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Affordable Housing for Urban Poor in India: Prospects and Challenges

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Housing is considered as one of the basic human needs. According to the Government of India, the total housing requirement during the 11th Plan period would be 26.53 million dwelling units. Further 99% of this shortage pertains to Economically Weaker Sections (EWS) and Lower Income Groups (LIG). Inspite of the necessary steps taken by the central, state and local governments, there exists a large gap between the demand and supply of houses. If suitable measures are not taken, this gap will again increase and further aggravate the urban housing shortage problem. The growing urban housing shortage is mainly because of the exponential growth of population, fast rate of urbanization and inadequate addition to the existing housing stock. At present, India needs to build many million homes at the right location with affordable prices and adequate quality, especially for EWS and LIG class of people. This paper mainly discusses the background of urban housing shortage in India and the necessary steps needed to reduce the urban housing shortage.

Introduction

Housing is one of the basic human needs along with food, clothing and education. After independence India has seen a tremendous increase in urban population. According to the report of Mckinsey Global Institute (Shirish *et al.*, 2010), India's urban population grew from 290 million reported in 2001 census to an estimated 340 million in 2008, and MGI projects that it could soar further to 590 million by 2030. The demand for housing increases due to rapid growth of population. Like other developing countries, India too is presently passing through a phase of acute housing shortage. About 15.2% of India's urban population lives in slums. The urban housing shortage in March 2007 was around 24.71 million and is estimated to increase by 26.5 million by 2012. Further, 99% of this shortage pertains to the Economically Weaker Sections (EWS) and Lower Income Groups (LIG) (Singh, 2010). Housing shortage is mainly due to the exponential growth of population, rapid urbanization and inadequate addition to the existing housing stock. Today in India, providing an affordable and socio-culturally acceptable housing continues to be a serious challenge to the central and state governments, builders, contractors, real estate developers, etc. The Government of India is taking various measures to reduce housing shortage by implementing various schemes like the Jawaharlal Nehru National Urban Renewal Mission (JNNURM), Valmiki Ambedkar Awas Yojana (VAMBAY), Two Million Housing Program (2 MHP), etc. But looking at the shortage of houses as mentioned above, an early solution to housing shortage is impossible. This paper analyzes urban housing shortage and supply system, identifies the need for affordable housing, and also attempts to determine the possible challenges the house providers will face to provide affordable housing.

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India's Urban Housing – Demand and Supply

In urban India, the rise in population is increasing the demand for houses. A majority of the urban cities of India have seen urban poverty and slum expansion which exists even with all developmental efforts. A typical characteristic of our urban cities is that fashionable bungalows exist on one side of the city and slums on the other side. The slum population was 61.82 million in 2001, out of which 42.58 million lived in 640 cities and towns that have population of 50,000 or more. A recent report of the committee on slum statistics/census points out that actually about 26.31% of total urban population of 28.61 crore is estimated to be slum dwellers in our 5,161 cities and towns (Ramchandran, 2010). As more people live and work in cities and towns, the demand for housing in such urban centers will also rise fast, and the same has been seen in the last few years in India. According to the Planning Commission Report, the urban housing shortage in March 2007 was around 24.71 million dwelling units at the beginning of the 11th Five Year Plan and is estimated to increase to 26.5 million by 2012. Approximately, 99% of this shortage is related to EWS and LIG (Tables 1 and 2) (*Report of the 11th Five Year Plan*, 2007-2012).

Table 1: Total Housing Shortage in India as on 2007

1.	Households (HHs) (mn)	66.30
2.	Housing Stock (mn)	58.83
	2.1 Pucca	47.49
	2.2 Semi Pucca	9.16
	2.3 Kutcha	2.18
3.	Excess of HHs over Housing Stock (mn) (1 – 2)	7.47
4.	Congestion Factor (%)	19.11
	4.1 Congestion in HHs (mn)	12.67
5.	Obsolescence Factor (%)	3.60
	5.1 Obsolescence in HHs (mn)	2.39
6.	Upgradation of Kutcha (mn) (2.3)	2.18
7.	Total Housing Shortage (3 + 4.1 + 5.1 + 6) (mn)	24.71

