

INSIGHT

VOL 3



Housing for all by 2022
A dream that must come true!

HOUSING FOR ALL BY 2022

A Matter of Collective Will & Participation

When the government of a vast country like India sets on mission of such monumental project, hurdles will definitely look daunting. Resources are scarce, challenges multi-dimensional, and clock always tickles fast. That does not take away the fact that the vision has got a distinct purpose, driven by an absolute necessity. Every household needs a dependable and reasonable shelter. It has spiral effect on employability, income, health, standard of living, and GDP growth.

With the Housing for All (Urban) Guidelines 2016 and announcement of 'infrastructure status' to affordable housing segment in union budget 2017, this has acquired altogether new dimension and momentum. Irrespective of any apprehensions regarding the implementation, all the stakeholders have none but one choice, which is to take it seriously.

First thing that we must remember is that the normal project cycle for Real Estate spreads from 6-8 years, depending on the scale. The vision to provide housing for all by 2022 has 5 years window from now. Therefore, it is utterly important to find ways for speedier turnaround, right from the land acquisition, through approval loops to actual construction hurdles. All the regulatory reforms need to be addressed at the initial stage of the program. The single window clearance, identification of beneficiaries and credit line availability, etc. need concrete solution right now. As per a recent study by NAREDCO & KPMG, 11 crore houses will be required by 2022, with estimated investment of 2 trillion dollar.

Looking at the willingness of central government and expressed interest of states, it should not be that difficult. The 'HFA Scheme Guidelines' has incorporated many cross program measures to increase the canvas of HFA. It has mandatory condition such as, 'States/UTs shall prepare/amend Master Plans earmarking land for Affordable Housing'. There is an effort to

converge the implementation of Smart City Mission, AMRUT & PMAY. Implementation methodology also has multipronged approach of In-situ Slum Redevelopment; Credit Linked Subsidy (CLS); Affordable Housing in Partnership and; Subsidy for beneficiary led individual house construction or enhancement.

It is important that the local conditions are factored in provisions. The policy leaves ample room for the States/UTs to make amendments in key aspects such as carpet area for EWS, beneficiary's annual income criteria, FAR calculation, etc. Further, Shri. Naidu has said that Housing for All target will be achieved in 15 identified States/UTs by 2019. To add the booster after inclusion of Economic Weaker Section (annual income upto Rs. 3 lakh) and Low Income Group (annual income between 3 to 6 lakh), the PMAY (Urban) has further been extended to MIG (people having annual income of Rs.18 lakh).

15 States and Union Territories including Kerala, Himachal Pradesh, Jammu and Kashmir, Arunachal Pradesh, Nagaland, Sikkim, Tripura, Chandigarh and Puducherry have set a target to complete construction by 2019.

The private players are spotting it as significant opportunity that we see reflecting in the spurt of affordable housing projects launched by builders across the country. The government has also expressed its intention to have massive private partnership to achieve the mission.

At the same time, we need to look at the factors that may play decisive role in their participation. The foremost critical hurdle is availability of land, specifically in metropolitan and tier-1 cities. This constitutes a substantial portion of overall project cost which is required at the very beginning. Banks and HFCs don't have mechanism to fund the same. The approval process are still scatted across multiple authorities which results in delays. The material costs are rising steeply. These may pose challenges for private developers in delivering affordable houses in profitable manner. The gap should be filled to a great extent by the direct and indirect incentives which the government is providing through favorable policy measures.

REPL has the opportunity of being involved in various central and state government projects related to affordable housing and slum redevelopment, through our consultancy in Urban Planning, GIS Mapping, AMRUT Scheme and Smart City Consultancy. In consortium, REPL is currently working on Smart City Indore for preparation of various DPRs and project management consultancy. Recently, our consortium had the honor of being given project management consultancy for Varanasi Smart City. We are already working on the implementation of Indore Smart City. In all these planning, affordable housing provisions are going to play important role. Under PMAY, we are involved in preparation of HFAPoA of 128 cities of Uttar Pradesh under three clusters. For the various cities in Madhya Pradesh and Rajasthan, we are working on similar assignments. In parallel, we are providing integrated consultancy to private developers in taking up affordable housing projects.



This is not an Infrastructure project. This is a project being undertaken to strengthen the dreams of the poor.

-Shri. Narendra Modi, Hon'ble PM



The Hon'ble Union Minister has also indicated that the National Urban Rental Policy will be announced soon. This is very much important, as the rental housing allows greater labor mobility, especially to the lower income group who are mostly employed in informal sectors. The Economic Survey of 2016-17 has highlighted that the migration has increased to 9 million a year! In 2012, the urban housing shortage in India was estimated to the tune of 19 million homes, with the vast majority required for lower income household. This will have tremendous positive impetus in achieving the dream of housing for all.

One of the apparent paradoxes is that nearly 11 million units lie vacant in the country. These can be largely attributed to the norms of Rental Control Act (RCA) and also to the dismal rental yield, which is nearly 2-4%, one of lowest in the world. The above stated policy can address these issues and reduce the burden of overall housing demand in urban areas.

This program will have direct impact on the employment scenario and the GDP numbers. The Real Estate is second largest employment proving sector. Moreover, hundreds of ancillary industries like cement, steel, etc. are heavily dependent on it. This can play a decisive role in Government's target of attaining double digit growth.

