undercutting just to gain entry to the market. Tender criteria must be strengthened to prevent this. This inevitably leads to project delays due to inefficiencies and inadequate resource deployment, both in terms of numbers as well as quality, and cost overruns.

Next, streamlining of the payment stream to ensure timely payments in accordance with contractual provisions to contractors and consultants would greatly help firms in deploying required resources to the fullest for the completion of projects. Payment delays and the resultant cash-flow issues are an unnecessary and highly avoidable distraction that takes away from the focus being on the actual delivery of the project to the required timeline.

Third, payment terms in tender documents, especially for consultants, are almost always set up to ensure negative cash-flow for the consultant. There should be a radical departure from this approach. If a consultant’s cash flow is break-even or position, chances are very high that this would be reflected in smooth delivery.

Finally, as far as project completion delays are concerned, contractors must provide at the commencement of every project workable and detailed project schedules as per contractual requirements, and must adhere to the same. Contractors must inculcate the approach of working in a transparent manner in the best interest of the project and the nation. At the same time, consultants and clients must evaluate variations for additional or non-contractual work in a fair and unbiased manner in accordance with the contract.

New disruptive technologies using artificial intelligence and the IoT will be rapidly developed over the coming months.

We feel that new disruptive technologies using artificial intelligence and the IoT towards facilitating even more effective WFH and video-conference meetings will be rapidly developed over the coming months. In addition, we expect robotics to take the next quantum leap. The world just cannot afford to be caught off-guard again by any other reason for a lockdown. Any next lockdown should entail a much lesser negative impact on the economy. Such disruptive technologies will help companies continue to operate in any lockdown.

However, the social impact of such technologies needs to be carefully assessed especially in a highly-populated country like India where the bulk of the workforce is between the ages of 20 and 50. Newer technologies should be adopted in an inclusive manner.

We are working on several road and metro rail projects in Mumbai. Our objective is to ensure a higher quality of life for the residents of Mumbai and enhance their commuting experience.

We are presently working on the design of the upgrading of the 27-km stretch of the Western Express Highway in Mumbai from Mahim to Dahisar. The WEH is one of the busiest and most congested roadway corridors in Mumbai, serving the western suburbs. Our challenge is to develop solutions that would not only meet traffic needs but also provide efficient access to the various suburbs. In addition, the urban character and streetscape of the corridor needs to be restored to improve the quality of life for pedestrians and commuters alike.

Our work on this project is in conjunction with our work on the Versova Bandra Sea Link project, which is an extension of the existing Bandra Worli Sea Link. We have also conceptualized the extension of the VBLS towards Virar along the coastline. To the south of the BWSL, we are working on the Mumbai Coastal Road that will connect to the BWSL.

We are also working on several metro rail projects in Mumbai. We are driven by the objective of greatly enhancing and streamlining the commuting experience for the much harried Mumbaikar, while also ensuring a much higher quality of life for the residents of Mumbai.
The construction sector may take some time to recover but when it does, it will have a positive impact on equipment demand as well.

COVID-19 has been an unprecedented occurrence and has affected businesses worldwide. The government is trying its best to contain the situation and we’re hopeful the next quarter will be better. As short-term measures, the government has allowed resumption of construction and manufacturing activities on priority basis and immediate payment release from PSUs. It also announced an economic stimulus related to the construction sector, which will hopefully start helping in easy clearances and fast completion of projects. As long-term measures, the government has announced strategies to revive the CE sector, such as focussing on doubling the construction projects which will add to more demand generation. Recently, NHAI announced the removal of land acquisition hurdles which will speed up the project completion rate. The MSME scheme announcement is another scheme which will enable vendors to return to strong business and strengthen India’s manufacturing sector. The construction sector may take some time to recover but we’re hoping it will have a positive impact on equipment demand as well.

The government is trying its best to secure the lives of the people and at the same time maintain the stability in the market. The announcements made by the government have reassured that the infrastructure sector will reinvigorate soon. What impact these announcements will have on the recovery remains to be seen, but we’re confident that the government will continue to take corrective measures to bolster the market situation and the economy.

Our financial arm CNH Capital is making enough capital available for customers who wish to make purchases and has also come up with a 48-hour loan approval policy.

To effectively tackle this situation, companies also need to step up and address the concerns of the market and the customers. To revive the industry, they need to create quick and effective solutions which give customers the confidence to invest in such products and services. At CASE, our financial arm, CNH Capital is making sure there’s enough capital available for customers who wish to make purchases. To provide faster solutions to our customers we have come up with a 48-hour loan approval policy. We’re hoping that any liquidity crunch is alleviated through these efforts.

Puneet Vidyarthi, Brand Leader

The announcements made by government have reassured that the infrastructure sector will reinvigorate soon, and we’re confident that the government will continue to take corrective measures to bolster the market situation and the economy.
These uncertain times call for harmony and collaboration between contractors, OEMs, rental companies and financial institutions. A confluence of this kind is likely to lead us towards an ideal business scenario which benefits all stakeholders, hence, all of us should strive to work towards this.

Since this pandemic has affected all commercial activities, it is imperative that for a faster and more efficient recovery, all parts of the machine come together and work towards building the future. At CASE, we have identified the benefits of such a collaboration and have acted on it. Our financial arm, CNH Capital, works hand in hand with our AG and CE businesses. We also have a strong network of dealers who work in real time with contractors and OEMs. Currently, we’re also exploring the rental market with a few of our machines and are doing our best to ensure the revival of the market.

The Government’s keenness in promoting the use of advanced technology augurs well for the sector.

The entire market is currently in a lull; however, we hope to see it recover soon with the government’s initiatives. A report by NIP suggests that the new and upgrading infrastructure projects with ₹111 tn of investment will be key to raising India’s competitiveness and making it a ₹5 tn economy by 2025. Hence, the opportunities are on the way and CASE India is ready to make the most of them in the upcoming period.

The Government’s keenness in promoting the use of advanced technology augurs well for the sector. CASE has always been a technology first brand. We are firm believers in adopting technology that enables us to work better – our machines are prime examples of this. Whether it is the revolutionary FPT engine or the state-of-the-art Telematics system – we like leading from the front and will continue to do so.

The government has also announced measures to facilitate hassle-free business set up in the country. As per the industry reports, some industrial parks and additional geographical areas are also being earmarked for the purpose. This situation will lead to better R&D, infrastructure, logistics, delivery etc. and subsequently a more robust product line in the country.

CASE is producing world-class construction equipment in India, plus, most of our machines feature our own engines, so we’re able to fulfil requirements for parts and critical components more accurately and timely.

In the wake of a pandemic which has sealed all borders between countries and people, it has become important to be self-sufficient and reliant in order to survive and thrive further. The government has also re-emphasised focus on the ‘Make in India’ movement which carries the same sentiment. Additionally, many countries have expressed interest in relocating their manufacturing plants to India. If planned well, this could prove to be a defining moment for India and for the construction equipment sector which is highly dependent on import of critical components.

At CASE, we have a manufacturing plant in Pithampur, Pune, and in Noida where we’ve been locally producing our world-class construction equipment range; this brings us a distinct advantage. Since most of our machines feature our own engines such as the revolutionary FPT engine, we’re able to project and fulfil our requirements for parts and critical components more accurately and timely, thus ensuring no gaps in the supply of the same.
Bitumen Storage Tank (Indirect Fired)

- Hot oil is circulated through heating coils of indirect-fired bitumen storage tanks for the melting of bitumen.
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Bitumen Storage Tank With Direct & Indirect Arrangement

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- Standard Width of Bar- 2.4 mtr. (11 nozzles) with extension of 1.8 mtr (8 nozzles).

Cement/Lime Spreader Machine

- Material Compatible- Cement/ Lime.
There will be high demand for reputed developers with minimal execution risk, even if the property is relatively higher priced.

Real estate sales in India were improving in the first quarter of 2020 until the social distancing advisories by the government came into effect, which reduced site visits. Due to the subsequent lockdown, home buyers deferred their decisions until there was more clarity regarding the government response and the overall market outlook. Likewise, developers are likely to defer new launches previously planned until the latter part of the year to coincide with the festive season. The priority right now will be to sell ready-to-occupy inventory. Now that the situation is under control, the market is expected to regain its previous momentum. Although there will be a temporary slowdown in sales, it is unlikely to affect overall real estate prices.

Real estate is viewed as a safe investment; the emergence of an economic crisis only reinforces this sentiment. Owning property elicits a high sense of security when there is uncertainty and turmoil in the financial market. Furthermore, home buyers will largely favour risk-free property investments during this time. There will be high demand for reputed developers with minimal execution risk, even if the property is relatively higher priced. Home buyers will carefully consider the quality of the developer, project, neighbourhood, environment, and amenities.

Disruption in the supply-chain of raw materials may force developers to source from alternate markets, which will impact their price and increase construction costs.

As we emerge from the lockdown, prices are expected to continue their upward trajectory. More support will be required to ensure the health and welfare of workers. Construction costs will increase due to the additional labour maintenance costs, as well as the paucity of workers resulting from the lockdown.

Construction costs will increase as allied sectors such as cement, sand, and steel rely on importing raw materials which may see restrictions. This will cause the supply of building materials to decrease and accordingly their price will rise. A significant disruption in the supply-chain of raw materials may force developers to source from alternate markets, which will impact their price and increase construction costs. The decreasing value of the rupee against the dollar results in inflated prices for raw materials, which also increases costs.

The economic relief measures announced by the government will allow real estate developers to recalibrate their business strategies and focus on high-priority operations without additional financial burden.

The economic relief measures announced by the government are extremely positive for the real estate sector at large. The near-term effects of the lockdown will be offset by these relief measures which look to bolster liquidity, facilitate credit flow and ease the pressure of timelines. This will allow real estate developers to recalibrate their business strategies and focus on high-priority operations without additional financial burden.

The provision to invoke force majeure for the COVID-19 period will relax the timelines for project delivery while maintaining RERA compliance. New project registration certificates can be issued and, registration and completion date can be extended for up to six months for newly registered projects without individual applications. This will help ease the anxiety of both developers and consumers and ensure the completion of projects. The announcement of a special liquidity scheme of up to Rs 30000 crore for NBFCs, housing financiers and microfinanciers, which will be fully
guaranteed by the Government, will ensure the much-needed liquidity in the real estate sector. Overall, these moves will help ease the near-term financial burden for the sector and keep prices on their upward trajectory.

The fiscal, monetary and administrative measures will create conditions that will enable a gradual economic revival as we ease out of the lockdown.

The positive initiatives announced by the government, including relief funds, loan moratorium and repo rate cuts, must be implemented immediately. The repo rate cuts are a positive move, but the transmission of these rate cuts must be implemented with immediate effect to effectively bolster the economy. Swift implementation of the relief measures will boost confidence and revive demand.

Moving forward, real estate developers will have to create a contingency plan to ensure employee health and safety monitoring, crisis management training, how to maintain operations with significant absenteeism, remote working infrastructure and capabilities, and travel restrictions.

The extension of the moratorium on term loan repayments for another three months will be especially helpful for those who have home loans as the uncertainty of the lockdown may affect income. The accommodative policy stance taken by the central bank will boost market sentiment and lend confidence to the financial system, while maintaining liquidity as the economy recovers. The measures outline plans to improve functioning of markets, increase investments by FPIs by voluntary retention route, support exports and imports, and allow extension of measures to ease financial stress.

The real estate sector will have to bring efficiency into its operations and undergo a digital transformation in order to ensure a complete revival. In fact, digitization and mechanization is the only way for a prosperous construction sector.

Staying connected with potential customers and maintaining a sales pipeline without the benefit of face-to-face interactions or site visits is a tremendous challenge. Having a robust IT infrastructure will allow developers to create virtual workspaces for teams to minimise interaction and meetings. For most activities, including administration, procurement, marketing, training and recruitment, work can continue digitally without significant interruption.
Teams can communicate via online chat, email, tele- and video conferencing.

Today, digital media is the most cost-effective and personalized marketing channel. We regularly conduct online behavioural experiments to understand the consumers' unique mindset and accordingly adopting the most suitable communication strategy. Each user is provided with a customized web experience based on personalized mapping. This is followed by the integration of automation tools for lead nurturing through emails, social media and online advertisements. This results in a more immersive and personalized online experience.

Big data plays a major role in our planning and design of digital marketing initiatives. The company website is a comprehensive platform for its multiple projects in different cities and locations. The website provides users with a wide range of choices, in a mobile-first approach, by providing each user with a personalized web experience.

