

AFFORDABLE HOUSING IN INDIA

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Abstract - : Affordable housing is a problem that many countries are taking stock of, world over. In India, the problem is much more stack with an estimated shortage of around 18 million houses, with 99% of this in the economically weaker sections of society. This paper sets out the definitions of affordable housing in India. The Government of India (GOI) had estimated a shortage of more than 18.78 million homes at the beginning of 2012, of which 95% were in the EWS (Economically Weaker Sections) and LIG (Low Income Group) segments. Further, the country's total urban housing shortage is projected to be about 30 million by 2022. The Indian Government currently faces an uphill task of providing for more than 2 crore dwellings by the year 2022, which translated to almost 3 million units per year to fulfill its electoral promise of 'Housing for All by 2022'.

1. INTRODUCTION

Affordable housing refers to housing units that are affordable by that section of society whose income is below the median household income. Though different countries have different definitions for affordable housing, but it is largely the same, i.e. affordable housing should address the housing needs of the lower or middle income households. Affordable housing becomes a key issue especially in developing nations where a majority of the population isn't able to buy houses at the market price. Disposable income of the people remains the primary factor in determining the affordability. As a result, it becomes the increased responsibility of the government to cater to the rising demand for affordable housing. The Government of India has taken 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. Affordable Housing is fast taking center stage in the international as well as the national agenda in India. With housing recognized as a basic need, governments at every level are discussing ways and means to provide access to housing for its citizenry so as to increase their productive capital. Disordered urbanization is reflected in almost 65.5 million Indians who, according to the country's 2011 Census, live in urban slums⁴. In addition, according to the World Bank's Agglomeration Index, a globally applicable alternative measure of urban concentration, the share of India's population living in areas with urban-like features in 2010 was 55.3 percent. This compares to an official urban share of the population of just over 31 percent, suggesting the existence of considerable hidden urbanization. This research paper aims at assessing the impact of the government initiatives on both the parties, i.e., the private developers and the homebuyers and tries to encapsulate their views on the government policies to boost the segment.

1.1 OBJECTIVES

The objectives of this research paper are:

- To analyze the various initiatives taken by the government to give a boost affordable housing sector
- To study the impact of government policies on affordable housing
- To provide suggestions to the government regarding future improvements in its policies relating to the affordable housing sector.

2. RESEARCH METHODOLOGY

The paper is based on the data collected from government policies like, the Pradhan Mantri Awas Yojna, Housing for All by 2022, real estate industry data from research reports of magicbricks.com, etc. Various national and international journals have been referred for the work. Various publications have been referred for the work. Data has also been collected from Unnati Gruhanirman Yojana.

Materials Selection for Low Cost Housing:

The first step to low cost housing material selection is to select ecofriendly building materials. This also enhances the sustainable design principle. The life cycle of building is Prebuilding, building and post-building stages. Each stage of building should be such that they help conserve the energy. These three stages indicate flow of building materials through different stages of a building. Pre-building stage mainly consists of manufacture which is subdivided in processing, packing and transport. The building phase mainly consists of construction, operation and maintenance whilst as the last stage would be disposal where the material can be recycled or reused. In Manufacturing of low cost building materials

Pollution prevention: Manufacturing of building materials should be environment friendly. Efforts should be made to study and revise the technologies for producing good quality, efficient building materials. Reducing Energy Consumption and use of Natural materials: The total energy required to produce a material is called embodied energy. The greater a materials embodied energy; it requires a greater usage of non-renewable sources. It is therefore advantageous to use materials or composite materials prepared from the wastages. The natural materials such as stones, wood, lime, sand and bamboo can be used in ample where ever possible. The natural materials impact more sustainability to structures as well as they are friendlier to environment.

Recycling of wastes in Manufacturing: The wastes which can be recycled can and used in masonries whilst as wooden wastes can be used in manufacture of plywood or soft boards.(Courtesy-BMTPC)

Use of Local material: The use of local materials reduces the dependence on transportation whose contribution to the building material cost is high for long distance. A use of locally available building materials not only reduces the construction cost but also is suitable for the local environmental conditions.

