

**HOUSING
FOR ALL IN
URBAN
INDIA
MYTHS
&
REALITY**

2392

AR. JIT KUMAR GUPTA

FOREWORD



“Housing for All” in the urban as well as in rural areas, even though of very modest standards, is being increasingly regarded as basic human necessity all over the world. Although “housing” is essentially a State subject, yet Government of India has been involved in formulation and funding of various housing schemes. These schemes have generally been in the nature of capital or interest subsidy or in providing land at subsidized rates. With passage of time, providing common facilities and *in situ* upgradation of the urban slums has increasingly become a part of such schemes.

In the year 2014, the newly-elected Central Government declared an ambitious target to provide “Housing for All” by the completion of 75 years of Independence (i.e. by 15th August, 2022). The existing schemes were consolidated and launched as “Prime Minister Awaas Yojna” (PMAY). The implementation of this Scheme requires cooperation and coordination with the various State Governments and Urban Local Bodies / Authorities. The progress has been satisfactory but lot still remains to be achieved. Recently, the Ministry of Urban Affairs, Government of India issued revised guidelines *inter alia* bringing rental houses within the reach of the urban poor.

Housing has been valued globally, not only as the basic necessity of human living but also as provider of safety, security, identity, dignity and assured quality of life. Housing has been acknowledged as major contributor to economy and employment and promoter of industrialization. Securing ownership of an appropriate shelter remains lifetime ambition of every individual and family. Considering its relevance, “Housing for All” has been recognised as the universal goal to be achieved both locally and globally. United Nations has also mandated its member states to provide adequate housing as one of the basic human rights. Government of India has launched PMAY, for providing ‘Affordable Housing for All’, by the year 2022.

However, housing remains a complex issue, requiring huge physical, social and economic resources. It is both cost and time intensive. Housing, occupying largest space and forming largest mass among buildings in cities, has been found to be consumer of large energy and resources besides generating large amounts of waste. Housing has been found to be responsible for large carbon footprints and global warming. Accordingly, making housing sustainable, cost-effective, affordable and consumer of minimum resources, assumes importance.

I feel happy that the present e-Book, ‘Housing for All in Urban India- Myths and Realities’, by Jit Kumar Gupta, is an attempt to look at the entire housing sector, both objectively and holistically. Book tries to look in detail, problems of mushrooming of slums in large cities besides issues creating roadblocks in making addition to housing stock. Book also tries to analyse what goes into making of housing affordable.

In search for evolving cost-effective and affordable housing, book tries to evaluate various options including; sourcing land at most affordable price; making optimum utilisation of land resources; searching for optimal housing typologies; options for designing cost-effective buildings; materials and construction technologies to be adopted for minimising time and cost; making use of pre-fabrication and off-site construction to reduce the cost of building. Promoting rental housing; evolving multiple housing options; separating right to housing from right to ownership of housing and involving beneficiaries are among the other suggestions made in the book. In addition,

book tries to evaluate the role and importance of effective and efficient project management in making housing sustainable and cost-effective in the real sense.

In a scenario where the State Governments and Urban Local Bodies / Authorities have very modest resources at their command, it will increasingly be called upon the Central Government to fund the “Housing for All” initiatives. With the decreasing Central Government revenues, on account of the stagnant, if not the shrinking GDP in the COVID-19 scenario, innovative methods shall have to be found to be provide funding for such schemes. This may include, apart from the traditional methodologies outlined above, measures like enhanced FAR / FSI, ground coverage, more saleable area as well as increased statutory requirement for EWS housing in the projects of private builders and colonizers. A lot of emphasis shall also have to be laid on providing better civic amenities in urban slums. Conferring full proprietary / ownership rights to the long-standing occupants and weeding out multiple and fictitious claimants through ADHAAR-linked identification would also have to be adopted.

If all these measures are used as coherent package, the dream of “Housing for All” in the cities, towns and villages of India can surely be realized in foreseeable future.

I hope views expressed and suggestions made in the eBook, will help students, professional and researchers to understand the entire context of housing, its physical and social implications and opportunities for making housing for all, a distinct reality.

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Preface



This book by well-known Architect – Planner Jit Kumar Gupta, on the subject of Housing For All, is a timely effort on compiling the experiences of a lifetime spent in the urban planning sector in Punjab. The book begins with the need for affordable housing in our cities and describes some of the efforts in this regard. It also raises the issues of peri-urban development and issues associated with it. Undoubtedly, land is a very important resource for housing development and this book also examines various methods of land management. It also suggests a voluntary land development scheme which is novel and holds promise.

The book focuses its attention on the urban poor and the need to make housing cost effective. It talks of low cost housing experiments in Chandigarh and also discusses the issue of low rise versus high rise development. The importance of good design should not be forgotten when we design for the low income population or the poor and this point comes out strongly in the book.

Towards the end, the book focuses on the need to reinvent the construction sector in India on account of the large numbers of houses that need to be built in the centrally sponsored Pradhan Mantri Awas Yojana (PMAY) Housing for All.

Written by an eminent professional, this is a book that can be recommended, without any hesitation, to all students of urban studies across the country.

September, 2020

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Preface



Housing has been globally valued for its role and importance as determinant of growth and development of human beings, communities and nations. Being one of three basic human necessities, UN has mandated for accepting the ‘Right to Adequate Housing’ as the basic human right. Considering multiple connotations and criticality of housing as provider of identity, security and determinant of quality of life besides promoting economy, generating employment, leveraging industrialization and rationalizing growth and development of human settlements, providing ‘Housing for All by 2022’, has been accepted by Government of India as prime objective of National Housing Policy and Prime Minister Awas Yojna, placing it high on the development/welfare agenda of the nation.

Despite critical role and importance, housing still remains a distant dream for millions of people. UN Habitat Report on Right to Adequate Housing finds, ‘Well over a billion people are not adequately housed. Millions around the world live in life or health threatening conditions, in overcrowded slums and informal settlements and conditions which do not uphold human rights and their dignity’.

India Habitat III National Report, 2016 identifies 65.49 million urbanites living in slums in 2011 besides 1.77 million counted to be homeless - without any kind of shelter, roof and walls. Limitations imposed by land, materials, construction technologies, skilled manpower, limited housing options, non-involvement of stakeholders, private sector and inadequate financial resources have emerged as the major road blocks in ensuring adequate supply of housing for poor. Considering magnitude, complexity, cost & resource intensive nature and ever-growing mismatch between demand and supply in the lower income categories, creating appropriate housing for urban poor remains the most challenging and formidable task.

Documenting, prevailing challenges and possible options to overcome challenges in housing, in the shape of eBook was never a pre-conceived idea and thought. eBook had its genesis in looking at the quality of life and adversities human beings faced, without an assured and permanent shelter, during the ongoing crisis of pandemic. Covid19, has clearly demonstrated the vulnerability of cities and migrants in the face of lockdown, when majority of urban migrant workforce, without having any shelter, had no option but to leave cities to go back to their native places, despite all odds and hardships. This clearly established the context, role and importance of shelter in not only rationalizing growth and development of cities but also creating ownership among its citizens. It has also clearly demonstrated the necessity of providing adequate housing to all the urban residents, if the cities are to be made more sustainable and livable.

Housing remains one of the most dynamic entities related to human living, always evolving and devolving, never static, never definitive, ever dynamic, always changing and never decreasing. For mapping the journey of housing the poor, eBook tries to look at the various facets of housing, through number of articles written during different times spanning over a decade in different contexts. These papers have been printed in various journals and also presented in both national and international conferences. Accordingly, each article has to be read in its own domain.

While making the eBook, due care has been taken that various facets of housing are addressed, so that it remains both compressive and self-contained. Starting from land; planning and designing; typology of housing, cost; construction and pre-fabrication have been made part of the document. Looking at the criticality of the cost, document suggests considering the life-cycle cost of building and not only the initial cost, if the house has to be made cost-effective in real sense of the term. Criticality of architectural design, in achieving cost-effectiveness and promoting state of art housing, has also been detailed. Book also debates the positivities and negativities of plotted development and flatted development. It emphasizes the role and importance of green buildings, to make housing not only sustainable but also to make residents healthy and more productive. Multiple housing options at settlement level have been

suggested to overcome the housing problem. For minimizing speculation and illegal sale of houses , suggestion has been made to graduate from, ‘Right to ownership of Shelter to Right to Shelter’.

Housing, largely remains a local problem and must be settled by the local agencies, which would require empowering these agencies both economically and technically to achieve the objective. Reviewing legal framework, adopting prefab construction, improving construction technologies and promoting rental housing are the other options which the book tries to suggest. eBook also includes National Housing and Habitat Policy and Prime Minister Awas Yojna (PMAY) framed by Ministry of Housing and Urban Development, Government Of India., as reference material on housing, for which author is indebted to Government of India. Considering the enormity of the subject, it remains difficult to deal with all the facets of housing, which remains limitation of this eBook.

This is the third eBook by the author, first eBook, ‘Planning and Designing of the State of Art Healthcare Facilities,’ was dedicated to the healthcare sector; whereas second eBook titled , ‘ Making Cities Great Places to Live’, showcased the options for planning, designing safe, resilient, inclusive and sustainable cities and towns. I hope third eBook on housing ,will have some value for the students, development agencies, parastatal agencies and the professionals looking at the issues and options for creating housing for all.

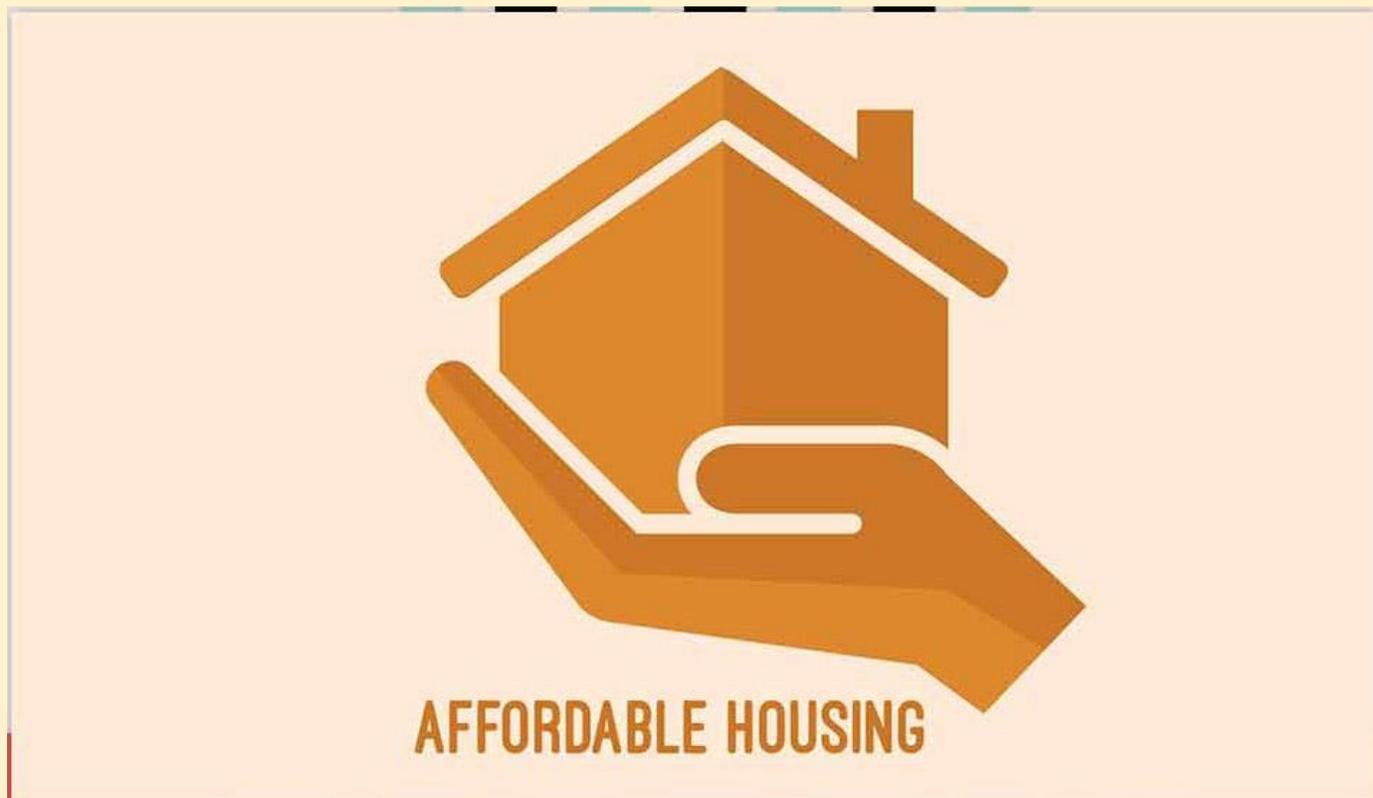
I would like to place on record my gratitude and appreciation, for the valuable support given by Ms Priyanka Sagar, student of Final Year B.ARCH of IKG PTU Campus Mohali, who despite her pre-occupation with her final year thesis, has been working really hard on the document for last more than one month, to bring it into the present shape. She with her hard work, sincerity and dedication has made this book a distinct reality. Design of the cover page and images in the eBook are the outcome of her hard work and understanding.

I would like to dedicate this eBook to the sacred memory of my mother, Late Smt Leela Gupta, who as a teacher made me where I stand today, despite all odds and hardships she faced in bringing me and educating and to my father Late Ved Parkash Gupta, whose benevolence I was deprived off , in my early childhood.

Jit Kumar Gupta
Chandigarh
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**AFFORDABLE HOUSING FOR ALL IN INDIA
ISSUES AND OPTIONS**

Affordable Housing for All in India – Issues and Options

Introduction

If 19th century marked the ushering of industrialization at the global level, 21st century is being called the century of urbanization. Following the global pattern, India is also urbanizing at a fast pace. India ranks today as the second largest urban system in the world after China. Census 2011 has placed the population of Urban India at 377.10 million and level of urbanization at 31.16% as against 279 million in 2001 with level of urbanization at 27.8%. Urban areas are growing with a multiplier of 3 against rural areas with annual growth rate placed at 3.18% against 1.22% during the decade 2001-2011. Based on the prevailing growth rate by the year 2031, urban India is estimated to house 600 million people out of a total population of 1400 million and by 2051, urban and rural areas will have equal share with total population placed at 1600 million. Concentration of population in urban centers has become more and more pronounced with number of urban centers going up from 5161 in 2001 to 7935 in 2011 and million plus cities recording 50% increase, going up from 35 in 2001 to 53 in 2011. It is estimated, number of such centers will be 68 in 2031 and 100 in 2051. Out of 26 ten million plus cities of the world, three cities, namely Mumbai, Kolkata and Delhi, are located in India. As per estimates made by the United Nations in its report, ‘World Urbanization Prospect, The Revision 2014’, the number of such cities will go up to 7 in 2031 and 9 in 2051.

Urban areas are known for their higher productivity, larger capacity to generate employment and making greater contribution to the economy and prosperity of the nations and communities. They are also known to be centers of innovations, promoters of entrepreneurship and providers of state of art services and amenities. However, despite distinct advantages, large number of dualities, contradictions and peculiarities mark urbanization. UN Habitat Report, State of World’s Cities 2008/2009-Harmonious. Cities, defines the cities in their basic characteristics and growth pattern in terms of:

Cities contain both order and chaos. In them reside beauty and ugliness, virtue and vice. They can bring out the best or the worst in humankind. They are the physical manifestation of history and culture and incubators of innovations, industry, technology, entrepreneurship and creativity. Cities are the materialization of humanity’s noblest ideas, ambitions and aspirations, but when not planned or governed properly, can be the repository of society’s ills. Cities drive national economies by creating wealth, enhancing social development and providing employment but they can also be the breeding grounds for poverty, exclusion and environmental degradation

Indian cities are no different from the global pattern, which are distinguished by dualities and contradictions and where growth and development is marked by deprivation and opulence. Despite showcasing distinct advantages and critical role, urban centers have not been growing in a planned and rational manner. Emerging urban scenario on Indian canvas portrays large number of shanty towns over-shadowing the city growth; slums and state-of-the-art buildings rubbing shoulders; poverty and prosperity competing for urban space, unplanned development emerging as the order of the day; informal sector governing the growth and development of cities and basic amenities and services eluding the majority of urban residents. Majority of urban centers continue to face problems of acute housing shortage and rapid uncontrolled growth resulting into haphazard expansion with sub-standard infrastructure, adversely impacting the quality of life of majority of urban residents. The existing inadequacies have resulted into uncontrolled rapid growth and proliferation of informal sector. Poverty, population, pollution and environment have emerged as the major issues and greatest threat to the urban living.

Housing

Rapid urbanization and concentration of population in urban areas have numerous implications. Uncontrolled migration of rural poverty, skyrocketing price of land and ever-rising prices of building materials besides large financial resources required to create appropriate shelter through legal means, the poor urban residents and rural migrants have no option but to encroach upon available marginalized public and derelict land in the city to create temporary and makeshift shelter due to poor financial capacity and affordability. This has led to mushrooming of slums and shantytowns in urban areas. Mumbai has more than 54% of its population living in slums whereas Kolkata share is placed at 33%. In India more than 60 million urbanites are residents of slums and shanty towns and the proportion is increasing rapidly. The makeshift shelter lacking in the basic necessities of life, makes it unfit for reasonable human habitation. With shelter lacking in proper air, light and ventilation; poor health and hygiene besides poor quality of life have emerged as the natural corollary of urban living for these migrants. With shelter made on the encroached public/private land, the poor are in perpetual fear of being displaced by the parastatal agencies with possible destruction of makeshift shelter. The fear of demolition acts as a major deterrent to improve their shelter with savings available

at their disposal. This has led to housing shortage, which keeps on growing and gap between demand and supply getting wider and wider.

As major determinant of quality of life, provider of security/ identity to human beings and providing large employment to both, skilled and unskilled manpower, housing is known to be one of the major contributors to the economy/ gross domestic product. With more than 290 industries involved in producing materials used in the construction, housing has been considered to be the key promoter of industrialization. Considering the multiple connotations, providing housing has emerged as one of the major priority for nations. For focusing on housing as the priority sector, Government of India initiated number of steps and enacted number of housing policies involving; providing shelter to all with every family having a dwelling unit of appropriate quality and space duly supported by basic amenities ; transition of public sector role from provider to facilitator; making housing integral part of neighborhood; prioritizing on urban housing and emphasizing the need for providing and promoting housing on a large scale with priority for EWS and LIG categories. Based on the efforts made, housing sector is being given priority and ranks high on the agenda of state and central Governments.