We utilise virtual 3D walk-throughs of our projects for an immersive experience, and use photos and videos to show the status of each project so that buyers have an updated view on the progress.

With the benefits of tapping into a geographically diverse talent pool, developers will increasingly explore how to make remote working part of their company’s culture. The sector will have to introduce technology-based systems such as e-learning into their training and development programmes. This means incorporating personalised micro-learning, gamification, virtual reality, and augmented reality for corporate learning.

Mivan technology offers higher construction efficiency, close to zero wastage, and a massive reduction in the skilled resources required.

Aparna Constructions’ implementation of Mivan technology in construction offers significant advantages of quality and speed. Aparna is one of the first developers to use this technology in Telangana. Mivan technology is an aluminium wall formwork that is an excellent replacement to the conventional construction technology. It has been used in two of our projects in Hyderabad: Aparna Serene Park at Kondapur and Aparna Sarovar Zenith at Nallagandla, which is one of Telangana’s and Andhra Pradesh’s largest residential projects. The speed and efficiency of Mivan technology ensures that the surrounding natural area and shrubbery is not disturbed during construction.

As Aparna Constructions enters the affordable housing segment, Mivan technology will be put to its strongest test. Mivan technology offers higher efficiency, close to zero wastage and a massive reduction in the skilled resources required for constructing the shell and core of the building, thereby substantially bringing down the overall cost of the project.


Aparna Constructions has completed 41 projects comprising fully integrated gated communities of villas, apartments and commercial buildings. These projects cover 23 million sq.ft. with an additional 15 million sq.ft. currently under development. The company has also ventured into affordable housing, which was given a major boost with the granting of infrastructure status and is the most incentivised segment for both developers and buyers. We are also preparing to enter commercial realty including retail and warehousing. We will be developing around 5 million sft of commercial assets and 10 boutique malls across Telangana and Andhra Pradesh, and have received approvals for setting up a 3-lakh-sft mall at Nallagandla in Hyderabad.
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The long-term market growth for infrastructure and construction equipment sector is positive, but the short-term does not look very promising with the GDP expected to go southwards.

The long-term market growth for infrastructure as well as for equipment sector is positive as the Government is committed to improving the road infrastructure in the country – expressways, highways, state roads, village roads etc. The short-term however does not look very promising with GDP growth expected to go southwards and the Government in need of huge funds for providing relief to the underprivileged and MSMEs. To top it all, with the lukewarm response to BOT projects, it is not clear as to how much of fund the Government will be able to allocate to the road sector to award projects under EPC, this fiscal. I think that the equipment sector will see a drop in sales volumes in FY 20-21, but time alone will tell by what percentage.

That the Government has infused the much-needed liquidity and positivity in the system is itself a moot point with a high percentage of economic experts not really satisfied with the measures. As regards the road sector, there has been no announcement yet for a special package for this sector. Right now, the industry is in a wait and watch mode.

Ammann is working very earnestly to mitigate the financing problems of its valued customers; however, the revival/new awards of projects are entirely in the hands of the Government.

The challenges for the CE industry are the same as that being faced by the engineering and automobile companies. These include lower demand; increase in input and production costs that cannot be passed on to the customers at this time - leading to reduced bottom-lines; supply chain issues;
higher cost of aftermarket services; and hurdles for customers in getting loans for capital purchases.

Initiatives have been taken by all the concerned parties for equipment finance and deliveries. Ammann is working very earnestly on this front to mitigate the financing problems of our valued customers. However, the revival / new awards of the projects are entirely in the hands of the Government.

**Going forward, I am confident that the demand vs supply equation will balance out well with India-made components for the CE industry.**

Necessity is the mother of invention and the Indian expertise in engineering is no less than that available in developed countries. The Honorable Prime Minister of India has strongly reiterated the need to develop things locally. The process has already started and since most of such suppliers will come under the MSME segment, there will be adequate support from the Government as well. Going forward, I am confident that demand vs supply equation will be balanced well with India-made components for the CE industry.

Regarding the planned investments of MoRTH, I feel that we should allow time to the Government to revisit the action plan as the world in general and our country, in particular, are facing a pandemic challenge of gargantuan proportions.
We may witness further consolidation of the market and only resilient developers will be able thrive in such an environment.

The pandemic has slowed down the entire economy of the world. Likewise, the real estate industry too has been impacted by the lockdown, which has disrupted the realty ecosystem. In the short term, things are yet to pick up pace and return to normal; there are some delays in the procurement of raw materials and the industry will take some time to get back on track to its projected growth rate. Until then, we will have to focus on restarting operations in a phase-wise manner to ensure the safety and well-being of the labour force and employees, who play an integral part in operations. Developers will have to innovate their strategies to grab the attention of the home buyers.

In the future however, we may witness further consolidation of the market and only resilient developers will be able thrive in such an environment. It will be imperative to introduce several interventions in terms of designs and operations in order to ensure the safety of the homebuyers.

The Government has been supportive of the real estate sector by announcing a 6-month extension in RERA deadlines, while the RBI has also taken measures to improve the liquidity by reducing the REPO rate by 40 basis points.

While the Government and RBI have taken quick decisions to infuse liquidity, few more concerns need to be addressed. For example, the RBI announced a reduction in the REPO rate for banks. However, several banks are yet to pass this benefit to people applying for loans. Despite the move being beneficial and much needed, the trickle-down effect is yet to be seen in home and personal loans availed by people.

The government has announced a ₹30,000 crore infusion for NBFCs and HFCs, which account for more than half of the lending that happens in the real estate sector. This move will encourage these financial institutions to lend more to people, which will benefit the sales in the sector.

The government should enable the PPP model (Public-Private Partnership) to further improve the infrastructure of the
country. This will ease the burden on the government while also enabling employment across the country. Another important recommendation to the government would be to consider a single clearance window for projects, this would help projects start and finish on time without having to wait for multiple clearance. This would also help developers to maintain their cash-flow in distressed times such as this.

In the long run, the focus will be on rethinking the design of the home to make it even more of a sanctuary than it already is.

Builders will have to devise strategies to overcome all the issues in order to maintain the timelines of their projects. We at Puravankara have been monitoring the situation as it progressed. During the lockdown, we focused on strategizing and reinvigorating our operations post the lockdown. We also took immediate steps to ensure safety of all our workers at the labour camp. We initiated sanitization, provision of daily essentials and nutritious meals, and arranged yoga camps for the well-being of our workers.

In the long run, the focus will be on rethinking the design of the home to make them self-sufficient to deal with similar situations; for example, the inclusion of quarantine zones in a project, meeting rooms in clubhouses, workstations, additional leisure or entertainment amenities such as mini-theatre or a play station, no-touch infrastructure etc.

The lockdown has pushed the real estate industry to becoming more reliant on technology, and this will soon be the new normal in the industry.

Puravankara Limited is pioneering into technologies that have not just revolutionized construction practices but have also modernised the way people live at homes, through technologies such as BluNex and Pre-Cast, to name a few. The group created an end-to-end booking platform called ‘BookMyHome’ for its premium affordable arm Provident Housing. The platform is aimed at attracting homebuyers who can search, access and book projects, with the click of few buttons. This has especially helped during the lockdown. We also scaled up our chat services and have observed an increased traction in online queries from new customers.

We are also the first realtors to e-launch two of our projects virtually. The build-up to the launch was where we unveiled one key feature of the project each day and received enquiries from over 20,000 potential customers. This is a good sign and will soon be the new normal in the industry.

Pre-Cast construction would be a solution for faster project completion and the best option for constructing affordable homes.

The amalgamation of real estate and technology has paid off every time. Without the support of advanced equipment, it is very difficult to enforce precision and efficiency. It will be a necessity for builders and developers to further rely on these tools and the support of OEMs to make up for the time lost during the lockdown. It will take a while before the industry can function at full capacity. In order to maintain the productivity, the use of technology will be imperative.

Technologies such as drone-mapping can enable quick geographical surveys with high precision. Likewise, Pre-Cast construction would be a solution for faster project completion and is the best solution for affordable homes.

FY2019-20 projects in hand & order book

Our launch pipeline across both our brands Puravankara and Provident Housing remain on track, as announced on December 2019 (Q3 FY 20). As per the scheduled timeline we launched two of our projects on 6th June - Purva Atmosphere and Provident Woodfield. In the past few months, we saw a steady rise in customer sentiment with home as their safe investment option. We believe this latent demand will grow further in the coming times; and we should see an upward tick as the year progresses.
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The construction sector in India is very important as it contributes to around 60% of the total investments, and it will come back strongly to support the economy’s revival.

This is an exceptional year and the pandemic has impacted projects worldwide. With the easing of the lockdown, we look forward to infrastructure and mining projects getting kick started, thereby giving us continued opportunities to touch lives and improve infrastructure needs of the people in India. We expect a staggered growth in the short-term but stability and greater demand in the long-term as the relief packages to boost the economy get implemented.

Once the projects resume their construction, it will be important to navigate the recovery phase well. The project implementation cost may go up and could experience a likely delay of a few months. Priority should be given to the clearance of pending projects and completion of projects nearing completion, which could act as a quick win for reviving the economy. Our Power Connect mobile app supports customers online with the help of parts manuals and step-by-step assistance over the computer or phone.

We have taken the necessary steps to ensure social distancing and hygiene norms in our production facilities in Chakan and Dapodi located in Pune. We maintain the highest norms for employee care while ensuring that our equipment meets the quality and performance parameters, which our customers have come to know and expect. Besides this, our service team follows the strict predefined SOPs for on-site visits, which are necessary to ensure our portable air compressors and light towers are always up and running. Collaboration is going to be important for a faster recovery for all sectors. Take for example, the waterwell compressor segment. The rig owners’ association in Tiruchengode is going to play a key role in restarting drilling operations and we stay connected and understand their concerns while shaping up our portfolio for their

Atlas Copco (India)

Tony Van Herbruggen, GM - Power Technique

Atlas Copco’s will continue with its core focus on superior portable air compressor and light tower quality and providing world-class service to its customers to ensure the value addition which is necessary in the current tough demand-supply situation due to the current Covid-19 pandemic impact. We also believe and support the #VocalForLocal initiative of the Indian government.
upcoming needs. Our close coordination with engine manufacturers and key component suppliers is also what we focus on to ensure them of our support. We also manage service requests remotely wherever possible with our Power Connect mobile app designed to support customers online with the help of parts manuals and step-by-step assistance over the computer or phone.

India is a growing economy, and looking at the overall infrastructure requirements coming up, we expect this healthy trend to continue in the coming years as well. The Indian market will continue to focus on infrastructure projects by offering products that meet customer’s needs and ensures them long-term benefits. The construction and infrastructure segment requires more innovation in all areas of core infrastructure such as roads, metro rail, expressway, airports and expansions of existing highways. At Atlas Copco, we have products to match this requirement. We offer a range of portable air compressors for quarrying applications. Portable air compressors are required in the irrigation segment to provide water for drinking needs where our advanced waterwell compressors are successfully deployed in large irrigation projects.

With time-bound projects and the need for 24x7 action to ensure on-time completion, technology that ensures reliable light on site, will bring the required support for meeting the infrastructure project deadlines.

Undoubtedly, the road segment is where the power equipment such as portable air compressors and light towers are most in demand. We are continuously innovating to match our compressor offerings to customer needs. We have launched the next-gen portable air compressors with PACE breakthrough technology in the shallow water well drilling and mining segment. We also undertake many field trials and invest more than a year of R&D before launching any new products. A customer always sees the value he will get from the product he is buying. Therefore, other than launching new products, technology advancements are always in our pipeline.

As leaders in innovation we will keep investing in R&D and continue our focus on localization and developing new technology. We look forward to the Indian government further fueling the pace of the #VocalForLocal so that we too can be a major contributor to the Make in India vision.

Having had a successful run India for the last 60 years, as market leaders, we have already introduced many firsts in the country in terms of portable air compressed technology, flow and pressure combinations and products to suit the local application needs. Most of our components are already localized to ensure faster turnaround on production. Most importantly, we are equipped with a greenfield state of the art factory with the latest manufacturing technology, which is ensuring a higher manufacturing capacity. The Chakan plant is 19000 sqm and is built in accordance with LEED (Leadership in Environmental Energy and Design) - based on IGBC rating system.

Our portable air compressors play a pivotal role in quarrying and mining applications. The quarrying application specifically, is a segment of paramount importance, looking at the amount of stone required for infrastructure projects. Similarly, extraction of minerals such as iron ore, manganese etc with reliable portable air compressors that have the lowest possible energy consumption, is an important application under metal mining.