We definitely look at HFA mission with a highly positive note, despite all its challenges. In this volume of our newsletter, we have tried to look into this program with various perspective so that it could help us understand the actual scenario, available opportunity, practical challenges and few probable solutions. Hope you find it insightful for preliminary reference.

Sincerely,
Pradeep Misra
CMD, REPL

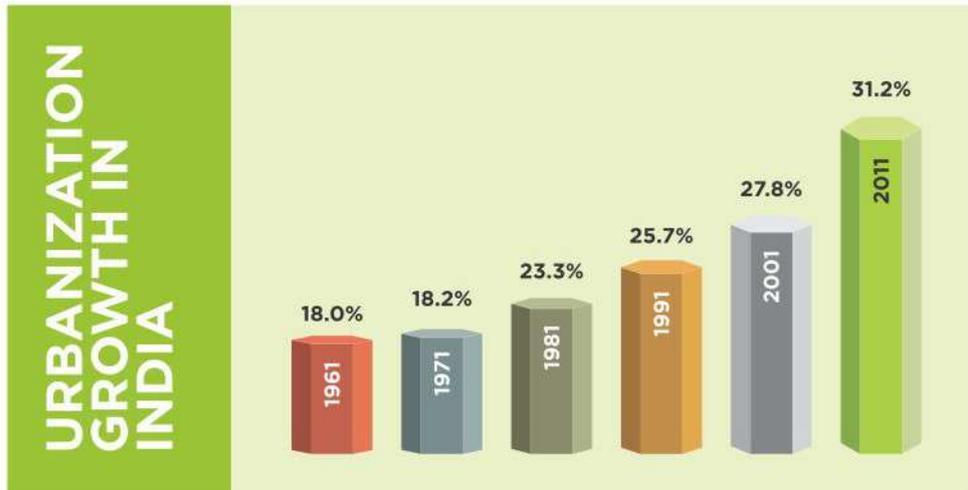


URBAN HOUSING SHORTAGE

An Overview

With the employment opportunities at ebb in agriculture sector, urbanization level is continuously increasing. As per the census reports, urbanization level has increased from 18% in 1961 to 31.2% in 2011. India has huge population denominator; hence even a small percentage increase translates into a massive requirement of housing in urban centers. Providing affordable housing to urban population is going to be the toughest challenge of HFA mission. It is likely to consume majority of the program expenditure and efforts.

The urban housing program further needs to be integrated with the overall town planning, as the other related infrastructure, such as transportation & water supply in urban centers are already over stretched.



As per the report of Technical Group (TG) on Urban Housing 2012-2017 there was housing shortage of total 18.78 million at the beginning of 12th Five Year Plan (2012-17). Interestingly, the majority of this portion (more than 95%) of this gap pertains to the EWS and LIG category. The report further indicates that nearly 15 mn HHs are living in congested houses that require altogether new units. These may indicate to the large slum population across most of the cities.

Housing Shortage among Socio-economic Category



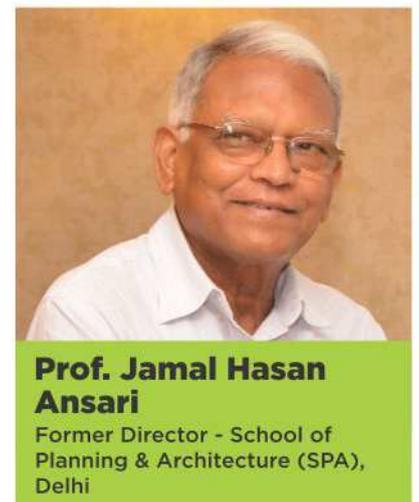
(Source: Report of the Technical Group on Urban Housing Shortage 2012-17, GOI)

Ironically, the focus of the real estate developers in urban areas have been on the supply of houses to MIG and above segment. Now, after a series of policy incentives to the borrowers as well as private players, the launch of Affordable Housing projects has shown sharp upward trend in short span. This is natural, as the demand was already there, and the economic viability of supply side is being taken care of.

Housing Shortage in Urban India in 2012 (Millions)

| | |
|---|--------------|
| Household living in non-serviceable kutcha | 0.99 |
| Household living in obsolescent houses | 2.27 |
| Household living in congested houses requiring new houses | 14.99 |
| Household living in homeless condition | 0.53 |
| Total | 18.78 |

As the TG recommends, there is need of detailed survey of slums, low income areas and high density colonies to determine the exact housing shortage for the poor. It also advocates bringing in the vacant houses into housing market through taxation and incentive policies; and sifting the household living in houses built before 80 years to new units. The bottom line is that the urban housing problem must be addressed at multiple fronts. No single approach will result in the realization of HFA dream, as the dimension of urban housing is equally challenging as its scale.



(Source: Report of the Technical Group on Urban Housing Shortage 2012-17, GOI)



“Two crore of them (homeless) are in the cities and three crore of them are in the villages. Every Indian should think what kind of India they want in 2022, when India will celebrate 75 years of independence.”

-Shri. Narendra Modi, Hon'ble PM-

DEVELOPERS' TAKE ON PMAY

A Mixed Arrangement for All

PMAY provides attractive opportunities to Developers and Builders which include Govt., Semi-Govt., Local Bodies and the Private Developers based on specifically defined guidelines.