Housing Shortage

Globally, all developing nations are facing perpetual shortage of housing the EWS sections of the society. Uncontrolled urbanization and rapid migration coupled with lack of authentic data are making it difficult to accurately quantify the level of housing shortage in urban areas. Technical Group constituted by Ministry of Housing and Poverty Alleviation (MHPUA), placed shortage at 24.71 million dwelling units at the end of 10th Five Year Plan for 66.30 million urban households. Group further estimated that majority of shortage was in the EWS category with gap placed at 88%, LIG accounted for 11% whereas in MIG/HIG groups, the estimated shortage was merely 0.04 million dwelling units. For the 11th Five Year Plan (2007-12), the Group projected that total housing requirement in urban centers including backlog, will be of the order of 26.53 million dwelling units for 75.01 million households. If current trend of increase in backlog of housing is allowed to continue, report said that 30 million houses would be required by the year 2020 to achieve the national goal of providing affordable shelter for all. Technical Committee also critically looked at the housing shortage in all categories individually and observed that housing shortage in EWS category was highest with shortage placed at 99.9% of total EWS households, 10.5% in LIG whereas it was only 0.2% in MIG/HIG categories.

Despite the fact that large volume of housing stock has been added since the involvement of private sector but majority of the additions falls under the category of higher and upper- mid housing segments because of high premium these categories command. Housing for the poor and EWS categories essentially falls in the domain of parastatal agencies and to some extent with private developers, to meet the legal obligation of license granted to them for colonies/ townships. With limited capacity and resources available, housing for the poor face perpetual neglect and shortage. However, considering enormous demand in these categories, existing shortage can be leveraged both as an opportunity and challenge to create large housing stock for LIG/EWS categories, based on their affordability.

Affordable Housing

Affordable Housing, as a concept, approach and opportunity, has recently been gaining currency and attracting lot of attention of providers and developers involved in housing sector. However, affordability cannot be precisely defined because of large number of variables and determinants, which go into the making of affordability. RICS defines *affordability in the context of urban housing as provision of 'adequate shelter' on sustainable basis, ensuring security of tenure within the means of the common urban households*. KPMG has defined it , *'in terms of three main parameters, namely income level, size of dwelling unit and affordability* .US Department of Housing defines *housing affordability simply in terms of expenditure of household on housing as proportion of annual income that should not exceed 30% of the total income*. Task Force on Affordable Housing considers two variables namely *size of dwelling and household income whereas JNNURM has defined it in terms of size of dwelling units involving super built up area/carpet area and EMI/Rent not exceeding 30-40% of gross monthly income of the buyer*. Jones Lang LaSalle considers *affordable housing in terms of volume of habitation instead of area, provision of basic amenities, cost of the house (including purchase cost and maintenance cost) and location of the shelter*.

Based on the studies made and analysis carried out, it has been observed that the highest gap between demand and supply of housing is found to exist in the annual income range of Rs 2-3 lakhs because of the limitations imposed by minimum disposable income surplus placed at 30-35%. This considerably reduces the purchasable capacity of this income group particularly the shelter, which is highly cost- intensive. Based on the defined norms and the concept given above, the cost of the dwelling unit needs to be rationalized to bring it within the affordability limits. . The cost of house can be made more rational and affordable if

the developer's margin is lowered and cost of construction is reduced by using state of art/ cost effective technologies, using cost- effective locally based building materials, materials made from waste, effective project management and production of houses on a mass basis leading to economy of scale. Affordable housing is essentially a volume game and not a margin game. However, the price of dwelling unit will vary depending upon location, cost of land, FAR, density, number of dwelling units permitted per unit area and government charges. Considering the present status, housing cost can be made affordable with the enabling environment and supportive policies of the Government

Issues in Developing Affordable Housing

Housing, as already stated, is both labor and capital intensive activity with land, money, materials and construction as the major components. Considering the multi-lateral implications of the housing, there are large numbers of economic, regulatory and urban challenges in developing the affordable housing. Ever rising cost of land and cost of construction are the constraints that have emerged on the supply side whereas lack of access to home finance and identification of right beneficiaries are the major demand side constraints, creating roadblocks in supplying adequate number of houses in the affordable category. Despite large efforts made to mitigate these challenges, tangible results have not been commensurate. Multi-pronged and focused action is required to promote creation of affordable housing on large scale. Looking at the existing scenario, major issues identified in developing affordable housing are enumerated below :

- **Low availability of developed land**

With 2.4% of global land and 17.3% of world population, India is under perpetual shortage of land needed to meet the basic requirements of more than 1.31 billion Indians for food, clothing and shelter. With rapid urbanization and industrialization, asking for more and more land to be brought under non-agricultural uses, the pressure on the land is increasing rapidly. With low land-man ratio coupled with ever rising demand and numerous constraints emerging out of speculation, ever rising land prices, legal framework, planning tools and building bye-laws, the supply of developed urban land is diminishing very fast and accordingly, cost of land rising very rapidly, making the cost of shelter highly unaffordable for majority of urbanites.

- **Rising Threshold Cost of Construction**

With construction constituting 50-60% of the total selling price in the affordable housing, for reducing cost of dwelling unit, it will be critical to optimize the cost of construction. However, due to rapidly rising cost of building materials, cost of labor, cost of transportation, government levies, taxes and charges, cost of affordable housing is remains highly stressed.

- **Higher Government charges-**

Charges levied by the parastatal agencies for granting change of land use, approval of the layout/building plan, licensing fee, internal and external development charges, registration of land and registration charges for the finished house etc are major contributors to the cost of the housing. These would need relook, rationalization and redefinition to promote affordability in the housing sector.

- **Rigid land use planning**

Master Plans/ Development Plans, prepared for the rational growth and development of the city/periphery, do not create any space for the Informal sector which leads to their exclusion from planning process,. Their demand for shelter and employment perpetually remain unfulfilled. For making affordable housing a reality, mechanism, approach, intent, content and scope of these plans need to be rationalized and re-defined to make them more inclusive.

- **Irrational Building Bye-Laws**

Prevailing operational inefficiencies in land utilization, non- use of cost- effective and state of art building materials and construction technologies have their genesis in the prevailing outdated and archaic building bye-laws and subdivision regulations. They need critical review on priority for optimizing land resource and adopting cutting edge technologies.

- **Delay in Project Approvals**

Complicated procedures, cumbersome processes, involving large number of agencies, duplications of processes/procedures and lack of decentralization of powers has led to considerable time taken to approve the projects/building plans (16-24months) resulting in both time over- runs and cost over- runs of the projects. Delayed

project approvals are estimated to add 25-30% to the project cost. For making affordable housing reality, project approvals needs to be put on fast track and made time bound.

- **Lack of access to cheaper housing finance**

Lack of access to cheaper housing finance for low income groups has its genesis in the non-availability of large number of documentations involved in approvals based on providing securities, proof of assured sources of income and residential address etc, which needs rationalization.

- **Multiplicity of agencies involved**

As per study made by the KPMG and NAREDCO, real estate projects are required to pass through 150 tables in about 40 departments of central/state/urban local bodies before getting approved leading to delayed projects and making housing cost-inefficient.

- **Outdated and irrational legal frame work** including Rent Control Act.

- **Non- involvement of Private Sector**

- **Outdated technologies and poor project management**

Outdated technologies and conventional methods of construction besides poor project management are major contributors leading to wastage, delayed construction and rising cost of dwelling units.

WAY FORWARD

Conventionally, housing for EWS/LIG sections of the economic/social pyramid has been largely the responsibility of the parastatal agencies with limited role assigned to the Private Sector. Considering the large demand for housing in this segment, most of the developer's have started working on the affordable housing to explore the depth, breadth and length of the demand on a long-term basis. With major initiatives in the urban development being taken at the national/ state level, including launching of National Urban Housing and Habitat Policy, 2007(NUHHP); Jawaharlal Nehru National Urban Renewal Mission (JNNURM); Basic Services for the Urban Poor (BSUP); Integrated Housing and Slum Development Program (IHSDP); Rajiv Awas Yojna (RAY) and Affordable Housing in Partnership (AHIP) focusing on the lower portion of the pyramid, affordable housing has emerged as the priority area. Further, industry analysts and developers have started believing that if the government takes the initiative to remove the roadblocks, the segment could move to fast track. Considering the enormity of demand developers feel, it is possible to have a profitable proposition in affordable housing if the project and cost management are made very strong. Improved technologies can further help in reducing timeframe and cut down cost of construction to a large extent. Innovative architectural/structural design of dwelling units and standardization of housing units/components can help in cost reduction. Further, economies of scale and developing a standard product can keep the cost low. Thus project design and construction management can lead to making the affordable housing projects risk free and profitable, considering the huge latent demand with salability not an issue. To create large stock of housing in the country and to put affordable housing on fast track of growth and development, following options are suggested:

- **Adopting project based approach**

Considering elements of cross-subsidy and cost - reduction, a project based approach should be adopted for creating affordable housing. Housing project should invariably involve mixing of all categories including HIG, MIG besides EWS and LIG, to make project viable and self-sustaining. Making provision and addition of commercial component would help in making project profitable and attractive for both public and private sectors.

- **Promoting strong project and cost- management**

Adopting professional and dedicated project and cost- management approach in planning, designing and construction, would minimise time span for completion of the project, bringing high degree of cost- efficiency by eliminating time and cost-over run.

- **Single Window Clearance**

Putting in place an effective and efficient mechanism of single window clearance, to ensure approval of the projects within a prescribed time frame, not exceeding three months, will go a long way in ensuring early completion of the project and avoiding any cost escalation.

- **Creating Land Bank**

Creating large stock of affordable housing through the active involvement of private sector, will require promoting a dedicated Land Bank, for making available off the shelf land parcels, with all required clearances, to developers under a joint venture mechanism .

- **Innovative and state of art architectural designs**

Innovative and state of art architectural designs, providing for highest building efficiency, optimum utilization of land resource, optimum structural design, cost-effective building technologies/services, use of large prefabricated components and minimum maintenance and upkeep, would be critical for creating cost-effective affordable housing.

- **Green Buildings**

For promoting affordable living, designing affordable housing on the concept of Green Buildings would help in considerable reduction of operational cost of the house over the entire life cycle of the building due to reduced energy and water consumption besides lower generation of waste to make the dwellings really cost-effective and sustainable.

- **Promoting off-site Construction**

Creating large stock of affordable housing will require shifting strategy from on-site to off-site construction. Standardising building components based on available size of materials and promoting pre-fabrication will be pre-requisite to promote off-site construction. Pre-fabrication is known for its capacity to reduce wastage, minimise cost, promote quality and achieve economy of scale and reduce time frame for construction and labour component for the housing, making it cost-effective.

- **Providing Higher Floor Area/ Density**

Floor Area Ratio and Density are the two major determinants for achieving optimization of land resource and rationalizing the housing cost. Making available higher Floor Area Ratio and redefining density accordingly will help in optimising land utilisation, create larger housing stock and making housing cost-effective by lowering cost of land for each dwelling unit.

- **Improving Building Technologies**

Reducing period of construction, lowering construction cost and ensuring quality of construction would essentially need adoption of state of art and innovative building technologies. Technology Mission of Government of India under PMAY for sourcing most innovative and cost-effective global technologies will usher a new era in affordable housing.

- **Rationalising government levies, charges, fees and taxes**

Considerable proportion of the total cost of housing has genesis in the government charges, fees, taxes etc which would require rationalisation to make housing affordable in real sense of the term. Reducing these charges would involve redefining land use conversion charges, plan scrutiny fee, internal and external development charges. In all affordable housing projects, no land use conversion and licensing charges should be levied, building scrutiny fee should be charged @25% of prescribed rates whereas EDC should be charged @50% for EWS and@ 75 % for LIG categories.

- **Long term tie up of conventional materials**

Longer gestation period and other externalities, not only increase the cost of essential materials but also sometimes disrupt their supply, which adversely impacts the sustainability of the project. In order to hedge the project against the cost-escalation of essential materials including cement, steel, bricks, tiles sand, wood etc and to ensure the assured supply of critical materials during the project life cycle, it will be vital to have long term tie up with the producers/suppliers of such materials.

- **Promoting locally available building materials**

Using locally available building materials and materials based on industrial and agricultural waste would be critical for promoting cost-effectiveness and utilizing waste. Encouraging research and development and promoting industries producing materials from industrial and agricultural waste would not only increase the availability of cost-effective materials but also reduce depletion of non-renewable resources used for creating conventional building materials.

- **Adopting co-operate based approach**

Involving stakeholders by creating co-operative societies of beneficiaries and promoting co-operative culture would be vital for sourcing their support and resources for creating housing stock, minimising transfer of such units and procuring loan from financial institutions

- **Treating Affordable Housing a volume Game**

Making affordable housing a business venture would require treating the sector not as a profit game but a volume game based on the principle of creating large housing stock with minimum cost, within a short span of 18-24 months and disposing off the entire stock within the time span of the project. Taking up large housing projects with number of units

ranging from 1000-1500 for promoting economy of scale have already proved their worth in promoting affordable housing.

- **Separating Right to Shelter from Right to Ownership of Shelter**
For achieving the objective of housing for all, the ‘Right to shelter’, must be separated from, ‘Right to Ownership of Shelter’. This concept will help in minimising transfer of affordable housing to non-beneficiaries/ higher strata of society.
- **Migrating from Right to use land from Right to ownership of Land**
With India already precariously placed in land-man ratio, it will be appropriate for India to eliminate all practices which promote trading of land as a commodity. Accordingly, considering the larger national Interest, India should consider the option of migrating from right to ownership to right to use the land for human working/living based on pre-defined conditions, to optimise the land resource and minimise its misuse/abuse.
- **Creating Multiple Options for Shelter**
Instead of focussing only on creating ownership houses; promoting multiple options of providing affordable shelter, needs to be considered based on affordability, family size, shelter requirements, marital status, type of avocation, skill, tenure etc. Night shelters, mobile housing, rental housing, bachelor/single accommodation etc at various places should be used as options for augmenting shelter and minimise quantum of formal and expensive housing.
- **Creating Built up Houses**
Reservations made for the LIG/EWS housing in the approved colonies, under the legal framework, should be mandated in the shape of built up houses for augmenting affordable housing stock in various cities. Existing provision of providing plots for these groups must be dispensed with and replaced with built up houses, irrespective of the area of the project/number of dwelling units. For avoiding misuse, land parcels marked for affordable housing should be transferred to the Housing Board/ Development Authorities for constructing such houses and making them available to identified beneficiaries.
- **Rationalising Siting of Projects**
Careful siting of affordable housing projects would be critical for their success. Locating such projects close to place of work/industrial estates, supported by all basic day-to-day amenities involving education, healthcare ,recreation , child care, shopping, community centre etc and making available cost- effective, efficient and reliable public transport from the project area would be critical to promote the acceptability/success of the project..
- **Using Peri- urban areas**
Peri- urban areas with basic infrastructures, services and transport should be permitted to be used for creating affordable housing due to lower prevailing land cost.
- **Identifying Right Beneficiaries**
Major problem in affordable housing is the identification of right/genuine beneficiaries, which has been grossly misused /abused for personal gains. Formulating well defined, transparent and objective guidelines with a networked system of sharing information, would be critical and essential for identifying right beneficiaries eliminating speculators, minimising multiple ownership and transfer/ sale of units at the local ,state and national level.
- **Using PPP Model**
Housing being largely a private sector activity, leveraging land for market based strategies and PPP models, would remain relevant in improving supply of affordable housing.
- **Revolving Fund**
Promoting easy access to institutional finance at an affordable cost for creating cost-effective housing through a dedicated Revolving Fund, created at the national and state level with contributions made by central and state governments, urban local bodies, development authorities and assistance provided under different centrally and state sponsored schemes, would be a pre-requisite, critical and essential to ensure supply of affordable housing on large scale..
- **Making land market more efficient**
Making ‘affordable housing for all a distinct reality’, critical and absolute will be to make land market more cost-effective and operationally efficient by streamlining the land ownership record, rationalising stamp duties, minimising benami transactions, eliminating speculation , taxing vacant urban lands, minimising monopolisation, regulating land use conversion, rationalising building bye-laws, zoning regulations , development controls, rationalising densities, ground coverage, floor area ratio, height etc would be pre-requisite
- **Redefining Master Plans**

For making adequate land available for affordable housing at local level, all planning agencies must be mandated to provide dedicated land use zones for affordable housing in the Master Plans based in population projected to be living in the city. These pockets should be developed on time bound basis. No conversion of such pockets to any other use/higher category of housing should be permitted. 40% of entire residential area in the master plan should be put in this category and distributed over the city considering the work centres defined in the plan. Dedicated and well defined planning and development norms for such areas should be made integral part of master plan. These guidelines should also be made part of UDPFI Guidelines / NBC for their implementation.

- **Documenting Good Practices**

Affordable housing remains most challenging segment in the housing sector and has defied all logics and rationale in solving this problem in its entirety. Accordingly, no single solution can clinch the problem. Various agencies, locally and globally, have made successful attempts to create replicable model in the affordable housing segment. These examples need to be documented and disseminated for wider study and replication.

- **Promoting Strong Project Management**

Professional project management has enormous capacity, capability and potential to make project cost-effective, avoiding time-overrun, cost-overrun, avoiding wastage of materials/resources, reducing manpower etc

- **Promoting Rental Housing**

Rental housing in India has not been given a thought as part of solution to affordable housing in India. Unfortunately, archaic rent laws in the country have emerged as the major road block in creating housing stock in this category. Government should initiate a mission approach to create large rental housing stock for EWS/LIG categories in each city through either in PPP mode or by the Development Authorities/Housing Boards near the work centres. Rent laws should be accordingly amended to support the rental housing. Rental housing will also help in reducing/mushrooming of slums in the cities.

- **Sizing of the Project**

Studies have revealed that affordable housing projects, having area in the range of 15-35 acres with number of dwelling units ranging between 1500-3500, located not beyond 20-25 kms from the city centre of metro cities, with area of dwelling units ranging between 250-350 sft, constructed as low rise G+3/G+4 walk up apartments, completed within 18-24 months and provided with all basic amenities have proved to be successful and should be taken as role model for constructing the affordable housing.

Conclusion

Looking at the entire policy framework, technological innovations, financial and operational context, it appears that providing affordable housing can become a distinct reality only if concerted efforts are made in tandem and in a holistic / sustained manner by all the stakeholders including Governments, parastatal agencies, financial institutions, private sector, builders, developers, colonizers, industry, beneficiaries, NGC/CBO and professionals including Architects / Engineers/Planners etc. For achieving the goal of housing every Indian in general and weaker sections of the society in particular, rational housing friendly policy framework will have to be put in place on priority by the government, providing required incentives and removing all roadblocks to achieve the desired objectives. Role of parastatal agencies shall be that of facilitators rather than provider with key responsibility given to the private and co-operative sectors. Reform linked policy framework; calling for making land market effective and efficient; rationalising government levies/fees/taxes; incentivising industries involved in producing pre-fabricated components and making building materials from waste; providing housing loans at concessional and affordable rates with flexible options of repayment; making landowners active partners in creating affordable housing on a mass scale; bridging gap between demand and supply sides; bringing enablers, providers and executors on the same platform; making all stakeholders work in a concerted/committed manner, would be critical in making affordable housing a distinct reality in the Indian context. Looking at the role and importance of housing, affordable housing can be effectively leveraged to create/ expand large job market for unskilled/ semi-skilled rural migrants; revitalize Indian industry; promote economy; achieving high growth rate and marginalize poverty in urban India. Housing, as a sector, can also be effectively leveraged in making urban centres inclusive, resilient, smart, more productive, more effective, highly efficient, more healthier, better habitable, better organized, well planned and more sustainable with assured quality of life.



