Low Cost Housing in India

Neha Verma Madan¹, Mr. Rahul Shukla²
¹,²Department of Civil Engineering, COEP, INDIA

ABSTRACT

Driven by increasing urbanization, rising incomes and decreasing household sizes, the residential demand in India has been on an upswing over the past few years. The Working Committee of the 12th Plan (2012-17) has concluded that the total shortage of dwelling units at the beginning of Twelfth Plan Period i.e. 2012 is 18.78 million units with more than 96% of the shortage of dwelling units is for middle and low income brackets. In the 11th Plan the total shortage of dwelling units for middle and low income brackets was 70%. Unfortunately this figure is often overlooked by development agencies because of lower profitability as the construction cost of buildings built from conventional construction technologies is very expensive and affordable housing doesn’t generate better returns for these agencies. It is imperative to work towards new technologies that can help in reducing the overall housing costs. In the last few years many developers have experimented with technologies that can lower down the overall costs of construction cost thus making housing an affordable reality to people from bottom of pyramids. My paper will explore affordable housing needs in India and present successful case studies of affordable housing projects in Maharashtra.

Keywords— Affordable housing, Low cost housing, Maharashtra, Urbanization

I. INTRODUCTION

Urbanization in India has occurred more slowly than in other developing countries and the proportion of the population in urban areas has been only 28 per cent based on the 2001 census. As per the Census of India 2011, the total population of India increased to 18% from 2001 and nearly 377.10 million people i.e. 31.16% were urbanized. In order to accommodate urban population there were 7,935 towns in the country¹. This number has increased by 2,774 since last Census. It is now been estimated that by 2030, another 225 million people will be added to the urban area which is more than the population of Japan and Germany combined. It took nearly forty years for India’s urban population to rise by 230 million but as per present growth rate it could take only half the time to add the next 250 million. Along with natural growth rate of population which is highest in India after China; migration is also one of the main reasons for burgeoning population in urban areas. Each year thousands of people migrate from rural or undeveloped areas to urban areas in search of better quality of life. The pace of urbanization is now set to accelerate as the country sets to a more rapid growth. Economic reform has already unleashed investment and growth offering its citizens rich opportunities. Increasing growth and employment in cities prove a powerful magnet to migrants².

Figure 1: Growth of Indian Cities

With such high influx it is very difficult for governing agencies to manage and provide urban amenities such as housing, water, power and open spaces. As the urban population and incomes increase, demand for every
key service such as water, transportation, sewage treatment, low income housing will increase five- to sevenfold in every city. If India continues on its current path, urban infrastructure will fall miserably short of what is necessary to sustain prosperous cities.

![Figure 2: Growth of Urban Population from 1951-2001](image)

Housing in Indian cities is a big problem. In the absence of better and affordable housing opportunities majority of people either opt for rental housing or resort to housing in the outskirts of city area that has no adequate transport facilities and other infrastructure amenities. With high land prices in the core areas of cities and high construction cost developers are bound to cater to middle and high income group. People belong to low income group are subjected to live in squatter settlements or rented accommodation and their dream to own their own habitat remains a dream forever. The present paper highlights the housing needs for urban poor and present successful case studies around the state of Maharashtra, India where developers provide affordable housing to people. The paper is divided into various sections, starting from the definition of affordable housing and need of affordable housing in India. The paper will eventually provide solutions that will help developers and policy makers in making affordable housing accessible to urban poor population in India.

II. AFFORDABLE HOUSING IN INDIA

The housing shortage is an important issue affecting large population in India. As the population as well as the economy in India is consistently growing there is a huge demand of housing, but the right supply to match this demand is not yet available in the market. This demand-supply gap is the root cause of housing shortage in India. The construction of housing units by developers are presently catering to the premium category and do not service LIG & MIG section of the society. Economically Weaker Sections (EWS) and Low-Income Groups (LIG) constitute more than 99% of the total housing shortage of 24.71 million in urban areas in 2001. There is a need of affordable housing projects to service the need of this segment of the society.