A private land owner and developer is duly identified agency in the implementation methodology at vertical no.3 of clause 3 of the policy.

PMAY offers immense benefits in **Credit Linked Subsidy Scheme** if a DPR based on the guidelines is formulated in such a way that the targeted beneficiaries and residential units coming under the scheme are properly presented with specific accuracy. Similarly in **AHP in Partnership**, a private developer itself is authorized to sell the units and receive grants to be passed on to the beneficiaries directly as in clause **6.2 of PMAY guidelines 2016**. This mixed with the dovetailing arrangement of AHP of the State Govt., as issued by G.O. dated 21/3/2016 in case of Uttar Pradesh and similarly in other States too provides more advantages. Added substantive advantages as in AHP of the State Govt., giving full benefits of exemption of VAT, including the chargeable dues as EDC, IDC, CLU, etc., which besides controlled units is also available to the rest 40% of FAR also which is totally available for the commercial housing. As compensatory FAR is added to the land, the scope of commercial housing in combination of AHP is an attractive opportunity.

The role of intelligent Planners, Designers having complete comprehensive knowledge of the Central Policy with relation to the respective State Govt.'s AHPs provides attractive business to the Private Developers who can get profitable operations and that too in conformity with the completely regulated and modified shape of the business of the Real Estate which is also now compelled to move on the mathematically defined tracks as in Real Estate Regulation and Development Act (RERDA) too.

REPL having the advantage of being empanelled by the Govt. of India for submitting proposals under the Smart City Mission and with wide National and International exposures and experiences has accepted this new regulatory system as easy and full of options for a stable and attractive business opportunities in times to come.



P.N. Misra

Chairman-
Paarth Infrabuild
Pvt. Ltd.

“By the time the Nation completes 75 years of its Independence, every family will have a pucca house with water connection, toilet facilities, 24x7 electricity supply and access.”

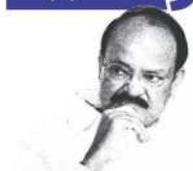
—Shri. Pranab Mukherjee, Hon'ble President of India, addressing the Joint Session of Parliament—



INCENTIVES FOR AFFORDABLE HOUSING

Budget 2017-2018

“We are keen on promoting a rental housing stock through social rental housing with government support and market-driven rental housing without direct government support.”



-Shri. Venkaiah Naidu
Hon'ble Minister of Housing and Urban Poverty Alleviation and I&B



Usha Prasad Mahavir
General Manager
(Projects) - HUDCO

The thrust on affordable housing shows commitment of the Government of India to ensure social justice and equity under its inclusive and development approach. The Union Budget 2017-18 is expected to provide tremendous impetus to housing. Providing Infrastructure status to affordable housing will be a game changer as it open new avenues for cheaper domestic and international finance. The low cost and long term funds when passed on to home buyers will reduce the cost of affordable housing. The Section 80-1BA (deductions in respect of profits and gains from housing project) was introduced in the Budget 2016-17 by providing 100 per cent deduction on profits for housing projects during June' 2016 to March 2018.

The Budget 2017-18 offers tax incentives for affordable housing based on carpet area instead of built-up area. The size of residential units has been modified from 30 sq.mt. in four metros (within the areas of Chennai, Delhi, Kolkata and Mumbai) and 60 sq.mt. in other cities from built up area to carpet area. This will enhance the size of the house by approximately 30 per cent. Also the time period for completion of projects has been enhanced from three to five years, keeping in view the time taken to complete the projects. The Budget has also reduced the holding period for computing long term capital gains from transfer of immovable property from three years to two years. Also the base year for indexation has been shifted from 01.04.1981 to 01.04.2001. This provision is likely to give some benefit to the tax payers, as the market price of immovable property has increased as compared to the increase in cost inflation index announced by the government from time to time. The Joint Development

Agreement executed for development of property, the liability to pay capital gain tax will arise in the year the project is completed.

Conclusion

The Government's focus on ensuring housing for all includes Middle Income Groups offers immense opportunity to the working professionals and self employed people having huge aspiration for owning a house. The Government has earmarked Rs. 1000 crore for this scheme for the current fiscal, which would be available to 40,000 to 50,000 applications. Availability of low cost long term funds under the infrastructure status, several tax concessions and exemptions and Central Assistance under PMAY Mission will definitely scale up the affordable housing segment. The Real Estate (Regulation and Development) Act (RERA) 2016 and the Benami Properties Act would help revive the real estate sector including affordable housing. RERA will provide uniform regulatory environment to protect consumer interest, help speedy adjudication of disputes and ensure orderly growth of real estate sector. The Government of India has also released Model Building Bye laws 2016 for adoption by the states which have been updated in terms of contemporary urban trends to make them more inclusive and user friendly. Under the Ease of Doing Business and Streamlining of Building Plan Approval Process, PMAY Guidelines mandate certain steps in setting up single window for construction permits, concept of deemed building permission in layout approval in certain circumstances, etc. The Ministry of Housing and Urban Poverty Alleviation, Government of India has also drafted the National Urban Rental Housing Policy 2016 which would encourage promotion of rental housing for various segments of income and create adequate rental housing stock by promoting Social Rental Housing. The special focus is on urban poor and vulnerable groups. Confederation of Real Estate Developers Association (CREDAI) is also contributing to the Government of India's target of providing housing to all by 2022 as they are planning to launch 200 housing projects across the country. These positive measures and steps will definitely go a long way in achieving the target of providing affordable housing to all.