Energy Efficiency: Energy efficiently of a building material can be measured through various factors as its R value, shading coefficient, luminous efficiency or fuel efficiency. Energy efficient materials must reduce the amount of generated energy.

Use of non-toxic building materials: Use of toxic building materials can significantly impact the health of construction people and the occupants of the building. Thus it is advisable to use the non-toxic building materials for construction. There are several chemicals including formaldehydes, benzene, ammonia, resins, chemicals in insulations, ply boards which are present in furnishings and building material. The effect on health of these toxic materials mustbe considered while their selection and they should be used only where-ever required. Higher air cycling is recommended while installation of materials having volatile organic compound such as several adhesives, paints, sealants, cleaners and so on.

Longitivity, durability and maintenance of building material: The use of durable construction materials does not only enhance the life of the building but also reduces the cost of maintenance. The lower maintenance costs naturally save a lot of building operating cost. The materials used in buildings determine the long term costs of an operating.

Recyclability and reusability of building material: A material should be available in form which can be recyclable or reusable. Ex –the plastics waste can be used for recycling and producing newer materials. The scrap from steel can be used to manufacture the rcc bars, binding covers and other miscellaneous steel products in building construction.

Biodegradability: A material should be able to decompose naturally when discarded. Natural materials or organic materials would decompose very easily. It is also a very important consideration whether a material decomposes naturally or produces some toxic gases.

| Sr no. | Item | Source | Application in building material |
|--------|---------------------|---------------------|---|
| 1. | Rice husk | Rice mills | As fuel, for manufacturing building materials and products for production of rice husk binder, fibrous building panels, bricks, acid proof cement |
| 2. | Banana leaves/stalk | Banana plants | In the manufacture of building boards, fire resistance fibre board |
| 3. | Coconut husk | Coir fibre industry | In the manufacture of building boards, roofing sheets, insulation boards, building panels, as a lightweight aggregate, coir fibre reinforced composite boards |
| 4. | Groundnut shell | Groundnut oil mills | In the manufacture of buildings panels, building blocks, for making chip boards, roofing sheets, particle boards |
| 5. | Jute fibre | Jute industry | For making chip boards, roofing sheets, door shutter |
| 6. | Rice/wheat straw | Agricultural farm | Manufacture of roofing units and walls panels/boards |

Composites as Building Materials: The composite building materials are made of composition of two or more materials which have enhanced property. Natural fiber materials are coming up as excellent substitutes for the prevailing building materials. Fibers like jute, sisal, coconut, ramie, banana are cheap and environmentally suited as they are made from natural fibers. They are also replacing the fiber reinforced plastics. Composite building materials present immense opportunities to replace traditional materials as timber, steel, aluminum and concrete in buildings. They help in reduction of corrosion and their low weight has been proved useful in many low stress applications. Each type of composite has its own characteristic properties and thus useful for specific purpose. Jute fiber reinforced polypropylene composites, coir fiber reinforced composites, sisal fiber and wollastonite jute pultruded composites are a few to be named. CBRI has developed MDF composite doors containing coir fiber, cashew nut, shell liquid (CNSL) as natural resin and Para formaldehyde as major constituents. Many composite building materials are generated from glass fibers and industrial wastes. These materials are used for manufacturing of portable toilets, water storage tanks, outdoor furniture, bath tubs, interior decoration, basin, door, window frames etc. Thus the application of composite building materials in construction vary from cladding to internal furnishings and the owner highly benefits due to their application because of their light weight, resistance to corrosion and availability in different colors. Pultrusion is most cost effective method for producing composite profiles. It is commercially applicable for light weight corrosion free structures, electrical non-conductive systems and so many other functions.

Availability of natural fibre in India and its applications in building materials.

4. Scope of Project:

Affordable housing is a term used to describe dwelling units whose total housing cost are deemed "Affordable" to a group of people within a specified income range. In India, the technology to be adopted for housing components should be such that the production and erection technology be adjusted to suite the level of skills and handling facilities available under metropolitan, urban and rural conditions.

Logical approach for optimizing housing solutions: There should be a logical approach for providing appropriate technology based on the availability of options, considering its technical and economical analysis.