Table 2: Total Housing Requirement in India up to 2012		
1.	Housing Shortage as on 2007	24.71
2.	Households (mn)	75.01
3.	Pucca Houses (mn)	53.49
4.	Semi Pucca Houses (mn)	10.05
5.	Kutcha Houses (mn)	2.56
6.	Addition to Households (mn)	8.71
7.	Addition to Housing Stock	7.27
8.	Upgradation of Kutcha (mn)	0.38
9.	Additional Requirement (mn)	1.82
7.	Total Requirement (mn)	26.53

The Housing Skyline of India estimates the demand for housing units in the top 112 cities to be 10.5 million units during the next few years up to 2015. The results of the survey are shown in Tables 3 and 4. The current stock of housing units in these cities is estimated to be 41.8 million units, which implies growth in housing stock of over 25% up to 2015. Of these 112, the top 30 cities will account for 60% of the demand and are expected to add 6.36 million units up to 2015. The current housing stock in these 30 cities is estimated to be 25 million units (Amit Sinha, 2008).

Table 3: Total Housing Stock in 112 Cities of India	
The Top 112 Cities	**Figures (in mn)**
Households with Plinth Area > 500 sq. ft.	17.0
Households with Plinth Area between 500-1,000 sq. ft.	12.5
Households with Plinth Area > 1,000 sq. ft.	12.3
Demand for Units (2008-2015) for Plinth Area < 500 sq. ft.	3.5
Demand for Units (2008-2015) for Plinth Area Between 500-1,000 sq. ft.	3.4
Demand for Units (2008-2015) > 1,000 sq. ft.	3.7

Table 4: Total Housing Stock in 30 Cities of India	
The Top 30 Cities	**Figures (in mn)**
Households with Plinth Area > 500 sq. ft.	10.01
Households with Plinth Area between 500-1,000 sq. ft.	7.48
Households with Plinth Area > 1,000 sq. ft.	7.55
Demand for Units (2008-2015) for Plinth Area < 500 sq. ft.	2.14
Demand for Units (2008-2015) for Plinth Area between 500-1,000 sq. ft.	2.07
Demand for Units (2008-2015) > 1,000 sq. ft.	2.15

A research conducted by the Royal Institution of Chartered Surveyors (RICS) stated that India would require 26 million homes by 2012 to meet the existing housing need (Development Channel, 2010). As per census 2001, the housing stock in India was 50.95 million for 55.8 million urban households. Out of that 61.82% persons or 23.1% of urban population resides in slums and the quality of housing stock in slums is extremely poor (*National Urban Housing and Habitat Policy*, 2007). Research says that the total stock of housing in 2007 was estimated at 129.4 million units. This was expected to grow at a Cumulative Annual Growth Rate (CAGR) of 3.37% till 2012, adding on an average 4.6 million units annually till 2011. The exact data on supply of housing stock is not available (Ravichandran and Sriraman, 2011). The existing housing supply mechanism could increase stock for only 15% on an average of total housing needs, including the backlog and additional need for the population increase. From the above data it is clear that major shortage of houses is in the urban centers and mainly for EWS and LIG class of people. This leads to a large number of urban population residing in governmental/municipal lands, leading to creation of slums.

Considerable efforts were made during the 10th Five Year Plan to increase the housing stock in urban areas. The important housing programs initiated or continued in the 10th Five Year Plan period were:

- Two Million Housing Program (2 MHP)
- Valmiki Ambedkar Awas Yojana (VAMBAY)
- National Housing Bank
- Cooperative Housing

Focused efforts were also initiated to mainly benefit the urban poor by providing them at least shelter. Some fiscal concession from the bank was also initiated to increase the investment in housing by private firms and companies. However, even with these efforts, there will not be any reduction in the housing demand and the result of these schemes is not up to the desired extent.

The above statistics clearly show that the demand for housing of size less than 1,000 sq. ft. is more in the next few years. Also the demand is more mainly for EWS and LIG class, which clearly indicates that there is a need to provide housing for EWS and LIG class of people located especially in the urban cities. The challenge is not only to meet the demand, but also to ensure the provision of affordable houses of good quality to the urban poor.

Affordable Housing

An affordable house is a house provided to a typical group of people within their affordability. An affordable house must have all the basic amenities to cater to the daily needs of the household and at the same time should be within the reach of the typical class or group of people. 'Affordability' is a very general term and will have different meanings for different people. Affordability may vary from place to place and from individual to individual. What is affordable in Pune for one class say MIG may not be affordable in Mumbai for MIG.