Redefining Planning and Development Strategies for Peri-urban areas for Promoting Sustainable Habitat and Affordable Housing

Redefining Planning and Development Strategies for Peri-urban areas for Promoting Sustainable Habitat and Affordable Housing

Introduction

Looking historically, human beings did not start life as urban creatures. If finding food, security and a settled life were the major factors for establishing villages, then learning, innovation, sophistication, trade and commerce became the major drivers of creating urban centers. City development has been found to be positively co-related and synonymous with human development. With cities emerging as centers of exchange, both of goods and ideas, they became centre of excellence, innovations and learning, attracting large number of people in the process. Over the years with the growth in population, city also grew in physical terms and size to accommodate large population and to provide for their housing and other support infrastructure and services. Despite rapid growth of cities and towns in the post-independence period, limits and boundaries of the cities officially continued to be static. These limits were defined by the parastatal agencies under the municipal law without reference to the existing and future pattern growth and development. With political factors largely governing the definition of urban boundaries, the process remained slow and static. In large number of cases, the urban limits remained static, even over a period of 15-20 years, despite the fact that during this period urban center increased by more than 30-50%, in terms of population and physical size. Accordingly, most of the new development continued to occur in the area outside the defined municipal boundaries which had become highly potential.

Factors which leveraged large growth taking place outside urban limits were; limited options available within the existing limits of urban centres, slow pace of development of urban land, legal restrictions on land development within urban centres, locational advantage, lesser restrictions on peri-urban land, absence of regulatory authority, lower land values and easy accessibility to the urban infrastructure and work centers. In the process, the growth and development of areas outside the urban limits assumed importance and became synonymous with the growth and development of the mother city. Infact, in certain cases the momentum of growth outside urban limits has been found to be of higher order due to numerous factors constraining the development within the city. As per one of the study of Bhopal metropolis, it has been revealed that the share of various parts of the city had shown distinct characteristics. As the city grew outwards, the share of old part reduced drastically from 70% during 1970 to 40% in 2001. Major gainers of the population have been found to be areas on the periphery, within & outside the planning boundary and the peri-urban areas.

Accordingly, the development in the periphery of the urban areas assumes importance, for proper regulation in order to rationalize the planned growth of the urban centres of which peri-urban areas form an integral part. Unfortunately in India, in most of the cases, peripheral areas are not being subjected to strict legal controls, despite the fact that these areas are witnessing rapid transformation. Considering the role and importance of the peri-urban areas, it becomes critical that development of these areas is objectively looked into and appropriate strategies are evolved to make them integral part of the city growth and developmental process. Such an approach would help in making urban areas more sustainable, livable and productive.

Defining Peri-Urban Areas

In the Indian context, peri-urban areas have not been duly recognized in terms of their role and importance in rationalizing and promoting the planned growth of urban centers and making cities more humane, more productive and more sustainable. These areas have been left largely to be exploited by the speculators, real-estate developers and builders, to create structures and sub-divide the land against all planning and developmental norms. However, in all developed countries, peri-urban areas are strictly regulated in terms of their definition and parameters of planning and development. Peri-urban area has been defined:

- ❖ *As an area around an urban settlement which is distinctive in character having diverse and mixed land uses and residents. These are the areas generally located outside the municipal limits.*
- ❖ *In U.S.A. Peri-Urban area in the state of Houston is defined on the basis of numerous inter-linked factors which include population density, employment in non-agricultural uses, industries and population mobility.*

- ❖ *As those areas which are in some form of transition from strictly rural to urban. These areas form the immediate urban-rural interface and may even fully evolve into being fully urban. Peri-urban are places where people are key components. The majority are on the fringe of established urban areas but they may also be clusters of residential development within rural landscape.*

In the Indian scenario efforts have been made to define the extent of the peri-urban areas. First attempt was made in the case of new capital city of Chandigarh, where initially 8 km. stretch outside the project area was defined as “Periphery” in order to regulate the growth and development outside the limits of the new city, The objective was to put a check on the haphazard, unplanned and sub-standard growth besides making available land, free from all encumbrances, for future growth and expansion of the new city. The extent of periphery was subsequently increased to 16 kms, considering the pressure of development around the capital city. Periphery of Chandigarh was defined under the provisions of, ‘The Punjab New Capital.(Periphery) Control Act, 1952.

State of Punjab has also been pioneer in recognizing the role and importance of peri-urban areas in the context of planned urban development. In 1963, a legal framework, “The Punjab Scheduled Roads and Controlled Areas Restrictions on Unregulated Development Act”, was put in place. The Act inter-alia provided for declaring area up to 8 kms around any city/town, and 2 kms around any building of historical and architectural importance or any important institution, as Controlled area which would be subjected to distinct controls, rules and regulations evolved under a Development Plan prepared under the Act. It also provided for regulating development along all important roads and Bye-passes listed in the Act in order to rationalize the peri-urban growth along these roads, within and outside the municipal limits. The stretch proposed to be regulated varied from 30 meters along Scheduled Roads to 100 meters in case of Bye-passes.

State of Haryana has also attempted to define peri-urban areas under the Punjab Scheduled Roads Act and the Haryana Urban Areas, Act 1975. Under the Haryana Urban Areas Act, 5 km stretch outside the municipal limits and institutions could be declared as urban areas. Such areas are subjected to strict developmental controls defined in the Development Plan. Haryana model of development focuses on the need and importance of the rational and planned development of the peri-urban areas whereas development of core urban areas/mother city is left to the municipal law where no provision exists for the preparation of the Development Plan. This model is based on the premise of using the potential of peri-urban areas which have little development but offer enormous options to acquire cheaper land and promote urban development on a massive scale by creating large residential, commercial colonies and townships.

In all the above cases distinct variations have been observed in the extent of Peri-Urban areas. In the case of Chandigarh, it is observed that the Punjab New Capital (Periphery) Control Act, 1952 does not specify any limit of such area. It was perhaps the vision of the first Capital Project Team, which included eminent Architects, Planners, Administrators and Engineers, who considered prudent that 8 km. would be sufficient to regulate the development around the new city. However, no study was carried out while defining the extent of the periphery of the city. Stipulations made in the “The Punjab Scheduled Roads and Controlled Areas (Unregulated) Development Act, 1963 with regard to defining the extent of peri-urban areas seem to have been largely influenced by pattern followed in Chandigarh. Haryana Urban Areas Act defines, 5 km as the extent of peri-urban areas against 8 kms. specified in the Chandigarh law. However, in all these cases, objective and well defined criteria to determine peri-urban areas are absent. Accordingly, considering the large implications of the peri-urban areas, it becomes critical that the extent of such areas should be properly delineated based on well defined parameters. It would not be appropriate to limit the extent of peri-urban areas by defining it in the law itself because the extent of the peri-urban areas would vary with individual settlement. Accordingly, it will be more rational and appropriate, if instead of fixing the extent of area, proper methodology and objective criterion are laid down in the law, based on which the extent of Peri-Urban area should be defined.

Development Issues

Peri-urban areas because of their close proximity to the mother city, are subjected to numerous development forces which result in changing their basic rural character. Due to absence of any regulatory authority, the development in the area is subjected to whims and fancies of the individuals. In the absence of any planning framework, most of the development is haphazard and unplanned. The area suffers from lack or absence of basic infrastructure and services despite the fact, it houses large number of people. The extent of the peri-urban areas has been found to have positive co-relation with the size of the mother city i.e. larger the city, larger would be the extent of peri-urban limits. In addition to the development outside the municipal boundaries,

area along major road network also witnesses linear/ribbon/corridor pattern of development. Thus peri-urban areas have features which are distinct from those of urban and rural areas. It has development which is not compact and contiguous. Development to a large extent is interspersed with agricultural pockets.

In the Indian context peri-urban areas, which are on a massive roll today, are being subjected to large developmental forces and pressures. In fact they are the areas which are going to become urban over a period of time, when municipal limits are extended. They would be required to be provided with appropriate level of planning and developmental input to integrate them with the existing framework of the city and its services. Considering the pattern of development existing in the peri-urban areas, process becomes highly cumbersome and problematic and poses numerous challenges and problems of integration with the result, these areas continue to be neglected and suffer for considerable time. To minimize such eventualities, it becomes critical that peri-urban areas are clearly identified for each settlement and adequately looked after by a properly defined development authority within a planning framework so that their integration with the city does not pose any problem subsequently.

Peri-urban areas have been found to have significant ecological, bio-diversity, land form, natural character, landscape and cultural/ natural heritage values. For preserving these valuable gifts, it becomes all the more important that these areas are rationally and thoughtfully studied and planned with sensitivity. Since peri-urban development has serious repercussion for the mother city, it becomes all the more critical that a proper legal framework is put in place on priority to effectively and efficiently manage the growth and development of such areas.

As per the report of the New Zealand Parliamentary Commissioner, environmental management and planning framework surrounding peri-urban areas is complex process due to large number of agencies with varied range of functions involved in their management. The investigation critically looks into the approaches adopted for environmental planning and management and effectiveness of the planning processes. The investigation highlights a range of issues that seem to be compromising the effectiveness of the environmental planning and management processes in the peri-urban areas in terms of:

- *Limited capacity of the planning processes to identify and manage tensions and conflicts.*
- *Poor leadership from national agencies on how to manage these areas.*
- *Inconsistent local vision and leadership has at times resulted in litigation.*
- *Variably institutional capacity to promote the sustainable development of the peri-urban areas, both intellectual and financial.*
- *Relying on the district plans as the primary tool for managing the sustainability of peri-urban areas*
- *Weak accountability in the system*
- *Poor quality of baseline resource information*
- *Absence of major issues in the debates around the future development of peri-urban areas.*
- *Low capability to define and manage cumulative effects.*
- *Poor monitoring of implementation and environmental outcomes.*

SWOT ANALYSIS

With a view to critically evaluate and understand the entire gamut of Peri-urban areas in terms of its strength and weaknesses, opportunities offered and threats posed for the planned development of urban areas, SWOT analysis has been carried out. The analysis would help in evolving future growth strategies for urban areas based on making optimum use of its strength, overcoming weaknesses, making best use of the opportunities offered and minimizing the threat posed by the unplanned and haphazard development of Peri-Urban areas.

Strength:

Strength of the Peri-Urban areas can be defined in terms of:

- *High growth potential for urban and industrial development.*
- *Existence of developmental triggers like large industrial/institutional units, major road/rail network.*
- *Existence of large number of godowns & wholesale markets.*
- *Existence of inefficient land market and inadequate supply of serviced land within the mother city.*

- *Prevailing high land prices within the core area.*
- *Existence of restricting legal framework, and irrational Development Control Regulations operating within the mother city.*
- *Better options for cheaper, spacious and affordable housing.*
- *Simpler and liberal process of approvals for development, conversion of land use and grant of building permissions.*
- *Easier availability of large quantum of land at cheaper rates.*
- *Easy accessibility to the mother city including its specialized infrastructure and services.*
- *Close proximity to work centers and centers of employment.*
- *Comparatively low cost of living.*
- *Absence of any toll, taxes, levies, fees etc.*
- *Availability of basic amenities and services at comparatively lower price.*

WEAKNESSES:

Major weaknesses of the Peri-urban areas can be defined in terms of :

- *General absence of a well-defined legal framework for planning, development & management.*
- *Absence of planning and developmental agencies to regulate development within the area.*
- *Absence of well defined planning framework to guide, rationalize and promote orderly growth of the area.*
- *Large scale conversion of agricultural land into non-agricultural uses due to easy procedures/absence of any legal framework.*
- *Unauthorized and haphazard sub-division of agricultural land into small parcels.*
- *Absence of building bye-laws or zoning regulations to rationalize use of land and control of built environment.*
- *High degree of land speculation due to comparatively lower land values and simple procedures of land conversion.*
- *Irrational/ non- conforming land use pattern.*
- *Dispersed pattern of development with absence of basic infrastructure and services.*
- *Absence of a rationalized traffic & transportation network with corridor pattern of development along the existing road network.*
- *Generally poor quality development and low quality of life prevailing in the area.*
- *Existence of slums/ low quality housing.*
- *Poor accessibility within the habitable areas.*
- *High degree of environmental pollution/ Degraded Environment.*
- *Absence of trunk services.*

OPPORTUNITIES:

Numerous opportunities offered by Peri-Urban areas can be stated in terms of:

- *Promoting planned development of urban centers*
- *Creating large affordable housing stock in close vicinity to the mother city*
- *Ensuring dispersed pattern of urban growth*
- *Creating efficient and cost-effective land market*
- *Integrating effective, growth, development and service network of urban and Peri-Urban areas*
- *Creating a pattern of development which is affordable, economical and user friendly.*
- *Minimizing growth of slums in the mother city*
- *Creating large opportunities for employment and economic activities*
- *Taking care of major urban ills and problems of Indian cities*
- *Minimizing haphazard, unplanned and unregulated development on the urban fringes*
- *Creating balance between rural and urban development*

THREATS:

However there are numerous threats posed by the Peri-Urban areas unless their planning, development and management is not made rational. These threats can be quantified in terms of:

- *Continued large scale conversion of agricultural land into non-agricultural uses*
- *Continued unauthorized and haphazard sub-division of agricultural land into small parcels.*
- *Absence of building bye-laws or zoning regulations to rationalize use of land and control of built environment.*
- *Large scale land speculation due to comparatively lower land values and simple procedures of land conversion.*
- *Continued Irrational/ non- conforming land use pattern.*
- *Absence of basic infrastructure and services.*
- *Absence of a rationalized traffic & transportation network*
- *Poor quality of development and poor quality of life prevailing in the area.*
- *Existence of slums/ low quality housing.*
- *Poor accessibility within the habitable areas.*
- *High degree of environmental pollution/ Degraded Environment.*

STRATEGY:

Looking at the existing pattern of growth and development of urban centres in India, it has been observed that “peri-urban” areas have profound influence and major implications for core urban areas in terms of their planning, development and management. Major derivatives for such implications have been found to be absence of any legal framework, absence of any planning and development agency to define, promote, regulate and manage the pattern of development in the area. Considering the valuable contribution of the peri- urban areas in terms of providing day-to-day needs, employment, shelter, economy and sustainability to the mother city, their planned development assumes importance. Accordingly, strategies shall have to be formulated in order to ensure that peri-urban areas contribute effectively to the sustainability, rational growth and development of the mother city rather than becoming a parasite on its resources. Such a strategy should essentially revolve around;

Creating rational legal frame work

It has been observed that planning legislation has profound implications for urban development because it defines the system of urban development, establishes the system of urban planning and regulation of land development. It also defines and delimits the role of urban planners and managers. All urban laws also define and provide for basic procedures which have to be followed in the plan preparation and plan approval before they are made operational. It also includes the penalties to be imposed in case of the violation of the provisions of the plan. Therefore, in all civilized and democratic societies, existence of a well defined legal framework is a prerequisite to regulate the growth and development of urban centres. Unfortunately in India very few states have dedicated legal framework which addresses the need of planned development in the peri-urban areas. Most of the laws are framed with a focus to take care of the planned development of the mother city in the shape of master plans or development plans. These laws do not recognize the peri- urban areas as the area requiring planned development. In the absence of this, these areas are not subjected to any planning and development mechanism. However, in certain cases, concept of planning areas, urbanisable areas are followed in the preparation of master plan but in most of the cases these areas are marked for uses other than urban and are outside the framework of implementation. Accordingly, it becomes essential that a rational legal framework must be put in place to effectively regulate the development outside the urban areas. Once appropriate and rational legal framework is put in place, proper management of peri-urban areas would be much simpler, effective and efficient.

Defining Peri- Urban areas.

In order to ensure the planned growth of Peri-Urban areas, it will be critical to precisely define the extent of such areas for each city so that it can be taken care of in the planning and development process. It has also been observed that peri-urban is not a static but a dynamic concept, accordingly its extent varies with the extent of the mother city. Larger the mother city, greater has been found to be the extent of peri- urban area. Accordingly, It is important that these areas are delineated with care and

sensitivity. For this a well defined set of parameters will be required, based on which peri-urban areas could be defined. These parameters could include population, population density, percentage of work force engaged in activities other than agriculture, areas of natural/ built heritage, pattern of economic and physical growth and development, economic potential of the area, proximity and accessibility/ connectivity with the mother city etc. Based on these parameters Peri-Urban areas for each city should be delineated. It should be made mandatory that for each urban settlement, its Peri-Urban limits should also be defined as integral part of urban area definition so that both areas become integrated, so far as their planning, development and management is concerned.

Peri- Urban areas to be made Integral Part of Planning Process

Despite the fact that pre-urban areas have important role and enormous potential to contribute to the rational growth and development of urban areas, they have not been duly recognized by planners. Accordingly peri-urban areas have no recognition in the parlance of the planning process. In fact most of the existing problems of urban areas have their genesis in the mismanagement of the peri –urban areas. Accordingly, for rationalizing and promoting planned development of the urban centres, it would be critical to make the peri- urban areas as integral part of city planning and development process. Considering their proximity and future growth and development of the city, these areas need to be planned as an extension of the mother city, so that the services/infrastructure /road net-work of both these areas are effectively integrated. Once this is done, achieving the objective of planned and integrated development of peri-urban areas would be much easier, simpler and quicker.

Designating Agency for the Regulating Growth and Development

Most of the growth of peri-urban areas in the Indian context has been found to be both haphazard and unplanned. Major cause for this malady can be attributed to the absence of any agency designated to regulate the growth in the area. Accordingly, it will be important that an appropriate agency must be designated to regulate the development in the peri-urban areas. It could be a regional level authority in the case of a regional plan which should be entrusted with the task of managing all identified peri-urban areas in the region. Task could also be entrusted to District Planning Committee /Metropolitan Planning Committee provided these committees have necessary level of planning, development and management input. However, in case of peri-urban areas of an individual settlement, the task of management should invariably be entrusted to the city level agency. Multiplicity of agencies with overlapping areas of operation needs to be invariably avoided for minimizing conflicts, wastage, conserving and preserving resources and promoting focused planned development. For proper development, it should be ensured that local authority must prepare plans, allocate funds for infrastructure development and deploy effective machinery for regulating development within the Peri-Urban areas

Defining Development Controls/Building Bye-Laws

In order to ensure that built environment/housing of appropriate quality and order is created, it will be essential to put in place proper system of developmental control within the peri-urban areas. All building plans and housing development must conform to those regulations and controls and all plans should be got approved from competent authority before construction in the area is undertaken. Since peri-urban areas are future urban areas, accordingly, it will be important that bye-laws applicable in the city should also be extended to the peri-urban areas, so that construction in area is regulated on the pattern of the mother city. However, specific bye-laws could be made for eco-sensitive areas or areas of heritage importance. The bye-laws must be given wide publicity in the area so as to make people aware about their intent and contents and ensure compliance

Regulating Sub- division of Land

It has been observed that peri-urban areas are subjected to massive unplanned and haphazard sub-division of land which leads to emergence of large number of growth maladies in these areas. Accordingly, it becomes critical that unplanned sub-division of land in the area is effectively regulated. This would call for evolving appropriate layout plan, defining clearly the road network/amenities/services, defining shape and size of the individual parcels of land, norms for planning and development of new townships, group housing, housing colonies, laying down clearly set-back lines, ground coverage, height and FAR, so that growth and development of the area is orderly and rational. All sub-division of land should be subjected to a pre-defined planning framework and approval from the designated Authority so that haphazard growth is minimized. A well defined framework containing appropriate planning and developmental norms for sub-division and provision of amenities would be essential and critical to achieve the objective.

