

## **AFFORDABLE HOUSING REQUIREMENTS AND ITS DIMENSIONS IN INDIA**

**MAYANK KUMAR**

Civil Engineering, Dehradun, Uttarakhand, India 248002. mayankkumarkeshaw@gmail.com

**DOI : 10.36893.IJMIE.2018.V8I8.520-529**

### **Abstract**

India, the third-largest developing economy in Asia, has a special place in the world. The current administration is eager to carry out reforms necessary for recovering growth because of its focus on business and growth for the country. The real estate sector's significance becomes a significant area of relevance as India prepares for sustainable growth. Key elements that are anticipated to propel real estate demand in the country include rapid urbanisation and rising occupier demand. The government has highlighted the significance of the housing issue in the nation in response to this requirement. Fast-moving, inclusive, and sustainable growth are outlined in the Twelfth Plan of the Indian Planning Commission. Urbanization ought to be directed towards the inclusive and equitable development of towns and cities with suitable public amenities. The key would be to concentrate efforts on land and housing policy reforms, the transfer of authority to urban local authorities, the promotion of innovative housing finance, and measures for lowering project costs and schedule overruns. Planned urbanisation would guarantee that there are no slums in towns and cities and that all of their residents, even the socially marginalised groups, have access to sufficient possibilities for gainful employment and the highest possible standard of living.

Providing appropriate housing for 18.6 million households of its population, as of 2007, is a difficulty for India. Several obstacles, including an unorganised market, unequal development, a fragmented development strategy, and a discouraging rent control regime, plagued India's housing sector for many years. In this essay, these challenges are examined, combined, and a construction approach for the Indian housing market is suggested. In this study, cost effectiveness, resource efficiency, and environmental friendliness are used as the benchmarks for measuring sustainability. The main factors affecting access to shelter are the cost of a home and the availability of building supplies for its construction. Low-cost, effective resource use is

required for this. In this essay, the feasibility of lowering costs, cutting emissions, and creating jobs in the building industry is examined. According to recent government policy announcements, two million additional homes will need to be built per year to address India's present housing deficit. The "prefabrication" construction technologies as well as low-cost procedures are the ones that are analyzed.

**Keywords:** Housing; Low-cost housing; prefabricated house; India

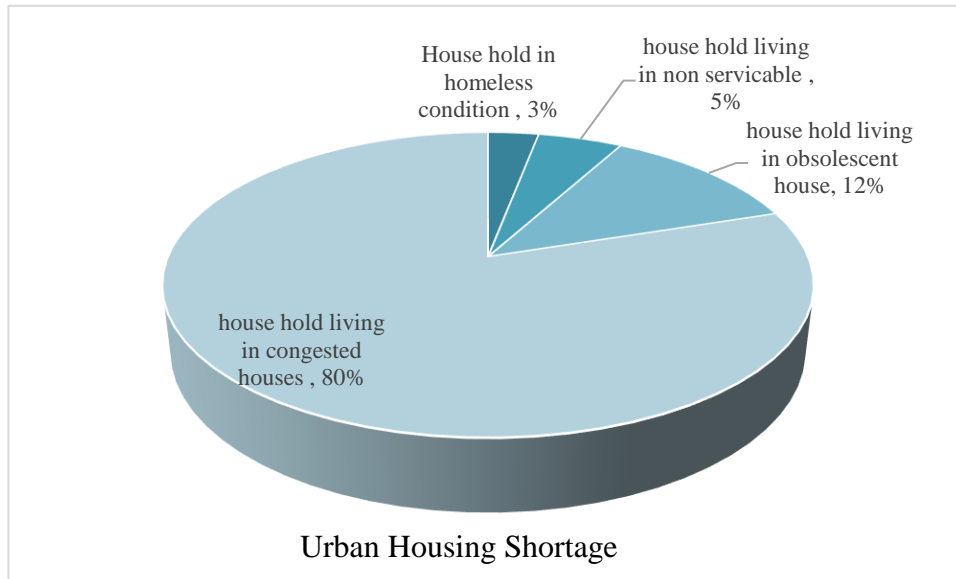
## **Introduction**

It's interesting to note that while there were 60 million more households in India between 2001 and 2011, there were also over 81 million more homes. In spite of this, the most recent official Economic Survey claims that India lacks approximately 20 million dwellings. One explanation for this is that many people cannot afford homes anymore because the majority of builders in India exclusively target the middle-class and wealthy population. Roy, U. K., & Roy, M. (2016)

The shortage of land and credit at acceptable rates is a supply-side limitation for low-cost and affordable housing, but the expanding middle class and urbanisation are demand-side factors. Due to the larger returns that can be obtained from such projects, real estate developers, private players in particular, have focused predominantly on the luxury, high-end, and upper-mid housing segments. Additionally, a number of structural problems, including the lengthy gestation period of housing projects, expensive and limited capital, rising land and construction costs, high fees and taxes, and unfavourable development norms are roadblocks preventing India from experiencing the desired growth in its housing stock. Bardhan, R., & Debnath, R. (2016).