As a direct fallout of continuous urbanization, the slum populations have been increasing at much higher rate than overall population growth of the country. As per the census reports, India's slum population more than doubled, from 43 million in 2001 to 93 million in 2011 and it is projected to grow at 5% per year, adding nearly two million every year. It is found that around one out of every six households in urban India (17.4%) is in a slum, and that well over one-third of all slum households in the country (38%) are in cities with a population in excess of a million.

Housing demand of this segment has specific characteristic and challenges that need customized policy and operation approach. It is important that PMAY has taken a distinct component of 'In-Situ' Slum Rehabilitation, using land as resource with private participation. State or urban local bodies (ULB) will provide additional floor space index which will result in verticalization of sprawl. The freed up land area resulting from the vertical expansion can be used by the private developers for commercial resale.

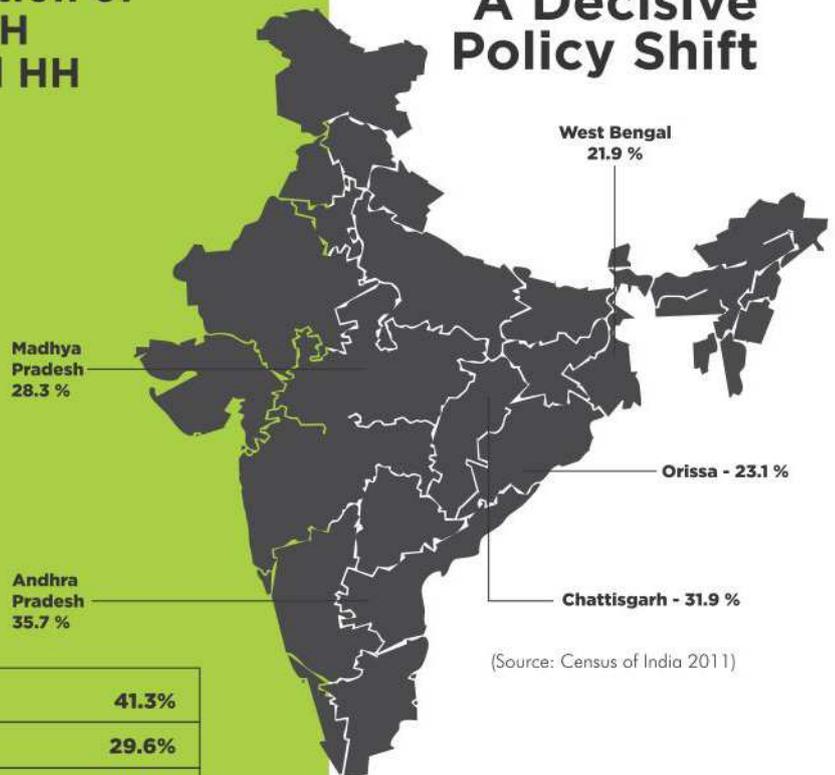
This will enable the builders to construct houses for the eligible slum dwellers free of cost. In places where such cross subsidization is not possible, the government will share financial burden through viability gap funding of 60-75%. The exercise will be carried out through a transparent bidding process. In a way, the government policy has gradually moved from slum up gradation, to ex-situ slum redevelopment to in-situ



Prabhakar Kumar

Team Lead, Urban Planning
-REPL

Top Five States in terms of Slum Household Proportion of Slum HH to total HH



A Decisive Policy Shift

(Source: Census of India 2011)

| | |
|------------|-------|
| Gr. Mumbai | 41.3% |
| Kolkata | 29.6% |
| Chennai | 28.5% |
| Delhi | 14.6% |

slum redevelopment.

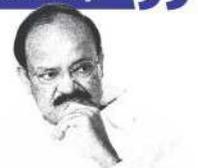
This approach has many beneficial aspects such as direct targeting of beneficiaries, improved construction quality, and resolving the issue of land & funds. It is also likely to cause least disruption to livelihood and social fabric of slum dwellers. At the same time, there could be few challenges that the policy makers and implementing agencies must take care of. The survey of beneficiaries must be in transparent and speedier way; efficient management of temporary settlement during the interim period, and timely delivery of houses.

Total Slum Population
93% mn (2011 Census)

63% of Statutory Towns
have Slum Area

Urban Slum Population estimated
to rise at the rate of 5%

“Reform-Perform-Transform is our motto and our government is going to ensure that the fruits of India's economic development reach the poorest of the poor of the country.”



-Shri. Venkaiah Naidu
Hon'ble Minister of Housing and
Urban Poverty Alleviation and I&B

HFA FUNDING

Need of Broader Capital Inflow



“I don't know of any industry in India, where you have to pay zero tax even if you make profit, other than in affordable housing.”



- Mr. Deepak Parekh,
Chairman HDFC Ltd.