Affordable housing is a term used to describe dwelling units whose total housing costs are deemed “affordable” to a group of people within a specified income range. The generally accepted definition of affordability is for a household to pay no more than 30% of its annual income on housing. Households paying more than 30% of their income for housing are considered cost burdened and may have difficulty affording necessities such as food, clothing, transportation and medical care. The lack of affordable housing is a significant hardship for low-income households preventing them from meeting their other basic needs, such as nutrition and healthcare, or saving for their future and that of their families. National Urban Housing & Habitat Policy 2007 as well as the Eleventh Five Year Plan remains silent on the actual definition of EWS & LIG housing (affordable housing); however the derived definition of the same happens to be minimum 250 sq. ft. for EWS, minimum 300 sq. ft. - 325 sq. ft. for LIG and minimum 650 sq. ft. for MIG.

**TABLE1: PARAMETERS OF AFFORDABLE HOUSING**

<table>
<thead>
<tr>
<th>Parameters</th>
<th>EWS/LIG</th>
<th>MIG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>300-600 sqft carpet area</td>
<td>Not exceeding 1,200 sqft carpet area</td>
</tr>
<tr>
<td>Cost</td>
<td>Not exceeding 4 times the household gross income</td>
<td>Not exceeding 5 times the household gross annual income</td>
</tr>
<tr>
<td>EMI/RENT</td>
<td>Not exceeding 30% of the gross monthly income</td>
<td>Not exceeding 40% of the gross monthly income</td>
</tr>
</tbody>
</table>

**Affordable Housing: Key Issues**

Important issues related to providing affordable housing area: Location and land cost, amenities, infrastructure, construction cost, unit size and pricing. Both government and private players are currently struggling with these issues to promote affordable housing in the country.  

**a) Location/Land Cost**

For an affordable housing project to be economically feasible, the land has to be available at relatively lower cost. Low cost lands are typically located on the outskirts of the city. Affordable housing projects require large tracts of land, which are not easily available in a land scarce country like India. The land parcels for affordable housing projects are generally located on the outskirts and are of agricultural use. Conversion of agricultural land into non-agricultural land involves bureaucratic issues.
Since these projects are located at the outskirts, connectivity becomes a major challenge. Linkages to the city or any other commercial development have to be ensured, same can be developed by starting a bus service or improving the rail frequencies to such locations. Also the infrastructure in the vicinity has to be developed with respect to schools, colleges, hospitals, shopping area.

There is a need to give additional FSI (Floor Space Index) to the developers keeping a condition that the developers will also make provision for infrastructure like roads, and other open spaces

b) Amenities

An affordable housing project does have luxury amenities like swimming pool, club house, and gymnasium.

If not luxury, basic requirements like 24 hours electricity, water supply, children's play area, bus service, community hall or a garden can be incorporated in such projects.

These cost savings can help in keeping the unit prices in such projects on the lower side.

The monthly maintenance, a recurring monthly cost to a tenant, is also scaled down by reducing amenities.

c) Infrastructure

Since such projects are located on the outskirts of the city, the connectivity to the city should be improved. Since land acquisition at affordable prices can happen only on the outskirts of the city, this creates hurdle to connectivity with the commercial developments or the employment place which are generally located within the city.

Apart from connectivity, facilities such as schools, hospitals, libraries, and markets for daily utilities and other commercial establishments have to be set up.

Entertainment avenues such as a garden, playground, cinema theatre also need to be established. Government can provide support to the private players to develop such infrastructure services.

d) Construction Cost

The idea of prefabricated low-cost projects in housing is gaining momentum in the Indian markets. Increasing costs of cement & steel lead to an increase the overall cost of construction.

As per the industry experts, the cost of construction of precast projects (technology based construction) is lesser by 20 to 50 %, however to achieve economies of scale, a minimum of one million sq. ft. is required to be built.