At the start of the twenty-first century, the two most pressing issues in India are the provision of adequate housing and a sustainable environment. By creating a low-cost housing strategy, the issue of adequate housing will be solved. If a household can purchase a dwelling unit (either owned or rented) for up to 30 percent of its household income, then it can be said that low-cost housing is affordable for low- and moderate-income earners (Miles, 2004). Affordable housing is a relative notion that has more to do with budgeting. It aims to lower construction costs by using local resources, labour, and technology wisely while maintaining structural integrity and performance (Tiwari et al., 2007).

The idea of low-cost housing is new, and it deals with effective budgeting and the application of methods that lower construction costs by utilising materials that are readily available locally and advancing technology and skills without compromising the structure's durability, performance, or strength (Kumar, 2014; Civil Engineering Portal, 2011). Prefabrication technology lessens the amount of construction that must be done on-site, and low cost housing technologies also attempt to lower construction costs. Local and indigenous building materials, expertise, energy-saving techniques, and environmentally friendly choices are all important.



The population of slums and squatter communities has grown as a result of the growing concentration of people in metropolitan regions. The poor and the economically weaker segments of society have been forced to occupy marginal lands that are characterised by a poor housing stock, congestion, and obsolescence as a result of the skyrocketing prices of land and real estate in urban regions. Urban India is obviously facing a severe housing shortage, and there is a significant disparity between the amount and quality of housing that is needed and what is actually available. In 2014, the Ministry of Housing and Urban Poverty Alleviation (MHUPA) received a technical committee study that indicated that India's urban housing shortfall would affect roughly 18.78 million families. 80 percent of these households, in addition to those who

reside in outdated homes, are crammed into small spaces and in need of new homes. Additionally, the report points out that over 500,000 households are homeless and that close to one million households reside in unlivable katcha homes. King, R., Orloff, M., Virsilas, T., & Pande, T. (2017).

### **Conceptual understanding of Affordable Housing**

According to the RICS Report on Making Urban Housing Work in India, affordability in the context of urban housing implies providing "sufficient shelter" on a consistent basis, guaranteeing security of tenure within the means of the typical urban household. Affordable housing is defined as being offered to people whose requirements cannot be supplied by the open market, according to RICS Practice Standard Guidance Notes. Affordable housing is characterized in terms of three key factors, including income level, size of the dwelling unit, and affordability, according to the KPMG Report on "Affordable Housing - A Major Growth Engine in the Real Estate Sector." While the first two factors are independent of one another, the third parameter is a dependent variable that is correlated with both income and estate prices. Kalidindi, S. N. (2016)

For a household to spend no more than 43% of its yearly income on housing, according to the US Department of Housing and Urban Development, is the generally accepted definition of housing affordability. Families who spend more than 30% of their income on housing are said to be cost-burdened and may find it difficult to pay for basic needs like food, clothing, transportation, and medical care. According to the Task Force on Affordable Housing, which the MHUPA established in 2012, the size of the home and the affordability of housing are used to define affordable housing for different population segments. Madan, N. V., & Shukla, R. (2015).

With its revised Guidelines for Affordable Housing in Partnership, which were published in December 2014, the JNNURM Mission Directorate of MHUPA also defined affordable housing. These traditional procedures take at least two to three months, yet there is a considerably greater demand for homes than there is capacity in the system. There is a need for an alternative construction technique.



Source: <https://forwardhousing.ca/the-benefits-of-affordable-housing/>

### **Low-Cost Construction Technology based on Prefabrication**

It has been discovered that cost-effective prefabrication construction technologies can significantly contribute to better construction practices and environmental protection in addition to lowering construction costs by reducing the quantity of building materials through improved and innovative techniques. It should be underlined that building safety and security are not compromised by prefabrication construction technology. The following are the specific steps taken for each step in the case study:

1. The foundation can be built using readily available materials like brick or concrete blocks to withstand lateral stresses buttresses at the corner. For the structure to be level and the weight to be distributed properly, the placement of support piers is crucial. To create a stable environment, the foundation must be built in a specific way.
2. According to the provided blueprint, prefabricated panels are put on the foundation. These panels are produced at a factory's construction department. Prefabricated panels are made of steel, cement, wood, and composite materials.
3. The use of prefabricated roofing systems is based on the idea that for roofs that are only supported, the slab's upper portion experiences compressive forces while the slab's lower

portion experiences tensile forces. Prefabricated panels are excellent at resisting tensile and compressive pressures.