Regulating Conversion of Land Use

In order to minimize land speculation and emergence of non-conforming land uses, conversion of land from agricultural to non-agricultural uses should be effectively and efficiently regulated. It should be made more objective and focused. All applications are required to be processed in accordance with the provision of Master Plan and only those meeting the proposals of master plan should be approved. The power vested with the state government to permit change of land use in contradiction to the Master Plans should be dispensed with in order to ensure that the entire growth in the peri-urban areas is within four corners of framework defined in the Master Plan.

Levying Charges

For permitting sub-division, change of land use and development within the peri-urban areas, it would be critical to levy charges for land conversion and provision of local and city level infrastructures. Both internal and external developmental charges should be levied in order to generate resource for providing trunk services in the area. Charges for change of land use from agricultural to non-agricultural land use on a pre-defined scale should also be levied in order to raise resources for the rational development of the peri-urban areas. The charges should be on different scale considering the nature of converted land use, intensity of development and location of the converted land. The charges so collected should be credited to a dedicated fund exclusively reserved for development of Peri-Urban areas. No diversion of funds should be permitted to be used in area other than Peri-Urban areas in order to ensure its rational development.

Creating Appropriate Enforcement Machinery

In order to rationalize the growth of peri-urban areas, it will be critical not only to put a proper planning framework, but equally important would be to create a well-equipped enforcement machinery in order to check any violation, haphazard & unplanned development, unauthorized sub-division of land, change of land use and creation of slums. Such machinery must include manpower of the appropriate order, empowered with enough authority, equipment and resources to meet any contingency. Separate fast-track courts should be created to deal with cases of violation in the peri-urban areas in order to ensure their quick disposal. This would help in minimizing violation in the peri-urban areas.

Redefining the urban Limits

In order to ensure that peri-urban areas do not remain outside the ambit of growth & management and people living therein are not deprived of basic urban infrastructure/services/amenities, it would be critical that local authority limits are re-defined periodically based on the well defined parameters so as to make peri-urban areas integral part of mother city. For this a detailed exercise must be undertaken for each urban settlement by the state Department of Town Planning in collaboration with the Department of Local Government to redefine the municipal boundaries. Infact, it would be critical for the state government to create a permanent machinery which can go into this issue on continued basis and ensure that no peri-urban area suffers mutilation and subjected to forces of unplanned development in the state. Once peri-urban areas are integrated with the mother city, most of the urban problems can have rational solutions.

Promoting Affordable Housing

Despite the fact that housing has been declared as a priority sector and “housing for all” has been declared as the objective, still there exist a gap of 24.71 million dwelling units (2001) between demand and supply. It is estimated that the gap would increase to 26.53 mdu during the 11th plan period(2007-12) with EWS and LIG sectors accounting for 99% of the total shortage. Looking at the spatial distribution of the shortage, it is estimated that about 50% of the population of major Metropolitan cities including Delhi, Kolkata, Mumbai and Chennai are residents of illegal, squatter and slum settlements. It is Indian paradox that despite large increase in investment in housing, problems remain beyond solution. This dichotomy can be attributed to prevailing high land prices in the urban areas, ever increasing cost of construction, non-availability of adequate plan, compulsive building regulations leading to keeping away majority of population out of housing market.

Housing being one of the basic necessities would require focused attention with number of policy options put in place to wipe out the entire gap between demand and supply. Multi-pronged strategy, in addition to up-gradation, relocation, land sharing, reconstruction, rehabilitation etc., should also look at the enormous potential offered by the Peri-Urban areas as one of the

critical option to provide affordable housing. Availability of cheaper land in large quantity in close proximity to urban centers and options of providing low cost infrastructure and services makes Peri-Urban areas as attractive destination for creating large stock of affordable housing.

Providing well defined incentives to private developers for creating EWS and LIG housing, using cheaper land in the peri-urban areas, can help in creation of large housing stock. Preferred allotment of land to housing co-operatives involving poorer section of society can help Peri-Urban areas emerge as the preferred destination for housing. In order to rationalize the development, it would be critical that entire Peri-Urban area is not opened for development. The development should remain focused in pre-defined area earmarked in the development plan for housing. Parastatal agencies should provide basic infrastructures, services and amenities in the area before the housing is allowed to come up ensuring its connectivity with the mother city and important work centers. Creation of work centers can help in decentralization of cities and rationalizing its traffic. Using rationally the potential of Peri-Urban areas for large scale housing projects can help not only in improving quality of life of majority of its residents but also removing many existing ills of urban centers making them more affordable, productive, sustainable and efficient.

CONCLUSION

Considering the critical role of peri-urban areas in the context of urban development, it would be important that these areas are properly defined, rationally planned and effectively managed in terms of their growth and development. Unfortunately most of the peri-urban areas don't find recognition in the parlance of existing planning and management system. Legal framework to regulate the area is conspicuous by its absence. Setting up of major projects in isolation and away from the cities invariably leads to emergence of such areas. Present policy of approving Special Economic Zones (SEZ), away from the existing urban centres without any supporting framework for planned development of peri-urban areas is going to lead to enormous conversion, subdivision of land and haphazard growth and development around SEZs. It would be important that the issue is critically and objectively looked at, and an effective legal framework to regulate the development in these areas is put in place on priority. Infact, future livability, sustainability and productivity of Urban- India will largely depend and hinge upon, how professionally, effectively and efficiently we manage our peri-urban areas. Conceptually Peri-Urban areas represent one of the best option for promoting balanced growth of urban and rural settlements in a mutually beneficial and supportive manner and accordingly needs to be protected and promoted with total commitment and sincerity. Adoption of the principle of developing all the urban centres with their defined periphery can usher an era of balanced growth and prosperity, creating affordable housing for large majority of Indian masses, helping in meeting the national target of housing for all and eliminating existing dichotomy and conflicts in urban and rural interests.



LEVERAGING HOUSING FOR THE URBAN POOR THROUGH INNOVATIVE RESOURCE MOBILISATION

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INTRODUCTION

India occupies a unique position globally which is distinctly marked by dualities and contradictions. It has merely 2.4 percent of the world's land share but houses more than 17 percent of the world's population. India falls in the category of nations where land-man ratio is very low and land resource is under enormous stress. Looking at the current and future growth of population, sharp decline in land-man ratio will be the obvious result. Nation's population that was placed at 1022 million in 2001 is estimated to become 1164.3 million in 2011 and 1400 million in 2026. The urban settlements as a class apart are likely to witness massive addition to their population due to the factors of natural increase, rural-urban migration and reclassification of settlements. As per the summary of findings of the committee constituted for the population projection by the Planning Commission of India, it has been estimated that urban population which stood at 285 million in 2001, will become 534 million in 2026 with level of urbanization going up from 27.8% to 38%. This is despite the fact that India as a nation falls in the category of low-income economies, because of low level of urbanization. Looking closely at the population distribution in urban centers, it can be clearly seen that Indian urbanization is heading towards metroplitisation. 35 metropolitan centers jointly provided home to one-third urban population in 2001. The number of metro-cities almost doubled during eighties and projected to grow to 45 by 2011 and 70 by 2021. Obviously their share is likely to increase in years to come due to high degree of concentration of population in those centers. With policies of globalization and economic liberation gaining currency, large urban centers are likely to be the area witnessing massive growth.

Massive growth of population of few urban centers has wide ranging implications in social, economic, physical, infrastructure and environmental terms. Requirement of providing appropriate shelter, amenities and facilities to growing numbers has increased manifolds. In view of the large contribution made by the urban centers to the nation's economy, which was placed at 29 percent in 1950-51, 47 percent in 1980-81, 60% in 2001 and estimated to go up to 70 percent by 2021, it becomes important that productivity & operational efficiency of urban centers is given high priority. Efficiency and productivity of urban centers closely hinges upon how safe, livable and healthier these settlements are and what kind of quality of life and opportunities of gainful employment they offer to their inhabitants.

With more than 1/3 population (37.3%) living below the poverty line, shelter related policies and programmes in general and shelter for the poor in particular, assume importance. Housing has been recognized as one of the most critical element contributing substantially to the livability and productivity of urban centers. Housing as an activity not only fulfills the basic need of the shelter, which ensures quality of life to the people, but also contributes substantially to the economic growth and development of the people and the state due to its multiplier effect on employment and economy. Adequate housing has been recognized as an important indicator of the growth and development of a nation and quality of life it bestows on its citizens. It is in this context providing adequate shelter assumes priority in the agenda evolved by any welfare state. Even World Assembly of Nations (Habitat – II) took the opportunity of endorsing universal goals of “Ensuring adequate shelter to all and making human settlements safer, healthier, more livable, equitable, sustainable and more productive”.

Considering the importance of housing, “Housing for All” has been identified as a priority area in the National Agenda for the Governance laid down by the government. In order to meet the shortfall in housing, National Agenda had set the target for the construction of 20 lakh additional houses every year with emphasis on the poor and the deprived. Out of 20 lakh units, 7 lakhs were to be constructed in urban areas whereas remaining 13 lakhs were to from part of the rural sector. In the urban sector, 4.56 lakh units were to be dedicated to EWS category and remaining 2.44 lakh units for the low income group. Based on average cost of construction of Rs. 35000 for EWS house and Rs. 1 lakh for the LIG house, total financial outlay was estimated to be Rs. 4000 crores on annual basis. Besides arranging land, raising resources for construction of houses was also critical. In fact capacity of the State to generate sufficient financial resources and land for these houses was critical to achieve the target. Considering the inadequacy of resources, inefficiency of prevailing land market, high land prices and scarcity of developed land, task became all the more difficult. Appropriate and innovative strategies will have to be evolved in order to ensure availability of adequate resources besides making land available at most affordable price in urban centers for meeting the target of housing the poor.

INDIAN HOUSING SCENARIO

Despite the fact that 5 decades of post-independence era has witnessed distinct improvement in urban housing stock in terms of dwelling units and number of pucca houses but still the situation remains grim. As per the Report of the Technical Group on Estimation of Urban Housing Shortage for the 11th Five Year Plan (2007-2012) set up by the Government of India, Ministry of Urban Poverty Alleviation, out of the total available housing stock of 509.5 lakhs units in 2001 in urban sector, pucca houses numbered 411.7 lakhs (80.8%) katcha houses numbered 17 lakh units (3.3%) whereas 80.8 lakh units (15.9%) were semi-pucca. Technical Group further placed the urban housing shortage at the end of 10th Five Year Plan at 247.1 lakh units with additional housing requirement of 18.2 lakh units for the 11th Five Year Plan period (2007-2012). Thus, the total housing shortage for the period ending on 2012 was placed at 265.3 lakhs. The housing shortage at the end of 10th Five Year Plan (2007) included 217.8 lakh units in the EWS category, 28.9 lakh units in LIG category and merely 0.4 lakh units for the MIG and HIG. Urban poor have been found to be the worst sufferers in the context of inadequacy in housing because 98.4% of the total shortfall belongs to this category of urban dwellers. Situation would worsen in years to come when future housing requirements due to population growth, migration and nuclearisation of families in urban centers will go up and will be of the order of 265.3 lakh and 458 lakh units during the period 2007-12 and 2012-21. To meet the shortfall of urban housing for EWS and LIG categories at the end of 11th Plan period, an investment in terms of financial outlay has been placed at Rs. 5,10,000 crores which is evidently beyond the capacity of public agencies to directly meet the requirements and mobilize the funds out of their budgetary resources and the market. This calls for evolving innovative strategies and solutions if the issue of urban housing for the poor has to be clinched effectively.

Close scrutiny of the housing stock reveals that supply of shelter specifically for the poor, has not kept pace with the demand in urban areas. The situation shows worsening trends due to ever increasing number of migrants from rural areas. Migrants put pressure on land, urban services and infrastructures, which inevitably lead to congestion, increase in number of pavement dwellers and growth of slums and squatter settlements. Among the poor, women and children have been found to be a class apart, majority of whom are left out of the mainstream of development and shelter related programmes. The growth of slums is a sign of inability of people to afford land and shelter through the normal market mechanism and failure on the part of public sector to ensure equitable access of the same to the poor. As per census 2001, 64.4 million people were living in slums and squatter settlements constituting 22.6% of the total urban population. Nearby 30 percent population in metro cities was found to be in declared slums with Kolkata, Mumbai and Delhi recording higher proportions. Slums and size of cities have been found to have positive co-relation with large centers recording higher number of slums. In these slums, absence of adequate water supply, disposal of human waste and garbage collection is predominant with only 37 percent of the households in the bottom half of the urban population having access to all three basic facilities including water supply, sanitation and electricity. Further, 69% of the poor households use community water supply, whereas only 22% of such households have access to the individual connections. 44% of the poor households have their own or shared latrines as against 83% for the top half. 29% of the bottom half of the urban households do not have any drainage connection and 46% are connected to open drains. In the National Seminar on future cities-urban vision: 2021, it was recognized that in years to come, slums would constitute a major chunk of urban population- a fact that needs to be taken note of while evolving urban shelter related strategies for the poor.

Critically looking at the available housing stock, it will be observed that urban housing does not merely suffer from the malice of quantitative shortage but has distinct qualitative dimensions also. Metropolitan centers like Kolkata and Mumbai have more than 40% households living in single room and another 30% in two rooms. It indicates that majority of urban households live in inadequate housing and inadequate spaces. Large number of household, still live in katcha houses, majority of which are non-serviceable and require replacement. Most of the houses do not have access to basic amenities and services. Density of population in lower end housing has increased substantially whereas per capita availability of housing space has declined considerably.

Urban centers have witnessed the growth of two distinct types of development, Formal and Informal settlements, having their own characters, norms and standards. These sectors represent the dualities and contradictions emerging in the urban areas with significant variations in availability of floor space, level of services, amenities and quality of life and infrastructures prevailing therein. While floor area availability per capita is 2-3 sq. meters in informal settlement, it is in the range of 6-14 sq. meters in the formal settlements. The parallel existence and development of formal and informal housing stock and settlements in urban India is a phenomenon seen all over the developing world i.e. City within a City- a multiple city syndrome. Distinct settlements of the poor and the rich are a classic testimony to the process of urbanization, which has thrown up "Islands of Affluence in a Sea of Poverty". In order to clinch the objective of housing for all in urban India, potential of both formal and informal sectors will

have to be fully exploited. Ignoring informal sector, which provides only hope and alternative for shelter to urban poor, will bring in distortions in the urban housing market. However, efforts will have to be made to treat the informal sector as an integral part of city growth and development process so that it can contribute substantially to the efficiency and productivity of the city.

From the foregoing paras, it can be concluded that Indian housing market is beset with problems like ever growing shortage of housing stock for urban poor, lack of basic infrastructure in terms of water supply, sewerage, drainage, sanitation, roads, electricity, inadequate housing in terms of available per capita space, overcrowdings of buildings on land and people in the building, poor quality of housing, multiplicity of squatter colonies, haphazard and unplanned growth, mushrooming of slums, encroachment on public spaces, high land cost, scarcity of serviced land and most important, large inadequacy of financial resources with parastatal agencies for funding the housing related activities and programs.

STRATEGIES FOR EFFECTIVE RESOURCE MOBILISATION

Housing strategies for the urban poor need a holistic and multi-pronged approach covering many aspects, foremost among them would be ensuring adequate availability of financial resources besides supply of serviced land. For effectively addressing the issue, increased flow of money and supply of developed land, its availability in equitable and sustainable manner would be vital. The existing acute shortage of financial resources coupled with inequity in access to land by the urban poor has to be mitigated, minimized and eliminated. Shelter related policies and programmes must ensure larger unhindered flow of resources on equitable basis, particularly focusing on the urban poor besides minimizing the restrictions on land supply in order to make the housing market efficient and sensitive to their demand. The priority concern is to make the housing market operationally efficient and socially just.

In order to leverage the adequate resources for housing the poor and to achieve the objective of providing affordable shelter to all, National Urban Housing & Habitat Policy was reframed by the Government of India in the year 2007. Policy aimed at promoting sustainable development of habitat in the country besides promoting various types of public-private partnerships for realizing the goal of affordable housing for all.

National Urban Housing & Habitat Policy defines the following agenda to ensure mobilization of adequate funds for housing the urban poor in terms of:

- i) Promoting larger flow of funds from governmental and private sources by designing innovative financial instruments.
- ii) Designing suitable fiscal concessions to ensure that concession are correctly targeted and utilized.
- iii) Removing legal barriers to facilitate larger access to finance.
- iv) Shifting from demand driven approach and subsidy based housing schemes to cost recovery-cum-subsidy schemes to recycle the available resources.
- v) Encouraging Foreign Direct Investment.
- vi) Developing convergence between urban sector initiative and financial sector reforms.
- vii) Reassessing the strength of the banks and Housing Finance Institutions (HFI) to make them more inclusive to EWS & LIG beneficiaries and intensify their coverage in low income neighborhoods.
- viii) Setting up of **National Shelter Fund** under the control of National Housing Bank to provide larger allocations to EWS/LIG categories.
- ix) Making larger allocations by HUDCO for encouraging EWS/LIG housing

Based on different options, the strategies for effective resource generation for housing the poor in the Indian context can be summarized in terms of:

i) Jawaharlal Nehru National Urban Renewal Mission (JNNURM)

Launching of JNNURM has ushered a new era of resource generation for the urban poor in the selected 63 premier mission cities and 65 BSUP cities of the country. Guidelines have been issued by Government of India, Ministry of Housing and Urban Poverty Alleviation, which focus on affordable shelter and slum development. Guidelines for affordable housing in partnership lay down aims and objectives in terms of providing stimulus to economic activities through affordable housing programs in

partnership, employment generation, ensuring equitable supply of land, shelter and services at affordable price to prevent growth of slums in urban areas.

