

A Research on Affordable Housing

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ABSTRACT

The need for achieving sustainability in social housing has been widely acknowledged in the literature and society in general. Housing problems occur both in rich and poor communities across the planet. The target of this research is to review housing problems which cause unwholesome environmental conditions. The tactic used could also be a review of educational articles, textbooks, internet materials, news articles and publicly available materials on housing problems. Onward taking up any work for its execution, the owner or builder should have a thorough knowledge about the volume of work that can be completed within the limits of his funds or the probable cost that may be required to complete the proposed work. It is hereby necessary to modulate the probable cost or estimate for the proposed work from its plan and specification. Otherwise, it may happen that the work has to be stopped in the middle of construction due to shortage of funds or materials. At present there is plenty of cost-effective technology which can be used for construction of affordable houses at large scales. But due to lack of their technical knowledge, they are still not in use. In future with the increase of their technical aspect, these technologies can be used for mass construction of affordable housing projects in India for the poor and needy.

KEYWORDS: *affordable, sustainable, housing, estimating, costing*

I. INTRODUCTION

Affordable housing can also be defined by simple 30% rule which evolved from the United States National Housing Act of 1937. It says that if the rent/EMI a family is paying is or less than 30% of their monthly income it is said to be an affordable house, whether it is more than 30% of their income then the family is presume to be cost burdened and may have difficulty allow necessities such as food, clothing, transportation and medical care.

Demand for affordable housing is driven by many factors in a country like ours, progressive urbanization, growing population which has increased from 109 million in 1971 to 377 million in 2011 and it is estimated to grow up to 600 million by 2030. The government of India is committed to provide housing to all by 2022. To fulfill this dream the government has to meet an estimated shortfall of around 18 million houses. Further it is estimated that the urban population in India will grow to approximately 810 million by 2050 this shows that there is a formidable gap in the housing sector. What makes this problem more peculiar is that around 99% of the estimated shortage is in the economically weaker section of the society.

The main problem being addressed in this study is the issue of achieving sustainability in SHP in the India (Bhopal) in order to meet housing needs. It is commonly acknowledged that the majority of low-income households cannot access decent housing due to the inability of the private market

housing to meet housing needs (Shelter England, 2013). This has resulted in a housing crisis, which has not been effectively addressed despite the intervention programmes of the government such as rent and mortgage subsidies and housing benefits (Drudy and Punch, 2002; Burkey, 2005; Rizvi, 2010). Vulnerable households are the most affected in terms of housing discrimination, stigmatisation, non-affordability and poor living conditions in degraded housing environments (Zakaria, 2007; Winston, 2009; Abidin, 2009).

The main principle cause of the housing shortage in India (developing countries) are, poverty, population growth and rapid increase in the rate of urbanization that has occurred in recent decades. Even if we come up with the most efficient housing system for the poor, it will be an extremely challenging task to cope up with such poverty. Housing facility requires time to build and only a limited portion of the government income can be devoted to house building. Economically advanced countries spend around 3-5% of their national income on housing production. Whereas developing countries like ours tend to spend more to build more houses, but such large allocations means there is less capital available for consumption and investment on other goods. The worst part of this situation is that no matter how economically developed a country is housing problems can never be completely eradicated. Extra housing is always needed at every moment as population tends to change every second.

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Table 1 Housing shortage among different income groups in India

Type	Monthly per Capita Expenditure	Estimated Number of Households (2007)	Housing Shortage in million (2007)	Percentage Shortage
EWS	0 – 3,300	21.81	21.78	99.9%
LIG	3,301 – 7,300	27.57	2.89	10.5%
MIG	7,301 – 14,500	16.92	0.04	0.2%
HIG	14,501 and above			
Total Shortage		66.30	24.71	37.3%

II. PROBLEM IDENTIFICATION

Housing problems occur both in rich and poor communities across the planet. The target of this research is to review housing problems which cause unwholesome environmental conditions. The tactic used could also be a review of educational articles, textbooks, internet materials, news articles and publicly available materials on housing problems. The work of previous authors was reviewed and found that they have a convergent view on residential problems including crowding, congestion, poor accessibility, substandard and inadequate housing, high cost of building materials, high rate of interest and lack of interest by financial bodies to facilitate loans to investors and uncoordinated policies by government.