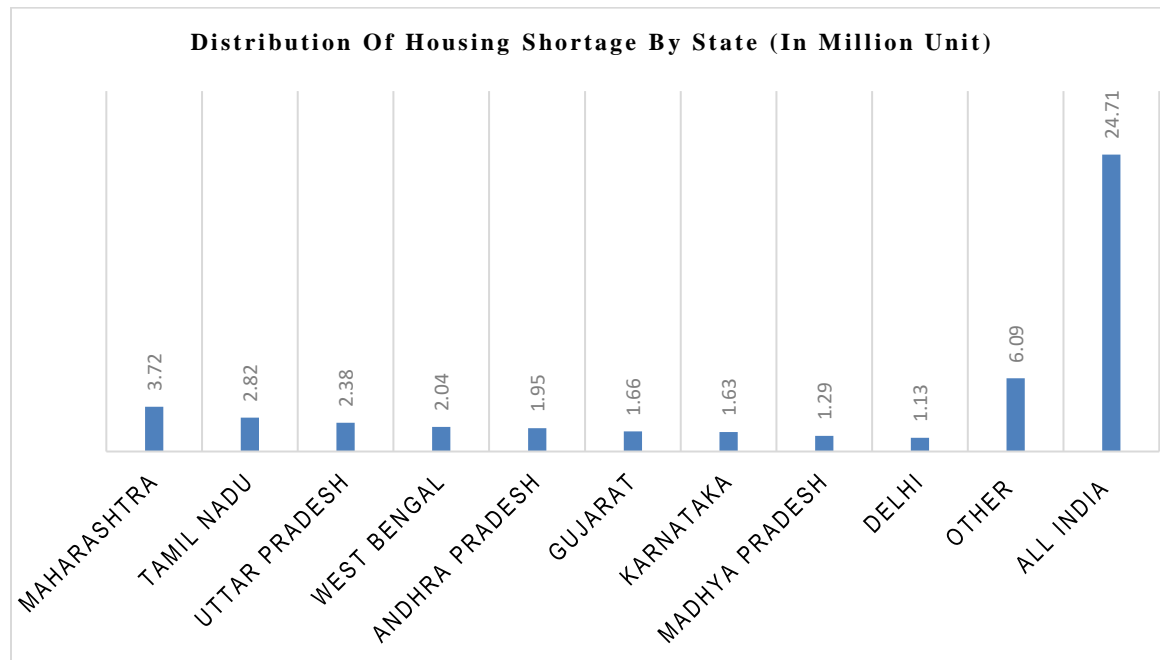
4. Often, terracotta tiles or colour oxides are used for flooring. Broken brick bats are used to make the bedding. Depending on the shape, size of the tiles, length of the flooring, and preferences of the client, different patterns and designs are employed.

5. Avoiding door and window frames can significantly lower the cost of the timber used, which accounts for roughly half of the cost. Doors are made of door planks that are connected together with strap iron hinges and can be carried by a "holdfast" anchored into the wall. A vertical plank that is about 10" wide and put into two holes—one at the top and one at the bottom—makes up a frameless window. This creates an easy pivotal window. Wide span windows may feature rows of pivotal planks or may be partially framed and fastened to walls.

#### **Prefabricated low-cost housing technologies:**

When building using the prefabrication approach, ready-made, self-supporting components are employed, which significantly reduces the requirement for scaffolding, formwork, and shuttering. Because structures are constructed and finished faster using this technology, labour costs are lower. Construction on-site and traffic jams are reduced. Construction sites might not be the best environment for quality control, but factories with assembly lines often are. If there is a shortage of specialised labour and where labour, power, material, space, and overhead costs are lower, prefabrication can be done. Minimize time spent at the work site in inclement weather or dangerous conditions. Maybe there's less trash. Improved airtightness, thermal and acoustic insulation can be achieved by using modern materials like sandwich-structured composite.

In 2006, there were 27.43 million more homes needed than there were available, according to the Ministry of Housing and Urban Poor Alleviation. This gap won't ever be filled if these dwellings are built using the standard construction technique. But, if prefabrication is used in the construction process, this will be extremely beneficial in removing the housing shortage. Mishra, S., & Panda, P. (2017).



(Source: Ministry of Housing and Urban Poverty Alleviation September 2010)

**Fig.1:** Distribution of Housing Shortage by State

## Conclusion

The majority of people looking to purchase a home in an urban region are those who have lived there for a while and need new homes due to expanding families. As a result, this strategy only addresses a portion of the target demographic that requires inexpensive housing. Additionally, there is no assurance that projects funded under this methodology will benefit genuine needy people rather than speculative investors. City migrants who cannot instantly afford to buy homes but are able to rent housing facilities are another target group in need of affordable dwellings.