For even a small project to go on smooth lines and avoid the time over-run, it is a must to have well-structured funding arrangement that takes care of required cash flow at various stages of implementation. Here we are talking about the Housing for All, within next 5 years! Government has set a target of building 10 million houses PMAY-Gramin, at a cost of Rs. 81,975/- crores in the first phase till 2018-19.

In the Union Budget, PMAY-Gramin allocation has been increased from Rs. 15,000/- crores in 2016-17 to Rs. 23,000/- crores in 2017-18. However, this alone cannot be sufficient for HFA mission. All the available options for funding the housing projects especially for EWS & LIG sections, need to be stretched to limits.

It is notable that more than 70% of the real estate investments in India, owe to household savings, rest 30% account for all other sources, viz., government spending, institutional finance, private equity, etc. The HFA policy has tried adequately to further incentivize the individual borrowers to avail credit linked subsidy from Banks. However, the greater concern is how to propel the capital inflow from other sources.

As per the estimates, nearly 70% of the housing requirements will be from EWS & LIG sections alone, which are by their very nature less profitable segment for the private and institutional investors. To incentivize, the government has extended the tax deduction scheme for affordable housing projects till 2021.

The infrastructure status for affordable housing is certainly changing the scenario in significant way. Loan tenure for the CLSS under PMAY has been increased from 15 years to 20 years. Holding period of property has been reduced to two years to qualify for long term capital asset. Also, the notional rental will be taken as nil for one year after date of obtaining completion certificate. All these measures are jointly creating the incentive mechanism that will attract investors and financiers with renewed interest.

The government has liberalized the FDI regime for the low-cost housing sector by bringing down minimum investment to USD 10 mn and removing three-year lock-in period for exit. Considerably, the global capital flow into Indian real estate in 2016 stood at USD 5.7 bn (as per the World

Investment Report by UN Conference for Trade & Development).

Builders face the reluctance of formal banking system to extend credit. They have to turn towards informal funding sources, which are expensive and have bearing on the final cost of delivery. As per the norms, Insurance funds and Pension funds are required to invest certain portion of their money in infrastructure sector. Due to government's favorable policies for affordable housing, these funds can route to the sector and provided much needed long-term capital. In future, we may see active participation of micro-finance institutions also in bridging the gap.

Housing projects need massive initial investments for land acquisition. It can go anywhere from 20 to 40 per cent of overall project cost, even higher in cities like Delhi-NCR and Mumbai. Still, there is no formal lending source available for land acquisition. If in future, the RBI allows the banks and housing finance companies in land purchase, this can ease the situation significantly.

The REITs are being looked upon with great excitement. As per JLL India estimates, total REIT listing could be worth Rs 1.25 trillion. If properly channelized, it can take way a significant burden off the financing requirement.

To bridge the gap between the overall fund requirement and government outlay on the mission, more favorable condition for the private investors, active role of banks & housing finance companies and, ease for the PE players & FIs/FDIs need to be ensured. The way policies are being amended favorably, the financial dimension of HFA mission may not be cause of too much worry.



Ravikant Joshi

Urban/Municipal Management Expert, Former Chief Accountant with Vadodara Municipal Corporation. Worked as consultant for The World Bank and CRISIL

REITS & InvITs

Building Expectations for Housing

Both the Real Estate and Infrastructure sectors need additional channels of fund infusion, apart of public financing. REIT (Real Estate Investment Trusts) and InvITs (Infrastructure Investment Trusts) have potential to attract significant private investment, from institutional as well as the retail investors. As per a report in Hindustan Times (Jan 18, 2017), the REITs opportunity in India is estimated to be Rs. 1.25 trillion.



Manish Rege

Additional VP - REPL
Infrastructure BD

In 2014, Security Exchange Board of India (SEBI) introduced InvIT Regulations for infrastructure trust. The concept has already been tested across the globe and running successfully in countries like US, Japan, Singapore and Malaysia. For the general idea, REITs or InvITs own income producing real estate assets such as office buildings, apartments and mortgages.

In Budget 2016, the Central Government removed a major hiccup in the path of a successful listing of REITs: the Dividend Distribution Tax (DDT). DDT was exempted on special purpose vehicles (SPVs). Rules for REITs were relaxed and the investment cap in under-construction projects was raised from 10% to 20%. SPVs are now allowed to have holdings in other SPV structures and the limit on number of sponsors has also been removed. The platform is all set for REITs to take a plunge in Indian capital market, which we are like to see commencing in coming few months.

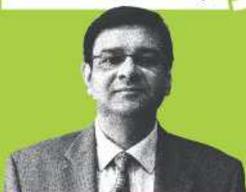
However, our purpose over here is to examine whether the success of REITs

or InvITs will bolster the Housing for All mission. There is an important aspect that needs our attention. In India, the rental yield in commercial assets class fall in range of 8-10%, while range of yield in housing rental is 2-4%. This apparently significant differential rate of returns is likely to automatically rout the funds in commercial space.

Having said that, we must consider that the National Urban Rental Housing Policy is soon to be presented to the cabinet. The policy maker's focus on the rental housing is going to decisively change the scenario. Additionally, the favorable taxation structure will make the sector more lucrative. Equally significant is the fact that the affordable housing has now the infrastructure status.