An affordable house is generally misunderstood. It does not compromise on quality of construction and provides all socioeconomic infrastructures.

Globally, housing is considered affordable if the basic housing unit that provides a minimum amount of personal space and basic amenities is accessible at 20-40% of gross monthly household income for either rent or mortgage. However, the requirement of minimum personal space differs across countries and among developing countries (Urban India 2030: Projections and Statistics). In the US and Canada, a commonly accepted guideline for housing affordability is a housing cost that does not exceed 30% of the household's gross income. Housing cost considered in this guideline generally includes taxes and insurance for owners, and usually includes utility cost (www.answers.com/topic/affordable housing). If the monthly carrying cost of a home exceeds 30-35% of the household income, housing is considered unaffordable for that household. Household income and housing cost are the two important factors which are used to define the affordable house. Affordability must be defined not only in terms of purchase price of house or rent, but must also include other charges like registration charges, stamp duty, taxes, maintenance cost, etc. In India the definition of an affordable house based on the above criteria is a difficult task as household income and housing cost in India changes for every sq. km part of the country. KPMG and Confederation of Real Estate Developers' Associations of India (CREDAI) have broadly defined affordable housing in India for Tier I, II, and III cities based on three key parameters: income level, size of the dwelling unit and affordability as shown in Table 5 (www.workshop.mpd.org.in/wp-content/uploads/2010/07/KPMG).

Table 5: Affordable Housing Definition

Class/Group of People	Income Level in (₹) per Annum (in lakh)	Size of Dwelling Unit in sq. ft.	Affordability
EWS	<1.5	Up to 300	1. Equated Monthly Instalment (EMI) to Monthly Income 30-40%
LIG	1.5 to 3	300 to 600	2. House Price to Annual Income Ratio <5:1
MIG	3 to 10	600 to 1200	

As stated earlier, the 11th Five Year Plan estimates urban housing shortage of about 26.5 million by 2012 and approximately 99% of this shortage is related to EWS and LIG, taking this into account, the Ministry of Housing and Urban Poverty Alleviation had set up High Level Task Force in 2008 to look into the aspects of providing affordable housing for all. In the submitted report, the committee defined affordable housing as:

- EWS/LIG Categories of Households: A unit with carpet area between 300 to 600 sq. ft. with the cost not exceeding four times the household gross annual income and the EMI/rent not exceeding 30% of the household's gross monthly income for a household size of five.

- Middle Income Group (MIG) Categories of Households: A unit with carpet area not exceeding 1,200 sq. ft., and cost not exceeding five times the household gross annual income and the EMI/rent not exceeding 40% of the households gross monthly income for a household size of five.

Why Is Housing Unaffordable in Urban Centers of India?

The real estate industry in India was badly affected from 2008 to 2009 because of the worst economic downturn. During this economic downturn, many developers and builders faced the problem of funding, cash flow, etc., and subsequent completion of projects on time. Prior to this economic downturn, all developers, builders had focused mainly on construction of lavish and expensive apartments. But as stated above, the demand for affordable housing is more.

Normally builders and developers plan and construct the schemes according to the demand promoted by the economic scenario in the country. If India does achieve real compound annual growth of 7.3% from 2005-2025, the Indian income level will almost triple. Average real household income will grow from ₹1,13,744 in 2005 to ₹3,18,896 by 2025, with a compound annual growth rate of 5.3%. The rising real income of the Indians already has a significant impact on poverty reduction. In 1985, 93% of population had an annual household income of less than 90,000 INR. By 2005, this declined to 54% of population and will further drop from 54% to 22% by 2025. Because of this substantial reduction in poverty, India will create largely urban middle class. As population of urban middle class will increase, demand for affordable housing will also increase and same has been reported by Planning Commission of India (Jonathan *et al.*, 2007). In 2009, after the recovery of the market, many Indian developers and builders went to the business for lavish apartments for MIG and High Income Group (HIG) class of people and most of the talk about affordable housing remained just as a talk. This transformation is because the builders and developers are not able to provide affordable housing with larger profits in India. Following are the major reasons for not having affordable housing in India.