The technology has to be repeated in multiple projects (at least 4-5 times) to save costs.

Also technology based construction saves time thus leading to faster completion of projects; however it requires more skilled labour.

Another point of contention is the cost of material required for construction. Of the total cost of construction of a building, 65 to 75 % is spent towards the building materials.

e) Size of the unit

The size of the unit is decided by the affordability of the buyer and what is economically feasible for the developer.

These units can be in the form of 1 RK (Room Kitchen) or 1 BHK (Bedroom Hall Kitchen) for EWS / LIG segment.

For the MIG & HIG segment, the housing units can also be 2 BHK & 3 BHK respectively

f) Pricing

Pricing is critical factor in any affordable housing project.

Pricing depends on the affordability of the target audience, location and construction cost.

Affordable housing projects should be valued taking into consideration EWS & the LIG segment.

Loan eligibility is derived from the fixed gross monthly household income of the individual.

This affordability will differ from city to city as the median income in each city is bound to be different for different income classes.

III. CHALLENGES

The Government of India has adopted various measures to meet the increased demand for affordable housing along with some developers and stressing on public-private partnerships (PPP) for development of these units. This will enable a sustainable and economically viable affordable housing model for both government housing agencies and as well as private developers. With the 74th amendment to India’s constitution and the Jawaharlal Nehru National Urban Renewal Mission (JNNURM), India took the first steps toward urban reforms. Going forward, the central government played catalytic role accompanied by a supporting package of incentives.

Major challenges in Affordable housing sector

In Mumbai and the Delhi-National Capital Region, affordable housing projects are 65-75 km from the city centre. In Bangalore, Pune and Chennai, such houses are 25-30 km from the city centre. In Ahmedabad and Kolkata, however, the distance is 15-20 km. Despite cheap land, some developers offer premium properties at these locations. In peripheral areas, the cost of developing infrastructure is huge as the local authorities do not extend any support. After spending such huge expenses, providing low-budget houses is not feasible therefore developers offer ‘second homes,’ a lifestyle product sold at a premium cost.

Along with land cost, time for construction activity is also important. A developer should be able to complete construction in 18-24 months. If the construction time is extended, input costs go up significantly.
days, developers are adopting latest technologies to cut cost and time. Low-cost technologies and raw materials such as reinforced concrete blocks, pre-cast hollow blocks, pre-cast lintels, floor tiles, pre-fabricated panels and polymer panels for doors and windows can reduce the construction cost by 20-30 per cent. Though developers are building more low-cost homes, the segment continues to face challenges.

On the supply side, there are issues such as lack of availability of land in urban areas, rising cost of construction and regulatory roadblocks. On the demand side, lack of access to home finance impacts the ability of low-income groups to buy houses in the organised sector.

Another obstruction on proving affordable housing to masses is not getting approvals and licences on a prescribed time interval. New authorities for getting approvals are regularly been proposed by the government without removing old ones. For instance, before India’s Independence in 1947, the Collector's approval was required for clearing the housing project. Now, approval from town-planning authorities is necessary. In peri-urban areas, panchayat's (village council's) approval is also necessary, although it does not have the technical expertise for that.

Use of alternative construction technologies

Most of the affordable housing projects are now experimenting with alternative construction technologies. Between 2009 and 2011, labor costs in India have risen 50% while prices of raw materials-steel, cement and bricks-have grown 25%, due to this scenario developers are experimenting on the use of prefabs, which promise to save a third in construction time and 10-15% in costs over the long run. The primary cost benefits of pre-fabricated structures are derived from the speed of construction and the optimization of raw materials. Integrated engineering design and detailing make it possible for pre-fabricated structures to be erected at a fraction of the time that it would take a conventional building to be erected. The time savings contribute to lower interest during construction costs and thereby lead to commencing commercial activities far earlier. The optimization of raw materials has the effect of reducing material cost of the building. Lowering the weight of the structures brings about significant savings in the foundation cost.