Banks, which are currently allowed to invest as much as 20% of their net-owned funds in equity-linked mutual funds, venture capital funds and stocks, may invest in these trusts within this limit. As the market capitalization of REITs vehicles increases, even a reasonable portion of fund flow in affordable housing segment will contribute significantly in achieving HFA mission.

It is proposed to allow banks to invest in REITs and InvITs within this umbrella limit (20 percent of their net owned funds).



- Shri. Urjit Patel,
RBI Governor



SCALE DEMANDS TECHNOLOGICAL INNOVATIONS

The scenario for Indian real estate has changed drastically over the last few years.

The questions being asked today by end-users, investors and even conscientious developers are very different from those asked in earlier times.



Ashok Kumar Verma
Head of Structural Engineering
& Building Services Design
(REPL)

Innovation in Technology is playing an important role in keeping the project costs low and making it viable for developers. Some of the innovate technologies suggested for low cost affordable housing are-

Aluminum Form Work

Construction - This extremely progressive technology is a revolutionary innovation that allows for the speedy, accurate and highly consistent casting of all internal and external walls, columns, beams, floor slabs, stairs and other parts of a concrete building. It is an integrated system which merges the wall and slab panels into a seamless unit. With a drastic reduction of form-jointed sections, the end products have superior resilience to wear, tear and degradation.

Modular Housing - Modular housing

is yet another method that can be adopted by progressive Indian developers. When supported by the correct design, factory-build modular housing conforms to most standards of structural integrity, safety and environmental impact. This kind of construction involves the use of pre-manufactured components like roof and floor trusses that can be assembled quickly and with major savings on construction time and labour costs. Its hassle-free operations, excellent quality and précised designing make these highly popular and demanded in market. Given the tremendous drop in time and cost overruns, traditionally the bane of India's construction industry, more developers will adopt prefab technology in future.

Precast Construction - To build large scale compact and cost effective habitable dwelling units (for instant willing occupation) spread over several parts of the country, with speed, and round the clock operation independent from weather/(seasonal) conditions, the traditional in-situ construction is not a success. Precast structural systems possess several advantages compared to conventional cast-in-situ concrete systems, such as quality control, speedy construction, and suitable application to regularly modular systems. The best part of the technology is that it not only speeds up construction work but also enhances the quality of the final output.

Alternative Construction Material is being used as another significant option for achieving low cost affordable housing. Meeting the demand for cost-effective, yet environmentally friendly homes is through the use of alternate construction materials such as recycled fly ash (a waste by-product of coal combustion). This medium can be

utilized to build budget housing of fairly high quality. Other alternate construction media are interlocking bricks, hollow concrete blocks, rubble filler blocks, stabilized mud-based blocks and funicular (or rope-like) shells.

By using alternate construction materials and methods, construction costs can be reduced by a minimum of 10-15% in terms of materials and up to 20% in terms of skilled manpower expenses and construction time.

As per the annual report (2016-17) of MoHUPA GOI, a special committee has been constituted for 'New Technology Demonstration Projects' and 'Awareness Creation & Capacity Building for New Technology', involving various departments and research bodies. Various pilot projects are rolled out using shear-wall technology; construction using GFRG (Glass Fibre Reinforced Gypsum) & LGSF (Light Gauge Steel Frame) structure; Expanded Polystyrene (EPS) Core Panel; Precast Concrete Construction Methodology; etc. It is also proposed to develop online & offline course modules for professionals and masons. Technology based course will also be developed in association with IITs.

DESIGNING ASPECTS

Affordable Housing



Deepti H Makar

DGM - Architecture
(REPL)

As compared to previous housing schemes, PMAY has distinct features, guidelines and benefits. While planning and designing affordable housing projects, multiple parameters need to be taken care of. Technology Sub-Mission under the mission is proposed to work on following aspects:

Design and Planning

Innovative Technologies and Materials

Green Buildings using Natural Resources/Locally Available Materials

Earthquake & other disaster resistant Technologies and Designs

Simple concept of designs, suitable for Geo-Climatic Zones

Slum development projects and Affordable Housing Projects in partnership should have basic civic infrastructure like water, sanitation, sewerage, road, electricity, etc. An affordable housing project can be a mix of houses for different categories, if at least 35% of the houses are of EWS category and a single project has at least 250 houses.

State Govt. Affordable housing schemes have also similar norms with minor variations in them. The guidelines on preparation of detailed design for housing is mentioned in the DPR preparation toolkit provided by Ministry of Housing & Urban Poverty Alleviation Govt. of India. An architect has to follow the local/state bye laws and PMAY guidelines. In addition to this, the designers have to keep in mind the site topography, climatic conditions and other site constraints.

If we design a building below 45M we get the benefit of reduction in cost of fire equipment, sprinklers as well as other services & structural requirements. Above 45m, all the services, structural requirements and norms change due to that cost of construction increase. After designing, planning & finalization of the concept & scheme, next step is for statutory approvals as per bye laws. Master plan, fire safety norms, environmental clearance, etc. as applicable for the project are to be taken. It is also to be ensured that statutory approvals are obtained before submission of DPR (Detailed Project Report).

PMAY being the Affordable Housing Scheme must be lesser in cost of construction followed by saleable cost.

