

## Vertical Aspirations

Rajesh Kulkarni , June 23rd, 2009

Vertical development has for long been touted as the 'perfect solution' for a growing list of Indian cities struggling to meet the housing needs of their teeming millions and irate urban developers clamouring for affordable land in a lop sided demand-supply scenario. With approximately 70% of the country's population expected to be residing in urban areas by the year 2020 and space efficiency now treated on par with construction and energy efficiency, the demand for promoting vertical development has reached a crescendo in recent years. But do high-rise buildings with their rather unique ability to create a whole lot of real estate out of a fairly small of land actually offer a viable solution to resolve this vexed issue?



Leading industry players like Niranjn Hiranandani, MD, Hiranandani Group seem to think so. He says, "The increase in population has mandated that taller buildings be constructed in city and suburbs of Mumbai. Tall structures can accommodate more people in the limited resources of land. The taller the buildings, the lesser the ground area occupied by the buildings and consequently there is more land available for gardens, parking and other vital infrastructure facilities around the buildings."

According to Hiranandani, with land fast becoming a scarce commodity especially in metros, it makes sense to opt for vertical development. "High-rises are not a necessary evil in today's world, as wrongly represented in some of the media," he asserts. "They are a much better alternative to horizontal development as they help in accommodating the human population in a more intelligent fashion by which more ground space becomes available. Thanks to vertical construction we are able to provide complete, vibrant townships that can satisfy the home buyer in every possible way."

It's a view endorsed by others like Suresh Srinivasan, GM (business development), Sheth Developers Pvt Ltd, a Mumbai-based developer that has several completed and ongoing high-rise projects to its credit. "In my view, vertical development will go a long way in easing the housing shortage by making a large number of dwelling units available per unit of land area," says Srinivasan. "Moreover vertical development also reduces the footprint of a city, making it more compact. This in turn makes it easier and cheaper to provide adequate infrastructure support," he adds.

### Infra & FSI roadblocks

However while the existing chaotic urban scenario in most Indian cities might seem to make a strong case in favour of going vertical, the road ahead is not without its share of multiple challenges. "Although logically it makes sense to encourage vertical development given the rapid population growth, it creates additional burden on the existing infrastructure on account of increase in population densities," says Tikam Jain, VP (planning), Lodha Group, a leading player in the premium high-rise segment with projects like Lodha Bellissimo (48 storeys), Lodha Bellezza-Hyderabad (45 storeys) and the proposed Lodha Primero (52 storeys).

"Infrastructure today is a breeding ground for congestion. We need to drastically improve public infrastructure. Further there are technical challenges to deal with like the project's fire fighting capabilities, maintenance issues, is it earthquake resistant and providing adequate security," he adds.

"The primary reason for the slow pace of high-rise development in India are the absence of infra facilities that can support high density developments," concurs Srinivasan. "High-rise projects bring in more population and the supporting city infrastructure is not sufficient to handle the additional trips in terms of transportation. One possible solution could be the imposition of a development fee that could be used to augment the required infrastructure in the proposed location of a high density development."

While the lack of infrastructure is a major deterrent, Srinivasan points to the restrictions on the use of FSI in most cities as another major handicap that has dissuaded many developers from taking the vertical route. He says, "Many cities do not have an organized allocation of FSI in terms of separation of a Central Business District with that of other land uses."

"The rationale behind FSI restriction could be linked to the control of density due to inadequate infrastructure facilities which is primarily because of the lack of adequate technical capability of the city to handle municipal services."

### Design & Structural Challenges

The construction of high-rises is a specialised skill that involves several structural, safety and design challenges. There are therefore stringent guidelines specifying all aspects of compliances as required for disaster, fire safety and structural safety for high-rises in the National Building Code that have to be followed, without which the mandatory approvals required to develop such projects are not forthcoming.

So what exactly are the challenges posed by vertical development? "High-rise structures pose particular design challenges for structural and geotechnical engineers," explains Jain. "Geo-technical risks caused by seismically active region or underlying soils having high compressibility have to be carefully considered in designing the structures."

"Also severe wind pressures are to be taken in to account while designing tall structures," adds Jain. "Contingency measures for quick evacuation through staircase and lifts in case of emergencies should be carefully thought of and provided for."

"Typically high-rise structures demand careful planning in terms of providing adequate car parking, water supply, sewage disposal

and fire fighting facilities," avers Vinay Phadnis, CMD of the Pune-based Sahil Group. "Their structural design should be able to withstand lateral loads, increased wind pressures and gravity loads that entail the use of high performance concrete for construction."

"Super tall buildings also require the use of extremely sturdy building materials and deep, fortified foundations," adds Phadnis. "Then there are the challenges posed by maintenance and repair issues. For example, the structure must be designed in such a way to enable easy access to the repair areas at any given level, via high-speed elevators and the use of an efficient communications system. Most importantly the project should give top priority to the safety of the building owner, tenants and crew."

### **Green norms for new bldgs**

In its endeavour to make the construction and housing sector adopt green standards, the government has decided to make it mandatory for new buildings to undertake energy efficient measures, rainwater harvesting and use recycled construction materials (under the sustainable habitat mission of the National Action Plan on Climate Change) by the end of next year. Pending approval from the Prime Ministers Council on Climate Change, several existing norms that promote eco-friendly construction will be converted into a national standard to ensure uniform application across the country. These norms will mandate minimum energy performance standards for residential and commercial buildings pan-India.

It's an initiative that has been largely welcomed by the construction and realty fraternity. "Across the world, governments are making concrete moves to promote green construction hence this is a step in the right direction," feels Srinivasan. "As a company we are also in the process of acquiring IGBC certification for our projects like Viva City (Thane) and Cynergy, our upcoming commercial & IT project at Prabhadevi (Mumbai)."

Voicing his perspective, Vishwajeet Jhavar, CMD of the Pune-Marvel Realtors, a leading player in the premium residential segment says, "As a rule, people tend to have this fixed notion that high-rise buildings use a far greater amount of energy (than conventional buildings), to maintain and operate facilities like high-speed elevators and other HVAC systems."

"This is a myth which needs to be erased," stresses Jhavar. "High-tech sensors that help in conserving energy and water are now being used across most high-rise projects. The other aspect that we are focussing on is the use of environment friendly building materials and efficient drainage and sewage systems at our projects."

Others like Jain fear that changes in government policy could only add to the procedural delays faced by most developers venturing into the high-rise domain. "Nobody is clear about the procedures. High levels of corruption and red tapism further hinder the development of high-rise projects. There is a need for clarity in procedures and transparency in activities if this category of development is to be encouraged in the country."

### **The Way Forward**

Industry players like Jhavar are confident in their belief that high-rises can play an important role in resolving the housing crisis of urban India. He says, "In all the major cities in the world, the development of high-rise buildings is encouraged particularly in densely populated downtown areas as they add to the existing residential and office space and also facilitate additional open space on the ground. This is valuable alternative wherein land prices are also controlled given the increase in supply."

According to the Emporis Standards Committee, the world's Top Ten high-rises are scattered across the globe in Taipei, Shanghai, Kuala Lumpur, Chicago, Hong Kong, Guangzhou, Shenzhen, Canada and New York. India clearly has a long way to go in a world that's increasingly embracing high-rises as an acceptable solution to house a growing population on a limited land mass.

As Phadnis puts it, "We are behind by atleast 25-30 years in the development of high-rises compared to other countries. Given the population growth in India and the increasing pressure on land in urban metros over the last few decades, we cannot afford to lag behind anymore."