Our main goal is that we should be able to serve the market demand and need for the latest innovations in technology and on-time deliveries on site.
Digital launches will boost the developers’ confidence and help revive the Real Estate sector on the back of lower home loan rates and reduction in stamp duty.

The struggling Real Estate sector and the home buyers trapped in Covid–19 worries, have been relieved a bit with the measures being taken by the government. The impact will be a temporary one as the situation is bound to recover sooner or later. The government advisory to avoid social activities is certainly going to impact site visits and housing sales.

Vijay Khetan Group has initiated a digital launch for their upcoming project Codename Amazon in Andheri East. Such digital launches will boost the developers’ confidence and help revive the Real Estate sector on the back of lower home loan rates and reduction in stamp duty.

The problem of a shrinking economy can only be solved by lowering the EMI rates, giving enough time to repay loans, and more credit loans.

Now that government has allowed the functions of construction activities, it is now necessary to first focus on under-construction projects. Proper health and hygiene will always remain a priority of labourers who are working at the sites. We are conducting medical check-ups to ensure their proper health and have provided labour camps and resources for their daily food and other necessities.

With the economy majorly falling, the government needs to address the problem of liquidity crunch faced by everyone. The problem of a shrinking economy can only be solved by lowering the EMI rates, giving enough time to repay loans, and more credit loans.

The focus of developers and the industry at large needs to be on project completion and timely delivery.

For the speedy recovery of the sector, which was already affected due to pandemic, we expect the government to implement a Real...
Estate stress fund. A policy to clear unsold inventory first and the most important better clarity on GST. There is great confusion among the taxpayers, as they are clueless about how much they are obliged to pay on purchase of homes. When there is better clarity, buyers will certainly leave the fence and come back to the market.

The industry aspires to see a win-win situation for the developers and homebuyers. With GST, stamp duty, income tax, and capital gains tax already a burden on homebuyers; an income tax rebate could be provided for new home buyers. A temporary suspension of GST or introduction of 1 per cent GST for under-construction properties would help reduce the transaction cost for the homebuyers and would boost the much-needed demand in the market. The focus of developers and the industry at large needs to be on project completion and timely delivery.

A digital revolution will play a big role in delivering services to the people in India.

Given that the Real Estate sector contributes significantly to India’s economic growth, it is important to broadly analyse on how the outbreak will influence this sector, but it's still premature to assess the current impact.

A digital revolution will play a big role in delivering services to the people in India that aims to achieve seamless delivery of services through digital governance. Consumers will prefer seeing properties online through virtual tours and may not visit the site physically. The industry is taking all possible measures to mitigate the impact of the pandemic on their businesses by ensuring favourable pricing, moderating sales targets, etc, and we hope for the continued support from the Government.

The adoption of various revolutionary construction technology is a vital step towards making budget housing available within market-viable timelines.

Use of technologically advanced construction equipment and support of OEMs will help the Real Estate players to make up lost time and complete projects on time. This will help in bringing India a step closer to meet its massive shortfall of affordable housing. Construction technology is constantly evolving, allowing for faster completion than in previous years.

Adoption of technologies such as aluminium formwork are major steps in this direction. This is a versatile construction technology that involves recyclable and reusable materials and results in durable and highly sustainable buildings. By using the aluminium formwork, we are getting accurate dimensions and sizes as per the plans, which enhance the quality of work. Such modern formwork technologies reduce the construction cycle time as compared to conventional formwork systems. Such technologies are being increasingly used by most of the reputed developers in our country.
The government is keen to revive construction activities with the necessary safety precautions, and we expect the public infrastructure projects to start picking up speed in the weeks to come. The construction sector is a crucial economic driver of the country; it is also the second-largest provider of livelihoods in India, after agriculture. The government is keen to revive construction activities with the necessary safety precautions, and we expect the public infrastructure projects to start picking up speed in the weeks to come. However, private sector construction, both in commercial and residential spaces, is likely to remain subdued for at least one or two quarters.

The economic impact of this prolonged lockdown will be enormous; figures coming from various industries and sectors are beginning to show how badly businesses across the sectors have suffered already. Many large industries; including manufacturing, aviation, travel and hospitality, and, of course, construction saw zero output or economic activity during the lockdown period. The near-complete shutdown of all economic activity not only meant that the economy further slowed down, and fuelled talk of an impending recession, it also meant that the recovery of Indian economy would be forecasted to be slow and prolonged.

Digital workflows will unlock hidden efficiencies and boost productivity, which, in turn, will help the construction industry cut costs, meet project deadlines, and safeguard their profitability.

Even when the lockdown will be lifted completely, the social distancing norms will still apply, till we have eradicated the virus altogether. All onsite construction activity is labour-intensive, and this factor alone means that the construction industry will probably take longer to recover, since lesser people on site will slow the pace of construction. But the industry is looking for various ways to mitigate its business risks and ensure a quicker recovery, besides future-proofing its operations. This implies drastic changes...
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in its processes and practices, but most industry stakeholders are coming around to the view that Covid-19 pandemic will fast-track the digital transformation of the construction industry’s ecosystem; which has otherwise remained remarkably aloof to using the technology until now, and speed up industry’s revival.

Challenges are nothing but opportunities in disguise. The adoption of modern construction tools and techniques will be necessary to safeguard the health and provide workplace safety in the industry, while helping the workers meet social distancing requirements. These tools will be critical for teams working remotely too. Above all, digital workflows will unlock hidden efficiencies and boost productivity, which, in turn, will help the construction industry cut costs, meet project deadlines, and safeguard their profitability.

Trimble technologies are designed to make the process of construction quicker, safer and cost-efficient as use of technology enhances productivity and delivers a rapid return on investment through better utilization of materials, assets and workers.

The post-pandemic era is likely to be defined by a significant digital transformation in every sector, including the construction sector. What the construction industry needs to do is to embrace relevant technologies and tools throughout the ‘construction continuum’. Trimble technologies are designed to help optimize the complete Design-Build-Operate (DBO) lifecycle of buildings.

Tekla Structures is the flagship product of Trimble Solutions India and also the most modern 3D BIM software in the market. It makes accurate, constructible modelling of any structure, regardless of its size or material. Tekla Structures is supported by Tekla Structural Designer, which gives engineers the power to analyze and design buildings efficiently and profitability. Tekla Tedds is a powerful software solution that automates repetitive structural calculations.

Vico Office and Trimble Connect complement Tekla Structures in the continuum. Vico Office is designed for contractors and construction planners; it enables constructability analysis and coordination, quantity take-off, 4D location-based scheduling and production control, and 5D estimating. This class-leading solution is of enormous value, and leading contractors in India are already adopting it in their work processes.

Trimble Connect, a powerful cloud-based collaboration platform empowers teams involved in the design, construction and operation of buildings to come together under one umbrella. It creates communities of collaboration across and within disciplines, integrating data not only from its wide varieties of applications and devices, but also non-Trimble apps and devices.

Taking its digital transformation vision to the next level, Trimble has partnered with Hilti and Boston Dynamics to use robots for routine tasks in hazardous construction environments to improve safety, efficiency, and consistent data capture. Furthermore, software such as Trimble CrewSight enable firms to manage worksite by approving entry onsite of the labourers with prior mandatory health checks and making sure certifications are in place. This can also track where the workers are at any point in time and maintain social distancing, and if anything should happen, alert response teams to react to the situation immediately.

Trimble’s portfolio makes the process of construction quicker, safer and cost-efficient. Use of technology enhances productivity and delivers a rapid return on investment through better utilization of materials, assets and workers. From conceptual design to ownership and maintenance, Trimble tech helps construction professionals and building owners and occupiers achieve transformative results.

Disruptive technologies not only have the potential to create new benchmarks of value for all stakeholders in the construction ecosystem, but also shape new competitive advantages in the post-Covid world.

The absence of workforce in big cities due to reverse migration will no doubt have an adverse impact on construction for a while. The ongoing projects may see delays of a few months on account of labour shortage. Also, the supply chain of materials has been disrupted for material manufacturing
and procurement with a number of factories beginning to resume production only now and operating at lower levels rather than optimal levels.

Deloitte has aptly named the construction industry as “the case of complex disruption.” This is because digital transformation of the construction sector involves a confluence of a number of factors that need transformation in the sector including unproductive sites, time management, safety, staff acquisition, and project management costs.

What the industry firms really need is to adopt a holistic view of the full construction lifecycle or ‘continuum’ to address this matter. The construction continuum for buildings is spread over the five key stages of planning, designing, engineering, construction, and finally, occupancy and maintenance. Each stage of the lifecycle is rapidly being transformed by technology the world over through a holistic approach and engagement, often driven by the owners themselves.

Various technologies, construction processes and methods such as Constructible BIM, Prefabricated construction, Mixed reality, Cloud computing and Internet of Things (IOT) amongst others, can drive a massive change in how the industry designs, builds and operates projects. As disruptive technologies, they not only have the potential to create new benchmarks of value for all stakeholders in the construction ecosystem, but also shape new competitive advantages in the post-Covid world.

**Trimble offers a host of value-added services to its customers in India.**

Our value-added services in India include local software support, training, consultancy and various online services including Tekla User Assistance. We offer a selection of training courses aimed at both beginners and advanced users of our software. We provide e-learning materials like product guides, support articles, tutorials and extension help to customers for self-learning too.
Every aspect of readiness in a construction company like finance, methodology, manpower engagement, staff motivation, and geographical familiarity needs to be understood in the right perspective.

The lockdown has had maximum impact on the employees, labour and project schedules. Our parent company, URC Construction, which is a 60-year old construction and infra company, sees this impact of lockdown both as a challenge and an opportunity to relook at our readiness to become a more agile and stronger company. Since this is going to impact the economy for a minimum 3 to 4 quarters, every aspect of readiness in a construction company like finance, methodology, manpower engagement, staff motivation, and geographical familiarity needs to be understood in a proper perspective, in order to overcome a crisis like this.

The major challenge will be to restore the morale of the staff and workforce. Though everyone in our organisation is committed and has been with us for a long time, there has been some stress at their personal level, which has to be understood by the company, before engaging them in various projects. Similarly, the migrant labourer needs to be given the best of care and facilities so that he will happily report to work. Apart from this, lean manufacturing practices in construction may become a way forward.

The Covid-19 situation has opened up opportunities for developing innovative tech solutions; at Tactive, we are now moving everything online and remote.

Many construction and contracting companies across India and the Middle East, including our parent company, have been using Tactive software for the last 10 years. The software solutions help project managers and quantity surveyors to ‘see’ the site from the office. Once data entry for daily progress and daily labor output have been entered, the PMs and management are able to make sure that the projects are on track and within profitability levels.

We have recently acquired a client for our ‘contract labour manpower supply software’ where we are doing the implementation of the product completely remotely. Although the product is on the premises, considering the Covid-19 situation, we are moving everything online and remote.

This has come as a strong supportive point for existing construction companies, when our clients decided to adopt ‘work from home’ for the information communication, reviewing the performance, addressing the client requirements, making payment disbursement to labourers and vendors, and looking for further improvements like lean practices, digitisation etc.

Digitalising the industry, particularly the construction activities, is still a challenge, because in India, and across the globe, the operational processes are yet to be standardised.

Each company has its own processes, practices and culture. Over and above this, the clients who are the project owners or implementing agencies, do have their own individual systems and expectations. For sustainable construction process management, these procedures have to be correctly mapped in any ERP software. TACTIVE has been designed in a way where
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ABOUT bauma CONEXPO INDIA

bauma CONEXPO INDIA presents a world of extraordinary discoveries it is your formula for success in the Indian construction machinery industry. Packed with manufacturers from the construction machinery, building material machines, mining machines, construction vehicles and equipment industry.

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all the processes, approval levels and access levels can be configured and no need to customise according to the client in the code base.

For the construction industry, TACTIVE has done in-depth study and has a close understanding of the processes because of its association with its parent entity URC Constructions. On top of this, NCC (the 2nd largest infra company of India) has been a client of TACTIVE for almost seven years. This is proof of our product’s capability to handle large construction operations.

Basically, if a company is able to capture all its operations’ data, and is able to store it and analyse it for decision making, then digitisation can become a natural process. For all these things, the company should be driven by declared procedures and processes, and should follow the compliances properly. Only then can TACTIVE be one of the right solutions for managing their operations online and offline.

Though technology will bring more efficiency in managing and leading the construction operations, the importance of money, men, material, machinery, and minute (time) and our dependence on these 5 Ms will always be important factors.