Availability of Land for Affordable Housing

One of the major constraints in the construction of affordable housing is land. According to the calculations made by the Town and Country Planning Organization (TCPO), to cater to the demand of EWS and LIG category alone, 84,724 to 1, 20,882 ha of additional land is required (www.workshop.mpd.org.in/wp-content/uploads/2010/07/KPMG). Land availability and cost of land are the important factors which the developer/builder needs to take into consideration before planning the construction of any residential unit. Inadequate availability of land in the urban areas is a major constraining factor to take up affordable housing projects. With rapid urbanization taking place in India, land is considered as a limited resource especially in the urban areas. In most states of India, municipal corporations or housing boards of the states supply land as per their requirement to fulfil the demand. Municipal corporations keep the projected demand for land by making master plans. In master plans generally land is allocated for the housing of the urban poor. But even then there was a

huge gap between the supply and demand of land. The major reason for this is the time required to acquire land under land acquisition act and utilization of reserved land for some other purpose. Also the government holds a substantial amount of land under various government departments. Because of the large gap between supply and demand of land, land prices are always increasing, making it unaffordable for the developers and builders to use these lands for affordable housing projects. Prices are also high because many investors, builders, and developers hold the land for a long period. The cost of the land available in the city outskirts is comparatively less than in the center. As a result, many builders and developers are planning affordable housing projects on the outskirts of cities and metros. Most of such land parcels lack some basic amenities like safe drinking water, electricity, sanitation, transportation infrastructure, etc.

Housing Finance

In India the flow of credit into the housing sector generally comes from two sources: formal and informal sectors. Formal sector comprises the central and state governments budgetary allocation, financial institutions, scheduled and commercial banks, etc. The informal sector comprises households, employees taking loans from their employees, project financing from other agencies and money lenders, etc. Current financing mechanism present in the country mostly targets MIG and HIG class of people and not the EWS and LIG class of people. The total population which comes in EWS and LIG class can be divided into two categories—people who are formally employed and have formal documentation like pay slips, bank account, etc., and informal category such as labor, vegetable vendors, street workers, etc., who have no formal documentation on their income. Very few housing finance companies are targeting these categories of customers. Most of the financing institutions do not offer loan to such class of people because of their low income and difficulty in accessing loan amount because of stringent conditions. To access loan, one needs to provide several documents like address proof, income proof, approved plan of house, etc. As most of the customers in this class are working in the informal sector and low income capability, they may not be able to provide such documentation which may create problems. However, there are some financial institutions like GRUH Finance, MAS Financial Services, DEWAN etc. which are providing loans to customers working in the informal sector. Housing Urban Development Corporation (HUDCO) and National Housing Bank (NHB) regulate and also provide refinancing to financial institutions which are providing loans to these customers. Government also provides finance to State Housing Boards under schemes like JNNURM and National Slum Development Program (NSDP). But a majority of these financial institutions are still facing the following challenges in providing finance to such EWS and LIG class of people.

- Major problem is the assessment of income capability of customer as most of these are working in informal sector.
- Currently most of the finance institutions provide a loan with 18-19% interest rate having shorter tenure to customers. This could be unaffordable to most LIG and EWS class of customers with their low income capability.

Building Materials, Labor and Construction Technology

Traditionally in India buildings are either load bearing structures with an appropriate roof or Reinforced Cement Concrete (RCC) frame structures with infill masonry walls. Both the building structures are required to be constructed by using different types of construction materials like cement, aggregate, brick, stone, tiles, etc. Building materials account for 50-80% of the total cost of construction (Arora and Bindra, 1997). The tremendous growth in the construction industry boosted the demand for all major construction materials. The rise in the production of all these materials also clearly indicates that the demand for these construction materials is more. With the increasing demand, the prices of these various building materials have also gone up substantially.

Today in India, there is lack of availability of skilled manpower at senior and junior levels. In majority of the urban centers of India, skilled construction workers are either not in existence or expensive. Because of all these, it becomes very difficult for builders and developers to control the cost of construction with traditional building construction methods, technology and materials.

High Taxes and Fees

Generally any builder or developer passes on the taxes and fees paid by him to the customer partially or fully. Taxes include land conversion fee if required, registration and stamp duty, development fee, etc. Fees include fees paid to various parties like architect, structural designer, project management consultant, contractors, etc. All these taxes and fees paid also increases the cost of construction of house or residential property.