Few areas of concern are:

Green building guidelines for Affordable Housing (AH) are still weak

Guidelines on design and material for the AH sector need more clarity

Lower awareness on architectural design that can help to improve the overall resource efficiency and energy efficiency of the structure

Limited expertise on low cost material and innovative architectural design



PUBLIC HOUSING IN SINGAPORE

Cues for Implementation

If a book is to be written on the story of Singapore's rapid economic development over the past decades as a city-state, a chapter in the book will definitely be dedicated to the public housing system of the country. The successful public housing system of Singapore was one of the major cornerstones that had contributed to the success of Singapore. Today, over 8 out of 10 persons who live in Singapore reside in public housing, attesting to the success of public housing programme in Singapore.

The Housing and Development Board (HDB) was established as the national public housing authority of Singapore in 1960 to replace the Singapore Improvement Trust (SIT) that was set up by the colonial government to provide low-cost housing and improvement works. HDB's immediate task upon inception then was to deal with the chronic housing shortage and burgeoning slums within the city. (Note that the HDB was set up after Singapore attains self-government but before its independence in 1965.) Over the decades, HDB has evolved to meet the growing aspirations of Singaporeans, from just being a provider of standardised public housing to a developer of integrated housing estates comprising of residential, commercial, community, recreational and park facilities. It has also set the minimal benchmark for private residential developments in Singapore.

The success of a national-level public housing programme is not just about physically building low-cost housing for the citizens, it involves a comprehensive integrated approach with governmental policies and objectives.

Land Acquisition Act

Before the enactment of the above legislation, although the government was empowered to acquire private land for public projects, it does not have provision to prevent landowners from increasing the prices of their land in areas earmarked for such projects. The Land Acquisition Bill legislation was passed in 1966 to widen the government's power to acquire land at the lowest possible cost, and in so doing, was able to allow the construction of affordable housing and industrial estates. Currently, the government is the biggest landowner, owning more than three-quarter of the land in Singapore.

Homeownership

Initially, HDB built flats for rental, however in line with the government's belief that homeownership would give Singaporeans a bigger stake in their country, HDB began selling flats based on a 99-year leasehold in 1964. Schemes like one that allows citizens to use the funds in their Central Provident Fund (CPF) to

finance their purchase of HDB flats has resulted in over 95% of current HDB's flats to be owner-occupied.

Public Housing Programme as a tool to Achieve Objectives

An example of such policies is the Ethnic Integration Policy, where proportions of ethnic composition of ownership are set for each HDB block and in each neighbourhood. This is to encourage the integration of different races within the multi-racial and multi-religion society of Singapore and to prevent the development of distinctive racial enclave.

Estate Renewal Strategy

To prevent old housing estates from turning into slums, HDB adopted various upgrading programmes aimed at handling common maintenance problems as well as improving living environment of its residents. Main Upgrading Programme (MUP), Neighbourhood Upgrading Programme (NUP), Lift Upgrading Programme (LUP) and Housing Improvement Programmes (HIP) are part of the estate renewal strategies adopted.

The successful public housing model in Singapore has been lauded by many, however, to emulate the success of the HDB model is not just about copying the physical aspect of the HDB housing blocks, it would have to involve a holistic approach to policies and urban planning within the socio-cultural, socio-political and socio-economic contexts of the development location.



Steven Siow
Principal Architect/Managing
Director - Shing Design
Atelier, Singapore

BUILDING INFORMATION MODELLING (BIM)

Scope in Large Scale Housing

The mission of Government of India to provide housing for all by 2022 is going to entail massive planning, design and construction work, simultaneously at various regions. Just looking at the geographical spread of the country, one can visualize at what neck break speed the work is to be carried on. Additionally, it has costing concerns as the focus is on affordable housing.

The policy makers and other stakeholders very well realize the use of innovative technologies to accomplish this challenging task. Most of the 'innovation focus' has been more on improving the technology for 'construction material', which is definitely important. However, at the same time, we also need advanced technology in 'construction design & plan', which has multiplier effect on entire project life cycle. Here comes the role of BIM that can decisively change the scenario.

Fundamentally it is a software driven interface which provides project delivery team with a 3D virtual visualization of look & feel of the building that is to be constructed.

Traditional building design was largely reliant upon two-dimensional technical drawings (plans, elevations, sections, etc.). Building information modeling extends this beyond 3D, augmenting the three primary spatial dimensions (width, height and depth) with time as the fourth dimension (4D), cost as the fifth (5D), Estimation as the sixth (6D) and Facility Management as seventh (7D).

Its application becomes more fruitful as the scale of project increases in real estate and infrastructure sector. These projects involve multi crore investment. Errors here also cost in crores. In executing these large projects the Architectural Engineering Construction (AEC) companies face a number of challenges. These projects are executed by a team of professionals – architects, structural engineers, service engineers, various consultants & contractors who may not necessarily working out of one location. The Coordination and collaboration between these teams is very important for the success of a large complex project. Also, these large projects have long gestation periods, which sometime get executed in multiple phases. During the course, team compositions also change. All these result in loss of information in the transition and lot of reworking and redesigning.

This calls for a single interface to which all parties should have equal ownership. Any additions or alterations to the design would pass through the modelling software for acceptance and integration into the original plans. BIM has the capacity to minimize errors as a result of incorrect or miscommunicated information through the early identification of any potential clashes.



Soumya Das

Director - RIPL
(Rudrabhishek Infosystem Pvt. Ltd.)

