

Challenges in Low Cost Housing in India

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Abstract: To have own house is the dream of every one. India is a country where every family dreams of staying in the house they own. But with the current increase in the land costs, construction material prices and labor charges, it is becoming difficult for middle class families to fulfill their dream of living in their own homes. Thus, the concept of low cost housing is introduced to give them a dream home in their budget. Although, there are number of problems rising in this concept nowadays such as increasing population density, scarcity of land, increasing cost of building material and many more. This project will give detail analysis of challenges in low cost housing, their solution and alternative ways for them.

Keywords: affordable housing, effective management, natural material, durability.

Introduction

Shelter is one of the basic need of human being. The housing market has undergone constant changes over the year. And it has changed for better. There is innumerable upcoming housing projects in India. But are they catering to the needs of people of lower income group? This projects are centering the idea of housing for higher income group. According to the survey, 41.6% population of India comes under economically weaker section who can't afford such a big housing projects. So, need of the hour is affordable homes. There is necessary of projects who gives more importance to the lower income group. With housing recognized as a basic need, governments at every level are discussing ways and means to provide access to housing for their citizenry. Affordable housing refers to any housing that meets some form of affordability criterion, which could be income level of the family, size of the dwelling unit or affordability in terms of EMI size or ratio of house price to annual income. The low cost housing is the best idea for the people who wants to buy their own dream home in their budget. It is new concept which deals with effective budgeting and following of techniques which help in reducing the cost 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 can be achieved by use of efficient planning and project management, low-cost materials, economical construction technologies and use of alternate construction methods available. Low cost housing, on other hand, is less expensive than average or than what one can afford. The use of natural materials like straw, bamboo, fibers, earth etc. is a centuries old practice in India. The profit gained from use of such methods can decrease the cost of construction and make the low cost housing accessible to all.

Importance

Affordable or low cost housing plays an important role in one's life. Studies show that quality affordable housing has multiple positive effects on people's health and well-being. From a national perspective affordable housing is one of the indicators of balanced growth in the country. When housing becomes unaffordable, there is either a bubble in the housing market with serious repercussions to economic market with serious repercussions to economic policy, or other imbalances in the economy. People under economically weaker section who are not able to afford housing, start living in slum area which indirectly affects in poverty level of country and their health. Urbanization and housing reveal a nation's economic growth and social wellbeing. The Government of India has recognized the need to fill the gap in urban housing. Besides, the government granted infrastructure status to affordable housing. Where people live influences where they work and how much money they make. Affordable housing development generates employment opportunities for the community and stimulates the local economy. Cities that lack affordable housing frequently become segregated and fail to meet the needs of families living under a variety of circumstances, leading to higher poverty rates and severe distress in poor, segregated neighborhood.

Challenges in low cost housing

Although low cost housing is the better way to provide shelter to the people under low income group, there are lots of challenges rising day by day. The biggest challenge is the increasing population density of India. How to fulfill the increasing demands of such a huge population is the huge problem before the developers. Increasing population leads to the scarcity of land in urban area. In addition, the lack of availability of urban land at reasonable price, rising costs of construction, high fees and taxes regulatory issues & unfavorable development norms are few of the major constraints, restricting the desired growth and implementation of affordable housing in India. Rapid urbanization is resulting in the increasing prices of housing and as well as of building material. As the scarcity of land occurs the prices of available urban lands are increasing rapidly which fails to cope the need of low cost housing. Land acquisition has been a thorny issue, giving rise to land mafias and encroachments, and reducing availability of land at an affordable price. Both land and construction costs have increased, compounded by price appreciation of construction materials and labour. From the customer's angle, obtaining finance is difficult even if the customers have regular incomes when they are employed in the unorganized sector or lack income proof as required in the loan process. Lack of government support is another challenge in affordable housing. Government needs to start various finance schemes for the weaker sections of society, low and middle income groups.

Observations

To overcome the challenges in low cost housing effective management is necessary. We can implement different building techniques to solve the problems in affordable housing. Recycling, extensive planning, modular planning, infilling are some of the solutions.

1. **Recycling** - to minimize the cost of housing many building components and construction debris can be recycled. We can recycle various materials like wood and rubber which are easy to recycle. Concrete and rubble are often recycled into Aggregate and concrete products. Recycled metals and glass also can be used as recycled materials are less expensive. This would be definitely helps in reducing the housing cost.
2. **Extensive planning** - The more planning goes in to a house, the less the actual construction will cost. Contractors should plan out exact dimensions and should gather facts. Developer should look for the best material at the cheapest price so they can order exactly what they need. It will save money and time that would otherwise be wasted on unnecessary supply caused by littered material. There should be minimum or no wastage of material.
3. **Infilling** - One of the most successful solutions that we are seeing in the built environment is urban infill. It is the practice of going back through residential areas and building in areas that had previously been left empty. It makes better use of existing space and is less expensive for contractors overall. It focuses on the reuse and re-positioning of absolute or underutilized buildings and sites.
4. **Saving in construction materials** – A. **Cement** :- Instead of using high cost cement we can use local or regional branded cements which are of good quality and are offered at better prices. For optimizing the cement consumption in structural concrete, we can mix **fly ash**. This will not only decrease the costs but will also be durable. B. **Bricks** :- We can buy locally available bricks which are easily available near the construction site which will reduce the cost of transportation. C. **Plastering**:- For plastering instead of using concrete we can use **Neeru (lime)** which will consume less money rather. D. **Doors and windows** :-Use of RCC door frames instead of wooden frames will reduce 30% cost for framing. For wet areas use of PVC doors and laminated door for other opening excluding main door will reduce approximately 25% cost of doors. E. **Flooring** :- Cement mosaic tiles are best option for flooring. Locally available granite for kitchen platform and stair case steps can effect the cost for flooring.
5. **Eco-friendly material** :- Use of eco-friendly and naturally occurring construction material will reduce the cost as well as save the environment from pollution and various hazards. Bamboo and straw which can be used as building material is easily available and abundant in India. Maximum use of Earth which is oldest building material will give more benefits. Sand, rocks, aggregates are naturally occurring constituents and there should be maximum use of them. **Sawdust** is successful alternative, which has been tested to as effective as sand. Hempcrete, ashcrete, rammed earth are such alternatives for concrete which has actually been used for years and can last a long time. Using natural and locally materials are extremely helpful in making low-cost housing more accessible to low income people and families.
6. **Government involvement** :- Government of India plays important role here. The government has started several finance schemes for the weaker sections of society, low income and middle income groups. The