IV. BUSINESS OPPORTUNITY

There is a huge demand for low cost housing in India. In the current market demand, from population in urban area earning between Rs. 7,000-Rs. 20,000, of approximately 18 million housing units there is a business opportunity of Rs 1,300,000 crores (approximately $238 billion). However, it is only a small share of the actual affordable housing demand because it excludes rural population and lower income groups (earning less than Rs 7,000 per month) where no profitable business models without government intervention such as welfare schemes have been identified so far. Despite a vibrant affordable housing market in India, quality housing in the formal sector is beyond the reach of the vast majority of these middle and lower income households. Monitor Inclusive Markets conducted a study in 2006-07, which found that even the cheapest houses in the market, were at best affordable for the top 15% of the urban population. Customers in the next 30% income segment generally rented rooms in slums and low income neighbourhoods. They are subjected to live in poorly constructed houses with deplorable sanitary conditions (shared toilets, unmanaged drainage and water logging), devoid of basic neighbourhood amenities such as gardens, parks for children to play, these neighbourhoods and slums do not guarantee safety.

From the last many years real-estate developers in India have misconceptions related to profitability of affordable housing. But, in recent years many developers have ventured into this area and made profits. With huge business opportunity, it is pertinent to shift focus on changing the conventional construction methods and finance mechanisms related to low cost housing. In the current scenario the approximate construction cost of any housing is Rs 900-1200 per sqft. With such a high construction cost per sqft along with high land cost it is very difficult for developers to offer affordable housing as it doesn’t give them better rate of returns. New technologies such as pre-fabricated housing techniques are reducing the overall construction cost and decrease the time for delivery thus saves overall cost.

Business Model for Low-Income Housing

Building a low-cost or affordable housing requires a business model that entails the following three key elements:

- Land as inventory
- Site selection
- Quick rate of returns

a) Land as Inventory

In the conventional housing model developers treat land as an asset and not inventory. Developers buy a huge piece of land in the city and begin constructing at the periphery of this property. They then wait for the price of rest of the land to appreciate before constructing further. A traditional developer buys a land for Rs. 100 a sq ft, holds on to it for a few years till he construct a building and then sells it for as high as Rs. 10,000 a sqft.

The business model for affordable homes is different from conventional housing model. Developers interested in constructing affordable housing units buy land on the outskirts of the cities because it is cheaper and treat that land as inventory. Since the construction cycle is short, all the units must be sold and constructed at one go. The affordable housing units need to be small in size and well designed for efficient use of space. In this model, the land cost is recovered through down payments and
construction is financed by the construction-linked payments made by the customers’.

b) Site Selection (Outskirts of City)

The cost of land is vital to the profitability of the project. A low-income housing land parcels are generally located in suburbs of the city that have adequate social infrastructure such as markets, schools, hospitals, and are directly connected to public transportation. Site selection needs to achieve a balance between limiting land cost as a percentage of total project costs, and providing access to economic and social infrastructure for low-income customers.

c) Quick Rate of returns

Developers generally manage to sell their affordable housing units as soon as they are launched due to high demand. This translates to increased access to construction financing for developers. These housing projects typically require shorter construction timelines (12-18 months), as opposed to three to four years for a traditional project. This allows developers to receive their return more quickly and thus increases IRRs. In India customers’ down payments are typically 20 percent of the house price, and this covers developers' land acquisition costs. The money required to fund construction is supplied through banks and housing finance companies. Since developers recover their entire upfront investment in land early in the construction process, subsequent working capital needs are marginal and project IRRs become very attractive.

IV. AFFORDABLE HOUSING- MAHARASHTRA

From many years big names in real estate sector have focused on the high-end, luxury and upper-middle segments of the housing market as these housing fetch high margins. But during the financial meltdown of 2008-2009, the market for high-priced homes collapsed, and then many players in real estate sector saw an opportunity in lower-income segments. Leading developers like DLF, Unitech, Tata Housing, Purvankara, Omaxe and others announced new projects in the Rs. 20 lakh per unit category. In 2010 the real estate sector witnessed many affordable housing projects providing good quality, multi-family units in the range of Rs. 3 lakhs to Rs. 7 lakhs price range (approximately US$6,500 to US$15,100).