Men, Material and Machinery being the key components next to Money and Minutes, the construction industry has to go for a paradigm shift in the construction methodology by adopting Kaizen, 5S, lean practices, design innovation, and advanced knowledge on equipment availability and utilisation.

Being a technology company serving the construction industry, we have designed all our modules – tendering, estimation, budgeting, scheduling, project execution, procurement, material, human resource and finance - to connect and control all the 5 Ms of construction. For example, each BOQ item from the client will be broken down to activity in each component (called LMP cost in the industry) to handle the 5M aspects, cost codes assigned for each activity, schedules planned and most importantly, tracked in every step of the process.

The basic economy of the construction activity, which seldom looks at the labour component and other related social security issues, is to relook this component by becoming a more responsible payer in taking care of the well-being of the workers. This has been clearly captured in our Human Resource module to enable companies to operate and control the labour part of the activity. The next important readiness should be in the designing and budgeting of the projects. Any error in this will drastically affect the cash flow and the profit levels.

**Major benefits can be derived by using value-added services offered by Tactive to its customers**

The important value addition is the mobile app for site and mobile app for employees. The mobile app for site has features to enter daily site progress report against each BOQ/activity code, and enter daily labour out-turn to track progress and profitability.

The mobile app for employees has features for self-service functions such as leave application, attendance management, approvals for purchase requests, and task management, etc.

Tactive includes a project site user as well so that people in the site who are only entering data into the system, at a lower cost.

Major benefits derived by using these value-added services are:

- Performance of an individual, team or any project can be reviewed on an online basis
- Cost reduction and control in equipment and machinery consumables is a major cost; these tools can reduce the costs to a considerable value.
- Accuracy of billing to the client and subcontractors is such that the variations can be easily analysed and corrected.
- When you are operating in multiple locations, the inventory of construction materials, construction tools, equipment and machinery can be effectively utilised by the monitoring process given by the system.

**Tactive has become more modernised and strong with introduction of modern equipment and professional team**

The construction capability of India was an ancient art which gave us wonderful structures like temples, dams, institutions, etc. These were built 100 of years back and are still standing strong and beautiful. Shri U.R. Chinnusamy set up URC Construction in the year 1956. When the 2nd generation was looking to modernise and establish the company more strongly as a ‘Built to Last Company’, they began to introduce modern equipment and built a team of professionals and skilled workers through skill development and upgradation.

About 12 years ago, the company began to look for advanced IT solutions to make their construction business more efficient with smoother functionalities. At that point in time, a team of youngsters with 4 to 5 years of research work in the construction industry approached us for developing the solutions we were looking for. Over a period of 4 to 5 years, along with URC experts, a worthy, functional solution was developed.

Dr.A.Rama Krishna (former DMD of L&T) saw the product and advised us to use it with NCC Hyderabad. Working with NCC with their vast knowledge and experience, enhanced our confidence in the performance of the product.

Today, we have a good number of customers in India and in the Gulf Region. We have a strong team to support its implementation for a smooth process management. We are now a web-based product with one of the finest tools and the latest technology built into the system. We are operating from a small but a Smart City – Erode. We believe that in the current situation, operating from smaller towns can be a better option.
With the restrictions imposed on Chinese products and investments, Indian companies will find many opportunities to develop products indigenously.

Though the construction equipment and machinery industry is seeing a slowdown due to the pandemic, the construction projects have partially restarted, so the sentiment is becoming positive after the lockdown. A few other industries such as medical, food, agriculture, and related industries are gaining pace and recovering slowly. In the long-term, the markets will improve through deployment of different channels and strategies, while the traditional business approach will undergo a major change. Technology and online platforms will become the accepted ways of communication.

The government is taking visible steps to speed up infrastructure construction. With the restrictions imposed on Chinese products and investments, well established Indian companies and upcoming entrepreneurs will find many opportunities to develop products indigenously. The machinery manufacturing and infrastructure sector should materialize the same so that the ‘Make in India’ concept becomes a reality with India emerging as a manufacturing hub. Many countries are eying India favorably and the finance ministry has announced the guidelines for specific sectors. We need to identify the right opportunity and convert it into a reality.

The Government has announced relief packages which will infuse funds and prevent a liquidity crunch in the market. Bringing co-operative banks and other financial institutions under the direct RBI supervision is also a very good step. GST related issues are yet to be sorted out, but the Government is moving on the right track, and it should also look at the import-export tariffs and the formalities at the customs.

**Indians are very adept in the Information Technology and Service industries, which gives us an advantage over many other countries.**

Maintaining the labour force and shifting to online platforms in terms of sub-suppliers, quality issues and shipping will have challenges. Apart from this, the online support and services need to be updated in most of the existing plants and machines, including the software. But Indians have proven their caliber in the IT and service industries, which gives us an advantage over many other countries. We need to maintain the quality and standardization of parts and build online support to overcome the challenges.

Collaboration between contractors, suppliers, and financial institution is already in place, but connecting with the OEMs could be a challenge. However, when it comes to survival, I believe that all the stakeholders will work together on a mutually beneficial platform. Here, the

**Manoj Kumar, Managing Director**

We believe that since global economics and priorities are changing, in the present scenario, only the best high-tech and affordable machines will be in demand. Armix is well-prepared with its team of highly experienced technical experts to offer entry-level affordable solutions along with completely automated turnkey installations in the field of concrete blocks, fly ash bricks, interlocking pavers, kerb stones, dish channels, and flag tiles, apart from ready-mix plants for concrete.
cost of development, time and connectivity need to be addressed and I think that the startup companies could also fill the gap. **Local component manufacturers and suppliers should establish their presence more strongly in the manufacturing sector.**

Critical supply components could be sourced locally, though a few may require some design change and quality improvements. However, we need to start bulk production and utilization of components in the equipment industry. Local component manufacturers and suppliers should seek to establish their presence more strongly in the manufacturing sector. I believe that the Government will prepare the necessary framework to ensure the business activities and the stability of these local players.

Apart from meeting demand of the domestic market, the Government should initiate more trade negotiations and provide concessions for export markets. It is expected that more countries will set up trade barriers for Chinese products and the Indian government should seize the opportunity to bring more relaxations in export.

**Price competitiveness, project-specific solutions and multi-purpose options are the advantages of Armix machines,** which we are offering from entry-level affordable solutions to completely automated turnkey installations.

We are offering entry-level affordable solutions along with completely automated turnkey installations in the field of concrete blocks, fly ash bricks, interlocking pavers, kerb stones, dish channels, and flag tiles, apart from ready-mix plants for concrete. Armix machines known for their leading and proven technologies from around the world. The products are being manufactured in India without compromising on quality. Price competitiveness, project-specific solutions and multi-purpose options are the advantages of Armix machines.

Our project-based solutions and systems are designed as plug and play and can be shifted easily when the project has been completed. Armix has five segments of machines, such as the Block Master series that offers a minimum of 4500 - 20000 Blocks or 15000 to 70000 Pavers per shift. Hydraulic Press machines can give 600 to 5000 Kerbs/Slabs/Dish Channels/Flag Tiles per shift. Universal Hermetic Press machines are the right choice for Interlocking Pavers and Flag Tiles with the product output ranging from 1500 to 15000 pieces/shift. Armix's completely automated solutions and its Mega Star series of Batching & Mixing Plant come in capacities ranging from 15, 30, 45, 60 and 90 cbm, and include Planetary Mixers.
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Having a strong Infrastructure can spur the economy and the country into the next level.

The growth prospects in the Infrastructure construction is bound to see a growth in the long term but due to other pressing issues and commitments the government has at present, the inflow of funds is bound to be restricted. So, new investments on capital goods is bound to be restricted. As machinery manufacturers, we have seen a positive growth in the last couple of months, despite the extraordinary situation, mainly due to companies willing to make the best of the various schemes offered for MSMEs by the government.

Parijatha Machinery

Ramesh Jayaram, Managing Director

Parijatha has always focused on developing environment-friendly products. Our flyash based brick and block making machines are the most successful in the market due to their proven utilization of the maximum percentage of fly ash as compared to other machines in the market. Moreover, they consume the least amount of power, without compromising on performance and efficiency. Due to their innovative features and a robust construction design, our machines consume the least number of consumable parts, and thereby reduce their running costs, while also conserving the environment.

Obviously, the government’s priority will be health care, jobs for migrant workers, and boosting the economy. Achieving all of them simultaneously is quite a challenge for any country. Having sufficient resources and a formidable war chest can make a huge difference during such times. Unfortunately, India does not have that luxury and has lesser money to spend. Smart management with timely course corrections can help us manage the situation better, but, as I have mentioned, its only “manage” and nothing more. We have wasted a lot of opportunities during the golden years and hope we have at least learnt our lessons that having a strong Infrastructure can spur the economy and the country into the next level.

As mentioned, investment in machinery and equipment is the least and last of the options and therefore cannot expect to see exponential growth. Thankfully, timely and well-managed lockdown measures have ensured restart of the economy due to which orders are already beginning to flow. Now, the challenges of logistics, safe travel and movement of technicians is to be addressed, for which all precautionary measures are being taken at every stage. Moreover, shortage of materials and skilled manpower has thrown more challenges which needs to be managed effectively.

We have taken an innovative step towards making the whole or part process of installation and commissioning done by the customer himself, based on semi-assembled or fully assembled machines at the sites.

Overall, this situation, though unprecedented, is sure to bring out the best in us. Also, we have taken an innovative step towards making the whole or part process of installation and commissioning done by the customer himself based on semi-assembled or fully assembled machines sent to sites, detailed pictorial and graphical representations of step by step installation procedures, simulative videos, online support, programming, remote trial running of the machines, video
and graphical aids for operator training, etc. all of which can help the customer install the machines fully or at least partly so that the role of our onsite technicians is minimized, or totally eliminated. This was successfully implemented by us for few customers in India and internationally and will be fine-tuned further considering the new normal we are likely to see in the coming days.

Contractors, OEMs, and financial institutions need to analyze their problems and work amicably together for the mutual benefit of all the stakeholders.

The fact is that a confluence of contractors, OEMs, and financial institutions for the revival of projects was already there, but now the challenge is how each of them is able to understand their problems and work amicably so that it is beneficial to all. However, the role of financial institutions is especially important since they have to provide the necessary relief of adequate funding as per the proposals, in a timely manner. Also, awareness of all the beneficial schemes especially to MSMEs should be highlighted and help in their utilization in a proper manner.

Unnecessary regulations, poor infrastructure, and inadequate government support kills innovation, which India used to be famed for. Thankfully, the Covid-19 situation has given us the opportunity to once again promote our local industry and develop new technologies.

The supply and timely availability of components/parts for equipment manufacturers and equipment, in general, is becoming more and more difficult - thanks to our over-dependence on imports. Sadly, the Make in India remains just a great idea and nothing else. Cheap imports, especially from China, have killed our industry as most found this an easy way out. We have to start producing ourselves in India to serve our huge market and to generate employment. We can succeed in this only if the MSME sector is well supported and allowed to function smoothly without needless hurdles.

Running a manufacturing industry in India is a challenge and the world salutes our entrepreneurs for surviving this hostile environment and the hurdles we incessantly face on a day to day basis. Unnecessary regulations, poor infrastructure, and inadequate government support kills innovation, which India used to be famed for. Thankfully, we again have a golden opportunity due to the Covid-19 situation; we need to promote local industry and technology, impose higher tariffs on cheap imports from countries who covertly and overtly support their own industry to create an unfair advantage by denying our entrepreneurs a chance to even throw the challenge.

The immediate priority for the government is to identify the stressed industries and provide adequate support to them. Also, items which are priced disruptively should be categorized in the negative list of imports and completely banned. Any previous agreements can be superseded based on the current situation. Likewise, exports should be encouraged so that the industry matures and upgrades to the international level. All this, with a range of timely measures and course corrections based on changing situations, is the need of the hour.
The short-term market condition is not up to the mark, but if we think long-term, the market would be open with a large number of infrastructure projects.

The Government has announced various relief packages for the development of various sectors including industrial development, the real estate sector, and infrastructure projects. In the next six months, the construction market could open up due to the huge potential in infrastructure development across the country.

We have technical collaborations with European companies through which we can adopt their technology to find indigenous solutions. This way, we are actually selling European quality in India, and at a much affordable cost.

