**Ensuring mass scale up and success of Low Cost/ Mass Housing PROJECTS BY implementation of approved new technologies and by integrating National and State Highways with the housing projects**

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**ABSTRACT:**

The Indian economy needs to control rapidly the rising housing costs which are fuelled by rising building material prices and escalating land prices. Without these things in control, housing could be a dream undelivered for millions of Indians, despite massive efforts by the Government on this front.

This paper presents the way forward considering the developments taking place in technology for mass housing, the developments in other infrastructure areas such as the highways, and the need to create a new set up that will ensure strategic and collaborative methods to actually deliver mass housing in India.

Traditionally India has been using time tested methods in housing construction, but resulting in usage of old methods and losing out the gains of using new technologies. The need for a change was felt when India embarked on a huge mission to implement low-cost housing.

However, without an organised support for the technologies selected by the Government, low cost/ mass housing would not succeed in a major way across India as it needs the involvement of approved technology providers, developers, and contractors.

Considering that 42% of India’s population will be staying in urban areas by 2030, it will be highly imperative that India builds more infra facilities in urban areas and develop suburbs and satellite cities to accommodate the movement & shift to the cities/ urban areas. This needs government support in terms of land & high-rise buildings at a fast pace- all which is possible using new technologies which ensure much speedier construction than the normal.

**KEYWORDS:** Housing, low-cost housing, mass housing, Light House Projects, MoHUA, CBRI, BMTPC, land prices, new technologies in construction

**INTRODUCTION**

India is the second most populous country in the world, with a population of 135 crore (1.35 billion) people. In 2019, about 26.62 percent of the Indian population was in the 0-14 year category, 67 percent into the 15-64 age group and 6.38 percent were over 65 years of age. India is one of the largest countries in the world and its population is constantly increasing. It is the world's sixth largest economy by nominal GDP and the third-largest by purchasing power parity (PPP). According to the International Monetary Fund (IMF), on a per capita income basis, India ranked 142nd by GDP (nominal) and 124th by GDP (PPP) in 2020.

By 2050, the global population is projected to increase to around 9.8 billion. It’s estimated that more than twice as many people in the world will be living in urban (6.7 billion) than in rural settings (3.1 billion).i.e. 2/3 rd of the world will be living in cities. The same matches with the situation in India. This movement of people to cities can trigger an urban crisis in time to come, especially during any pandemic.

350 million ( 35 crore ) Indians will live in the cities by 2030 & 700 million ( 70 crore ) Indians will live in the cities by 2050. A large portion of the population will need low cost housing which will need to be in high rises in cities and towns and in other formats.

**LOW-COST HOUSING – CONSIDERATION OF THE HUGE REQUIRMENT DWELLINGS AND LAND**

**Analysis of the requirement of India and the pressing housing need:**

India is undergoing rapid urbanization. While 31% of India’s population lived in urban areas as per Census 2011, this number is expected to grow to 40% by 2030 with a contribution of 75% of India’s Gross Domestic Product (GDP). Large sections of the society are migrating to urban areas for better job opportunities and quality of life from rural areas. These cities and towns need to provide a receptive, innovative and productive environment, which can promote faster and sustainable growth ensuring a better quality of living. Hence it is imperative to have a comprehensive strategy to fulfil the rising demand in the housing sector. The emphasis on urban housing will be in most cases high rise buildings and fast completion at low cost is a major consideration. Low-cost housing will be major consideration for accommodating millions of Indians in urban and semi urban areas of cities and towns which are fast developing.

Low-cost housing succeeds when the land is also subsidised and made available in large parcels- which can be initiated by the central and state governments.  Land owners/ farmers are more open to sell land/ lease land to government entities than private builders.  Also, low cost housing is now going to be a "vertical" development (multi-storeyed towers 10-25 storied) . This is also seen in the **LHP** projects ( Light House Projects ) of **MoHUA ( Ministry of Housing & Urban Affairs )** , as per the technologies identified due to the great work of **BMTPC ( Building Materials Technology Promotion Council )** . For such large scale mass/ low/ economical housing to succeed, the projects have to be near the highways (greenfield / brownfield), so that connectivity to main city centre is maintained for a large population from a working & income perspective. Also, these land acquisitions for mass housing have to be approximately 5 kms away from the exits of the city / towns, and on the greenfield highway projects.  Such a task/ multiple requirements of land acquisition can be managed by**NHAI**only due to the complexity of the matter and due to the transparency and trust that they can provide to land sellers, developers and individuals.

When large parcels of land are already available or to be acquired by **NHAI** for any project (and specially when **NHAI**has developed all expertise of land acquisition), we must think of integrating / earmarking large tracts of land next to the highways (and on the outskirts of cities and towns) for developing housing for the masses.

Another issue in this context is the utilisation of such land for promoting low cost / mass housing using the newly approved 5 new technologies by **BMTPC** which guarantee fast housing build up.  To ensure that the technologies succeed, and that these technologies are widely commercialised, the initiative will have to be taken by the government through **NHAI or through a** new body that **works as a National Mass Housing Authority.**

Normally low/ mass housing projects are utilised by the lower end of the strata and these cannot be within the costly areas of the city, neither can they be very far away considering the livelihood of the inhabitants will still depend on the cities. Yet these land parcels still need a place to be constructed. Involvement of **NHAI** will also ensure the direct success of its operations through yet mechanism.

It is estimated that more than twice as many people in the world will be living in urban (6.7 billion) than in rural settings (3.1 billion).i.e. 2/3 rd of the world will be living in cities. The same matches with the situation in India. This movement of people to cities can trigger an urban crisis in time to come, especially during any pandemic.