JNNURM modified guidelines has defined innovative mechanism for mobilizing resources for providing shelter for the urban poor. The mechanism includes achieving partnership between the beneficiaries, local bodies and the government. In the said scheme, the contribution of the beneficiary has been limited to 10-12% of the cost of house, whereas quantum of funds for housing of the poor to be earmarked has been left to the local body which has been recorded as high as 25% in case of Hyderabad, Vijaywada, Vishakhapatnam and Delhi whereas rest of the housing cost is to be the share of the state and central governments. Funds to be tune of Rs. 5,000 crores have been earmarked for 65 cities. Rs.700 Crores have been allocated for 7 mega cities, 1960 crores for 28 million plus cities and 1500 crores for 30 cities identified under BSUP. In addition, Rs. 840 crores have been earmarked for high performing cities/other cities with population more than 5 lakhs. With this, large amount of funds have already been made available and more funds are likely to flow towards the housing for the poor because of the involvement of the beneficiaries and the local bodies. In the given scenario, JNNURM would be leveraging large funds for providing shelter to the poor. Already allocations to the tune of Rs. 6828.31 crores out of approved project cost of 8517.45 Crores have been earmarked under JNNURM up to September, 2009 involving 842 projects. Further funds to be tune of Rs.352.13 crores have already been released by the urban local bodies against their share of Rs. 474.91 crores. Out of 4,64,089 houses sanctioned, 1,30,805 houses have already been constructed for the urban poor. Schemes on the pattern of JNNURM need to be formulated and extended to all other urban centers of the country in order to leverage large investment/ flow of funds for housing the urban poor by the involvement of public sector.

ii) Cross - subsidization

Cross-subsidization can be used effectively for making affordable housing accessible to the urban poor. The option can be exercised for both land and raising resources for housing in the public and private sectors. This mechanism has been used successfully in Hong Kong where problem of low affordability of the poor to land and finances for housing has been resolved by leveraging the public and private sector resources. Cross-subsidization to the extent of 45% of the market value of housing for urban poor has been made possible through the mechanism of comprehensive urban development and re-development programme, which capitalizes on increase in land values due to continued re-development of the city of Hong Kong.

iii) Private Sector Involvement

Private sector holds the key in improving the housing and land scenario in the country. Keeping in view the limitations of the public sector, it has now been realized that it is necessary to encourage the private sector in large-scale pooling of resources, assembly, development and disposal of land to supplement the efforts of public agencies. National Urban Housing and Habitat Policy, 2007 has also focused on implementation of the policy through public-private partnership for realizing the goal of affordable housing for all. In the strategies and sources for financing housing development and home ownership in Africa, it has been suggested by the “Shelter Afrique” that, public-private partnership is a viable vehicle for mobilizing the housing finance as has been done in the case of Algeria, Mali, Senegal, etc. Haryana State has taken a lead in this regards by evolving a comprehensive and effective framework for sanctioning of colonies, which has brought in lot of reputed builders in urban centers of Gurgaon, Faridabad and Panchkula. The Haryana model needs replication by carrying out certain modifications in order to attract these developers to small and medium towns. These developers have not only contributed substantially to the orderly growth and development of urban centers but have also made available large number of plots for the urban poor at an affordable price. In order to attract more resources from the private sector, state must ensure the creation of an enabling environment and remove all road blocks which restrict the operation of private sector in making effective contribution to the housing for poor. State must also provide sufficient fiscal incentives and provision of infrastructure, which can induce private sector to the housing including housing for the poor.

iv) Public-Private Partnership

The combined strength of both public and private sectors can also be effectively used on the basis of public-private partnership in providing shelter to the urban poor. State of West Bengal has taken a lead by floating number of joint venture companies between West Bengal Housing Board and reputed private sector companies like Peerless Group, Ambuja Cement etc. Under these JV's, land is provided by the parastatal agencies whereas resources for construction of housing is provided by the private sector. Under this scheme, large proportion of houses have been provided under LIG and EWS categories which are highly

subsidized and made available to the urban poor on a predetermined price through a system of prior identification and registration. The subsidy is made good through sale of HIG housing and commercial sites. Lucknow Development Authority also allotted land to the private developers who were required to provide 40 percent of the plots for EWS category to be handed over to the Development Authority at a predetermined price for disposal to urban poor at a heavily subsidized price by using the mechanism of cross-subsidization.

v) Regeneration of Urban Land

Lot of public land is locked in inefficient uses in the urban areas in the shape of closed industrial units, central jails, public offices, institutions, derelict buildings etc. In order to make optimum use of this land, it is essential that this land is brought into urban market and used for meeting the land requirements of housing for both general public and urban poor. In addition, it can help in generating large revenue to the state which can be effectively used for leveraging resources for funding the housing program of the poor. State of Punjab has already launched a scheme called, 'Optimum Utilization of Vacant Government Lands (OUVGL)', under which all unused and under-used potential public lands are being identified, planned, developed and disposed off, for housing and commercial purposes. This has not only generated resources for the state for infrastructure development but has also brought in considerable amount of land into the urban market. Resources generated should be used for creating housing for the poor in the State.

vi) Taxing Vacant Urban Land

Speculation in land as a phenomenon has gained enormous currency due to substantial gains occurring to the plot holders on account of ever-rising land prices in the urban areas. This process has withheld large quantity of serviced urban land from the land market. In order to bring this land into the market and to minimize land speculation, it would be desirable to tax the owners of such land. The tax liability should be heavy so as to act as deterrent for keeping the land vacant. This would serve dual purpose of land being brought into urban market and also generate resource, which can be utilized for funding the housing for the poor. Punjab Urban Development Authority has imposed extension fee on the vacant plots in the urban estates after three years of allotment @ 2% of the current allotment price. This has resulted in rapid construction on plots lying vacant for number of years besides generating lot of resources.

vii) Adopting Project Based Approach

Creating appropriate level of housing stock for EWS/LIG has suffered in the past due to the passing on / provision of majority of cost of the shelter as subsidy, creating enormous liability for the housing agencies. In order to minimize the component of subsidy, adoption of project based approach would be vital and critical where a product mix of HIG, MIG & LIG/EWS housing can be provided within the same project. Surpluses generated by HIG/MIG categories can be effectively leveraged to create affordable shelter for the poor, meeting the extent of subsidy required for the EWS/LIG categories. In addition, sufficient amount of commercial spaces needs to be provided in the project area which can also be used as generator of resources for the housing of the poor without causing any burden on the parastatal agencies. Further, mechanism of providing subsidy to EWS/LIG housing as an integral part of "Reserve Price" formula can help in making available sufficient resources for the urban poor without impacting the sustainability of housing agencies.

viii) Using land as a Resource

Available land with the parastatal agencies can be leveraged effectively for mobilization of resources for shelter related programs of the poor. In this strategy, land with high degree of developmental potential available with the public agencies can be innovatively used and offered for development to the highest private bidders through a well defined and transparent bidding process and the funds thus generated can be earmarked for construction of housing the poor. In case of Chandigarh, administration has already effectively used this strategy for funding the shelter related program of the poor in order to make Chandigarh a slum free city. Funds to the tune of Rs. 800 crores raised through this mechanism are being utilized for large scale construction of housing for the poor.

ix) Earmarking dedicated funds by all Development Authorities & Housing Boards.

Majority of development and shelter related programs of development agencies focus on higher/middle income groups because these categories generate surpluses for the agencies. Housing for poor remains a losing proposition and a liability and

accordingly, such programs are invariably avoided. In order to ensure that such agencies fulfill their basic obligations for catering to the poor, it would be critical that appropriate policy framework is put in place in all states which mandate these agencies to provide and use minimum 20% of their funds for creating shelter for the poor. Such an approach would help in creating enough corpus for this sector which can be effectively used for creating shelter for the poor. Similarly all financial institutions like Banks, HUDCO, LIC etc. should also be mandated to earmark part of their funds for housing the poor which would ensure larger flow of funds for this sector.

x) Encouraging Housing Co-operatives

Co-operative is one of the most powerful tools for mobilizing and pooling resources for housing development. With appropriate legal framework and skills, many families could be mobilized to invest in their housing. Unfortunately most of the ongoing housing projects and programs focus on individuals, which make it difficult for the agencies to ensure their active participation in the shape of financial contributions. Mechanism of focusing on individual beneficiary needs to be replaced by focus on co-operatives which provide better option/mechanism of involving individual resources for shelter related program on community basis. Accordingly, state must put in place an appropriate policy options and policy framework which makes it mandatory for all beneficiaries to form housing co-operatives before they are considered eligible for allotment of shelter. In addition, it should also be made mandatory that all beneficiaries would contribute minimum of 25% of the cost of the shelter at the first instance, which can be collected spread over a period of time on daily/monthly basis for avoiding undue hardship. The shelter thus created should remain in the ownership of co-operatives and not passed on to individuals till the entire cost of the shelter is paid. Housing Co-operatives can also be used for leveraging more contributions from the beneficiaries later on.

xi) Full Cost Recovery

In order to generate sufficient resources for low cost housing, it would be essential to change our mind set and entire approach to this sector. New approach should focus on full cost recovery of the shelter spread over a larger period rather than focusing on provision of huge amount of subsidy, creating enormous liabilities for the state & parastatal agencies. This suggestion is based on the premise that each individual/ family should have the **right to shelter** which should be appropriately segregated from **right to own a shelter**. Subsidies should continue to play major role in creating shelter to the poor but right to ownership of the shelter should only be passed to those allottees, who pay the entire cost of the dwelling unit. Till the full cost is paid, the allottees should continue to enjoy the right to live in the shelter. This strategy would help in larger cost recovery spread over a period of time. However, the approach would require incentives to be built in for beneficiaries to make full payment of the cost of shelter at the earliest. **Revolving fund** for the housing of the poor where portion of subsidy recovered can be credited/posted to the account and used further for creating additional shelter for the poor. Such an approach would help in providing much larger resources for EWS housing.

xii) Floating innovative shelter linked schemes

Personal savings either directly through deposits or indirectly through deposits in banks can be most extensively used by the housing finance agencies to fund their mortgages and housing investments. Considering the role and importance of individual resources for creating affordable shelter, this resource needs to be effectively leveraged. At the existing level even in the present scenario more than 70% of the resources for construction of houses still come from the kitty of the individual savings/resources. In order to leverage and tap this valuable resource, effective and attractive schemes for providing shelter can be framed. Accordingly, on the pattern of post office saving schemes, shelter linked saving schemes for the urban poor can be floated by the financial institutions/development authorities/state government which gives priority for such scheme holder in allotment of shelter. This would encourage the active participation of urban poor in their shelter related programs besides generating adequate resources for the housing agencies to fund the construction of the shelter. The scheme should provide enough flexibility to the contributors to design their share in a manner which is based on their capacity to pay. Further the savings should continue to attract higher than normal interest rates in order to attract more savings. Further scheme should envision that larger contributors would be given priority in allocation of shelters making it attractive for the beneficiaries to make higher contributions.

xiii) Constitution of shelter related funds

In order to ensure larger flow of funds for housing related programs on sustainable basis, inclusive shelter related fund needs to be constituted at the state and local level. Contribution from select taxes including property tax, transfer of property tax, land use conversion charges, betterment levy, tax increment financing, stamp fee, cess imposed on housing schemes./colonizers, incentive TDR, incentive FAR, contribution by developers in lieu of EWS/LIG houses etc can be used as sources for augmenting the fund.

xiv) Tapping financial markets

Creating a sustainable housing finance system would require wide availability of products and services, easy accessibility and general affordability. In the past, housing was seen as a social undertaking with government as the sole provider. Due to paradigm shift, housing and urban development must operate within national and maybe in the global macro-economic environment. Accordingly, housing must compete for resources with other priority sectors. Accordingly, it will be essential that housing investment must provide appropriate benefits and returns to investors like any other investment. Considering that housing by its nature, is a long term investment, therefore structuring housing markets may be necessary to improve its liquidity. Since the sources of funds for investment in housing are same as the sources for other investments, therefore, housing investment must be made more competitive in order to attract larger funds. Using the capital market as the mechanism for raising long term resources, countries like Nigeria have already raised over \$ 3 billion in 2 years. Similar approach can be adopted in India, considering the enormous potential and level of growth of the stock market for generating enormous resources.

xv) Leveraging SEZ

India has launched a scheme of special economic zones/mega projects to usher a new era of prosperity and economic development in the country. SEZ involve lot of area, investment, employment and development. Part of the investment in SEZ can be leveraged to provide shelter for the industrial housing catering to the demand of EWS/LIG housing, making available large resources for funding the housing of the poor.

CONCLUSION

The way housing and urban infrastructure are financed in developing countries is a topic of renewed debate and a source of creative innovations. It has lead to creating mismatch between demand and supply for shelter and basic services where demand for shelter and basic services far outstrip supply making most urban population as slum dwellers. In this era of new liberal economics based on market led growth, interest in financing reflects recognition of the limits of public expenditure. It also reflects the failure of public planning and delivery systems to keep pace with rapid urbanization. It further reflects the initiatives of non-state action to increase supply of housing and infrastructure in the absence of adequate public intervention. The shift in emphasis from public to private sources of finance raises question about the role of state in housing and urban development and by extension, about the future policy of international development co-operation agencies and financial institutes.

UN Habitat in its 21st session of the Governing Council meeting held at Nairobi asked the member states to make use of structural adjustments, rapid urbanization; distinct slum economy, accumulated savings, purchasing power of the urban poor, capital housed in provision funds, as well as dedicated public investment, to leverage the resource mobilization for the housing of the poor. Program 48 defines agenda for the action to be taken for mobilizing larger resources for the urban poor in terms of:

- (a) Stimulating national and local economies that will attract domestic and international financial resources and private investment generate employment and increase revenues, providing a stronger financial base to support adequate shelter and sustainable human settlement development.
- (b) Strengthening fiscal and financial management capacity at all levels, so as to fully develop the available sources of revenue.
- (c) Enhancing public revenue through the use of fiscal instruments that are conducive to environmentally sound practices in order to promote direct support for sustainable human settlement development.
- (d) Strengthening regulatory and legal frameworks to enable markets to work, overcome market failure and facilitate independent initiative and creativity, as well as to promote socially and environmentally responsible corporate investment and reinvestment in partnership with, local communities and to encourage a wide range of other partnerships to finance shelter and human settlement development.

- (e) Promoting equal access to credit for all people.
- (f) Adopting transparent, timely, predictable and performance based mechanisms for the allocation of resources among different levels of government and various actors.
- (g) Fostering the accessibility of the market for less organized or otherwise excluded communities from participation by providing subsidies and promoting appropriate credit mechanisms and other instruments to address their needs.

Considering the way, housing and urban infrastructure are financed and the way poverty is getting concentrated in urban centers, making available and ensuring larger flow of funds for the shelter related programs and policies would be critical in order to make urban centers sustainable, productive, humane and livable. Strengthening the existing financial mechanisms, developing innovative approaches for financing, resources mobilization from various sources including - public, private, multilateral and bilateral - at the international, regional, national and local levels which will promote efficiency, effectiveness and accountable allocation and management of resources, will hold the key to the success for empowering the poor and creating affordable shelter for all.

• Some of the core infrastructure elements in a Smart City would include adequate water supply, assured electricity supply, sanitation, including solid waste management, efficient urban mobility and public transport, affordable housing, especially for the poor, robust IT connectivity and digitalization, good governance, especially e-Governance and citizen participation, sustainable environment, safety and security of citizens, particularly women, children and the elderly and health and education- The strategic components of the Smart Cities Mission are city improvement (retrofitting), city renewal (redevelopment) and city extension (Greenfield development) plus a Pan-city initiative in which Smart Solutions are applied covering larger parts of the city. Area-based development will transform existing areas (retrofit and redevelop), including slums, into better planned human settlements, thereby, improving liveability of the whole cities. Development of well-planned and fully serviced new areas (green field) will be encouraged around cities in order to accommodate the rapidly expanding population in urban areas. Application of Smart Solutions will enable cities to use technology to improve infrastructure and services.. Comprehensive development in this way will improve quality of life, create employment and enhance incomes for all, especially the poor and the disadvantaged, leading to inclusive cities- **MoHUA**



**MAKING URBAN INDIA SLUM FREE THROUGH
INNOVATIVE LAND MANAGEMENT**

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INTRODUCTION

Large population base coupled with massive rural-urban migration is promoting rapid urbanization in India. Considering the limited capacity and resources available with local bodies and parastatal institutions, cities are fast growing in an unplanned and irrational manner, unable to provide basic amenities of life, including shelter to its inhabitants, leading to mushrooming of slums. Considering slums as the shadow of urbanization, rapid urbanization has also lead to mushrooming of slums in urban India. Every sixth urbanite in India has been recorded to be a slum dweller. At the root of the problem of slums is the inadequate availability of land which has critical role and importance in providing adequate housing. With India having only 2.4% share of global land and 16.7% of population to support, land resource in India is highly stressed. Coupled with limited land and high degree of speculation, urban land prices have sky-rocketed. Since land is the major determinant of the housing cost, accordingly making housing affordable requires land cost to be minimized.

Reducing land cost would call for making land market more efficient. In addition, cost effective housing would require providing adequate land, at right place in right quantity and at right price. Nation's population that was placed at 1210 million in 2011 is estimated to grow to 600 million in 2031 as against 378 million in 2011. India represents a unique example globally in terms of land-man ratio. Massive growth of population has enormous social, economic, physical, infrastructural and environmental implications besides providing appropriate shelter for the poor. Providing appropriate shelter for the poor assumes importance because housing has been recognized, as basic human necessity contributing substantially to human livability and productivity.

INDIAN HOUSING SCENARIO

Globally, developing nations suffer from the perpetual problem of housing shortage with supply not keeping pace with the demand. The situation assumes alarming situation due to ever increasing number of urban migrants. Poor migrants, with inadequate financial resources, put pressure on land, urban services and infrastructures, which inevitably lead to congestion, increase in number of pavement dwellers and growth of slums and squatter settlements. The growth of slums is a sign of inability of people to afford land and shelter through the normal market mechanism and failure on the part of public sector to ensure equitable access to the poor. As per Census 2011, 65 million people were living in slums and squatter settlements. Nearby 38 percent population in metro cities was found to be in declared slums with Calcutta, Bombay and Delhi recording higher proportions. Poor quality housing coupled with absence of adequate water supply, disposal of human waste and garbage collection with 40 percent of urban dwellers left without access to safe drinking water and over 90 percent without access to safe sanitation are the general characteristics of these slums. Indian cities are characterized by housing large scale development of informal settlements in urban India. Considering the present scenario of rapid migration and urbanization, major chunk of future urban population will be slum dwellers. With housing shortage placed at 18.8 million dwelling units (with more than 96 % in EWS/LIG categories), sourcing adequate land for housing the poor appears to be most challenging and daunting task. Indian housing market is known to suffer from problems of perpetual shortage of housing involving ever widening gap between demand and supply growing, acute shortage of basic infrastructure, overcrowdings, poor quality housing, scarcity of serviced land, lack of resources etc. At the back of all these problems is the acute shortage of developed land, high cost of land, monopoly of urban land, poor land record, high degree of land speculation and large chunk of land being controlled by parastatal agencies

LAND RELATED ISSUES

Land, basic platform of all human activities, is considered most critical component of any housing. Despite the fact success of any housing program is contingent on availability of adequate land, still majority of developing countries have not been able to increase the supply of serviced land in urban areas. Land cost has become excessive and unaffordable. Intervention by the public agencies has not produced the desired effect in achieving the objective of supply of adequate serviced land at affordable price, to meet the needs of the shelter for the poor Accordingly, over the years availability of land has emerged as the greatest roadblock in providing appropriate shelter.

