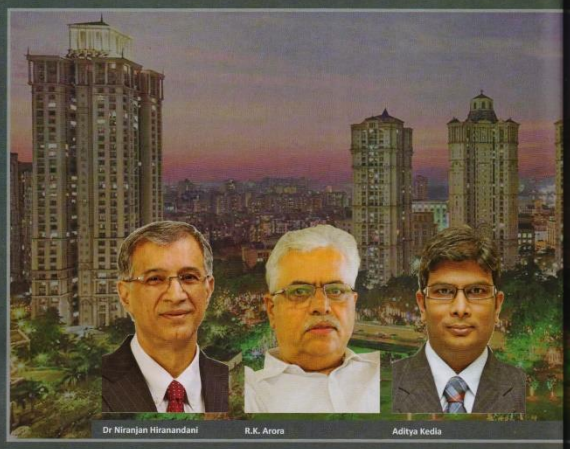

Dr Niranjan Hiranandani R.K. Arora Aditya Kedia

Farshid Cooper Rakesh Reddy

Resurrecting The Sector

India's Real Estate Sector is seeing a resurrection with the several structural changes initiated by the government in 2017. The Government has put housing on a high growth trajectory by offering tax and fiscal incentives to builders and consumers, and through new consumer-friendly policies.

It is anticipated that institutional financing, higher limit on external commercial borrowings (ECB) will attract more investments in the real estate and infra sector from FDI and FIIs. The Real Estate Investment Trust (REIT) is another instrument that has been welcomed by the industry. Though hiccups remain, and implementation is somewhat tardy, market players are optimistic of a positive outcome in the long-term.

Company heads of Hiranandani Group, Supertech Limited, Transcon Developers, Spenta Corporation, and Aparna Constructions, disclose the impact of the Government policies and regulatory changes on their business, their commitment to comply with the regulatory changes, and their anticipation of a resurgence in residential, real estate, retail, logistics and warehousing retail sectors, all of which bodes well for the Construction Equipment industry.

freedom to pick any part of the country for your storage needs. The warehousing sector is set to see a flow of private equity investments. It has been reported that the Indian supply chain arm of an international logistic major has committed a deal of more than $160 million to double its warehousing capacity. Many such investments are set to present large-format contemporary warehousing infrastructure in India.

Farshid Cooper, Spenta: In a country with a population of 1.2 billion, most of who are still to buy their first home, it is clear to me that residential real estate will likely attract the bulk of the investment. As our economy continues to open up and foreign companies look to enter, I expect the industrial and warehousing industry to also gain momentum over the next few years. The governments push towards 'Make in India' and the impetus given to start-ups, will also fuel growth. The ripple effect of this will spur consumption and growth in retail, hospitality and residential real estate as well.

Rakesh Reddy, Director, Aparna Constructions: The residential, real estate, logistics and warehousing and retail sectors are expected to attract new projects and investment in the next 2-3 years. In this years' Budget, the Government allocated Rs. 5.97 trillion in creating and upgrading the country's infrastructure in the current financial year. Affordable housing category, in particular, is expected to get a major boost with the budget allocation. MOUD's recent announcement to increase the carpet area definition for MIG and RBI's move to increase the loan limit under PAMY are initiatives that will generate positive momentum and surely work in favour of the industry players and in the best of interest of the home buyers.

Additionally, the risk associated with the sector has been controlled a lot with the introduction of RERA and the outcome is clearly visible with the measured yet steady return of investors in the market. Builders with a credible reputation will continue to launch new projects secured by trustworthy financial institutions and they will continue to market them to a highly responsive clientele. This is indeed the best time for home buyers to invest in real-estate for both personal use and futuristic investment.

Construction Equpment & Technology

What new construction technologies and equipment are you deploying for timely completion and good quality work of your projects?

Dr Niranjan Hiranandani: We follow global best practices, from Mivan shuttering technology and site cranes for high-rise construction to use of ready mix concrete as also enhanced mechanization. Most of these steps are being implemented by leading real estate construction companies across India, and we are very much in sync with the same.

RK Arora, Chairman Supertech We are the first developer in NCR to use Precast, Jump Form and Tunnel Form technologies that have enabled us to complete our projects at lesser time than industry standards, with its focus towards 'Pradhan Mantri Awas Yojana', an initiative towards 'Housing for All'.