The only way for a sustainable development is quick, mass and low-cost housing for the majority of the individuals who will move into the cities. The question remains of implementation and execution and delivery. What is needed is action to deliver besides just budgetary allocation and planning. The implementation of the objectives mandate the involvement of the private sector which will always look at the financial gains of moving in for such technologies and cash flow. For fast construction, matching cash flow is essential which is possible only with the Government as a major support/ client.

**NEW APPROVED TECHNOLOGIES FOR HOUSING**

The government should also make the use of the six new technologies in large projects on these lands. At minimum, Government buildings / hospitals etc should have tender conditions that make mandatory use of these technologies which have several advantages like speed of construction, factory-based construction and economics of cost due to standard designs.

**New Technologies identified by BMTPC**

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| --- | --- | --- |
| **LOCATION** | **TECHNOLOGY SELECTED** | **NUMBER OF HOUSES DONE/ TO BE CONSTRUC-TED** |
|  |  |  |
| Indore Madhya Pradesh | **Prefabricated Sandwich Panel System** | 1024 |
| Rajkot Gujarat | **Monolithic Concrete Construction using Tunnel Formwork** | 1144 |
| Chennai Tamil Nadu | **Precast Concrete Construction System – Precast Components Assembled at Site** | 1152 |
| Ranchi Jharkhand | **Precast Concrete Construction System – 3D Volumetric** | 1008 |
| Agartala Tripura | **Light Gauge Steel Structural System & Pre-engineered Steel Structural System** | 1000 |
| Lucknow Uttar Pradesh | **PVC Stay In Place Formwork System** | 1040 |

**INVOLVEMENT OF THE PRIVATE SECTOR / DEVELOPERS**

The next step of the initial start-up of mass housing that can be possibly kick started by say **NHAI,** will lead to private developers acquiring land on their own in nearby locations and creating regular housing on the outskirts, leading to formation of mini cities. This will lead to decongestion of cities and also make highway development more sustainable.

**SUMMARY**

The measures that need to be taken so that low-cost mass housing will succeed, resulting in huge business downstream for the construction sector in engineering, construction and building materials are as under:

1. Low cost housing finance which is now at approximately 7% per annum interest rate or lower- perhaps at the lowest since independence.
2. Speedy construction using new technologies, which can cast one floor level slab in 2 weeks by existing technologies like Mivan. New technologies already approved by the MoHUA and BMTPC can deliver housing at a even faster pace. These technologies need opportunities to be implemented economically, and generally these are highly beneficial and workable only in mass scale / bulk / repetitive projects.
3. Low cost / mass housing for the poor has to be financed by the government directly and will ensure very fast construction. If the financing has to come in from the consumer directly/ or through bank instalments of the occupants, developers and contractors will not join hands in using new technologies for fast construction. Mass housing at rapid pace needs timely payments and only the government can assure huge payments. Contractors and developers need a assured cash flow and good return on investments for acquiring new technologies and systems for construction like advanced formwork and precast machinery.
4. Faster construction on a mass scale and newer technologies in use will ensure better quality and low gestation costs. The Government will have to mandate the use of specific new technologies on a much wider scale in tenders and EOUs (Expression of Interest) to ensure popularity and active usage of concepts and processes that have been well studied and documented.
5. Standard building designs, simple to construct, basic and non -fancy architecture, and definitely multi-storeyed towers (vertical construction) -10 to 25 level will become the norm, for low cost housing.
6. Fiscal incentives to builders to participate in low-cost housing from their end are a must. The best housing developers and builders from cities are now capable of delivering towers up to 50 storeys in cities like Mumbai & Thane India and they can easily drive this initiative using new technologies across India.
7. Adequate compensation to builders to participate in these projects can be linked to lesser GST on raw materials, and FSI compensation for projects withing main cities where land is really premium. Leveraging of developer’s financial and technical strengths, and governmental incentives can change the face of mass housing at ultra-high speed of construction. The initiative has to come from government and a body like NHAI can be the nodal agency to execute. A special authority for mass housing can be also created to tackle this huge demand and all in turn will set boom in the construction sector.
8. Technical and commercial parameters for developing this sector will be defined by MOHUA, CBRI, BMTPC in terms of maximum size of housing permitted for low-cost housing, cost of the offering and scale of the projects. What we are looking at is actual construction and buildings to be delivered and is one step ahead of PMAY- Pradhan Mantri Awas Yojana’s magnanimous initiatives for financing and delivering the housing to individuals. PMAY still has a role to play in all this as organising the operation from concept to commission is still within its purview. Implementation of actual project will have to be the concern of the new body.
9. Standardised housing units across India will help in developing precast and prefab buildings at a cheaper price as mass scale will be the game changer.
10. Land is to be offered free for development by the Government to developers and controls of on sizes of dwellings offered, cost / sale prices and quality is to be monitored strictly.

**CONCLUSION:**

India is on its way to becoming a great nation on many fronts in infrastructure and non-infrastructure developments, and is also making an impact on the housing for the poor. Mass/ Low-cost housing technologies are now available; capacity building of engineers, developers and contractors is done; and financing is at its best. It is time to scale up low-cost housing construction using the skills and resources of the private sector, professionals and the government bodies to give an active dimension for growth, in similar fashion as done for highways. Synergy of various bodies can bring in quick results for implementation of best ideas from various research fronts, and from a commercial and engineering angle.

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