The Government has handled this pandemic situation wisely. The appreciable thing is that the packages announced will help recover the losses from Industrial, Agricultural, Medical, Educational and other sectors. The ₹2 lakh crore relief packages will directly or indirectly encourage the Infrastructure & Construction industry to resume work on the projects. It is this industry which is the foundation and the base for development in any country, state, city, or village.

We are developing new products, which will be priced aggressively to beat competition.

The major challenge for us is the people who were starting their business with our machines but have had to stop or put on hold their plans due to the lockdown. Both the medium and large-scale industries have also put their expansion plans on hold – and this will affect the related businesses.

However, we are taking this situation in a positive way and are preparing ourselves to bounce back in the market. In fact, we are making ourselves ready to penetrate the market even more aggressively.

Currently, we are analyzing the problem areas in our earlier orders, strengthening our customer relationship initiatives, diverting our team efforts towards new product development with more energy efficiency, and recycling of waste heat and waste produce.

We have seen such a recession five times in the last 30 years and are taking it in our stride to gear up for the future.

The Contractors, OEMs and the Financial Institutions are the tripods of the construction industry.

The equipment is supplied by the OEMs to the contractor to complete projects and the FIs lend money to the buyer/contractor for...
purchasing the equipment. So the link between the three is very strong.

Now, an equilibrium and transparency between the three is essential and the need of the hour. The contractor has to sincerely pay the EMIs timely; the FIs should also ease the lending conditions with attractive rates as the Government has been supporting MSMEs with the corpus of collateral free loans; and the OEMs could also come out with some out-of-the-box ideas such as a buy-back policy for their machines. A proper understanding with FIs would boost confidence in the market and reduce the NPAs. So, a well-maintained balance will boost the economy by giving the required thrust to the construction industry.

We have tied up with NBFC banks to provide easy loan for equipment buyers looking to purchase new machines, or for refurbishment/upgradation of their existing machines, along with a buyback option.

This Covid-19 pandemic has created big opportunities for the country as Indians are technically sound people, so if we get financial support from the Government, we can definitely become ‘atmanirbhar’ and avoid dependency on other countries.

We are importing 8 - 10% of our machines and parts from other countries. If we can develop all the imported products locally, we will create a lot of job opportunities also, which will impact the GDP of India.

We do not really need to be dependent on other countries. We are importing engineered goods at a high price. If we make them locally, then we will reduce their price drastically, and we can also explore the overseas markets for exporting our products.

There is increasing awareness of the environment in our country. People are beginning to understand the importance of conserving the environment. Campaigns like the swachh bharat abhian, and the clean India green India are proof of this.

Our machines are robust, sustainable, and technically proven for long-lasting performance, thanks to our technical collaborations with European companies.

We are a 30-year-old company producing many types of plants, including ceramic. We design these plants by keeping sustainability and ease of operation in mind. Our machines are robust, and technically proven for long-lasting performance. We have technical collaborations with European companies through which we can adopt their technology to find indigenous solutions. This way, we are actually selling European quality in India, and at a much affordable cost.

Our high capacity Brick, Concrete Block and Paver manufacturing plants can produce 10,000 to 2,00,000 units per day and they have complete automation. We have sold more than 500 plants pan India. We have also developed the technology for green sand manufacturing, lightweight aggregates (LWA/LDA), sand washing plant, clay brick, CSE block, and dry mix mortar plants. We have recently developed a Dry Mix Mortar Plant with a capacity of 2 TPH to 60 TPH, and a 10 TPH completely automatic plant, which is running successfully at a project site.
Nova Formworks: Staying Ahead

Applications
Nova Formworks have been designed to fit in such a way that there is no gap and they come in various sizes for making all size of walls with no gaps in between. We fix the modular panels as per the structure of the whole floor, including fixing window frames and door frames and laying the electrical pipes in situ. Training is imparted by the company’s team at site during the first installation, and a demo is given to the workers on how the formwork is assembled etc.

The formworks are very sturdy and can be re-used more than 200 times. An embedded stiffener enhances their load taking capacity. A standard product can take concrete vertical loads up to 6 tons/sqm, which can be increased as per the requirement.

Advantages
Nova formworks are being used in all kind of projects such as housing, commercial, high-rise, low cost housing, roads, box culverts, under bridges, retaining walls, railways, stitch concrete, smart city drain formwork, and even for precast dust bins and other precast moulds. Made of high resistant plastic, the formwork panels can be used with ease for making reinforced concrete column, walls, lift walls, shear walls etc.

Our wide range of formwork panels can be used with ease, plus they give a very good surface finish; and save a lot of time. These formworks can be used to replace brick walls in construction of buildings, which has become very time-consuming and labour-intensive.

Manufacturing Capabilities
Nova Formworks is the first and only plastic formwork manufacturer in the organized sector producing plastic formwork, aluminium formwork, and a combination of both, in India since 2011. Products are being supplied to contractors like Shapoorji Pallonji, Larsen & Toubro, JMC, Ahluwalia Contracts India, M-far, Modern Constructions, MV Omni, BL Kashyap, Tata Projects, Bharat City, Rapid Constructions, Tata Housing, Int Power, and many others.

We have a manufacturing unit in Bangalore and one in Delhi. We plan to expand our sales network across Kolkata, Gujarat, and Maharashtra. We are exporting to the Middle East and to African countries like Ghana and Angola, and have set up a distribution office in Africa.

Opportunities & Challenges
We are open to dealers who can buy the formworks from us and give them on rent. This is a good business model as they could earn more by renting out the product than by simply selling it.

Creating awareness of our products is a challenge as we are the only one in India making formworks made of plastic, but major contractors are using them currently in many residential, commercial, and infrastructure projects. The response has been good because of the versatility of the product, which can be used in any kind of projects, unlike aluminium, which has limited usages.

We are anticipating a lot of construction projects in the next 5 years, as many infrastructure projects have come up across the country and many are in the pipeline. These include industrial projects, low cost housing projects, and public utility projects. To meet upcoming demand, we are continuously making changes and improvements as we move ahead. We are developing various other products for the construction companies; these are designed to help in reducing labour, improve efficiencies, ensure quality, and save cost.

We introduced plastic formworks in the Indian market in 2011-12 and we will continue to make innovations in this product line. The nature of plastic makes this formwork automatically safe as there are no sharp edges, plus it is a very lightweight system that makes it easy to handle, easy to assemble and to disassemble. The product gives great value for money over its lifecycle as it is reusable for more than 100 times, in fact, some people have used it even 200-250 times. This, however, depends on how the product is handled at site. We give a 25% replacement value on our old formworks as an incentive to our customers.

We have also introduced a combination of plastic and aluminium for monolithic constructions. This system was formulated in 2009 and is awaiting a patent. The aluminium and aluminium-plastic formworks are mainly used for monolithic construction projects as there are a lot of sizes that we need to fabricate for making the monolithic structure. The advantages are that clients save a lot of time on delivery, which is shorter than for aluminium formwork. We have even replaced wood and steel formworks in many sectors.

Our formworks have replaced wood and steel formwork in many sectors, aver Vikas Kumar Mittal, MD, Nova Formworks.
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MOBISCREEN EVO screens in action

The MOBISCREEN EVO Mobile Screens are being manufactured by the Wirtgen Group in India at its local production and assembly plant in Pune. The mobile screening plants in the MOBISCREEN EVO line are successful all over the world. The machines are classifying screens, which means that they classify the rock after it has been crushed by KLEEMANN crushing plants, sorting it into up to three aggregate fractions (MS 702 EVO and MS 952 EVO plants with two screen decks) or up to four aggregate fractions (the 703 and 953 plants with three screen decks).

Using various screen surfaces, the plants are ideal for a wide range of applications, such as for classifying granite, basalt, iron ore or limestone. Other highlights of the MOBISCREEN EVO line include a large feed hopper with vibration for pre-screening, an easy-to-operate mobile control panel, and a fully automatic process control system.

Top performance in open cast applications

The screens make a particularly valuable contribution in their “home market” as there is hardly another region anywhere in the world with a more dynamic road construction industry than India. When constructing roads, it is particularly important to have a supply of crushed aggregate in precisely defined grain sizes.

KLEEMANN plants also perform invaluable services in open cast applications. This is being demonstrated by 4 MOBISCREEN EVO plants of the MS 952 EVO and MS 953 EVO types in Keonjhar in the state of Odisha. KLEEMANN technology is sustainably boosting productivity and efficiency at an iron ore extraction site operated by its customer Kalinga Commercial Corporation Limited (KCCL). “At present, we are operating 4 plants for 18-20 hours a day. And we are getting high production levels from all 4 plants,” says Shri Kumar, Project Manager at KCCL.

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Oil sampling in machines involves testing the oil from various compartments such as the engine, transmission, hydraulics, differential and final drives, swing devices, etc. at regular intervals to find out wear metals, contaminants, and physical properties.

Oil sampling is necessary to get the maximum life from the machine with consistent availability and healthy utilization, so that its overall operating cost will be under control. There is scope to extend oil change intervals, particularly hydraulic and gear oils, without affecting the life of the components.

Operating cost mainly depends upon asset utilization and productivity. Utilization can be healthy only when the machine is available consistently, which, in turn, is possible only when we undertake a thorough monitoring of the machine, which includes oil sampling.

**Oil sampling for maintaining consistent machine availability**

Oil sampling in a machine is much like the health check-up one takes to help prevent the onset of any major health issue. Similarly, lube oil sampling at regular intervals will help us know the condition of major assemblies like engine, torque convertor, transmission, hydraulics, differential, final drives, steering system, etc. In case of any problem, it can be addressed right away and thereby prevent the machine from a major failure.

Furthermore, through oil sampling, we can improve the operational and maintenance practices by fine tuning operator skills, preventing dust entry inside the components, maintaining oil storage and transfer system cleanly, and doing oil and filter changes as per the schedule. All these actions help maintain machine’s availability.

**Tests carried on oil during sampling**

Oil analysis and tests depend on the various compartments of the machine such as the Engine, Transmission, Differential, Final Drive, Swing Device, etc. Some of the oil analysis tests are as follows:

**Viscosity:** It is necessary to maintain the required oil film thickness between moving components. It is important that the viscosity...
be measured at 100 degree Celsius, as working temperature of most of the oils will be around 100 degree Celsius. There is no use of measuring viscosity at room temperature.

**Viscosity Index:** This is the change of viscosity relative to change in temperature. But as long the viscosity at 100 degree Celsius is monitored, the Viscosity Index doesn’t carry much significance in used oils.

**Oxidation:** This normally happens with age, high temperature, water entry, etc. Oxidation leads to increase in viscosity (oil is unable to flow in narrow places of moving parts), depleting additives due to acid formation, etc.

**Soot:** Soot formation happens in the engine oil due to incomplete burning of fuel. Excess soot formation leads to rapid wear of engine parts.

**Sulfation:** This happens mainly in the engine oil due to excess sulphur in the fuel, and due to fuel particles mixing with water during combustion (improper functioning injector, poor compression pressure etc). Even though engine oils contain neutralizing agents, exceeding of sulfation beyond a certain limit causes corrosion of internal parts.

**Other chemical parameters:**

**TAN, TBN, ZDDP (additive depletion)**

**Fuel Dilution:** Due to fuel dilution in engine oil, the viscosity drops, and oil cannot maintain the required film thickness between moving parts which leads to direct contact between parts, resulting in rapid wear.

**Coolant:** Coolant is mixed with oil due to cylinder head cracks, head gasket failure, cooler internal leakage etc. Coolant contamination leads to sludge formation and faster wear. Coolant can mix with other oils where the cooler or heat exchanger is provided in the system.

**Water:** Water dilution occurs due to condensation, pressure washing, etc. If water mixes with any oil, it leads to corrosion.

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### Benefits of oil sampling

- Consistency in machine availability
- Healthy utilization
- Longer machine life
- Lower operating cost
- Higher productivity
- Better resale value

**Silica:** Silica normally enters due to poor intake piping, improper seating of air filter elements, loose/missing caps, poor maintenance of oil storage and oil transfer system. If silica mixes with any oil, it will lead to rapid wear of the components.

**Wear Metals:** The presence of metals like copper, iron, chromium, aluminium, lead, tin, manganese, nickel etc., can be traced in used oil. Excessive finding of any metal or combination of metals will give a clue to trouble in the component(s).

In addition to the above tests, other tests like particle count, patch microscope test, etc., are also carried out. Experts in the field and machine manufacturers can guide customers with the proper solutions as per their machine types.