- 1) There should be optimal space in the design considering efficiency of space, minimum circulation space.
- 2) Economy should be considered in design of individual buildings, layouts, clusters etc.
- 3) While preparing the specifications it should be kept in mind that, cost effective construction systems are adopted.
- 4) Energy efficiency has gained considerable importance due to energy crisis especially in developing countries. Orientation, built-form, openings & materials play a vital role besides landscaping / outdoor environment.
- 5) To develop an effective mechanism for providing appropriate technology based shelter particularly to the vulnerable group and economically weaker section.

3. LITERATURE REVIEW:

- 1) Vidya Devi, Rinki Taur (Oct 2009)

This paper aims at varied aspects of prefabricated building methodologies for low value housing by lightness the various manufacture techniques to scale back the price of construction. Since there's continuous and recurrent production of same varieties of parts in formed construction, therefore, it ends up in quicker execution, a lot of productivity and economy. In prefabricated construction, the work on web site is reduced to minimum, thereby, enhancing the standard of labor, irresponsibility and cleanliness.

- 2) Jones Lang LaSalle (2011)

The paper offers the concept concerning Urbanization and Housing shortage in Bharat as per EWS, LIG, MIG and HIG as per the technical cluster report on Estimation of Urban Housing. In this paper below the Policy Framework and rules for Low price Housing the Central level Schemes likewise as State sponsored initiatives area unit mentioned. Central level schemes like. statesman National renewal Mission (JNNURM) and Maharashtra Housing and space Development Authority (MHADA)

3) Swaptik Chowdhury, Sangeeta Roy (Jan 21, 2013)

The paper grants work on inexpensive having blessings on areas such as Asian nation wherever concrete or steel is dear. This paper aims to mean the varied aspects of prefabricated building ways for low price housing by light the various fabrication techniques, and therefore the efficient blessings achieved by its adoption which might be studied one by one supported the requirements so, rising the speed of construction and reducing the development price. The foremost gift ways of construction systems thought of here square measure particularly, structural, precast.

4) Construction Methodology:

This project is work developed to reduce the cost of a 2 bed room house by adopting the following three methods. Reduce the time of construction two weeks where by certain establishment costs like watchmen salary, power consumption and supervision etc could be limited to that two week period only. Reduce the labor component by using special shuttering and going in for a complete concrete shell i.e., the footings, walls, and slabs are made in concrete and the whole structure is concreted in one day at a stretch. Special care is taken to use smooth surfaced shuttering, perfectly aligned to line and plumb. All the pipes of sanitary and electrical are laid to plan before concreting and ensured that they stay in their position at the time of concreting. The materials used will be the locally available materials like fly ash, which we have used to reduce cement component by 30% locally available sand retrieved from riverbeds Tandur blue stones and CRS masonry using granite stones for wall foundation and basement, locally available morrum soils for filling in basement and developing all around building. The site is cleared and the type of foundation like load bearing CRS wall or RCC footing is decided based on the no of floors, SBC and water table etc. The foundation is done as per the plan. Then if it is a load bearing wall type the wall foundation is taken as shown in figure and shuttering for walls and slab is erected. The shuttering for walls will be big panels of 8'x4' size and the mechanism is developed to make it convenient for shuttering, de-shuttering and transport so that any non-technical labor can erect it and remove it. The shuttering ensures verticality of walls and smooth surface of walls. Special care is taken for this keeping in mind that the surface need not be plastered which will contribute to reduce the cost of plastering. More over the window frames and door frames will be provided in the shuttering itself before concreting along with pipes for wiring and sanitary lines. This will also reduce the time of chasing walls and to fix them and make good the chased walls. After the completion of foundation and basement it will take two days for shuttering and one day for concreting. The following day the shuttering for walls will be removed and after ten days the slab shuttering can be removed. After deshuttering walls and ceiling the structure is ready for flooring, wiring and plumbing. With this method of construction we can gain lot of time which in turn reduces the labor work. Moreover by ensuring smooth surface and encasing all electrical and plumbing pipes lot of savings can be achieved by avoiding plastering to internal and external walls. For a good building we need good building materials which should sustain for longer period of time at the same time all the construction materials should be economical the following are tests which are performed on the materials.