Tanaji Malusure City (TMC)

The government of Maharashtra recognises the importance of rental housing in providing affordable housing to the EWS/LIG category and this is explicitly reflected in its housing policy. In pursuance of the Maharashtra State Housing Policy 2007, Mumbai Metropolitan Regional Development Authority (MMRDA) formulated a scheme to build small rental tenements targeted towards the LIG category to be made available at a reasonable rent. MMRDA in partnership with a Private builder is taking one such initiative next to Karjat Railway station in Tanaji Malusare city near Mumbai. Under this scheme 6000 tenements are to be provided to MMRDA free of cost which it will use for rental purposes. The developer will get 4 FSI out of which one FSI is stipulated to be used towards building rental housing and the rest three for LIG, HIG housing and commercial purposes.

There is a current shortfall of 200 thousand affordable housing units per annum in Mumbai Metropolitan Region (MMR). Out of these 200 thousand housing units government is only able to provide 40 thousand units per annum. In this huge supply-demand gap there are developers in MMR trying to bridge this gap by introducing their low-cost housing projects.

Tanaji Mulasare City, now known as Sheltrex karjat, located in the village Shirse and Akurle of Karjat, provides 15,000 affordable apartments over a 100 acre plot. The project is initiated by Matheran Realty. The affordable housing units range from 156 sqft to 397 sqft, and are approximately priced between US$4,500 to US$16,500. Along with the quality construction TMC has also earmarked space for amenities like schools and hospitals, fire-stations, police-stations. It is one of the largest affordable housing developments in India.

Instead of relying on conventional construction technology using brick and mortar, the affordable housing units at TMC city are using Sterling (SCS) technology. This technology is a concrete building technology based on a prefabricated walling system comprising of galvanized steel stud framing and fibre cement board that serve as a finished wall surface.

When filled with concrete this forms a monolithic structural load bearing wall. The technology makes construction processes less manpower dependent without compromising the durability and quality.

TMC City was first launched in Mumbai in September 2008. Within few hours of its launch 66,000 applicants applied for the first 3,000 homes, thus proving the demand for this type of housing. This project strongly appeals to a large number of people who travel to Mumbai from Pune daily for work as the project is connected through suburban rail and road including the Mumbai-Pune expressway.

ShubhaGriha- TATA Housing

This affordable housing project is located near Tarapur industrial area, (MIDC) Boisar, District Thane, Mumbai. ShubhGriha is Tata Housing’s flagship plan to bring affordable housing to lower middle and middle class households. It offers 70% open spaces, eco-friendly design, playground, gym and jogging track. The units range from 283 sqft to 489 sqft and are priced between US$8,500 to US$15,000.

Equipped with all modern amenities and facilities, the project has used pre-cast or pre-fabricated construction techniques to maintain the affordability of project. This project defines an innovative example of affordable, high
density residential communities made delightful by the introduction of sustainable strategies, efficient construction technologies and proximity to mass transit.

V. CONCLUSION

The above discussion clearly shows that there is huge opportunity for developers in affordable housing sector. Plaswall, sandwich panels, polyurethane composite panel system are some of the construction technologies available in the market that can be a alternative to traditional housing system. Developers are now experimenting with these technologies in their affordable housing projects. With rapid urbanization and need for quality housing, development of large-scale affordable housing is the greatest necessity of urban India today. With projects such as TMC city, ShubhaGriha that has managed to provide quality housing to lower middle income group along with better rate of returns it is not a farfetched dream for urban people to own their own house in a city.

REFERENCES

[3] Deb, Karamchandani and Singh (2010).“Building Houses, Financing Homes, India’s rapidly growing housing finance markets for the low-income cluster,” report by Monitor group