

# Affordable Housing: Study of Different Aspects, Financial Modelling & Analysis

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**ABSTRACT:** Over the last few years India has emerged as one of the global investments hotspots. This trend has gained momentum in the post crisis environment with the ongoing rebalancing of global economic activity from east to west. When these high levels of economic activity are combined with other factors like rapid urbanization, rising disposable incomes & an enormous population base eager to improve their lifestyle, the need for housing becomes obvious. Due to population growth day by day, rapid urbanization & inequality in financial conditions of people there is need for LOW-COST HOUSING in India. Low Cost Housing is a concept which deals with effective budgeting and following of techniques which help in reducing the cost of construction through the use of locally available materials along with improved skills and technology without sacrificing the strength, performance and life of the structure. Low cost housing is done by proper management of resources. Economy is also achieved by postponing finishing works or implementing them in phases. Present project study concentrates on: Financial models, Buying Behavior, Studying materials and technology for low cost construction.

**KEYWORDS:** Affordable Housing, Housing Affordability, Urban Poor, Governmental Programmes.

## I. INTRODUCTION

As per 2011 census, the country had a population of 1,210.98 million, out of which, 377.10 million (31.16%) lived in urban areas. This growing concentration of people in urban areas has led to problems of land shortage, housing shortfall and congested transit and has also severely stressed the existing basic amenities such as water, power and open spaces of the towns and cities. The economic crisis shadowing India is leading to rise of interest rate and credit unavailability. The real estate developers in such circumstances are having difficulties to find buyers for premium apartment. This has inspired as well as impelled developers towards cost effective housing. "LOW COST HOUSING" as a concept is very generic and could have different meanings for different people based on differences in income levels. Affordable housing refers to any housing that meets some form of affordability criterion. Different countries have defined affordable housing to present the economic potential of an individual buying a house. Affordable housing can be defined using three key parameters viz. income level, size of dwelling unit and affordability. While the first two parameters are independent of each other, the third parameter is correlated income. Housing costs here include taxes and insurance for owners, and utility costs. If the monthly carrying costs of a home exceed 30–35 percent of household income, the housing is considered unaffordable for that household. Being one of the largest countries in the world and possessing one of the largest populations in the world India still has lots of areas where it is lagging behind in comparison with the topmost economies in the world. Defining affordable housing in India is a difficult task given that at every square kilometre of the country, the dynamics of the market are different.

In city of Pune, on the basis of survey conducted by NGO MASHAL, 25.38 (32.5% of total population) lakhs people were residing in the total residential area within old city limits 147.53 sq.km. in 2011. According to Paperions, an additional 33 lakhs people in Pune will need 3.5 lakhs homes by the year 2027. Therefore, it is the need of the hour to redevelop such areas. This study encompasses the salient features of these cost-effective technologies. The materials and the technology utilized are analysed in this paper. Some of these include: Aesthetically pleasing and environment friendly Ferro-cement doors, Ferro-cement roofing channel, Pr-engineered Ferro-cement Toilets, Different types of filler Slabs. The objective of the paper is to study the feasibility of using this model for affordable and eco-friendly housing Papers.

## II. OBJECTIVE OF THE PAPER

- To Study Govt schemes to analyze the various initiatives taken by the government to give a boost to affordable housing ( toanalyze the sources of financing for slum )
- To conduct survey of LIG/MIG by (Questionnaires) Site visit to understand their needs & necessity.
- To analyze new materials and technology for affordable housing which are cost effective and ecofriendly?