Pradhan Mantri Awas Yojana (PMAY) such an initiative of the Government of India which aims at providing affordable housing to the urban poor by the year 2022. The Pradhan Mantri Awas Yojna – urban scheme caters mainly to the housing requirements of the urban poor. The scheme also caters to the housing requirement of slum dwellers residing in confined areas of slums with inadequate infrastructure, poor sanitation and drinking facilities. Beneficiary of PMAY – U mainly include Middle Income Groups (MIGs), Low-Income Groups (LIGs) and Economically Weaker Section (EWS). The state has a special responsibility to create an enabling environment for affordable housing developers, not necessarily through subsidies but also by fast tracking approval processes, demystifying land laws, deconstructing the financing and land assembling processes, and through innovative mechanisms such as earmarking areas for development, encouraging public private partnerships, and rethinking floor space (FSI) limits.

Case study

In this project, we studied various cases of affordable housing and collected the data. Here is one case study which will help us to understand the technique of effective cost reduction in housing. In this study we obtained the costing of 1 block by both the conventional and cost effective technology and analyzed the data obtained.

EWS Housing at BAPROLA (Plinth area : 33.60 Sft.)

Cost of 1 Block (16 D.U) (G+3)

Cost comparison between Conventional Specification & Cost Effective Technologies

S.no.	Description	Conventional construction	Load bearing using Cost Effective Technologies	Saving	Percentage
1	Civil work	4240365.00	3305145.00	935220.00	22.05
2	Internal sanitary and plumbing	434384.00	300675.00	133709.00	30.78
3	Internal Electrical Works	375858.00	375858.00	0.00	0.00
	Total	5050607.00	3981678.00	1068929.00	21.61
	Cost per dwelling Unit	315663	248855		

Saving – 21.16%

In above case study, by analyzing the data, it is observed that by using the techniques of effective building planning like recycling, use of naturally occurring and ecofriendly construction material, infilling and extensive planning of project, we can definitely reduce the cost of housing by approximately 20 to 30 % rather than conventional construction. Here, in above case study by using cost effective technologies, we have saved approximately 21.16 % of construction cost which is the goal of our project. However, project manager and the developer has the important role of managing the resources, no wastage of building material and proper planning.

Telengana girl builds low cost homes from sewage pipes

Another case study is here. Perala Manasa Reddy (23) a resident of Telegana has innovated Hong Kong's 'Opods' in India. She construct the house from large size sewage pipe. The house is 16 ft long and 7 ft tall. It has a small living room, a bathroom, kitchen and sink, and a bedroom that can house a queen size mattress. 12 to 13

designs are available in this 'Opod' model house.

- Advantage of the house is that it can be built within 15 to 20 days and can be easily shipped.
- It is purposely designed for migrant workers who lives in one city not more than one year. This project will provide them home.

From this case study it is clear that the project of building low cost homes from sewage pipe can be definitely used for migrant workers, homeless and poor people. It will provide them shelter with all the facilities in minimum cost. By implementing this idea all over the country, various problems like increasing slum area, large number of homeless and under poverty people can be solved.

Conclusion

In this study, importance of low cost housing were studied. Various challenges which are arising with time and the need to solve them was on prime focus. We observed that management and planning can affect the cost of housing. Implementing various building techniques such as recycling, infilling, extensive planning will help in reducing the cost required for housing. Observing the geographical aspects of India, we can conclude that there is more availability of eco-friendly building materials which can be definitely used as alternatives to the man-made construction materials resulting in less harm to the environment and reduction in cost. The role of Government in urban housing must be increased. More and more initiative has to be taken by government to provide shelter to low economic group and economically weaker sector. Although government has started different schemes like PMAY, public and developers should take interest in it and try to give maximum response towards it. If this challenges were solved, the housing problem will definitely minimize in India.

Literature review

- [1]. Swaptik Chowdhury, Sangeeta Roy (Jan21, 2013)
This paper aims to means the varied aspects of prefab building ways for low price housing by light the use of various naturally occurring building material which can easily replace the artificial building materials.
- [2]. Kalpana Gopalan, Madalsa Venkatraman (May 19, 2015)
This paper concerns public policies for affordable housing and the participation of stakeholder in it. The state government performs important role in low cost housing and has some responsibilities. Also private sector has also taken the interest in development of semi urban area into urban area.
- [3]. Pramod Adlakha, Namrata Kalsi (13 June, 2014)
In this article, there is detailed study of mass housing works performed by government of India in various parts of country. Effective techniques of building planning and construction for economically weaker sections were studied. From the case studies the conclusion was made that by using cost effective technologies the 21 to 30 % cost can be reduced than conventional housing technologies.