### Saving on lubricants cost

It is proved that regular monitoring of hydraulic oils and final drive oils, the change interval can be extended to the extent of 200% of the standard recommendation. Normally, oil cost accounts for 5 to 6% of the machine’s total operating cost (excluding fuel but including all repairs and overhauls). So, any additional life obtained beyond the standard recommended period is a saving for the owner, and that too without affecting the machine’s life.

There are many incidences of saving engines, transmissions, differentials, final drives, and hydraulic components by identifying wear metal and contaminants at the initial stage and preventing major failures. The cost incurred for oil testing will be much less than the amount spent on account of premature and sudden breakdowns. Sudden, unexpected breakdowns can adversely affect the entire production chain, and sometimes, the situation may even demand engaging a rental machine to meet production target, which would increase costs for the machine owner.

### Value-added services by service providers & equipment manufacturers

To get the real benefit, oil sampling has to be looked at as a preventive maintenance activity and should be done at regular intervals. Inconsistency and improper sample collection, delay in testing and report submission, and ignorance or delay in acting on abnormal findings, will not only dilute the purpose of this condition monitoring activity, but will also waste the time and money spent. Further, any oil sampling test done post breakdown of the machine will be considered as a part of the post-mortem.

It is the moral responsibility of the service provider to support and guide the customer for effective implementation of condition monitoring that includes oil sampling and analysis. Their services should include the following:

- Educating customer maintenance team on each and every process from sample collection and report analysis, to troubleshooting and fixing the issue identified.
- Ensuring that sampling is done at regular intervals, as decided mutually.
- Interpretation of oil sample report and advise for proper troubleshooting and fixing the identified problem, if any.
- Undertaking testing and providing the report in the shortest time possible (preferably within a week of sample collection), as delay in the sampling report can aggravate the problem, since the machine will be in running condition and the purpose of oil sampling will be lost.
- Supporting customer in extending oil change intervals through regular monitoring as this will help in minimizing maintenance cost.
- Training operators to fine tune their operating skills.

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Condition Monitoring
Covid-19 pandemic has hit the infrastructure industry severely, and consequently, the equipment rental industry is passing through a challenging phase. The work progress is sluggish and has not started at many sites since the lockdown. Payments are still stuck. The industry is not only facing an acute shortage of skilled manpower but the labour cost has also gone up by around 25 percent. Logistics cost has also increased. Interest on loans and EMIs of equipment rental companies has not been waived off yet by the government. Therefore, the overall operating cost of a rental company has significantly increased.

If one sees the world trends over the past one year, the rental industry was already passing through a rough patch; Covid-19 has just made it worse. According to market reports, the construction equipment rental market value is likely to fall by ~30% during 2020 due to a fall in the global economic growth, which, in turn, is resulting in a slowdown of construction work timelines.

But this is not the time to panic; it is the time to look forward. Challenging times always lead to transformation and new trends. This is also the time for the equipment rental industry to reinvent itself; in fact, reinventing is a collective responsibility of all the equipment rental companies.

For the first time, the rental industry is becoming united in protecting its interests due to the rapidly changing social and economic milieu. The equipment rental industry cannot run on ‘reactive mechanism’; rather, we should foresee industry trends, start seizing opportunities, and push for changes which would benefit us in the long run.

It can no longer grow strong by taking a conservative approach. First, it needs to diversify its businesses and enhance its competence. Secondly, it needs to market itself better in order to promote the financial viability of renting over owning equipment.

The global construction equipment rental market is characterized by the presence of numerous domestic and regional players, resulting in a highly fragmented market environment. The five key players, namely, United Rentals, Ashtead Group, Herc Rentals, H&E Equipment Services, Loxaman, and Kanamoto Co, account for 18% of the market share, and the remaining 82% share is held by other players (domestic and regional players).

If we see the global trend over the past two years, the construction equipment rental market is being driven by mergers and...
acquisitions and joint ventures between companies who want to diversify, build capacity, and sustain their businesses in the event of a slowdown. Construction equipment rental companies in India should also focus on strategic collaborations and partnerships, mergers and acquisitions to increase rental penetration and market share. It should be noted that equipment rental companies that offer better value and user experience to customers will emerge winners in the post Covid-19 scenario. Therefore, the focus of rental companies should be on strengthening their capabilities while understanding the market dynamics.

Changes and advancements in construction technology around the world has led to demand for newer technologies in construction equipment. The Indian equipment rental industry should enhance its capacity accordingly, as new technologies, especially telematics and artificial intelligence, are going to transform the equipment industry, and maintaining a fleet of such technologically advanced equipment will become necessary. Artificial Intelligence will make tracking and monitoring of equipment quite easy and reduce the cost of operations.

New technology means lesser breakdowns, faster work, and timely completion of projects. It will help in specialization and pave the way for the construction equipment rental industry to diversify into unconventional sectors like municipal works, mining, concrete segments, etc. It will also create the need for skilled operators and machine crew to handle the new equipment.

Equipment rental companies should promote the rental concept more proactively by participating in tradeshows like EXCON, bauma CONEXPO, INTERMAT, IFAT and Concrete Show India etc, as these events offer the right platform for companies to network and showcase their products, performance, and capabilities. Participation in trade events and exhibitions will also boost the image of the equipment rental industry.

There is a need for conscious deliberations on buying versus renting equipment. In such a scenario, rental companies should impress upon the users the benefits of renting equipment and how it will increase their profitability. Procurement of new construction equipment is quite capital-intensive: it often requires making down payments and investing a large portion of the operating capital of the company. Overhead costs such as interest on loans, insurance, licensing, storage, and taxes, post the purchase of the equipment, add to the overall cost of the equipment.

Equipment owners are also accountable for transportation between job sites. On the other hand, if a contracting company rents an equipment, the responsibility of transporting the equipment to the work site lies with the rental company – which also bears the direct overhead cost. What’s more, rental companies also keep on upgrading their fleet and their equipment’s machine parts from time to time, in order to provide their customers with upgraded and advanced equipment.

As per market reports (which have been revised due to the Covid-19 situation), the construction equipment rental market in India and in the ASEAN region is expected to see growth during the forecast period 2020 – 2025. The global construction equipment rental market is expected to register a CAGR of about 4.78% during the forecast period.

It is the most opportune time now for the equipment rental companies of India to reinvent themselves and be well prepared for a brighter future when demand is bound to escalate to new heights.
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What Goes Down Must Come Up & Vice Versa
Amar Tendulkar, Chief of Design and Sustainability at Mahindra Lifespace Developers

The global elevators and escalators industry is expected to reach 125-billion U.S. dollars by 2021; driven by innovation and the vertical growth of cities. Historically, elevators have had significant influence on the development and advancement of architecture - especially tall, vertical structures. As buildings get taller, so must elevators’ ability to meet demand; and as elevators meet that demand, structural innovation can blossom.

A brief history of elevators
The history of elevators spans over five thousand years. The need for solutions for vertical transportation was probably first felt when human beings began settling at altitudes to protect themselves from wild animals or other environmental threats. Exponential progress has been made since then, and today, elevators carry an equivalent of the earth’s population every three days!

The first written record of elevators dates to the 3rd century BC, in Greece. The earliest elevators were called ‘hoists’ and were powered by human and animal power, or water-driven mechanisms. In 236 BC, the Greek mathematician and engineer Archimedes invented the first elevator based on ropes, weights and wrenches. In fact, this invention and the principles that powered it formed the foundation for all elevators in the next 2,000 years! The Roman Colosseum too was built with an integrated network of 24 elevator cages that carried gladiators and wild animals to the

World’s First Elevator
3rd Century BC

Elevators
Eiffel Tower’s old

Image courtesy: KONE India
Lakewoods at MWC Chennai Phase 1

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arena floor; these elevators were manually powered by over 200 salves.

The 1800s witnessed a notable phase of advancement in modern elevator technology, when steam-driven elevators made way for hydraulic power. Even then, the first hydraulic elevators were designed using water pressure as a source of power. These elevators were used for conveying materials in factories, warehouses and mines. Thereafter, motor technology and control methods evolved rapidly; and electricity became the norm as a source of power.

A few ‘elevatoring’ firsts

• In 1852, entrepreneur and inventor Elisha Graves Otis introduced the first safety contrivance for elevators. At the 1853 World’s Fair, in New York, Elisha Otis made his original “elevator pitch”. This included a death-defying drop in which he “dramatically cut the only rope suspending the platform on which he was standing,” according to Otis Elevator Company lore. The platform dropped a few inches, but then came to a stop. His revolutionary new safety brake had worked, stopping the platform from crashing. The display raised eyebrows, but elevators were adopted enthusiastically. Otis established a company for manufacturing elevators and went on to dominate the elevator industry. Today, the Otis Elevator Factory is the world’s largest manufacturer of vertical transport systems.

• In 1857, the first steam-powered passenger elevator was installed in the new E. V. Haughwout Building in New York City.

• The first electric elevator was built by the German inventor Wener Von Siemens in 1880.

• In 1887, an electric elevator with automatic doors that would close off the elevator shaft was patented. This invention made elevators safer.

• In 1889, the first commercially successful electric elevator was installed. That same year, Otis made the then-tallest man-made structure in the world - the Eiffel Tower - accessible by lift!

• Otis Elevator Company installed its first elevator in India in 1892 - the iconic bird-
cage elevator at Kolkata’s Raj Bhavan.

• The most popular theory about the origins of music on elevators states that elevator music first appeared in the 1920s to calm fearful passengers who used elevators for the first time. Yet another theory propounds that elevator music was a distraction to fend off boredom and keep people’s minds off the interminably long time it took (back then) to get from floor to floor.

The safety and speed of elevators was thus significantly enhanced as far back as the mid-19th century. And with the safety of lifts established, designing and building larger and taller structures became an increasingly stronger reality. In fact, as passenger and commercial lifts became more affordable and readily available, it became common practice to create foyers worthy of elevators. As evident in almost any non-mass-built hotel, an elevator entrance is often accompanied by grandiose decoration such as a chandelier. Moreover, when buildings were without elevators, the top floor was considered for the poor or for servants, as it was more inconvenient to reach. As lifts improved access to the higher floors of ever-taller buildings, the concept of a penthouse and the associated connotations of wealth followed.

Types of elevators today

Modern commercial buildings commonly have multiple elevators with a unified control system. In addition, all modern elevators have special override controls to enable
Elevatoring

Elevators to go directly to a specific floor without intermediate stops. Elevator components include speed controlling systems, electric motors, rails, cabins, shafts, doors (manual and automatic), drive units, buffers and safety devices, among others.

a) Passenger elevators – These are designed to carry people between building floors. Their capacity is determined by the need of the specific building and can vary between 5 and 25 persons.
b) Double Decker elevators - The TWIN elevator system has two cars, arranged on top of each other, that operate together in one hoistway. These elevators have a smaller footprint, resulting in more leasable space.
c) Twin Elevators – The Twin elevators also have two cars in one shaft. But unlike the Double Decker, they move independently in the same shaft, which makes logistics more efficient. Their movement is synchronized by a specialized program and its microprocessors which prevent any collisions. At present, this technology is available only with Thyssenkrupp.
d) Express elevators - These do not service all floors, but only selected parts of the building. Most notably, they move passengers from the building lobby to the top floor/sky lobby.
e) Dumbwaiter – These are small elevators used to transport food and other kitchen materials between several building levels. They are often used in hotels, restaurants and cruise ships.
f) Paternoster – These are a special kind of elevators that use the principle of revolving cabins. Several traveling cabins that are in constant motion are set on one rotating chain.
g) Belt elevators – These are used to transport material over inclined planes. The conveyor belt is equipped with a lot of transport boxes that transport material from one place to another.

The technology thrust

The futuristic MAGLEV: From a futuristic technology perspective, magnetic levitation technology (MAGLEV) has already found applications in the global elevator industry. This technology eliminates the need for steel ropes. The elevator uses a 'maglev' track in the building, which is embedded with coils to guide the cabins through a moving magnetic field. The system also allows more than two cabins per shaft as each cabin can operate independently from the other, thus reducing waiting time for passengers and increasing capacity up to 50%. The use of Maglev technology also eradicates height or design limitations that previous elevators had as these elevator shafts can be placed more freely around buildings and operate similarly to a metro. They are also 25% smaller than traditional ones, which enables considerable savings in floor space.