The paper made the next recommendations:

1. Government should build low-cost houses to cater for the huge number of people who, because of their low-income earnings couldn't afford an honest apartment.
2. Development of economic, social and environmental policies that facilitate housing that's both affordable and sustainable by organization.
3. Improvement of sanitation in poor housing conditions through reclamation programme.

III. OBJECTIVE OF THE WORK

The Main motto of this research work will be to find an alternative solution to the above discussed problem for providing affordable housing-

1. To provide low cost housing to economically weaker sections (EWS), low income group (LIG), and some belonging to middle group income (MIG) also.
2. To reduce the cost of construction and construction time.
3. To study locally available and local construction techniques for cost effectiveness.
4. To critically review the concept of social housing and identify types of social housing and propose a definition for describing it.
5. To examine the concept of sustainable development (SD) and its requirements for achieving sustainability in social housing provision.
6. To examine the key constituents of sustainable social housing provision from economic, environmental and social perspectives.
7. To establish barriers to achieving sustainability within social housing provision.
8. To establish recommendations for achieving sustainability in social housing provision.

IV. METHODOLOGY

The Methodology of this research work is distributed in three parts:

- A. First part of the methodology is about the current housing condition in India, why there is such a huge demand for affordable housing and what are the reasons

which are holding back the development of affordable houses.

- B. In the second part work done on this present topic in the past was studied and various technologies which can be used for constructing affordable houses.
- C. Third part consists of the comparison between affordable house constructed by conventional method and using new cost-effective technology.

V. METHODS OF ESTIMATION

1. Long Wall - Short Wall Method

In this method, the wall along the length of room is considered to be the long wall while the wall perpendicular to the long wall is said to be short wall. To get the Measurement of Materials and Works length of long wall or short wall, first calculate the centre line lengths of the individual walls. To find the length of long wall, (out to out) may be calculated by adding half breadth at each end to its centre line length. Thus the length of short wall is calculated by subtracting half breadth from its centre line length at each end. Usually the length of long wall decreases from earth work to brick work in upper structure while the short wall increases. These lengths are multiplied by breadth and depth to get the quantities.

Length of Long wall = c/c length + half breadth (of wall) on both the sides.

Length of Short wall = c/c length – half breadth (of wall) on both sides.

2. Centre Line Method

This method is suitable for walls of similar cross sections. Here by the total center line length is multiplied by breadth and depth of respective item to get the total quantity at a time. As cross walls or partitions or veranda walls join with main all, the center line length gets reduced by half of breadth for each junction, such junction or joints is studied carefully as long as calculating total center line length. The calculations prepared by this method are more accurate and quick.

3. Partly Center Line and Partly Cross Wall Method

This method is adopted when external wall (around the building) is of one thickness and the internal walls have different thickness. In center line method is applied to external walls and long wall-short wall method is used for internal walls. This method is suitable for walls with different thicknesses and different level of foundations.

VI. RESULTS

Costs obtained of the Affordable House in Plane Region, using affordable housing technology and conventional materials has been compared. Total cost of the affordable house constructed using conventional method comes out to be Rs 4,52,669.67

And the total cost of affordable house using new cost-effective technology comes out to be Rs 3,61,475.52

From the result it can be concluded, that the house constructed using conventional method compared to house constructed using cost-effective technology, requires more building materials, more labour and is time consuming.

VII. CONCLUSIONS

Cost of the affordable house constructed using cost-effective technology comes out to be 20.1% less when compared to the affordable house constructed using conventional methods. House constructed using affordable housing technology not only proves to be economical but also, helps us in saving the total time of construction.

VIII. SCOPE OF FUTURE WORK

At present there is plenty of cost-effective technology which can be used for construction of affordable houses at large scales. But due to lack of their technical knowledge, they are still not in use. In future with the increase of their technical aspect, these technologies can be used for mass construction of affordable housing projects in India for the poor and needy.

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