Land market in past has been controlled by the public sector and government had the virtual monopoly. With inefficient legal framework and lack of adequate resources available with the parastatal agencies, supply of the serviced land has become highly skewed. Excessive governmental controls have restricted the role of private sector in bringing adequate land into the urban market. Accordingly, most of the land available in urban areas is both unauthorized and un-serviced. This has led to the creation of a parallel urban land market, beyond the control and ambit of any regulated system. The share of informal land market has been steadily increasing making most of the land available in urban market un-serviced and city growth illegal. Treating land as a commodity, new paradigm of land speculation has led to large tracts of urban land remaining vacant for number of years. With land prices going up steadily, capacity of the government to intervene effectively in the land market has been considerably eroded. Limited availability of land with public agencies has further reduced the supply in the urban market. Land acquisition through new legal framework has become a major hurdle which has made Development Authorities incapable of supplying serviced land in the urban market at an affordable price. Development Authorities have also made land as the sole mechanism of making huge profits. In the process only a limited supply of developed land is made and the prices of released land go up considerably. Monopolizing land and restricting supply of serviced land coupled with its high pricing has edged out the urban poor from the urban market resulting in illegal occupation of public/derelict land in their search for the shelter. Supplying adequate land at affordable price remains the greatest challenge in providing shelter to the poor. This all can be attributed to the operation of the market in most inefficient manner. In-efficient functioning of land market has its genesis in the planning tools of Master Plans, Development Plans, Development controls and building by-laws, which have emerged as the greatest hindrance in the efficient operation of land market. They require objective study, review and modification for making them promoters of orderly growth and efficient functioning of land market.

National Seminar on Future Cities, identified following issues hampering provision of affordable shelter to the urban poor :

- Reduced supply of land despite increased demand.
- Higher costs making land unaffordable for urban poor.
- Haphazard and premature exploitation of peripheral lands.
- Out-pricing of the urban poor from the land market.
- Proliferation of squatter settlements, haphazard and unplanned growth.
- Irrational land use controls.
- Unrealistic legal and regulatory framework.
- Focus on higher/middle income housing
- Locking government/private lands in inefficient uses.
- High degree of land speculation.
- Poor land information system/high transaction costs.
- Limited capacity of public agencies to acquire large parcels of land.
- Non-involvement of private/co-operative sector.
- Irrational planning tools.
- Exclusion of urban poor from city planning/development process
- Mechanism of auction to dispose of land
- Low priority to land for housing poor
- Large government levies
- High registration Charges
- Promoting plotted development instead of flatted development
- Irrational land development norms
- Non-availability of rational land parcels
- Large scale litigations and cumbersome legal framework
- Multiplicity of agencies involved /working at cross-purposes
- Absence of dedicated land for the urban poor

STRATEGIES

Globally, housing for the urban poor remains most formidable challenge and accordingly housing strategies for the poor need a holistic and multi-pronged approach. For effectively addressing the issue, increased supply of developed land and its availability

in equitable and sustainable manner would be vital. The existing inequity in access of land to poor has to be removed. Policies must free the restrictions on land supply and make the land market efficient and sensitive to their demand. National Report for Habitat-II suggested following strategies to improve availability of land for the urban poor:

- Minimizing monopolizing or pre-empting land assembly, development and disposal by parastatal agencies.
- Land development made a joint activity of public/private/ cooperative sectors with adequate safeguards to protect the lower income groups.
- Directing public agencies towards increasing the supply of serviced land with preponderant proposition for the poorer section.
- Promoting optimum utilization of land
- Developing an automated cadastral/land titling system.
- Rationalizing legal framework.

UNCHS suggested following strategies for increasing supply of land for housing low income disadvantaged groups by:

- Appropriating vacant public lands.
- Acquiring land through the private market, at a price based on the present productive income.
- Trading land/development rights for land in alternative locations.
- Freezing land prices in specific locations.
- Pre-empting the sale of land when the value declared by its owners is under-valued.
- Appropriating land in lieu of taxes on inherited land.
- Appropriating land at lower than market value through the use of development gain taxes.

Above options are area, city and country specific depending upon the political agenda, government setup, legal and administrative framework, social structure, political will and commitment to the cause of weaker sections of the society. Looking at the entire context and prevailing trends, different options for strategizing sourcing of land for housing of the poor in the Indian context can be summarized in terms of:

Cross – subsidization

Cross-subsidization appears to be the best land based mechanism to raise resources to finance the housing of the poor. The mechanism works on the premise that rich must fund the poor. In this mechanism funds are primarily generated by encashing part of the gain/increase in land values which occur to the financial properties because of different development works undertaken in the city by the authorities. As a process, it has been effectively used globally through which problem of low affordability of the poor has been effectively resolved by leveraging the public/private sector resources. Within the projects, system of cross-subsidization can be applied where large sized plots are sold at a premium based on the market price and the money raised is used to compensate the lower price fixed for the small sized plots, who are allotted on less than reserve price. Cross-subsidization can be effectively and effectively leveraged in the urban development projects for promoting the affordable housing.

Inclusionary Zoning

Many developed/developing countries have used the system of inclusionary zoning for making available land and housing to the poor. Under this, a product mix of houses/plots is to be provided by defining a percentage of plots/houses to be made available for the low-income categories at affordable price. In case of Haryana all private developers are required to provide 20 percent of plots for the EWS category, at a price fixed by the State government. In state of Punjab, under the Punjab Apartment and Property Regulation Act, 1995, every developer is required to provide 10 percent of total residential area for the EWS. In case of apartments, 10 percent of apartments are to be provided for EWS category. However, this proportion needs to be increased with all restrictive conditions removed and land made available should be used for creating built-up houses. In this manner, large housing stock can be created for urban poor. However, incentivizing the promoters for compensating the higher proportion of EWS housing can also be considered in the shape of providing compensatory floor area ratio or not counting the covered area under such category of houses provided, to increase the proportion of such houses.

Squatter Zones

Majority of land related problems in the urban areas are the outcome of keeping away the informal sector from the planning process. With no specific provision made for this sector, the availability of land for housing and working emerges as the major issue. Integration of the informal sector with the urban planning process needs to be effectively leveraged to source land for shelter etc. Accordingly, in the Development Plans, sufficient area needs to be identified for the housing of the urban poor/ rural migrants, which can be acquired/ developed to provide housing with basic infrastructures. Houses can be constructed and upgraded by the poor over a period of time, based on the availability of resources. For the success of the scheme, sufficient funds need to be generated from different sources. Repayment scheduled needs to be linked to earning of the migrants.

Land Bank

Creating a land bank, with all approvals, would be critical to facilitate the process of making available affordable shelter. Provision can be made to earmark 5-10 percent of the land in every urban development project for housing the poor. This land can be placed at the disposal of public authorities to be utilized for construction of housing for the poor. In the case of developers, who are mandated to provide such housing as a part of the approval obligations, could also be given the option of placing such land at the disposal of the development authority/housing boards at the base price, who would be free to use such land for constructing the housing. In this manner, land bank at the city/state level can be created for housing the poor.

Land Pooling & Redistribution Schemes

These schemes involve landowners being treated as coparceners in the urban development process with no compulsory acquisition of land involved. Schemes generate enough land for public purposes/resources for infrastructure development besides bringing large amount of potential land, falling on the urban fringe into the land market. This helps in keeping the land price stable and imparts efficiency to the land market. Through the mechanism of the plot re-constitution mechanism, large amount of land has been brought into the urban market in Ahmadabad city alone. Part of the land sourced through these schemes need to be earmarked for the creating the housing for the poor. P.R. Scheme is popular in India and has been successfully employed in the states of Maharashtra, Gujarat, Tamil Nadu, Punjab etc. Scheme needs to be leveraged in other states also to make sufficient land available for housing the poor.

Guided Urban Development

Under the World Bank assisted project in the state of Tamil Nadu, CMDA collaborated with private developers to build 10,000 units for EWS/LIG people. Under these schemes, owner/developers having land and agreeing to provide 75 percent of the plots for EWS/LIG categories were given exemption from Urban Land Ceiling Act. Though project did not make much headway due to operational issues, roadblocks created in the process and lack of understanding the genesis of the scheme, but with certain modifications, scheme can be effectively used for improving the availability of shelter to the poor.

Private Sector Involvement

Keeping in view the limitations of resources and prevailing sets of stringent rules and regulations in the public sector, it is necessary to encourage the private sector in large-scale assembly, development and disposal of land to supplement the efforts of public agencies. Haryana State has taken a lead in this regards by evolving a comprehensive and effective framework for sanctioning of colonies involving making available developed plots and built up houses on large scale to the people by pooling, planning and developing the land on the prescribed norms, This mechanism has brought in lot of reputed builders in urban centers. Haryana model needs replication with certain modifications in order to attract developers in small and medium towns. Developers have not only contributed substantially to the orderly growth and development of urban centers but have also made available large number of plots for the urban poor at an affordable price. Haryana has also evolved an innovative affordable housing policy where private developers, having land, have been provided with number of incentives involving higher density, FAR, height, rebate in levies and development charges etc to provide affordable housing on a pre-determined price for pre-determined area of flats.

Public-Private Partnership

The combined strength of both public/private sectors, could be another option, which can be effectively used in providing shelter to the urban poor. State of West Bengal has taken a lead by floating number of joint venture companies between West Bengal Housing Board and reputed private sector companies like Peerless Group, Ambuja Cement etc. Under these JV's, large stock of houses created for LIG/EWS categories on a highly subsidized price. The subsidy is made good through HIG housing and commercial sites. Lucknow Development Authority allotted land to the private developers, who were required to provide 40 percent of the plots for EWS category to be handed over to the Development Authority for disposal to urban poor at a heavily subsidized price. Making landowners as partners in the urban development process, can also help in making available sufficient land for housing the poor.

Regeneration of Urban Land

Lot of public and private land is locked in inefficient uses in the urban areas in the shape of closed industries/offices/institutions/derelict buildings etc. In order to make optimum use, it is essential that such land parcels are brought into urban market and used for meeting the requirements of housing for public/urban poor. State of Punjab has already launched a scheme called, 'Optimum Utilization of Vacant Government Lands (OUVGL)', under which all unused and under-used potential public lands are being identified, planned, developed and disposed off for housing/commercial purposes. This has not only generated resources for the state for infrastructure development but has also brought in considerable amount of land into the urban market. Part of resources generated/land needs be used for housing poor in the State. For using derelict/unused land government should adopt a liberal policy of change of land use, under which all derelict land under industrial/institutional use could be brought into the market for housing. State should also undertake initiatives, under which all non-conforming uses are encouraged to shift to the designated areas in the master plan and the land under such uses should be used for meeting the shelter related needs of the city and communities.

Taxing Vacant Urban Land

Speculation in land as a phenomenon has gained enormous currency. This process has put on hold large quantity of serviced urban land in various town and cities. In the absence of non-supply of vacant land in the urban areas, people tend to built houses on the fringe/periphery of the city. In order to check this tendency, it will be critical to bring the unused land in the urban areas into the land market.. In order to bring this land into the market, it would be desirable to tax the owners of such land. The tax liability should be heavy so as to act as deterrent for keeping the land vacant. This would serve dual purpose of land being brought into urban market and also generate resource, which can be utilized for funding the housing for the poor. PUDA has imposed extension fee on the vacant plots after three years of allotment @ 2% of current allotment price. This has resulted in rapid construction on plots lying vacant for number of years besides generating resources, which can be leveraged for creating housing for poor.

Efficient Legal Framework

For improving the supply of serviced land in urban areas, existing legal framework needs close scrutiny, review, revision and drastic amendments. Amended Land Acquisition Act has made the land acquisition both costly, time consuming and expensive. Law needs to be reviewed to ensure availability of adequate amount of land at affordable price for housing the poor. Rent control law also needs rationalization to create more housing stock. Government of India, is coming out with a model rent control act, which would help in promoting the construction of rental housing on a large scale.

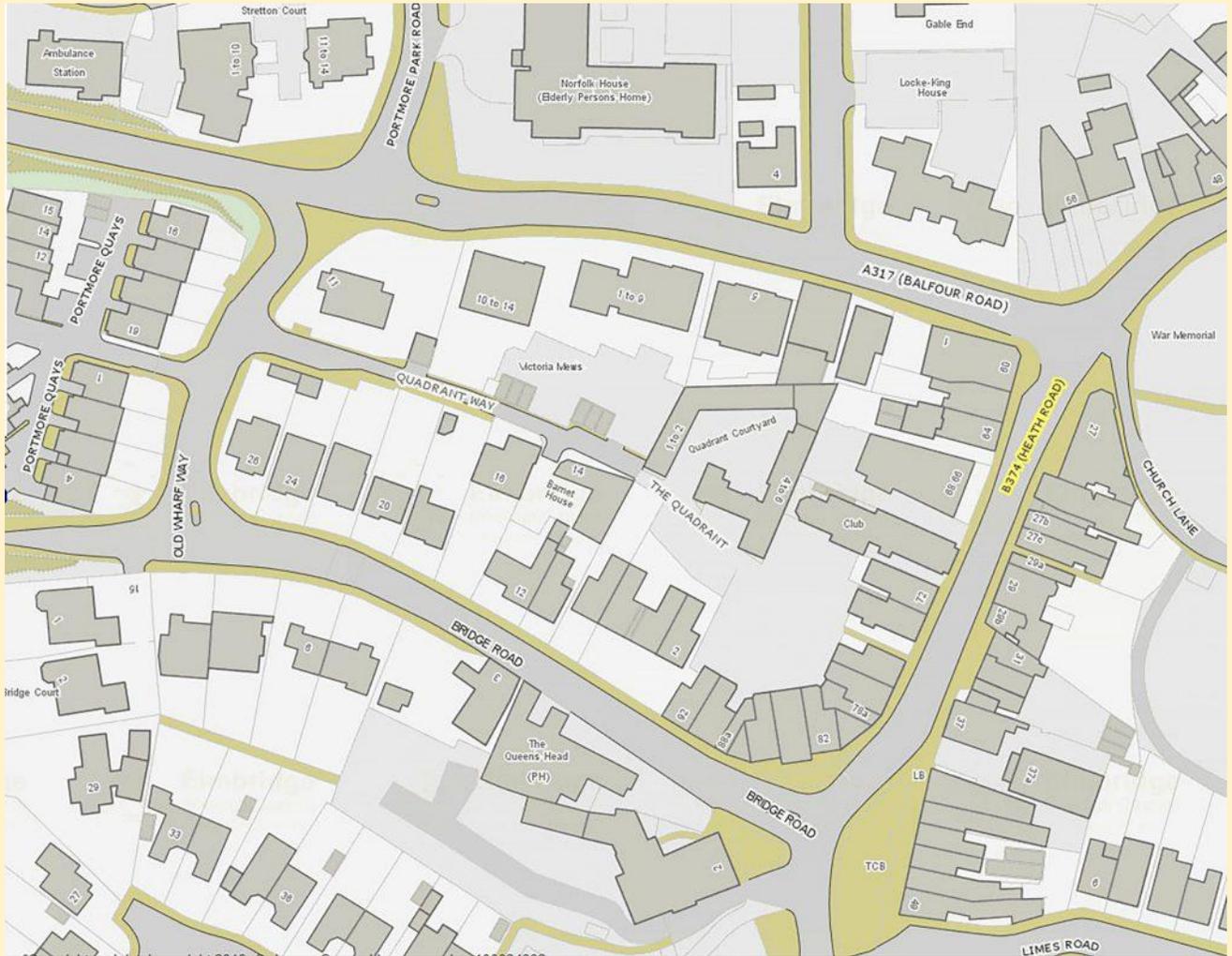
Building Bye-Laws & Development controls

Effective and optimum utilization of valuable urban land is often hindered by the existence of archaic/outdated building bye-laws/development controls, which impose undue restrictions on the efficient use/development of the land. Rationalizing development controls and building restrictions relating to FAR, mixed land use, height, plot size, room height etc will help in optimum utilization of land and improving housing stock for the poor.

CONCLUSION

Considering the enormity and magnitude of problem and declared policy of government to provide housing for all by 2022 will be both a challenge and an opportunity. Minimizing land cost for creating affordable housing for slum dwellers, would require innovative options to be explored and put in place. For sourcing land at minimal cost, options of making landowners partners in the urban development process; using the mechanism of land pooling and land redistribution; promoting guided urban development; rationalizing land records; optimum utilization of government lands; promoting public-private partnership; regeneration of existing derelict urban land; taxing vacant urban land; using land as a resource, creating efficient legal frame work; redefining urban planning and rationalizing building bye- laws & development controls etc will be very critical. Making India slum free will largely depend upon our capacity to leverage land in right quantity, at right place and at right price.

- *Slums under Indian Census have been categorized and defined to be of three types: **Notified Slums; Recognized Slums; Identified Slums.**-- All notified areas in a town or city notified as 'Slum' by State, UT Administration or Local Government under any Act including a 'Slum Act' are **Notified Slums.**-- All areas recognised as 'Slum' by State, UT Administration or Local Government, Housing and Slum Boards, which may have not been formally notified as slum under any act are known as **Recognized Slums.**--A compact area of at least 300 population or about 60-70 households of poorly built congested tenements, in unhygienic environment usually with inadequate infrastructure and lacking in proper sanitary and drinking water facilities are termed as **Identified Slums.**-- . -**Census of India,2011***
- *Out of 4,041 Statutory Towns existing in India, Census 2011 reported Slums from 2,543 Towns (63%).Total Slum Enumeration Blocks (SEBs) in Census 2011 were about 1.08 lakh in the country.Largest number of Slum EBs reported from Maharashtra (21,359). Based on categories, **Notified Slums** numbered 37,072(37.20%); **Recognised Slums** were 30,846(28.50%); and **Identified Slums count** was 40,309(34.30%); -. -**Census of India,2011***
- *Total number of Households in India reported to be living in slums in the year 2011 were of the order of **137.49 lakh**; out of which 49.65 lakh HH(36.3%) lived in **Notified Slums** ,whereas **Recognised Slums** count was placed at 37.96 lakh HH(27.6%); and **Identified Slums** had49.88 lakh HH(36.1%);*
- *Top five states**Top 5 States Reporting Slum Households** included **Andhra Pradesh (35.7%); Chhatisgarh (31.9%);Madhya Pradesh (28.3%); Odisha (23.1%);West Bengal (21.9%);Bottom 5 States Reporting Slum Households included; Chandigarh(9.7%); Gujrat (6.7%); Jharkhand(5.3 %); Assam(4.8 %); Kerala (1.5 %);***
- ***Every sixth urbanite in India lived in slums** in 2011. As against to total household of 789 lakhs, slum households were counted to be **137 lakh (17.4%)** and non-slum households were **652 lakhs (82.6%)**. **46 Million Plus Cities** held 52lakh slum households (38.1 %) as against 85 lakh (61.9%) in other cities .Every third resident of metropolises were a slum dwellers as against every sixth in the country.*
- ***Proportion of Slum Households in Metros – 2011- Greater Mumbai (M Corp) 41.6%; --Kolkata(M Corp.)- 29.6%, Chennai(M Corp)-28.5% , Delhi MC (U)- 14.6%, BBMP(M Corp)- 8.5%.***
- ***Million Plus Cities with High Proportion of Slum HHs (Top 10 only) – 2011-- Greater Visakhapatnam M Corp-44.1% ; Jabalpur Cantt (CB)- 43.3; . Greater Mumbai (M Corp.)- 41.3% ; Vijayawada (M Corp.)- 40.6%; Meerut (M Corp.)-; Raipur (M Corp.)-40.0%,Nagpur (M Corp.)-39.0%;Greater Hyderabad M Corp(GHMC)-. 34.3%; 31.9%; Kota (M Corp.)-31.8%; Agra (M Corp.)-29.8%***



VOLUNTARY LAND DEVELOPMENT SCHEME— A STEP TOWARDS ACHIEVING HOUSING FOR ALL.