The elevator industry in India

Per recent reports by independent analysts, India is the world’s second-largest market for elevators and escalators, after China. Until some years back, elevators and escalators in India were more about luxury, but now they are more of a necessity. Elevators used in India are mostly imported from the US or Europe. India is also currently one of the biggest markets worldwide for many elevator manufacturers, driven to a significant extent by our Government’s focus on infrastructure and real estate development. KONE Elevator India is consolidating its manufacturing operations, while looking at growth opportunities in Tier 2 and Tier 3 markets, in addition to big Indian cities. Schindler, for example, is setting up an R&D and manufacturing facility in India and is looking at increasing its localisation (two-thirds of its supplies are from India-based companies). Demand for elevators and escalators in India is growing at a healthy rate every year; and rising demand can drive sophisticated technologies and speed in the segment.
With India’s cities and towns growing increasingly vertical, there is a growing need for optimally priced, high-speed elevators and escalators that can reduce travel time. Similarly, the need for convenience at public infrastructure areas like airports, metro stations and railway stations will drive demand for elevators in India.

We may increasingly see ‘smart’ elevators. A smart elevator is a connected elevator capable of communicating with passengers, building managers, service staff and other building systems to improve the passenger experience and elevator performance, especially via improved elevator maintenance – the focus is on digitalisation and enhancing passenger experience.

**Need for speed:** Most Indian elevators travel at a speed of less than one metre/second. You could compare this to the world’s fastest elevator installed at Burj Khalifa, which travels at 10 metres/second! There is a growing demand for high-speed elevators in India too, especially for high-rise buildings in our metros. Previously, I have supervised the installation of lifts as fast as 6 meters/second – the fastest in India – at ‘Omkar 1973 Worli’ in my previous assignment.

In a country like ours, where urbanisation and population explosion is at its peak, high-rise buildings are the way forward and will fuel demand for elevators. Every urbanized citizen who is exposed to international standards aspires to settle in societies which are not only equipped with state-of-the-art facilities, but also offer faster vertical movement at safe speeds.

**‘Green’ elevators:** With growing thrust on green buildings and sustainable urbanisation in India, Indian markets are now witnessing a multitude of options in energy-efficient elevators with locally sourced parts and optimal maintenance costs. We are also seeing the advent of energy-efficient elevators specifically designed to meet the needs of the affordable housing segment (think of elevators employing energy-saving regenerative drives that supply power back to buildings).

Most of the development of global elevator technology can be traced to Europe (Switzerland, France, etc), or to the US. Thus, there remains significant scope for further in-depth research and development in the indigenous elevator industry in India. We can definitely have a ‘Make in India’ vertical transportation. Innovation in vertical transportation will also improve confidence to go higher with tall buildings in our cities, which can help ease congestion and improve efficiency of resource consumption.

At Mahindra Lifespaces, we understand that elevators are an important facilitator of building experience as they enable comfortable ease of access and safe connectivity. For example, each residence at our project Luminare in Golf Course Extension Road, Gurgaon, is a corner apartment with its own private elevator lobby for exclusiveness and privacy. We are also implementing our learnings in residential buildings in our township projects (like Mahindra World City, Bloomdale at Nagpur, Large Residential projects in Mumbai and Pune etc), which are 20-30 stories in height. Our focus is on green elevators which consume less electricity, have lower operational costs and reduced need for maintenance. Our priorities when identifying elevator technology/brand include energy efficiency; operational expenses; ease of maintenance; safety and security; and user-friendliness.

To sum it up, vertical logistics in tall buildings is as important as the blood circulation in the human body. Elevators are akin to our bodily systems which enable circulation via arteries and veins, and keep life going!

**PASSENGER ELEVATORS**
Designed to carry people between building floors. Their capacity is determined by the need of the specific building and it can vary between 5 and 25 people.

**EXPRESS ELEVATORS**
They do not service all floors, but instead only selected parts of the building. Most notably they move passengers from the building lobby to the top floor/sky lobby.

**TWIN ELEVATOR**
The TWIN elevator system has two cars, arranged on top of each other, that operate independently in one hoistway. Requires a smaller footprint, leaving more leasable space.

**DUMBWAITER**
Small elevators that are used to transport food and other kitchen materials between several building levels. They are often used in hotels, restaurants and cruise ships.

**PATERNOSTER**
Special kind of elevator that uses the principle of revolving cabins. On one rotating chain is set several traveling cabins that are in constant motion.

**BELT ELEVATOR**
Used to transport material over inclined planes. Conveyor belt is equipped with lot of transport boxes that transport material from one place to another.
To say that the pandemic has thrown life out of gear for all of us would be an understatement. Indeed, Covid-19 has forced us to rethink the way we should live. Public spaces are stressful in a coronavirus-stricken environment, and the way people interact with everyday surroundings is set to change. It becomes imperative that buildings and cities are made safer and healthier places to live, work and commute.

As a pioneer in people flow, and with a holistic approach to health, well-being and safety, KONE has introduced a range of Health and Well-being Solutions that will help recreate safer user journeys and healthy spaces in buildings. The solutions are built on KONE’s deep expertise and knowledge of people flow, which is vital when addressing the challenges of adapting to a new way of life in the face of the current pandemic.

**Elevator Remote Call Feature using WhatsApp**

This feature reduces the need to touch surfaces. As people started returning to work, another real concern related to shared spaces became extremely clear: people are unwilling to touch common surfaces like buttons or handrails in Elevators and Escalators. Elevator Remote Call Feature using WhatsApp is a response to this. It allows users to summon an elevator using social messaging channels like WhatsApp, removing the need to touch possibly contaminated buttons or displays.

**Floor Stickers & Full Load adjustment**

KONE is using physical distancing elevator floor stickers and elevator full load limit adjustment to ensure less crowding, thereby contributing to a healthier environment.

**KONE Elevator Air Purifier**

To further reduce concerns over elevator use, KONE is introducing to selected markets the new KONE Elevator Air Purifier. It uses technology – including an advanced photocatalytic oxidation (PCO) process developed by NASA for air control on spaceships - to improve air quality in the elevator car by destroying most of the potential pollutants like bacteria, viruses, dust and odor.

**KONE Handrail Sanitizer**

KONE Handrail Sanitizer is an escalator handrail cleaning solution that uses a type of ultraviolet light (UV-C) to continuously clean the handrail when the escalator is in use. The solution is installed inside the escalator, so users are not exposed to it. The handrail emerges much cleaner and ready to support passengers when they hold the escalator handrail.

**KONE 24/7 Connected Services**

As we all learn to live by the new norms of our cities, neighborhoods and buildings, it’s likely that we will continue to insist on smooth people flow once we do get going again. The transparency and preventive maintenance offered by the cloud based KONE 24/7 Connected Services can help here and keep equipment running and safe.

In these unprecedented times when hygiene and physical distancing are vitally important, KONE’s health and well-being solutions will help regain our confidence in everyday environments, in cities, and with the buildings we move through.
NBM&CW
Infra Development & Const. Equipment Magazine

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thyssenkrupp Elevator is empowering 20 airports across India with its innovative and reliable products and services. The company has recently won two major airport projects: the Pune International Airport Expansion Project, and LGBI - Guwahati Airport Project.

Says Manish Mehan, CEO, thyssenkrupp Elevator (India), “thyssenkrupp Elevator is playing a significant role in the success story of the Indian aviation sector. Looking ahead, the government’s plan to develop 200 low-cost airports in Tier-II and Tier-III towns across India will provide a further impetus to the demand for elevators, escalators, moving walks, and PBBs in the coming years.”

He informs that some of the key airports like the Indira Gandhi International Airport in Delhi (also the 12th busiest in the world and the 6th busiest in Asia by passenger traffic) have been powered by the company’s 71 Elevators, 34 Escalators, 92 Moving Walks, and 57 Passenger Boarding Bridges.

The Kempegowda Airport in Bengaluru (the 3rd busiest airport by passenger traffic in the country) is equipped with the company’s Mobility Solutions that include 45 Elevators, 33 Escalators, 6 Moving Walks, and 6 Passenger Boarding Bridges. Likewise, the Cochin International Airport, the first solar powered Airport in the country with a capacity of 50 million passengers per annum, has 18 Elevators, 6 Escalators, and 3 Moving Walks of thyssenkrupp.

Other airports like the Pune International Airport, Jaipur International Airport, Ahmedabad International Airport, Chandigarh Airport, Bhopal Airport, Raipur Airport, Lucknow Airport, Varanasi Airport, and the Udaipur Airport have relied on thyssenkrupp Elevator’s proven innovative aviation mobility solutions and services.

The Pune airport is being revamped and expanded to handle the growth and improve handling capacity. The 42,000 sqm new terminal building will be integrated with the existing one and will sport thyssenkrupp Elevator’s 15 Elevators and 8 Escalators. Guwahati’s LGBI Airport’s upcoming terminal will be powered by 25 Elevators, 10 Escalators, and 2 Moving Walks. The new terminal will spread across 77,500 sqm and will be equipped to handle 2,900 domestic and 200 international passengers at a time.

Furthermore, Delhi’s International Airport will be equipped with 90 of thyssenkrupp’s A-VDGS (Advanced Visual Docking Guidance System), while the Hyderabad Airport will have 33 of the A-VDGS. The Delhi Airport Project will have an additional fleet of 22 PBBs from thyssenkrupp.

“Our engineering expertise enables our customers across India to gain an edge, while our technologies and innovations are designed to meet the diverse customer and market requirements, most ably,” says Mehan.

India has become the third largest domestic aviation market in the world and is expected to overtake UK to become the third largest air passenger market by 2024. The country’s civil aviation industry has emerged as one of the fastest growing industries during the last three years. India’s passenger traffic stood at 199.60 million in FY20 (April-October 2019). To cater to the rising air traffic, the Government of India has envisaged increasing the number of operational airports to 190-200 by FY40 from the current 103 airports.
Department of Civil Engineering, Vignana Bharathi Institute of Technology (Autonomous) in association with Telangana Association for Skill and Knowledge (TASK), Indian Concrete Institute-Hyderabad and Bangalore Centres conducted a one-week Faculty Development Program on “Performance of Engineering Structures Under Extreme Loading” from 8 - 13 June, 2020. The FDP was also partnered by Bentley Institute, Capricot, and NBM&CW as media partner.

The inaugural function was organized at a grand level involving the management of VBIT and all the supporting partners including Dr. Goutham Rao, Chairman, VBIT, Dr. Manohar Reddy, Secretary, VBIT, Dr. G. Amarendra Rao, Principal, VBIT, Dr. S. Krishna Rao, HOD, Civil Dept., VBIT, Mr. Shrikant Sinha, CEO, Telangana Association for Skill and Knowledge (TASK), Mr. P. Srinivasa Reddy, Chairman, Indian Concrete Institute-Hyderabad Centre, Dr. L. R. Manjunatha, Chairman, Indian Concrete Institute-Bangalore Centre, Er. P. Suryaprakash, Founder and Managing Trustee, SVPCPL, Smart Inf-Est, Mr. Arun Kumar, Country Manager, BENTLEY Institute, and Mr. Om Prakash, Country Manager-Education, Capricot.

In total, 13 sessions were held during the FDP; they covered various topics like performance of structures and structural elements under blast, earthquake, wind impact and fire loading; Fracture Mechanics & Concepts and application to concrete structures; uncertainties in Structures Under Extreme Loading Using Finite Element Method; practical aspects of high-rise structural systems; Soil-Structure Interaction, etc.

Over 230 participants attended the FDP, which elicited a very encouraging feedback from the participants. Many attendees, expressing their appreciation of the program, said that it was a world-class training program that was based on real world experience and research thinking, and was executed very smoothly. The concepts presented enhanced their knowledge of structural engineering, besides adding to their overall skill, and they hoped that more such programs would follow. The Bentley Institute gave a one-month free subscription to the Bentley Institute Press for all the registered participants so that they could access the books, manuals, and resources of the Institute.

Speakers and the topics covered at the FDP

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Infra Development, Road & Highway

Gujarat floats tenders for ₹593-cr water infra projects
The Gujarat Water Infrastructure Department has floated tenders for Chavand Bulk Pipeline project involving an investment of ₹593 crore. The scope of work involves design, construction and operation for Navda to Gadhadha (Package-1, NC-39) bulk pipeline, including ROU, construction of RCC U/G sump, pump house, SITC of pumping machinery and ancillary works at Navda Pumping Station, including 10 years comprehensive operation and maintenance under Navda to Chavand Bulk Pipeline Project, entailing an investment of about ₹363 crore with a completion period of 20 months.

MoRTH sets 15,000-km road building target for FY21
Undeterred by Covid-19 headwinds, the transport ministry has set a target of constructing 15,000 km of highways in FY21, up 46% over what it built in the previous year. The bid-out goal at 20,000 km is equally high as it had managed to award 8,912 km in FY20. MoRTH seems determined to maintain the pace of highway development and wants its officers to not take their foot off the pedal.