Key Initiatives to Address the Issues Related to Affordable Housing in India

From the above discussion it is clear that there are tremendous opportunities in the affordable housing sector in India waiting to be tapped especially for EWS and LIG class of people. Today, providing affordable houses to urban people is a major challenge to the government. Despite many measures which the government is taking, housing continues to be out of reach for a large section of the urban population. Government alone cannot fill the housing gap. The paper highlights the considerations needed to address the issues related to production and provision of adequate affordable houses for urban poor.

Speedy Approval of Housing Projects

In India, the present procedures for taking sanctions and approvals of building plans are complex and expensive. To get an approval from the concerned authority, builders and developers are required to take almost 30 to 60 No Objection Certificates (NOCs). Many municipal corporations take about 6 to 18 months for sanctions and approvals of building plans. Because of this there are usually delays in receiving sanctions and permits for construction. The building approval process needs to be reviewed and come up with a fast track process which can reduce the time and cost of getting sanctions. Single window clearance is one of the best options by which it is possible to reduce the time and cost

of processing sanctions for building construction. Single window clearance is quite popularly used and widely accepted in India for giving the sanctions to Special Economic Zones (SEZ). The same can be used for giving sanctions and permits to affordable housing projects also to cut down unnecessary delay. The use of such system will definitely speed up the process of sanctioning which indirectly increases the housing stock. Computerization of all records related to building construction also will be helpful while giving speedy approvals for affordable housing projects.

Provision of Additional Floor Space Index (FSI)

The high level task force set up by Ministry of Housing and Urban Poverty Alleviation in 2008 had clearly said in its report that there must be an upward revision in FSI across cities of different sizes commensurate with investment in the infrastructure that it will necessitate. FSI is a ratio of the total floor area of the building in certain location to the size of the land at that location. At present a basic FSI of one is permitted for construction in major cities of India. Besides this, developers are also allowed to use Transfer of Development Rights (TDR). With low FSI, the land cost will be high, and it is very difficult for the builder to use such land for affordable housing projects. Because of limitations on FSI many builders and developers are planing affordable housing projects in the outskirts of the cities where the cost of land is comparatively less. In such situations affordable houses will be away from workplace of the targeted customer. Most of such land parcels lack some amenities like drinking water supply, electricity, sanitation, transportation facility, etc.

Considering the acute shortage of houses in Maharashtra, the Government of Maharashtra has declared the housing policy to facilitate affordable housing. In accordance with the provisions contained in Section 37 (1AA) of Maharashtra Regional and Town Planning Act, 1966, the Government of Maharashtra invited private developers, land owners for development of affordable housing with Maharashtra Housing and Development Authority (MAHDA). The total permissible FSI shall be 2.5 on gross plot area including basic (normal) FSI permissible as per the prevailing development control regulation. Other than this there are many other terms and conditions which are mentioned in the proposal. It is aimed at creating new affordable houses. But delay in this policy which has been sanctioned for all Maharashtra has held up numerous projects of MAHDA which are aimed at LIG housing.

Provision of Better Infrastructure

Location of house in one of the very important aspects of affordable house. However, location preference will vary and will be different for different categories like LIG, MIG, and EWS, etc. Most of the people prefer to stay in the center of the city on the basis of their work place. As mentioned earlier, because of the availability of land with low cost, many developers and builders are planning affordable housing projects on the outskirts of cities and metros. But most of these land parcels lack some basic amenities. In such cases developers have to provide such services which invariably increase the cost of the house, thus making such house unaffordable. Hence, in such a situation, government support is very much required. It is important that the government should encourage developers for affordable housing projects by creating favorable atmosphere by providing such facilities and

services to various land parcels which are located in the outskirts. Without government support it is not possible for private developers to produce affordable houses on such lands.