5. OVERVIEW

Initiatives taken by the Government: Despite a widespread shortage of affordable housing in India, private interest in the space has been negligible. Private developers have largely stayed away from this segment because of thin margins, mainly due to the high land and finance costs, and taxes, which makes the project non-feasible for them. To overcome this challenge, the government has tried to make the affordable housing segment more rewarding for private player participation by introducing a slew of measures in the union budget presented this year.

The government has granted the much desired 'infrastructure tag' to the affordable housing segment, which means the sector can now benefit from lower borrowing rates, easy and dedicated access to institutional financing, and higher limit on the external commercial borrowings. This means that the borrowing costs for the project construction can go down drastically to 10% p.a. from the current rates ranging anywhere from 12%-16% p.a. or even higher in case of borrowings from NBFCs. This will significantly reduce the burden on the debt laden sector which is struggling to raise fresh funds for new projects. The lower borrowing costs will lead to savings for the developer which will be indirectly passed on to the buyer making the property cheaper for him.

The Budget has also provided for 100% deduction for profits from the affordable housing projects, however the minimum alternate tax will apply. This move is expected to generate 15-20% more profit for the developer, hence providing him more margin and scope to make the project viable.

The government has also increased the maximum unit size under the affordable housing scheme to 30 sq. mtr. (carpet area) for metropolitan cities, and 60 sq. mtr. for other cities. This is a 30% increase from the previous mentioned sizes which were based on built-up area. This implies that the developer will now have more saleable area to avail the benefits of affordable housing scheme.

The government has also increased the maximum time to complete the project to 5 years from the current 3 years. This gives more breathing margin to the builder as he is already struggling from sluggish sales and liquidity crunch. Also, it gives more time to the developer to compensate for delay in statutory approvals which is a norm in most of the states in India.

The government has exempted service tax on affordable housing units. Currently there is a service tax of approximately 5% on under-constructions units, which must be paid by the buyer. Exemption of service tax for affordable housing units will generate interest of the buyer in under-construction properties compared to completed properties on which service tax is not applicable. Exemption from service tax will reduce the final price to be paid by the buyer.

The revised Credit Linked Subsidy Scheme (CLSS) provides an interest subsidy of approximately Rs. 2.5 Lakhs for first time home buyers. Under this scheme, Interest subsidy of 4% will be provided on loans upto Rs. 9 Lakhs for construction/acquisition of house with carpet area of up to 90 sq. metres for those with income of up to Rs. 12 lakh per year, and Interest subsidy of 3% will be provided on loans upto Rs. 12 Lakhs for construction/acquisition of house of up to 110 square metres for those earning between Rs. 12 lakh and Rs. 18.00 lakh per year. Although this scheme is not restricted to the affordable housing segment and can be availed under other projects as well, but it is expected to give a major boost in demand for affordable housing units to the buyers as it significantly reduces the cost of borrowing for the buyer making it cheaper for him to own a house.

The central government has also written to state governments to provide more benefits to the segment by exempting affordable houses from stamp duty which ranges anywhere from 5%-7% in the NCR region. Stamp duty is a state subject, with the state government fixing the rate and collecting the duty. If the state governments agree to such changes, then it will be a game changer as it will drastically reduce the final cost of the product to the buyer. By providing these exemptions from their end, the states can contribute to the centre government missions. All these policies are set to make the affordable housing segment very lucrative and exciting for real estate developers.

6. Summary and Conclusions:

In this study, alternate construction materials were studied and the potential of these materials to be used as alternate building materials is brought out. Depending on the availability of the materials in a particular region, these materials can be selected as transportation consists of approximately 30% of total construction budget. In most developing countries, the challenge is to organize and initiate measures that promote these materials as well as train local artisans and masons in the construction techniques involving these materials. There have been several attempts at local levels to make use of bamboo, mud or natural fibers but it still lacks scientific precisions and proper techniques to be used precisely. Also the usage of industrial wastes still needs study on their better usage toxicity. These materials if studied and developed properly hold the key to address the current housing needs.

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