It is vital to use low-cost prefabrication housing technologies for the building in order to address the issue of housing and providing shelter for the general public, especially for low- and middle-income households. In this study, the cost-effectiveness of prefabrication housing technologies vs conventional construction techniques was compared. It was discovered that employing the prefabricated building technology reduced construction costs by roughly 56.76% and increased savings by one-fourth. On the basis of this, it is suggested that the prefabrication house technique be used to address the housing deficit in the Indian context.

The limited urban infrastructure is under stress due to the rapid rate of urbanisation and migration from rural regions, and the cost per square foot of built-up area has increased as a result of the inefficient use of urban land (low FAR/FSI). A crucial consideration for the government to offer an enabling environment for housing development is also likely to be the lack of expansion in the housing development capacity in terms of construction capability, workforce availability, building material, and housing affordability. The majority of housing development may be required for EWS/LIG households (in both rural and urban areas), and it is this market for affordable housing in cities that needs the renewed attention of the federal and state governments.

### References

1. Roy, U. K., & Roy, M. (2016). Space standardisation of low-income housing units in India. *International Journal of Housing Markets and Analysis*, 9(1), 88-107.
2. Bardhan, R., & Debnath, R. (2016). Towards daylight inclusive bye-law: Daylight as an energy saving route for affordable housing in India. *Energy for sustainable development*, 34, 1-9.
3. Mohit, M. A., Ibrahim, M., & Rashid, Y. R. (2010). Assessment of residential satisfaction in newly designed public low-cost housing in Kuala Lumpur, Malaysia. *Habitat international*, 34(1), 18-27.
4. King, R., Orloff, M., Virsilas, T., & Pande, T. (2017). *Confronting the urban housing crisis in the global south: Adequate, secure, and affordable housing*. Washington, DC: World Resources Institute.
5. Sherfudeen, A. P., Kumar, N., Raghavan, N., Pillai, R. G., & Kalidindi, S. N. (2016). Promoting precast concrete for affordable housing—An overview on promotional policies worldwide and challenges and possibilities in India. *Indian Concr. J*, 90, 13-25.
6. Madan, N. V., & Shukla, R. (2015). Low Cost Housing in India. *International Journal of Engineering and Management Research (IJEMR)*, 5(5), 46-51.
7. Mukherjee, M., Roy, U. K., Biswas, A., Arora, K., De, B., & Srivastava, A. (2016). Changing paradigms of Affordable Housing in Independent India. In *3rd Residential Building Design & Construction Conference-March* (pp. 2-3).



8. Panda, S., Chakraborty, M., & Misra, S. K. (2016). Assessment of social sustainable development in urban India by a composite index. *International Journal of Sustainable Built Environment*, 5(2), 435-450.
9. Sengupta, U. (2011). The housing triangulation: A discourse on quality, affordability and lifestyles in India. *open house international*, 36(3), 16-26.
10. Force, H. L. T. (2008). Affordable Housing for All. *Ministry of Housing and Poverty Alleviation, Government of India*.
11. Lal, A. K. (1996). *Hand book of low cost housing*. New Age International.
12. Bondinuba, F., Karley, D., Biitir, S., & Adjei-Twum, A. (2016). Assessing the role of housing microfinance in the low-income housing market in Ghana. *Bondinuba FK, Karley NK, Biitir SB, Adjei-Twum A*, 44-54.
13. Mishra, S., & Panda, P. (2017). Affordable Housing in India: Issues and Directions for Reforms. *JIM QUEST*, 13(2), 42.
14. Mastrucci, A., & Rao, N. D. (2017). Decent housing in the developing world: Reducing life-cycle energy requirements. *Energy and buildings*, 152, 629-642.
15. Singh, V. S., & Pandey, D. N. (2012). Sustainable housing: Balancing environment with urban growth in India. *RSPCB Occasional paper*, 6, 17.
16. Khan, H. R. (2012). Enabling affordable housing for all—issues and challenges. New Delhi, India.
17. Lizarralde, G. (2014). *The invisible houses: Rethinking and designing low-cost housing in developing countries*. Routledge.
18. Nallathiga, R. (2010). Affordable Housing in Urban Areas: The Need, Measures and Interventions. In *7th Annual Thinkers and Writers Forum of the Skoch Summit held at India Habitat Centre, New Delhi on November* (pp. 10-12).
19. Pati, D. J. (2016). Affordable Housing for Urban Poor by Utilization of Solid Wastes as Alternative Construction Materials in India.
20. Bredenoord, J., & van Lindert, P. (2014). Backing the Self-Builders: assisted self-help housing as a sustainable housing provision strategy. In *Affordable Housing in the Urban Global South* (pp. 81-98). Routledge.

21. Ram, P. (2017). The Cyclical Interaction of Institutional Constraints to Formal Affordable Housing Market in Raipur, India. *Land Policies in India: Promises, Practices and Challenges*, 147-165.
22. Gangwar, G. (2016). Affordable housing: Reality or myth. *Indian Journal of Science and Technology*, 9, 30.