## III.LITERATURE REVIEW

- 1) **Raj et. al. (Dec2018):** In this study the author has studied that the main causes of delay of project & to spot the delay factors and the result on the project completion by doing a case study in progress comes. By analysing the explanations for delay, potential recommendations square measure given. The major factors known during this case study square measure delays thanks to contractor, consumer and conjointly thanks to nature's act like rain. The most important causes were delays in contractor's payments, shortage of material in construction, change in material, the weather condition, shortage of manpower (skilled, semi-skilled and unskilled labor), frequent modification of staffs, poor web site management and improper management of the engineers. Some of the delays square measure delay in submission of drawings, house constraints, and delay in payment by consumer, delay in material offer and native issues like strikes. The major effects of delay square measure value impact, reduced labor productivity, postponement in work, change in labour allocation etc. Not all delays may be corrected; however, few of them may be overcome by up management responsibilities.
- 2) **Shaikh Ajim et.al. (Mar2017):** In this report the author discussed about some methods of low-cost housing given. First of all, in this report present situation present trends and future tends about low costing hosting in India is given. This report is mainly concentrated on chapter construction materials. A few low-cost materials are developed and discussed in this report. Housing is a basic need of human being. But this is out of the means of low-income householder who constitute majority of the population in the country. Low cost housing become must in civil engineering. The report is also including an important chapter as specification. The material needs for real construction of house are specified. For example, use of solid blocks or low-cost housing and bricks for common housing. One can say that low cost housing will be the construction using law cost material and only for the less income group. But it is not so. As explained above low housing implies availably material thus cutting the transportation and structure cost. When housing for millions of infrastructure material and other deep economic consideration take astronomical properties so essential it is through of as social housing for a use of people living in slums who cannot purchase housing of their own but not as a natural policy.
- 3) **Shaikh Ajim et.al. (Mar2017):** In this report the author discussed about some methods of low-cost housing given. First of all, in this report present situation present trends and future tends about low costing hosting in India is given. This report is mainly concentrated on chapter construction materials. A few low-cost materials are developed and discussed in this report. Housing is a basic need of human being. But this is out of the means of low-income householder who constitute majority of the population in the country. Low cost housing become must in civil engineering. The report is also including an important chapter as specification. The material needs for real construction of house are specified. For example, use of solid blocks or low-cost housing and bricks for common housing. One can say that low cost housing will be the construction using law cost material and only for the less income group. But it is not so. As explained above low housing implies availably material thus cutting the transportation and structure cost. When housing for millions of infrastructure material and other deep economic consideration take astronomical properties so essential it is through of as social housing for a use of people living in slums who cannot purchase housing of their own but not as a natural policy.
- 4) **Amol Prakash Tatiya et.al. (Dec2013):** In this study the author emphasizes on the use of low-cost construction techniques and materials for Slum redevelopment projects for affordable and speedy construction. A redevelopment plan (RDP) for TADIWALA SLUMS near Railway Station, Pune is proposed. Through this study it can be concluded that the burden on the Government agencies can be reduced from 50% to 5% of the total cost of the project or there may be no share or financial assistance from Government agencies. The subsidy thus saved could be used for other projects. Urbanization is emerging as the most pervasive and dominant challenge as well as opportunity today. As a result, they are increasingly facing the negative consequences of rapid urbanization, such as polarization of population in large cities, high density, slums and squatter settlements, acute storage of housing and basic civic amenities, degradation of environment, traffic congestion. People are forced to live in slums and



squatter settlements, in inhuman conditions that deny their dignity, shelter, security, and right to basic civic amenities. Therefore, slum redevelopment in urban areas is the need of the hour.

- 5) **Swaptik Chowdhury et.al. (April 2013):** In this paper author aims to bring together the studies of different construction materials keeping in mind their affordability. The use of natural materials like straw, bamboo, fibres (jute, coir), earth etc. is a centuries' old practice in India. These materials apart from being locally available have easy workability and speedy construction, hence reducing costs. Also, industrial wastes like fly ash and rice husk possess pozzolanic properties which can act as excellent substitute material. Managing the response to the ever-increasing housing needs of Indian population expanding by 1.3% every year, has long been a problem for its government. Providing affordable housing remains a major concern of the government as 37% of its population remains below the International poverty line. The paper presents work on low-cost and sustainable alternative building materials having advantages on areas such as India where concrete or steel housing is expensive. The project addresses the challenges and stereotypes of using these materials as a structural component for low-cost housing and their same capacity for adaptation to the broad spectrum of factors—physical, ecological, social, economic and technical—through different products developed which can dictate the production of the construction environment.
- 6) **P PBhangale et.al. (2015):** In this paper the author examined the cost effectiveness of using low cost housing technologies in comparison with the traditional construction methods. It was found that about 26.11% and 22.68% of the construction cost, including material and labour cost, can be saved by using the low cost housing technologies in comparison with traditional construction methods for walling and roofing respectively.
- 7) **Sukanya Ghosh1 et.al. (Jan2016):** Though study's author apparently indicates quantitative parameters like income as the main factor for affordability in governmental programmes, there are other affordability issues also which are neither straightforward nor quantitative but subjective and require detailed scrutiny. Moreover, problems of affordable housing in India are far more complex due to diverse ground realities.

#### IV.METHODOLOGY



## V. EXPERIMENTAL ANALYSIS

The benefits to society that can be seen through analysis is as follows

- To counter the various problems, optimum residential buildings have to be built in huge numbers, not only to prevent the expansion of slums and chawls, but also for its eradication
- This solution provides low cost houses that can be erected in a very short span of time and which have all features equivalent to or better than conventional houses.
- NGOs, Government Agencies, Corporates and Individuals involved in Rehabilitation/ Relief works can make use of our affordable housing solutions.



Benefits to Society

### JNNURM:

**Jawaharlal Nehru National Urban Renewal Mission:** It was a massive city modernization scheme launched by the govt of India under Ministry of Urban Development. It envisaged a total investment of over \$ 20 billion over 7 years. The scheme was officially inaugurated by PM Manmohan Singh on 3Dec2005 as a programmed meant to improve the quality of life & infrastructure in cities. It was launched for 7year period to encourage cities to initiate steps for bringing phase improvements in their civic service levels. The Govt had extended the tenure of mission for another 2 years.JNNURM was a huge mission which relates to development in context of urban conglomerates focusing to Indian cities. It aims at creating economically productive, efficient, equitable & responsive cities by a strategy of upgrading the social & economic infrastructure in cities, provision of basic services to Urban Poor (BSUPThe submission for basic services to Urban Poor (BSUP) administered by Ministry of Housing & Urban Poverty Alleviation with focus on development of slums.