Farshid Cooper, Spenta: Fortunately, or unfortunately in construction, there is no one solution or technology that works for all buildings or projects. So, the approach for us has always be one of 'Horses for Courses'. Import of technologies from the West has long been used and has often paid rich dividends as construction quality and speed improves. We continue to use various forms or shuttering materials, which tend to provide better quality and ease of work. What will be crucial to take the use of technology in construction to the next level will be the training of skilled labour to manage the technology and get the best

> "Although it was anticipated that GST will reduce property prices pan-India, we have in fact not seen such a significant impact on the ground. If the stamp duty and registration fees would be subsumed under the GST regime, we would definitely see the overall cost of property purchase come down. GST is definitely reducing developers' construction costs, and bringing transparency and accountability into the sector"
> **Anuj Puri, Chairman, Anarock Property Consultants**

use out of it. Further, I still think there is tremendous scope in the use of technology from a project management standpoint, something that we haven't yet been able to tap as a company.

Aditya Kedia, MD,Transcon Developers: We use first-rate construction technologies like safety drill and batching plans. We have a heat pump that is linked to solar panels to maximize sunlight. We use Fly Ash (a Pozzolanic material recovered from gases from burning of coal during electricity production). These micro-sized elements comprise of materials like alumina, silica and iron. When amalgamated with lime and water, Fly Ash produces a cementitious compound with properties like that of Portland cement. Due to this similarity, Fly Ash can be used to substitute a portion of cement in the concrete, delivering some distinct quality rewards. When used in the construction process of a building, Fly Ash concrete provides better-quality textural consistency and sharper detailing to a structure, and improved finishing to the entire building construction process, and reduces bleeding for architectural finishes.

In our next project-Fortune 500, we will be using the Flat Slab technique for podiums and Aluminium Formwork for superstructures. With flat slabs for podium we will get more headroom by eliminating beams and Aluminium formwork will save on time. This is because in this technique columns and slabs are casted in one go. Aluminium modular formwork, which has been in use for 20-25 years provides speed of construction and better quality over conventional shuttering. Aluminium shuttering is used for ease of erection and faster de-shuttering schedule. This is a repetitive nature of assembly process, and can be custom-designed to suit project requirements. High-quality components are manufactured to accurate dimensions.

In Aluminium formwork, columns and slabs are casted in one go and generally a 10 days slab cycle can be achieved in this technique. Erection of vertical reinforcement, internal vertical and deck shutter fixing takes a span of 4 days, beam and slab rebar tying, external vertical shutter fixing can be executed within 3 days, while alignment, checking and casting require approximately a days' time. External plaster is not required and masonry work is minimized which also saves the construction time and cost. In this formwork, 3 slabs can be casted in 1 month means RCC work of 56 storey building can be completed in 19 months including terrace slab where as it will take 29 months in a conventional structure. In this system one can save cost of external plaster as well as finance cost due to early completion.

However, in Aluminium formwork, if workmanship is not proper, then undulations are visible on the external surface and one cannot change the internal layout because of RCC walls. Large volumes of work are necessary to be cost-effective. The formwork requires a number of spacers, wall ties etc., these create problems such as seepage and leakage during monsoon. This formwork is easy to erect and quick stripping is possible due to V shaped prop head, which enables the beam and deck soffit removed without removing the props. Panels can be reused up to 250 times which makes the system cost-effective.

We do not use the Pre-cast construction method because this system requires careful supervision and more skilled workers. Uniform spacing between beams are required in the structure which can become difficult. Some materials are broken up and wasted during transportation. Moulds are costly and only suitable for mass production.

Rakesh Reddy, Aparna Constructions: We believe in using the latest technological advancements to deliver over and above what has been promised. Building Information Modelling, an intelligent 3D model-based process, is something that we use to get insights on how to efficiently plan, design, construct, and manage construction projects. We pride ourselves for being an environmentally conscious company and tools like energy modelling allow us to make our projects more eco-friendly. We conduct energy analysis during the conceptual designs of the building, so its efficiency is integrated into the design.

Every project by Aparna Constructions is designed to maximise natural light, energy and airflow. As part of our eco-friendly initiatives, our projects are designed to include zero discharge, rain water harvesting, solar heating and relatively low carbon footprint. Construction practices encourage reducing, reusing and recycling natural resources. Data also plays a major role in our planning and design. We test numerous designs before they enter the construction process. Policy compliance systems and technology leads to faster project approvals, reduced construction costs and reduced property costs.