Better Land Management at Urban Centers

Making land available for affordable housing projects as and when required is the prime responsibility of the local city development authority. It is the responsibility of the city development authority to acquire land and make it available at reasonable price for development. City development authority can arrange land for such a project by reservation while preparing master plans. Master plans are long-term plans which every city development authority will prepare based on the projected demand for land for different uses. Affordable housing has never been taken into consideration in urban planning by many city development authorities. Hence, many of the cities at present don't have reserve land for affordable housing projects. Even if the city does have a reserved land, actually such land parcels were utilized for some other purpose by the government. Hence now many of the cities of India are facing the problem of land availability for affordable housing projects. Hence at present, there is an urgent requirement that all city development authorities must take into consideration the requirement of affordable housing while doing urban planning. The master plan of every city must take into consideration such requirements by allocating land through zoning for affordable housing projects. There is a need to keep certain land reserve for affordable housing which is laid down as 25% in the National Housing Policy. If required the government must take into consideration the private land also for such purposes. By providing some incentives like subsidy, higher FSI, financial support, etc., private builders and developers can also be encouraged to construct affordable houses on private land parcels. Government must promote township development, slum rehabilitation and redevelopment targeting EWS and LIG class of people.

Promoting Rental Housing

At present in many of the urban cities of India, a significant population lives in rented accomodation. Hence for many of the house owners rental housing provides a significant source of income. At present, especially in urban centers, house owners keep their houses vacant because of two reasons: Firstly they are apprehensive that by letting out the house, they will not get back its possession; and secondly they are only interested in speculating with the property. Because of these two reasons also people generally hesitate to invest in property which may not increase the existing housing stock. The problem of housing especially for the urban poor can easily be reduced by promoting rental housing. Government should promote rental housing by taking some legislative and administrative measures. In India, rental housing has remained a neglected area of the NHP. It is important that the government should take the necessary steps for preparing the rented house policy to protect the interests of the property owners. With the implementation of such policy measures, a ot of private money and FDI will flow into the housing sector. In addition to this, a lot of existing vacant properties will be offered in the rental house market. This will immediately help to ease out the problem of housing shortage especially in urban centers. This will also create competitive rental housing market which helps in reducing the rent rates also.

Reducing the Taxes

One of the major barriers to affordable housing projects is the tax burden and high transaction cost. At present, the realty industry is paying 30-35% in the form of various taxes to government. In addition to this, the industry has to pay various cess duties imposed by civic bodies. Affordable housing will not become a reality if the consumer has to bear such taxes and transaction cost. The transaction cost can be easily minimized by reducing the stamp duty and registration charges. Such a move will increase the revenue by increasing the total number of transactions. Other than this, the government must give some tax benefit for affordable housing projects which are meeting certain minimum criteria. Such a step will increase the existing housing stock, as well as attract many investors into housing projects.

Application of Project Management Tools

Project management is a discipline to plan, apply, upgrade, coordinate and monitor the performance capacity of a project by rationalizing the sequence of activities using the appropriate coordination and use of material, equipment and manpower resources in a specified time and condition of the project objectives (Kawuma, 1999). Application of suitable project management tools will avoid time and cost delay. Application of value engineering will also reduce the cost of housing. Value engineering is basically an organized effort to attain optimal value in a product, system or service by providing the necessary functions at the lowest cost. It is basically a selection of the course of action with a thorough examination of all the alternatives. The main objectives of value engineering techniques are needed to be applied in the conceptual stage, i.e., planning and design of construction project. Value engineering produces a range of design options for the whole project or its defined parts, which are tested against the client's value objectives and criteria to remove unnecessary cost without sacrificing functions or quality (Othman, 2008). Other than this, the following general rules can be considered.

- Each component of the project should be checked at the planning stage as to whether it is necessary; if it is not necessary, then that component should not be used.
- Cost reduction is possible by eliminating the redundant components, e.g., avoid plastering.
- Use of locally available materials in innovative ways.

Use of Innovative Construction Materials and Techniques

Building materials account for 50-80% of the total cost of building and hence play a very vital role in the construction of buildings (Arora and Bindra, 1997). It is important that building materials are easily available and affordable to reduce the cost of construction. The huge construction growth boosted the demand for various construction materials. Hence, the rising cost and nonavailability of the traditional building materials have created a bottleneck in the building construction projects. Because of the rising cost, it is very difficult for the contractors to control the cost of material. Hence, continuous efforts are needed to bring down the cost of the construction material. In order to reduce the cost of construction material, the government can think of giving some subsidy or encourage the use of some

traditional building construction materials in case of affordable housing projects. Continuous research efforts are required to see the use of some innovative materials as an alternative to some traditional materials that too in an innovative way. In India, the Building Material and Promotional Council (BMPTC) was established in the year 1980 to work towards a comprehensive and integrated approach for promotion and transfer of potential, cost-effective, environment-friendly, disaster-resistant building materials and technologies including locally available materials. BMPTC has developed a number of innovative building materials and technologies, for producing cost-effective housing. Use of such technologies and construction materials needs to be encouraged.