### RamaiAwas Yojana:

Under RamaiAwas Yojana in Maharashtra, 1,01,714 houses have been sanctioned in Nagpur, Amravati, Mumbai, Aurangabad, Pune, & Nashik division for FY2018-19. The scheme sanctioned for poor families belonging to scheduled castes & nav buddha caste. The state govt. targets 200 to 300 houses in every district & the remaining people have to depend on Pradhan Mantri Awas Yojana to get own homes. The primary objective of Ramai Housing Scheme is to provide own roof to every homeless person & to realize the vision of "Housing for All". Under Ramai Housing Scheme, proper sanitation facilities would be provided to all the beneficiary households. The total no. of houses sanctioned for Pune division & Pune District under RamaiAwas Yojana 2018-19 is 12,830 houses.Maharashtra govt. has sanctioned more than 1 lakh homes under RamaiAwas Yojana for poor families belonging to scheduled castes and nav buddha caste. Under this scheme, the Social Justice department has sanctioned these houses in Nagpur, Amravati, Mumbai, Aurangabad, Pune and Nashik division for FY 2018-19. The state govt. targets 200 to 300 houses in every district and the remaining people have to depend on Pradhan Mantri Awas Yojana to get own homes. Check complete list of approved houses under Ramai Housing Scheme 2018-19. As per the information provided by Mr. Rajkumar Badole (Social Justice Minister), a total number of 1,01,714 houses have been sanctioned under RamaiAwas Yojana 2018-19.

He also said that this is the first time in the history of the state that such a huge number of houses for poor people have been sanctioned for construction purpose. The primary objective of Ramayi Housing Scheme is to provide own roof to every homeless person and to realize the vision of “Housing For All”.

#### **Pradhan Mantri Awas Yojana: (PMAY)**

PMAY is an initiative by govt. of India in which affordable housing will be provided to the urban poor with a target of building 20 million affordable houses by 31 March 2022. It has two components: PMAY-U for the urban poor & PMAY-R for the rural poor. This scheme is converged with other schemes to ensure houses have a toilet, Ujjwala Yojana LPG gas connection, access to drinking water & Jan Dhan banking facilities, etc. Total 88 lakhs houses are approved against total demand of 1.12Cr as of 29 Aug 2019. The features of the scheme are that the govt will provide an interest subsidy of 6.5% (for EWS & LIG) ,4% for MIG-I & 3% for MIG-II on housing loans availed by the beneficiaries for a period of 20 years under credit link subsidy scheme (CLSS) from the start of a loan.

#### **Eligibility criteria:**

- 1) Beneficiary max age 70 years
- 2) EWS family income limit is Rs.3 Lakhs per annum & MIG-I income between 6 to 12 lakhs per annum, MIG-II between Rs 12 to 18 lakhs per annum.
- 3) The beneficiary should not have an own dwelling unit on the name of any family member in any part of India.
- 4) The loan applicant should not have availed any central/state Govt subsidy or benefit for buying a home under PMAY scheme.
- 5) The home renovation or improvement loans, self-construction loans will be allocated only for EWS & LIG categories.

#### **3 Phases of PMAY envisage starting & completing the house construction work as follows:**

**PMAY Phase 1-** April 2015 – March 2017 to cover 100 cities.

**PMAY Phase 2-** April 2017- March 2019 to cover additional 200 cities.

**PMAY Phase 3-** April 2019- March 2022 to cover remaining cities.

Pradhan Mantri Awas Yojana aka PMAY or Housing for all is a housing scheme for all the people who belong to lower income group, economically weaker section and Middle Income Group in India. Launched in 2015, it is a housing development project from central government that will deliver 2 Cr permanent houses in urban as well as rural areas by the year 2022. The phase I of the project is already over by March 2017 and the second phase has already started. It is divided into two parts; PMAY Urban under PMAY-Urban, the houses will be constructed within the urban areas. Mainly the congested slums areas will be removed to deliver pucca or permanent houses to the inhabitants of the slums and other people from LIG, EWS and MIG categories. PMAY Gramin In the PMAY-Gramin scheme, people from rural areas will get their pucca houses. Those who are living in rented houses or own house but needs reconstruction, can apply for this scheme.

## **VI. CONCLUSION**

Since governmental affordable housing programmes for urban poor in India are associated with urban poor and other players who are playing roles with multiple objectives and interests, there is need for clearer understanding of underlying/subjective/qualitative issues of the programmes by analysing the base level inherent complexities associated with affordability. Problems associated with the programmes have to be looked into in an integrated manner as the complexities of the problem are not only dealing with quantitative data but qualitative data also. Quantitative approaches have inadequacies to understand problems of the programmes as there is varied nature of housing requirements of urban poor linked with varied priorities all over the vast country. There is a need for better understanding of underlying issues to address the root causes of the problem of affordable housing programmes. Unless these problem issues are properly addressed, affordable housing under governmental programmes in India would be far from the reach of the urban poor.

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