NHAI gets go-ahead to generate ₹50,000-cr via SPV
NHAI has been given the green signal to go ahead with its plan to raise ₹50,000 crore through a special purpose vehicle (SPV) with the National Investment and Infrastructure Fund (NIIF) for the Delhi-Mumbai expressway project, for which the road building agency will appoint a merchant banker soon.

Rajasthan fast tracks ₹721-cr highway project
The Rajasthan government has fast tracked the Beawar-Gomti NH-8 to be developed from double-lane to four-lane. The project has been approved by the Union transport ministry, said an official spokesperson. The National Highway with a length of about 100 km will be completed in two packages. In the first package, about 50 km length will be developed at a cost of ₹380.29 crore, and in the second package the remaining 50 km length will be built at a cost of ₹341.33 crore.

NHIDCL floats multiple bids for ₹514-cr roads in NE
NHIDCL has invited bids for the construction of multiple roads at a cost of ₹514 crore, across the north eastern region. In Sikkim, it floated ₹137.93 crore bids for widening of the road stretch between Legship to Gyalshing of NH-510. In Manipur, a road connecting Finch Corner-Hungpung section of the highway will be built at a cost of ₹150 crore. The corporation has also invited bids for construction of a road with paved shoulder at Kohima bypass connecting NH-39 (new NH-02) road, at a cost of ₹182 crore in Nagaland. Other projects include construction of JICA financed ₹125.01 crore road stretch in Meghalaya.

BRO launches flurry of road projects on the border
BRO has hastened construction work on the Munsiyari-Bugdiyar-Milam road on the Indo-China border in Pithorgarh district of Uttarakhand, and has air lifted heavy road building equipment by helicopters to Laspa. It has also started road building near the China border in eastern Ladakh aimed at providing connectivity to the important forward area called Sub-Sector North (SSN), Chief Engineer Bimal Goswami said that the organization has also started construction of the 202-km long Shangshak-Tengnoupal NH 102-A in Imphal, which connects Imphal-Moreh highway at Tengnoupal-Sita junction.

Welspun takes up construction of eight-lane NH stretch
Welspun Enterprises has taken over the construction of eight-laning of Mukarba Chowk Panipat Section (15.500 km to 86,000 km) of NH-1 (New NH-44) at Panipat highway in Haryana on design, build, finance, operate and transfer basis (DBFOT), under the harmonious substitution route.

NHAI unveils ₹300-cr underpass near IGI airport
In a bid to provide hassle free transport facilities to the IGI airport, the government has decided to build a ₹300-crore underpass near Shiv Murti on the Delhi-Gurugram Expressway, said official sources. The airport upgrading plans, among others, include the fourth runway, an elevated taxiway, a bigger Terminal 1, and 123 body scanners.
Indian Railways is building ₹516-cr rail-bridge in Bihar
Indian Railways has fast tracked construction work of the strategically located rail bridge in Bihar. Former prime minister Atal Bihari Vajpayee had laid the foundation stone of the two-km-long railway mega-bridge on river Kosi in 2003. The bridge is of strategic importance and will provide a shorter route to the northeast region. The bridge was sanctioned in 2003 at a cost of ₹323.41 crore; but 17 years later its construction cost has escalated to ₹516.02 crore.

BRO connects Chamba tunnel in Uttarakhand
BRO has recently achieved a breakthrough by connecting the north and south portals of the Chamba tunnel in Uttarakhand, which will open to traffic by the end of this year - about three months before its scheduled completion. Located below the densely populated Chamba town on the Rishikesh-Dharasu road, the tunnel is a part of the Char-Dham Pariyojana. The ₹12,000 crore project will improve and develop 889 km of national highways to provide all-weather connectivity to four holy places in Uttarakhand- Yamunotri, Gangotri, Kedarnath and Badrinath.

RITES secures tunneling consultancy contract
RITES has received an order for Consultancy Services and preparation of DPR from the National Highways & Infrastructure Development Corporation Limited (NHIDCL). The works include extending pre-construction activities for construction of highway tunnels across multiple locations, including certain sections on Darcha — Padam road on the NH-301, and covering approaches in Himachal Pradesh and Ladakh regions.

Kerala kick-starts construction of ₹658-cr tunnel project
Kerala has started construction work on the 6.5-km long tunnel, which will cost ₹658 crore. The government has accorded permission for the two-lane tunnel road in the Anakkampoyil-Kalladi-Meppadi corridor that will run parallel to the landslide-prone Thamarassery pass that links Kozhikode to Wayanad. On completion, the tunnel will be the third longest in the country.

M Venkat Rao Infra wins ₹368-cr twin bridge contract
The state government in Telangana has given clearance to GHMC to start the construction of two steel bridges in the busy corridors of city including Nalgonda Cross Roads-Saidabad and Indira Park-Baghlingampally. The bridge would start from Nalgonda Cross Roads of Saidabad- IS Sadan-Owaisi Junction Corridor for which two bidders had bid for the construction of two bridges and at both the places the same bidder was awarded the ₹368.73 crore contracts.

Kerala floats tenders for ₹1,621-cr road & flyover project
The state highways wing in Kerala has invited tenders for the ₹1,621.3-crore Avinashi Road flyover project to be completed in four years. The state has already allotted ₹200 crore and the work would be handed over to only one company, which is being finalized. There is a need to acquire land to construct ramps to connect the flyover with the main junctions on Avinashi Road, which sees heavy traffic during peak hours.
Metro & Rail Line

ISGEC Engineering bags ₹163-cr BMRCL’s metro contract

Noida-based ISGEC Heavy Engineering is the lowest bidder for constructing the Kothanur metro depot, meant for expediting the stabling and maintenance of trains that move on the Gottigere to Nagawara section of Phase-II of the ₹163.44 crore project. The work includes building Metro rail depot structures, site development works and internal roads in a 33-acre depot area at Kothanur for reach six-section.

STEC emerges lowest bidder for ₹1,126-cr RRTS project

The Shanghai Tunnel Engineering company has emerged as the lowest bidder for a contract worth ₹1,126 crore being awarded by the National Capital Region Transport Corporation (NCRTC). The latter, which is a joint company of Governments of India, Delhi, Haryana, Rajasthan and Uttar Pradesh, mandated for implementing the Regional Rapid Transit System, is all set to award the construction contract of the 5.6 km underground stretch between New Ashok Nagar – Sahibabad of the Delhi–Meerut RRTS project.

NCRTC speeds up construction work on rapid rail corridor

NCRTC has expedited construction work on the Delhi-Gurugram-Alwar regional rapid transport corridor. The corporation has initiated work on road widening between the IDLP Complex and the Atul Kataria Chowk in Gurugram and tenders for various components of the project are now being finalized.

Noida Metro invites bids for ₹2,682-cr extension

Noida Metro Aqua Line is all set for an expansion and has floated tenders for extension of the Noida Metro rail network, which is set to be extended with five more metro stations, namely, Noida Sector 122, Noida Sector 123, Greater Noida Sector 4, Eco Tech – 12, and Greater Noida Sector-2.

DMRC initiates groundwork on Metrolite project

DMRC has started the groundwork for the first Metrolite corridor from Kirti Nagar to Bammnaoli village. Tenders have been floated for topographical survey and geotechnical investigation work. The light rail transit system is akin to a tram and reaches areas where frequency of public transport is lower.

NMRCL floats bids for ₹430-cr project

Noida Metro Rail Corporation (NMRCL) has invited bids for the Noida-Greater Noida Metro Rail Project in up in the NCR region. The scope of work involves part design and construction of elevated viaduct and five elevated stations, namely Noida Sec-122, Noida Sec-123, Greater Noida Sec-4, Ecotech-12, Greater Noida Sec-2, excluding architectural finishing works and PEB works of stations from ch 0.00 mtr to ch 9.605 mtr.

MMRDA invites bids for ₹139-cr Metro Line-7

MMRDA has invited three separate bids for work on the Mumbai Metro Rail Project Line-7. The scope of work includes external facade construction for four elevated stations, namely, Gundavali, Mogra, Jogeshwari (East) and Goregaon (East) of Line-7 (Andheri East to Dahisar East) at an investment of ₹47.98 crore. Another tender has invited bids for external facade works for four elevated stations, including Aarey, Dindoshi, Kurarand Poisar of Line-7 at an investment of ₹46.79 crore. The third tender is for external facade works for elevated stations Magathane, Devipada, Rashtriya Udyan and Ovaripada costing ₹44.73 crore.

Sandvik enforces patent rights in India

The Delhi High Court in India has ruled in favor of Sandvik after an investigation and subsequent lawsuit for patent infringement. HK Engineering Works based in Faridabad (India) was discovered to be manufacturing patented Vertical Shaft Impact crusher (VSI) parts for the Indian market. A lawsuit was filed against HK in the Delhi High Court and following negotiations, an agreement was reached and produced in Court. A permanent injunction is now in place against HK, which was also ordered to compensate Sandvik financially and take steps to prevent further infringement of the patent and sale of the product in question.

Sandvik invests significant sums of money in research and development and in registering intellectual property rights, including patents, which are designed to protect their investment in their products. Sandvik believes it must protect its interests to continue investing in the future and to remain world leaders in tools, services, and equipment design.
**Airport**

**Karnataka kick-starts ₹220-cr airport project**

The CM of Karnataka laid the foundation stone for the construction of an airport at Shivamogga area of his constituency. The airport will be well equipped with matching facilities at Sogane in Shivamogga taluka at a cost of ₹220 crore, and will be built on an area of 662.38 acres. The project will be taken up in two phases and is slated to be commissioned in a year’s time.

**GMR inks greenfield Bhogapuram airport pact**

GMR Infrastructure has signed an agreement with the Andhra Pradesh government to develop a greenfield airport at Bhogapuram, near the port city of Visakhapatnam. GMR won the bid by offering to pay ₹303 per passenger fee, while GVK had offered ₹202. Reliance Airport Developers, Essel Infraprojects, Fairfast India Holdings, and National Investment and Infrastructure Fund had also participated in the bidding.

**Industry News**

**Amid Covid-19: Dr. Fixit’s supports contractors in pre-monsoon waterproofing**

With monsoons approaching, it is expected that 6-8% of buildings and structures may need critical pre-monsoon repairs. The waterproofing contractors play a crucial role in ensuring the structural integrity of buildings and depend upon the pre-monsoon work for a big part of their earnings. However, consumers facing heightened health and safety concerns, may be wary of workers entering their homes. To address these concerns, Dr Fixit has launched a full-fledged training & certification program for contractors on how they can ensure their own safety and that of their workers, and consumers at the site of their work. The program has been rolled out across 10 cities - Mumbai, Delhi, Pune, Hyderabad, Bengaluru, Indore, Ahmedabad, Surat, Kolkata and Nagpur. The program imparts training and information about all precautions as per the guidelines of MHA and WHO. At the end the course, participants take a detailed exam, with successful participants being duly certified.

**Sandeep Mahajan is new MD of Goodyear India**

Goodyear, one of the world’s largest tyre companies, announced the appointment of Sandeep Mahajan as Managing Director of India operations with effect from June 1, 2020 for a period of 5 years. He succeeds Rajeev Anand, who is superannuating from the company after completing more than 38 years of service and will continue as the Chairman of the Board for India operations with effect from June 01, 2020 till December 31, 2020.

Mahajan has successfully led Farm, Commercial, OTR and Consumer businesses within Goodyear over the last 8 years. With over 29 years of experience in working with well-known multinational companies, he brings extensive P&L as well as sales and marketing experience, both in India and key global markets. He holds a bachelor’s degree in engineering (Mechanical), and a post graduate diploma in management from IIM Bangalore.

**ELGi unveils LD Series: a revolution in Piston Air Compressor Technology**

Elgi Equipments, one of the world’s leading air compressor manufacturers, has launched the ‘LD Series’ range of lubricated direct drive reciprocating air compressors. With a low life cycle cost and quick return on investment, every LD series air compressor is backed by best-in-class performance for the given input power, durable parts, and a minimum number of service points. Commented Rajesh Premchandran, Director, ISAAME (India, South Asia, Africa and Middle East), “Customers in India are challenged with increasing electricity costs, limited industrial floor space and fluctuating market demand. Taking this into consideration, we have designed the LD series range of direct drive reciprocating air compressors. Unlike conventional belt driven piston air compressors, the LD Series is compact, ensures high performance, has low decibel operation and ease of maintenance.”
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