There is a greater degree of quality control over the contract as the modelling allows the project team to visualize the impact of any amendments to the design. This in turn allows for closer monitoring and control of costs. BIM aids in conflict detection at the initial stage, identifying the exact location of discrepancies.

GRAPHISOFT and RIPL is working on the spread of ARCHICAD (BIM application software) in India, along with training of technical know-how. With an investment of just 0.05% of project cost in Archicad-BIM infrastructure, the promoters can save upto 5-7% of overall project cost. However to scale up the usage of BIM, there is need of strong advocacy, change in mind-set and ensuring availability of trained manpower.

“ BIM revolutionizes the way we design and execute projects. When we visualize a building not just in 3D but also through the dimensions of cost and time, the result is a more robust design which is cheaper than before. GRAPHISOFT is pioneer in igniting the BIM revolution by introducing ARCHICAD in 1984, the industry's first BIM software for architecture ”



- Mr. Laszlo Toke
GRAPHISOFT SE, Budapest (Hungary)

PROJECT MAPS

REPL CONSULTANCY IN HFAPoA

Under **Housing for All Plan of Action (HFAPoA)**, REPL has been providing consultancy in the various parts of the country. The scope of work typically includes assessment of present slum situation, slum mapping, socio-economic survey and formulation of various slum development options. We also do the analysis of existing housing market (shortage, gaps, supply and demand); selection of beneficiaries under various verticals of PMAY; costing and financial operating plans; preparation of project implementation plan; and assisting the ULBs to prepare the tender document construction.



HFAPoA, UTTAR PRADESH 128 TOWNS

REPL is working on the three clusters: Chitrakoot, Moradabad and Meerut. Total 15 districts and 128 ULB's (Urban Local Body) covered in these clusters.



HFAPoA, MADHYA PRADESH 2 TOWNS

REPL is working on HFAPoA for Mandasaur and Tikamgarh of Madhya Pradesh. The Detailed Project Report (DPR) has been approved.

AFFORDABLE HOUSING PROJECTS

REPL has been providing integrated consultancy on Affordable Housing of several private builders' projects. The services include planning, architectural designs, engineering & services designs, project management consultancy, strategic marketing advisory, etc. Some of these projects are -



PAARTH SAMRIDHII (CANARY STATE), UNDER PMAY

The Paarth Infrabuild's residential housing project in Lucknow spreads over 19,13,687 sq.ft. area. This includes housing units for EWS, LIG & MIG Segments. The unit flats start from 530 sq.ft. area. Total units under this project are 2146 units comprising of EWS Flats (817), LIG Flats (460) and HIG Flats (869).



NAVYUG SMART MINI CITY, ALLAHABAD

It's an integrated housing project of New Modern Buildwell, with all supporting amenities and modern features. The affordable housing unit starts from 835 sq.ft. area. It contains 2 & 3 BHK apartments. The project spreads over 92,000 sq.ft.

CORPORATE ANNOUNCEMENTS



HFAPoA, RAJASTHAN 10 TOWNS

REPL has been awarded with HFAPoA for 10 towns of Rajasthan (Alwar, Beawar, Bhiwadi, Bhilwara, Pratapgarh, Chittorgarh, Ajmer, Pushkar, Kishangarh & Nathdwara).



HFAPoA, BIHAR 2 TOWNS

The towns that we have covered under HFAPoA are in 2 cluster i.e. Muzaffarpur and Siwan.



ARYAVARTA EMPIRE, SHUSHANT GOLF CITY LUCKNOW

The project of New Modern Buildwell offers affordable housing units starting from the flat size of 720 sq.ft. Total units in the project are 622 units comprising of 1,2,3 BHK & Penthouse accommodation along with 5 Shops and a Megamart.



VARANASI SMART CITY PROJECT

REPL with its consortium partners Grant Thornton and ANB consultancy has been awarded the project management development consultancy for Varanasi Smart City. Area Based Development (ABD) and pan city solutions will be undertaken for 1389 acres area. This will include retrofitting of old city along river Ganga comprising of major temples, heritage sites & cultural places with emphasis on socio economic growth.



INDORE SMART CITY PROJECT

For the implementation of smart city project in Indore, the REPL along with consortium partner Knight Frank, has already started preparing various DPRs. The total of 681 acres of land is to be redeveloped in the heart of the city.



MoU WITH GRAPHISOFT SE FOR SMART CITY VARANASI

REPL has entered into an agreement with the Hungarian multi-national company for providing advance technological solutions on Varanasi Smart City project. The firm provides BIM solutions (Building Information Modelling), based on platform of its flagship product ARCHICAD. The MoU was signed in Kyoto, Japan.



3RD ANNUAL J.P. BHARGAVA AWARD CONFERRED BY REPL

For the Best Planning Thesis, award was given to Ms. Pratibha Singh of CEPT - Ahmedabad. The other two finalists were from SVNIT - Surat, and SPA-Delhi. The chief guest Ms. Mousumi Roy, Sr. Director & Head (CIFTI, Food Processing, Smart Cities & Real Estate)-FICCI gave trophies to finalists. The first award winner is given cash prize of Rs. One Lakh, while other two receive fifty thousand each, along with a certificate.





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Editorial

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