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INTRODUCTION

All urban related activities, basically and essentially, are consumers of land. Accordingly ensuring supply of adequate quantum of developed land remains the most critical element conditioning the planned development of urban areas. Inadequacies of supply have pronounced impact not only on the social fabric but also on the quality of life a city offers to its inhabitants. The critical factor intrinsic to the urban problems is the failure on the part of parastatal agencies to supply enough serviced land for housing and other basic human requirements besides its optimum utilisation. Proliferation of slums, squatter settlements and encroachments are reflections of the deficiencies of the urban system to respond adequately to the increasing requirements for developed urban land.

In most urban settlements, inadequacy of developed land has led to emergence of numerous problems in terms of distortions in real estate market, unwarranted escalation in land value, steep rise in land rentals, lack of access of the poor to the affordable land for shelter, congested living conditions and excessive population pressure on existing urban infrastructures. Land mafia has exploited the shortage of urban land to their advantage with impunity and has further distorted the land market and has promoted urban poverty to a large extent. The urban problem are likely to further intensify and become more pronounced with the massive increase in population which is expected to take place in urban areas in years to come. More so, in large urban centres, considering the annual average urban population growth rate of 3.7%.

The ever increasing population pressure on urban land and the attendant problems calls for adequate and innovative measures to be put in place to ensure proper management of land in terms of its availability, supply, utilisation and services. There is an urgent need to substantially increase the supply of developed land, ensuring its optimum utilisation and achieving high degree of equity in land distribution. The focus of urban land management practices should be to promote the supply of developed land in right quantity, at right location, to right persons and at right price. In search of such a mechanism, the approach to make available sufficient developed land has to be different from the practices now being used by various actors involved in the urban development process. The major roadblock in supply of adequate land in urban market is the extensive use of the mechanism of compulsory acquisition through the Land Acquisition Act, 1894. The Act has been found to be highly discriminatory and not based on equity due to landowners being deprived of their total land-rights without any participatory role in urban development for which the land is being acquired. In the process, landowners have opposed the compulsory acquisition with the result; acquisition of land under the Act is becoming increasingly difficult. Unending litigations by landowners to stall the land acquisition proceedings by demanding enhanced compensation, considerably delays the process of acquisition. The availability of land for urban development project has accordingly been drastically reduced over the years and the urban development process has been made to suffer enormously.

With urban land prices becoming every high due to large scale distortions in urban land market and speculators becoming major players in a market plagued with inadequate supply, the cost of urban land has become very high. Accordingly, acquisition of land by parastatal agencies calls for making available enormous resources to meet the land based needs of urban centres and its inhabitants, who are flocking to these centres in large numbers. Provision of adequate resources to ensure supply of the sufficient developed land in urban areas seems to be beyond the capacity of the state and its development authorities considering other priorities and developmental compulsions. Further with land acquisition proceedings taking longer time, the availability of land is likely to be considerably delayed and reduced. Thus in order to ensure rational development of urban areas and to make provision for adequate and affordable shelter besides other infrastructures, supply of adequate amount of serviced land will be a pre-requisite.

VOLUNTARY LAND DEVELOPMENT SCHEME

For ensuring supply of serviced land in sufficient quantity at an affordable cost and for generating adequate resources for urban development, search for innovative solutions will be imperative. Treating landowners as coparceners in the overall development process could be one of the best option which parastatal agencies can use effectively to their advantage for achieving the objectives of planned growth and rational development of the urban centres. In this process, development authorities and landowners can join hands and pool their resources for promoting sustainable development of urban areas. The scheme thus

envisioned is based purely on participatory mechanism in which landowners participate on voluntary basis without any compulsion and primarily guided by principle of equity. The formulation of the scheme is such that entire mechanism remains transparent. Authority and landowners retain equal partnership with landowner made integral part of total decision-making process right from inception to the conclusion of the scheme. The scheme thus envisioned has been named as Voluntary Land Development Scheme.

The Voluntary Land Development Scheme aims at :

- (i) Ensuring supply of adequate and speedier serviced land for urban uses without resorting to the mechanism of compulsory acquisition.
- (ii) Ensuring adequate returns to the farmers/land owners for the land brought under the Voluntary Land Development Scheme.
- (iii) Generating resources for providing services and infrastructures in urban areas without any burden on the State and parastatal agencies.
- (iv) Making urban development process self-sustaining so far as resources are concerned.
- (v) Making available land for construction of roads, open spaces, schools, dispensaries etc. without acquiring the same.
- (vi) Treating land owners as coparceners in the urban development process.

Voluntary Land Development Scheme would be a joint venture (JV) between Authority and the landowners in which landowners and Authority would pool their resources to promote the cause of urban development. Landowners would offer their land and Authority would provide necessary technical and managerial input in the form of planning, development and management of land, provision of infrastructures etc. The profit accruing out of the land would be shared between landowners and Authority on a certain fixed basis after meeting the cost of land, cost of the development, cost incurred on the provision of roads, water supply, sewerage and other basic infrastructures and other incidental costs. Funds for development can be made available by Authority or the private developers could be asked to take up the projects on a turn-key basis to develop the land on the basis of an approved layout plan and for the provision of basic infrastructures as envisaged in the scheme. In order to ensure effective implementation in the initial stages and to ensure success of the scheme, State would be required to create a revolving fund to be placed at the disposal of Authority to undertake development and pay cost of land. The revolving fund could be of the order of 100 crores which Authority would ultimately return to the State over a period of time not exceeding 10 years.

Scheme calls for making part payment to the landowners to the extent of 25% of the market value of land when they would provide to the Authority for the urban development. However, they would be paid much higher price for such land which would be given to them out of the resources generated by sale of developed plots. Land would be developed on the prescribed town planning norms and standards and land would be disposed of on the reserve price fixed by Authority after taking into account the development cost, market value of land, components of interest, maintenance, legal & marketing expenses and profit for the landowners and the Authority. Landowners would be assured of minimum return of 50% over and above what he would have otherwise got had the land been acquired under the Land Acquisition Act. Landowners and Authority would share the profit in the ratio of 50: 50 after meeting all the expenses. All schemes to be undertaken under the project would be exempted from the provisions of various laws and no license would be required for developing the areas.

The scheme based on above principles would accordingly help:

- (i) in making farmers/landowners substantial profit thereby providing enough incentive for land pooling / offering land for the scheme.
- (ii) the Authority not have to resort to the process of compulsory acquisition of land for undertaking urban development.
- (iii) in supplying the land in adequate quantity and to stabilize the land prices.
- (iv) In minimizing mushroom growth of unauthorised colonies.
- (v) in generating resources for providing basic amenities and services in the urban areas without making any investment.
- (vi) in making adequate profits for Authority from each scheme, enabling it in the process to generate enough resources for undertaking more and more projects for housing the economically weaker sections of society and improving existing slum and developing areas which do not have adequate amenities and services.

- (vii) the states in achieving the national goal of ‘**Housing For All by 2020**’.

ELIGIBILITY FOR PARTICIPATION IN THE SCHEME

All landowners who own land within the municipal boundaries having sufficient developmental potential for urban development would be eligible to participate in the scheme. The minimum area to be offered for development would be 10 Acres in case of class I cities and 25 acres in case of class-II towns. Land to be offered should be free from all encumbrances and owner must have a clear and undisputed title. The land use of the land offered must be in conformity with the proposals of Master Plan or Development Plan, as the case may be. Individuals or group of individuals or builders or developers capable of assembling required amount of land can also opt for the scheme. Developers holding appropriate power of attorney from a landowner or a group of landowners are also eligible to offer land for aforesaid purposes.

Development Guidelines

The development guidelines for the development of land offered under the scheme shall be as under:-

- (i) Minimum area of the assembled land for which development scheme can be formulated shall be 10 Acres for class-I cities & 25 Acres for class-II towns.
- (ii) The development proposals for assembled land including the layout plan shall be prepared in accordance with the development regulations, as may be in force from time to time.
- (iii) Land use pattern to be adopted for the planning of assembled land would be such that area under roads, open spaces, amenities and community purposes would be limited to 40%, whereas area under residential plots, group housing, commercial use and saleable institutional area would not exceed 60%.
- (iv) The density to be achieved for the planned area shall be as provided in the Master Plan and in the absence of the Master Plan, as determined by the Authority from time to time. However, gross density in no case shall be lower than 150 persons/Hectare.
- (v) Plotted area shall be worked out in such a manner that majority of plots shall be less than 250 sq. yards. The area under such category of plots shall not be less than 55% of total area provided for residential development. Only 25% of area shall be earmarked for plots higher than 250 sq. yards of area.
- (vi) Minimum 10% of residential area would be earmarked for multi-storyed flats or for Co-operative Housing Societies in all class-I cities of the state. In addition 10% area shall be reserved for EWS housing.
- (vii) All amenities and facilities would be provided as per town planning norms to be prescribed by the Authority from time to time.
- (viii) Development of roads, provision of water supply, sewerage, electric installations shall be as per prescribed engineering norms.

FINANCING OF THE PROJECT

Funding of the project will be worked out in such a manner that schemes undertaken would be not only self-sustaining but shall also generate resources in the shape of profits to be distributed among the landowners and the Authority. Payment of cost of land, the cost of development and provision of infrastructures would be initially met out of the revolving fund. Corpus of fund shall be initially limited to 100 crores which the State would place at the disposal of the Authority. The amount shall be returned to the State government within the stipulated period of 10 years. Authority would be required to pay interest for the said amount for the period the amount is used. Authority would also generate resources for the scheme by advertising about sale of plots/sites carved out in the scheme. Funds so collected would be used for meeting the development cost in the scheme area.

Authority may also allocate the project on turn-key basis to the private developers of repute who would be responsible for planning and provision of infrastructures in the scheme area. Such developers would be asked to furnish guarantee for ensuring development as per prescribed norms and standards. Disposal of plots would be done by the Authority or jointly by Developer and Authority and part of the amount so collected would be used to defray the cost of development. Developer would be given part of profit as may be specified or as may be agreed to between the Authority and the developer.

Amount utilized out of revolving fund for meeting the development cost would be ploughed back to the fund after recovering the same from sale of plots and surplus, if any, becoming available shall be used to repay the amount made available by the state government.

MARKETING AND ESTATE MANAGEMENT

Marketing of available plots would be undertaken in such a manner that it ensure not only optimum return to the promoters /landowners but also provided plots at the most affordable and competitive price to the buyers. Overall marketing strategy would be guided by a system of cross-subsidization where pricing of larger plots would be fixed in a manner that their price would be over and above the reserve price worked out on no-profit no loss basis whereas smaller plots will have their price fixed below the reserve price. Amount of profit to be generated shall also be pre-fixed so as to ensure that purchasers are not fleeced/ neither it gives impetus to speculative forces. Estate management would ensure that prescribed standards of maintenance and upkeep are put in place and operational efficiency of services is duly maintained. In such a scenario;

- (i) Marketing of plots shall be the responsibility of the Authority or any agency appointed / authorized in this regard.
- (ii) Allotment of land to the institutions would also be made by the Authority as per approved policy. Land earmarked for educational institutions would be allotted on 50:50 basis between Govt. and private institutions. Allotment of sites would also be made done on a price to be fixed by the Authority from time to time.
- (iii) All residential plots would be allotted on the basis of inviting application and through the method of drawing of lots. The allotment shall be made on a pre-determined price.
- (iv) Commercial plots would be disposed off by the method of auction. Proportion of larger shops and smaller sized booths would be kept as 1:5 so as to create more smaller and affordable commercial sites.
- (v) Cost of all amenities to be provided in the scheme area would be charged to the project and would be included in the pricing mechanism while working out the reserved price for the plots.
- (vi) Estate Management would be the responsibility of Authority for 5 years which can be extended to a further period of 5 years. Cost of maintenance shall be included as part of the project and should be clearly reflected while working out the reserved price. The area thus developed shall be handed over to the concerned local authority in whose jurisdictions the scheme area falls after the said period.
- (vii) Disposal of sites for group housing or to co-operation shall be made on first come first served basis subject to fulfilling the conditions of eligibility.

FORMULATION & IMPLEMENTATION PROCEDURE

Steps involved in the formulation and implementation of the Voluntary Land Development Scheme shall be as under:

- (i) Authority would announce the launching of the scheme by inviting application from eligible land owners/ farmers/developers.
- (ii) Land owners/farmers/developers having required amount of land, jointly or severally, falling within the municipal area having potential for development can make application to the Authority that they are willing to offer the land for the aforesaid scheme along with relevant documents and location plan.
- (iii) Authority would evaluate the suitability of land for the development purpose and its suitability for framing the scheme, as per the provision of Master Plan or Development Plan.
- (iv) After evaluation, Authority conveys its decision to landowners/ developers, as the case may be, of acceptance or rejection.
- (v) If the land is found suitable, the owners/developer would be invited to enter into a memorandum of understanding between the landowner and the Authority and a formal agreement is signed by them.

- (vi) After the agreement is signed the possession of the land is handed over to the Authority free from all encumbrances for planning and development purposes. 25% of market value of land is paid to the owner on handing over the possession.
- (vii) Authority surveys the land and prepares a detailed layout plan as per the prescribed town planning and space norms and developmental standards.
- (viii) The development costs and other incidental expenses are worked out for the entire project. Notional value of land is also added to the cost besides the cost of infrastructure, amenities, services, interest component and maintenance costs.
- (ix) Profits of the farmers/developers and the Authority are also worked out and included in the total cost.
- (x) Reserved price of residential plots, commercial plots, institutional sites etc. are then worked out on the basis of pre-determined formula.
- (xi) In case the project is to be carried out on turn-key basis then developers are asked to work out the details and submit the entire proposal to the Authority which is then evaluated by it. The Authority may reject it or accept it with or without modification.
- (xii) After the project is worked out, exemption of land from the provision of various Acts, Rules etc. wherever applicable would be given.
- (xiii) Development works would be started on the site within a period of 6 months after entering into agreement between land owners/developers and Authority.
- (xiv) Applications are meanwhile invited for the disposal of plots/sites provided in the scheme area and plots will be allotted.
- (xv) Amount thus collected from the applicants/ allottees, is used for meeting development costs.
- (xvi) After the development works are carried out, possession of plot is handed over to the allottees. All development works would be completed within a period of 2 years of finalization of scheme layout plan.
- (xvii) Balance land cost is paid to the land owners along with the share of the profit generated.
- (xviii) After the development works are carried out and maintained for a period of 5 /10 years, as the case may be, the possession of roads, public open spaces etc. would be handed over to the local municipality. In case area is handed over before the stipulated period, proportionate maintenance cost would be made available to the local bodies.
- (xix) Development of all amenities for which cost has been included in the project shall be completed by the Authority.

PROJECT STEERING COMMITTEE

In order to facilitate and ensure speedier evaluation, framing and implementation of the scheme on a time bound basis and within the given planning and development framework, Project Steering Committee consisting of the following shall be constituted to aid, advise and assist the Authority on all matters connecting with formulation and execution of the scheme.

| | | | |
|-------|--------------------------------------|---|----------|
| (i) | Chief Administrator of the Authority | - | Chairman |
| (ii) | Chief Engineer of Authority | - | Member |
| (iii) | Chief Town Planner | - | Member |
| (iv) | Landowner | - | Member |
| (v) | Chief Accounts Officer | - | Convener |

Committee would examine in detail the various aspects of the land offered along with its suitability for the development purposes and acceptance/rejection of land would be communicated within a period of 3 months of inviting the applications to the land owner. No scheme will be undertaken unless and until it is approved by the Project Steering Committee. Committee would be free to induct, co-opt or associate any other expert which it thinks necessary for evaluation, framing and ensuring effective implementation of the scheme.

Project Steering Committee would examine the scheme in respect of the following:

- (i) Layout plan of the scheme including land use pattern, plotting pattern and land use efficiency.
- (ii) Provision of basic infrastructures , services and amenities etc.
- (iii) Project cost.
- (iv) Pricing policy of different categories of plots including the reserved price for various categories of plots.

- (v) Overall financial viability of the proposed development including the benefit accruing to the landowners and the Authority.
- (vi) Implementation schedule of the project.
- (vii) Disposal of sites including residential, commercial and institutional sites provided in the scheme

Nodal Agency

Nodal Agency to invite application framing the layout plan, undertake development works, disposal of plots, estate and land management, provision of basic infrastructures, ensuring completion of scheme etc. shall be Authority. However, Authority may engage reputed agencies for undertaking different tasks for and on behalf of it. State Town Planning Department would, however, continue to provide all the planning input for the scheme. It would be the responsibility of Authority to ensure completion of scheme within the approved time framework and as per approved master plan, planning and development parameters.

RESOURCE GENERATION

Scheme will be capable of generating enormous resources for the Authority and landowners. To illustrate the benefit of the scheme to the landowners and Authority, a hypothetical case study had been made'. The example clearly demonstrated that scheme would be beneficial to both the farmers/landowners and the Authority. It would also benefit economical weaker sections of society which would be funded out of the profits accruing to the Authority since part of the funds generated for Authority would be earmarked and used for providing shelter and employment to them. If Authority undertakes the development of 3000 Acres on annual basis. Scheme would generate profit to the tune of Rs. 200 crores annually, besides creating resources for development works to the tune of Rs.450 crores. Further it would also make available 1200 acres of land for roads, open spaces and other institutional areas which would go a long way in improving the quality of life in urban centres. State and people would also benefit in the process, as it would minimize the growth and mushrooming of slums, haphazard and unplanned growth. It would also help in stabilizing the land prices and eliminate chances of land speculation. Availability of land would provide greater momentum to the construction of EWS and other categories of houses. Slum growth would be largely contained and construction of houses would give boost to the industry and economy and would generate enough employment opportunity since housing, as an activity is not only highly capital intensive but also labour intensive. The scheme will thus prove a boon to the people and the State. It would be a major step in achieving the welfare of society in general and promoting the planned and sustainable development of urban centres in particular besides meeting the national objective of housing for all.

Regularization of Unauthorized Colonies in the State of Punjab- A Critical Review

State of Punjab with merely 1.53% of geographical area, holding 2.4% population and contributing half of nation cereals production, is known for its peculiarities, uniqueness, role and importance in leveraging the national growth and development. Despite its strength in agriculture, Punjab is the only state in the country, which has demonstrated the efficacy and efficiency of agricultural economy in leveraging and promoting higher order of urbanization. With 168 statutory towns comprising of 10 Municipal Corporations, 96 Municipal Councils, 59 Nagar Panchayats and 3 Cantonment Boards besides 69 census towns, state of Punjab has been ranked 8th among states in the level of urbanization in the country. With annual urban growth placed at 2.35% (1.34% rural) and level of urbanization standing at 37.49% urban residents in the state numbered 10.4 million out of the total population of 27.7 million (2011 census). Census also recorded that addition to urban population, during the 2001-11 decade was of the order of 2.12 million with more than half of these urbanites opted to live in class one cities, with population over one lakh.