Conclusion

Housing is considered as one of the basic human needs. According to the Government of India, the total housing requirement during 11th Plan period would be 26.53 million dwelling units. Further 99% of this shortage pertains to EWS and LIG income groups. Today in India, about 35% of all urban households cannot afford housing at market prices and around 17 million households live in slums (MGI). This growing urban housing shortage is mainly because of the exponential growth in population, rapid rate of urbanization and inadequate addition to the existing housing stock. Provision of affordable houses to all urban poor is a biggest challenge to the government. Even though the central and state governments are taking necessary steps to increase housing supply, still there is a large gap between demand and supply because of some constraints like high land price, unavailability of land, problems with housing finance, higher cost of building materials, labor and technology, higher transaction cost, etc. While positive steps are being undertaken, India still needs to put in some more efforts at the national, state and local level to reduce urban housing shortage. India needs to prepare a strategy by considering factors like speedy approval of housing, provision of additional FSI, provision of better infrastructure, better land management, promotion of rental housing, reduction of taxes, application of project management to construction projects and use of some innovative construction materials and methods.

References

1. Amit Sinha (2008), "Housing Stock and Demand", November 5, available at http://www.indicus.net/blog/index.php/consumer_markets/amit/housing-stock-and-demand/, accessed on June 6, 2011.
2. Arora S P and Bindra S P (1997), *A Text Book of Building Construction, Planning Techniques and Methods of Construction*, Dhanpat Rai Publications, New Delhi.
3. Development Channel (2010), "India Faces Acute Housing Shortage", December 20, available at http://www.developmentchannel.org/development/economy/1439–india-faces-acute-housing-shortage-report, accessed on June 31, 2011.
4. Jonathan A, Aadarsh B, Eric B *et al.* (2007), "The Bird of Gold: The Rise of India's Consumer Market", Report by Mckinsey and Company, pp. 10-13.
5. Kawuma R (1999), *A Strategy Towards Cost Reduction of Newly Built Houses in Uganda: A Case Study of Naalya Affordable Housing Project*, IHS, Rotterdam, The Netherlands.

6. *National Urban Housing and Habitat Policy* (2007), Ministry of Housing & Urban Poverty Alleviation, Government of India, New Delhi.
7. Othman A A E (2008), "Incorporating Value and Risk Management Concepts in Developing Low Cost Housing Projects", *Emirates Journal of Engineering Research*, Vol. 13, No. 1, pp. 45-52.
8. Ramachandran M (2010), "Combating Urban Housing Shortage", October 15, *The Economic Times*, available at http://economictimes.indiatimes.com/opinion/guest-writer/combating-urban-housing-shortage/articleshow/6751202.cms. Accessed on June 2, 2011.
9. Ravichandran K and Sriraman V P (2011), *Shift from Urban to Rural – Pros and Cons*, available at www.bim.edu/pdf/lead-article/kravichandran.pdf. Accessed on June 2, 2011.
10. *Report of 11th Five Year Plan* (2007-2012), "Working Group on Urban Housing with Focus on Slum", Ministry of Housing and Urban Poverty Alleviation, Government of India.
11. Shirish S, Ireena V, Richard D *et al*. (2010), "India's Urban Awakening: Building Inclusive Cities, Sustaining Economic Growth", Report by Mckinsey Global Institute, April.
12. Singh G B (2010), "Indian Housing Scenario Problems and Remedies", New Building Materials and Construction World.

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	Nationality	:	Indian
	(a) Whether a citizen of India?	:	Yes
	Address	:	# 52, Nagarjuna Hills, Panjagutta, Hyderabad 500082.

6. Name and addresses of individuals who own the newspaper and holding more than one percent of the total capital – **IUP Publications, # 52, Nagarjuna Hills, Panjagutta, Hyderabad 500082.**

I, E N Murthy, hereby declare that the particulars given above are true to the best of my knowledge and belief.

Date
March 2012

Sd/-
Signature of Publisher