Despite rapid strides made in the area of urbanization and putting in place comprehensive planning legislation in the shape of- The Punjab Regional and Town Planning and Development Act, 1995'- majority of urban development taking place in the state has remained both unplanned and haphazard. Absence of an effective, efficient and comprehensive legal frame, initially in the post-independence period, to create long and short term perspective plans for the urban areas led to their growth in an unplanned

manner. Despite the fact Chandigarh, the most beautiful and well planned city was created in the state on the dawn of independence, no lessons seems to have been learnt for ensuring the planned development of the cities of the state.

Majority of cities, in the post-independence period have been developing by proxy in the absence of any planning framework. In the absence of development agencies and legal framework, role of the government remained minimal and highly fragmented. Low priority was accorded to the urban development and accordingly, low budgetary allocations were made to urban sector. Urban local bodies were the main agencies to take care of the urban development within municipal areas. With low financial and technical capacity, municipalities made little effort to improve the physical conditions and services in the urban areas. Cumulatively, these factors led to urban growth which was marked by free for all, unplanned and haphazard development. With little resources, control and commitment on the part of parastatal agencies, cities grew, largely in illegal/unauthorized manner.

Year 1992 marked a watershed development in the country for making urban local bodies as institutions of self- governance at the local level, through the enactment of the 74th Constitutional Amendment Act, by the Indian Parliament. Act added the Twelfth schedule, which contained a list of 18 subjects, which were to be allocated to the urban local bodies to define their operational domain. Municipal Acts were accordingly amended by the state government to bring them in line with the constitutional amendment. But amendments made by the state, followed the constitution in letters only and not in spirit. Despite the constitutional amendment, state government enacted a law in the year 1995, three years after the constitutional amendment - The Punjab Regional and Town Planning and Development Act, 1995- to create a structure independent of urban local bodies for planning and development of urban areas and defined regions in the state. Accordingly, despite the enactment of the law, urban development functions contained in the Twelfth Schedule were never allocated to the urban local bodies in the state of Punjab.

In 1995, State of Punjab enacted comprehensive law, by the name, ‘The Punjab Regional and Urban Planning and Development, Act,1995’, for preparation of Regional Plans and Master Plans for urban centres, besides creating urban development authorities based on the pattern followed for Delhi Development Authority. In addition, state also enacted , ‘The Punjab Apartment and Property Regulations, Act, 1995’, to regulate the activities of the private sector involved in setting up colonies and construction of apartments . Under these laws, state first established state level planning and development authority by the name Punjab Urban Planning and Development Authority(PUDA) which was subsequently fragmented by setting up of 6 more Regional level Planning and Development Authorities; namely at Amritsar, Jalandhar, Ludhiana, Mohali, Patiala , Bathinda. Later on two additional local level development authorities were created for Anandpur Sahib and Dera Baba Nanak. These authorities have total disconnect with urban local bodies operating in their areas related to planning and development. The Punjab Regional and Urban Planning and Development, Act,1995 negated the very essence of the 74th Constitutional Amendment Act, by creating new agencies for planning and development for urban areas ignoring the legitimate rights of ULBs.

Segregating urban planning and local government departments in the state also created contradictory positions where the agency entrusted with planning of urban areas had no connectivity with the agency made responsible for managing the urban areas. In fact both departments operate as competitors instead of collaborators in the domain of planning, development and management of urban areas in the state. Existence of 29 number of Improvement Trusts created for urban centres, under the Punjab Improvement Trust Act, 1922, has also made situation more anomalous by their operations in the urban areas without involving urban local bodies. Thus there has emerged a scenario in urban planning and development, which is marked by duplication, dualities overlapping, contradictions and disconnect.

Despite the fact that comprehensive urban law for preparing Master plans and Regional plans was enacted in 1995, till now Master Plans for only 44 out of total of 237 urban centres have been prepared in the last 25years of the operation of the Act. Position of Regional Plans is even worst. Only one Regional Plan and that too for the Mohali Region has been prepared. Even Master Plans, which have been prepared for the urban areas, are not being implemented in letter and spirit with large number of amendments being carried out as a matter of routine. In the prevailing scenario, majority of urban centres in Punjab are growing in a irrational and unplanned manner, with little respect for law and care for planned development and public interest.

Majority of the illegal constructions can be attributed to the unabated development of unauthorized colonies which are mushrooming all over the state. The extent of unauthorized development in the urban areas of the state of Punjab can be gauged from the fact that it has emerged as an important agenda in the election manifesto of different ruling political parties in the state, promising to bring necessary policies and legislation to ensure that all existing unauthorized colonies/ constructions shall be regularized to attract votes and come to power.

Promoters, Builders and Colonizers are now clear that all violations made shall be regularized in due course of time. Accordingly state is reeling under the culture of converting all illegal and unauthorized development into legal and authorized development following due process of law and compromising with all specified norms, standards, rules and regulations regarding planning, area under parks, , area under roads, saleable area, area under public amenities, healthcare , education, open spaces etc. In the entire process the losers are invariably the government and people residing in the area. Loss to state government is in terms of revenue to be earned from various charges and fees which is levied on such colonies, whereas the residents have to suffer perpetually due to lack of healthcare and educational services/infrastructure, inadequate amenities/open spaces and services, sub-standard development and poor quality of life both for the present and future generations. It is always a win-win situation for builders, colonizers and developers, who are able to fleece people and state, make huge amount of profits, without paying the external development charges collected from people ; without carryout promised internal development within colony for which money has already been collected besides making people suffer due to refusal for permission to construct etc.

Looking at the context one can see that previous government during its ten year rule, spanning over 2007-17, came out with three policies for regularization of the unauthorized colonies and regularization of unauthorized plots/buildings in the year 2013, 2014 and 2016. These schemes were essentially thought to be schemes for granting benevolence to people and colonizers; creating a vote bank for the next election besides hoping to generate money for the fund starved government.

Under these schemes a total of 6662 applications were received for regularization of colonies out of which 3377 were falling within municipal limit whereas remaining 3285 colonies were carved outside municipal boundaries. Thus both urban and rural areas shared equally the bliss and burden of unauthorized colonies. Based on the policies evolved, out of total of 6662 applications received from unauthorized colonies, only 2565 (40%) colonies were approved by the government whereas remaining 4097(60%) could not be regularized and continued to be unauthorised. Under the said schemes, a total of 3,80,912 applications were received for regularisation of unauthorised plots/buildings out of which 3,33,634 (87%) plots/buildings were regularised whereas 47,278 (13%) were rejected, which still continue to be unauthorised.

Present government, which came into power in 2017, has come out with a policy in the year 2018, for regularisation of unauthorised colonies/ building /plots, following the promises made in its election manifesto. Policy notified by Department of Housing and Urban Development vide notification number 12/21/2017-5hg2/1130 dated April 20, 2018 defines following objectives to be achieved through this policy of regularisation of unauthorised colonies/plots :

- To bring all unauthorised colonies/buildings, wherever feasible into planning framework and to regularise the development.
- To facilitate the implementation of the Master Plans
- To improve the circulation pattern of streets/roads
- To facilitate provision of the basic amenities to residents/plot holders of these areas
- To make provisions to regularise and to compound offences under the Punjab Regional and Town Planning and Development Act, 1995, Punjab Apartment and Property Regulation Act, 1995, Punjab Municipal Act, 1911, Municipal Corporation Act, 1976, Factories Act 1948 and Town Improvement Act, 1922.

Policy further mandates that;

- Only unauthorised colonies carved before April 19, 2018, for which applications will be received, are to be considered for regularisation.
- Though policy covers the entire state , but it excludes large chunk of area of the state including --area of Chandigarh periphery beyond municipal limits, area covered by restrictions under scheduled roads, defence laws/installations, heritage buildings, public land, airport, oil and gas pipelines, master plans-- where unauthorised colonies/buildings will not be regularised.
- Application for regularisation will be required to be made within 4 months of the notification of the policy.
- In addition to colonisers and developers, Resident Welfare Associations and Co-operative societies were also been authorised to submit applications for regularisation of such colonies.

- Unauthorised Colonies carved out before April 1, 2013 to be regularised even if they violate the provision of land use of master plans
- Unauthorised Colonies carved out after April 1, 2013 will not be regularised, if they violate the provision of land use of master plans.
- Unauthorised Colonies were placed under 4 distinct categories based on the area under plots which were built up;
 - i. Where area up to 25% of plots are built up
 - ii. Where area between 25% to 50% of plots are built up
 - iii. Where area between 50%-75% of plots are built up
 - iv. Where area more than 75% plots are built up- exceptional colonies
- for each category, details and relaxations were prescribed regarding access road, internal roads, area under amenities, area under parks, water works, STP etc.
- policy provided the procedure and the documents to be submitted along with the application for the regularisation of colony/buildings
- Provision for constitution of a committee under the chairmanship of DC was made to deal with cases falling in the category of built up plots above 75%.
- For regularisation of unauthorised colonies falling within municipal areas, power had been vested with concerned ULBs; whereas for colonies outside municipal limits, power had been given to concerned Development Authority
- Composition fee @ 0.5%, 2% and 6% of current collector rate had been prescribed based on life of the unauthorised residential colonies of more than 10 years, 4-10 years and less than 4 years. Higher charges for commercial component prescribed for regularisation. Composition fee to be paid in 4 instalments.
- Provision for identification of unauthorised colonies by a committee has also been provided in the policy after the expiry of the four month period of making application.
- Provision for rendering technical advice to applicants regarding change of land use, planning etc has also been made for the applicants of unauthorised colonies.
- Procedure for regularisation of plots/buildings had also been made along with the development charges to be paid. In addition, owners who have constructed buildings are also required to pay composition charges on prorata basis, based on the constructed area.
- Funds collected from each colony are to be put in a separate account to be used for the development of that colony only.
- In case of dispute, CA, PUDA had been designated as the appellate authority.
- For checking the mushrooming of unauthorised colonies in future, policy mandates increasing the punishment of jail to 7 years, minimum fine to 5 lakh, demolition of structures by giving a notice; and debarring all authorities to give connections for water, sewer and electricity with no registration permitted for plots falling in unauthorised colonies.

Looking at the entire context, it needs to be seen the provisions which a colonizer is supposed to meet with, while setting up an authorized colony under the provisions of PAPRA. The provisions made in the Act calls for;

- Registration as Promoter
- Owning the land/right to use land where colony is to be developed
- Technical Capacity to develop colony
- Financial Capacity to develop colony
- Prepare Plan for the colony as per norms
- Saleable area not to exceed 55%, with special relaxation upto 65%
- Provide minimum 5% area as open space
- Provide Internal roads of minimum width of 35 feet
- Providing access road of prescribed width

- Provide amenities related to education, healthcare, community centre, entertainment etc at his own cost on prescribed norms
- Provides services and service networks in terms of w/s, sewerage, sanitation, roads, electricity, landscaping etc along with water works, STP, EGS etc, as approved
- Undertake all internal development on the defined norms and standards within the colony
- Pay proportionate External Development Charges on prorata basis for city level services
- Pay land use, license fee and other charges
- Provide bank guarantee on prescribed norms for the works to be executed
- Obtain a completion certificate
- Keep a record of account of the money received from allottees and the expenditure incurred on development works etc
- To submit periodical reports to competent authority
- To allow inspection of works being carried out etc
- To display all documents and specifications of materials to be used
- To reserve plots/flats for EWS based on the norms/rules

Provision of permitting setting up of colonies under PAPRA was essentially made to;

- involve private sector in promoting planned development,
- Developing colonies of appropriate standards,
- ensuring quality of life for the residents
- safeguarding the interest of plot owners and
- checking malpractices of the unprofessional colonisers and developers

Looking at the policy framework of April 2018, all these objectives are bound to be defeated by permitting regularisation of unauthorised colonies. Its impact will be far reaching and it will adversely impact the development culture of state. It will also put planned development on back burner and will herald an era and culture of unplanned development. The provisions of the policy will defeat the very objectives it wants to achieve. Policy will lead to;

- State left with liability of large number of unauthorised colonies due to exclusion of large areas from the policy framework of regularisation
- Ushering an era of unplanned growth and development in the state.
- Haphazard and unauthorised development will become the norm rather than the exception
- Adjusting violations of Master Plans--through revision and review- losing sanctity as promoter of planned development
- Colonies located in industrial/non- compatible uses getting regularised
- Entailing huge financial liability for the state to provide services
- State losing huge money- which it would have otherwise earned from authorised colonies-- required for promoting planned development and provision of amenities/facilities
- State/ulbs losing External Development Charges-- collected to fund the city services
- Internal development becoming ULBs liability
- Colonies in rural areas suffering due to absence of service network
- Rural colonies giving impetus to unauthorised development in rural areas, adversely impacting the rural environment and ecology
- State losing precious agriculture land --used for urban purpose in a haphazard manner.
- Urban areas getting adversely impacted due to large scale unplanned development
- Absence of uniform standards for regularisation of the unauthorised colonies. Unauthorised Colonies with large built plots given better treatment with higher order of relaxations provided for approval- in terms of width of streets, area under roads, open spaces etc

- Traffic & transportation, safety and mobility emerging as major causality due to permitting lower road widths/area under roads
- Absence of adequate open spaces promoting congestion and unhealthy environment
- Schools, dispensaries, community centres finding less place in such colonies due to higher saleable area beyond prescribed norms
- High population density and pollution to be the hallmark of such Colonies
- Providing services in narrow roads to be the great challenge.
- Proximity of sewer and water may lead to water contamination and water borne diseases
- Plot owners to face huge financial liability by making payment for making provision of the basic services within/outside the colonies
- Regularised colonies promoting colonies of differential standards with many bordering on to become regularised slums
- Subjectivity will rule the regularisation process with many malpractices emerging, based on misuse and abuse of power of regularisation and relaxation provided

The extent of the applications received for regularisation under the 2018 policy is not known but considering the fact that backlog of 4097 colonies which were not regularised under the earlier policy till 2016, the numbers of such colonies in the state may cross 7000 mark. Assuming an average area of 5-6 acre for each colony, the total area involved for regularisation shall be in the range of 35,000- 40,000 Acres; which is the area of Amritsar metropolis. State will thus be gifting its people an unauthorised Amritsar to live with and bear its adverse consequences. State must not watch the interest of colonisers or promoters engaged in the process of promoting unauthorised sub-division of the land and construction, who despite violating the prevailing laws, rules and regulations, remain the only gainers in this process. State should critically and objectively look at the larger public interest of urban residents for which it is supposed to promote and work. Regularisation should not be viewed as a political process and election agenda but should be viewed in terms of sustainability, environment, ecology, culture, quality of life and future operation of cities and their functioning.

These unauthorised colonies not only create problems for large number of genuine persons who want to construct houses for themselves but also deprive them of the benefit of valuable basic services and amenities which are supposed to form integral part of good living. It promotes poor quality of life for the community inhabiting these areas; deprive them of the benefits of open spaces; make them travel far away for accessing education and healthcare institutions and make traffic and transportation a perpetual problem. Such irrational development impact the city as a whole in its later stages of development. Accordingly, these practices must be brought to end on priority.

For bringing an end to the culture and unethical practices of unauthorised and unplanned development and construction in the state, government must come out with a clear and a focussed policy involving all the stakeholders. All the stakeholders including development authorities, revenue authorities involved in land registration, law enforcing agencies, regulatory authorities like RERA; urban local bodies, improvement trusts, town planning department, department of environment and forest, agencies involved in the provision of water, electricity, roads, financing and banking including agencies involved in the approval of such development, should be brought on a single platform to check the nuisance of unauthorised construction, defining a framework for controlling and checking the menace and culture of unauthorised construction. There is an urgent need to formulate a law for checking the unauthorised construction in the state.

Clear definition of responsibilities and authorities need to be mandated for controlling such construction. Responsibility within municipal areas for checking the unauthorised sub-division/ construction, should be vested with the concerned urban local body, whereas area beyond urban limits, should be monitored by the concerned development authority/improvement trusts. Separate dedicated cells/structure for monitoring the unauthorised sub-division/ construction needs to be created within these agencies with appropriate mechanism created for effective and efficient co-ordination at local/regional/state level. State will do well to

create a single window/agencies for granting and monitoring of construction/approvals, instead of having multiple agencies/departments working at cross purposes.

For effective monitoring of such construction/development, use of technology will be critical for which satellite imagery and GPS should be made integral part of approvals and monitoring process. For effective implementation; framework and principles provided in PAPRA should be critically and objectively reviewed, revised, redefined and simplified to be made user/city/environment friendly and should be taken as the guiding principles for planning and development and should be strictly enforced. Massive awareness program must be launched in the state to educate people at local/regional/state level, about the serious implications of unauthorised construction and illegal sub-division of the land. Both buyer and sellers must be made accountable for buying/selling land in an unauthorised manner and undertaking unauthorised construction. Legal framework must be redefined to make the unauthorised construction/sub-division of land a cognizable/criminal offence. Separate and dedicated courts should be set up to deal with the offences related to such cases for their speedier disposal and with exemplary punishment. State will do well to restructure , by bringing departments of urban local bodies and department of housing and urban development under a unified administrative and political command to remove prevailing duplications and contradictions besides promoting synergies between their working and operations. State should stop coming up with policies of regularisation of unauthorised colonies/construction in future to put an end to such culture and usher an era of planned development in the state of Punjab.

For ensuring supply of serviced land in sufficient quantity at an affordable cost and for generating adequate resources for urban development, search for innovative solutions will be imperative. Treating landowners as coparceners in the overall development process could be one of the best option which parastatal agencies can use effectively to their advantage for achieving the objectives of planned growth and rational development of the urban centres. In this process, development authorities and landowners can join hands and pool their resources for promoting sustainable development of urban areas. The scheme thus envisioned is based purely on participatory mechanism in which landowners participate on voluntary basis without any compulsion and primarily guided by principle of equity. The formulation of the scheme is such that entire mechanism remains transparent. Authority and landowners retain equal partnership with landowner made integral part of total decision-making process right from inception to the conclusion of the scheme. The scheme thus envisioned has been named as Voluntary Land Development Scheme.

The Voluntary Land Development Scheme aims at :

- (i) Ensuring supply of adequate and speedier serviced land for urban uses without resorting to the mechanism of compulsory acquisition.
 - (vii) Ensuring adequate returns to the farmers/land owners for the land brought under the Voluntary Land Development Scheme.
 - (viii) Generating resources for providing services and infrastructures in urban areas without any burden on the State and parastatal agencies.
 - (ix) Making urban development process self-sustaining so far as resources are concerned.
 - (x) Making available land for construction of roads, open spaces, schools, dispensaries etc. without acquiring the same.
 - (xi) Treating land owners as coparceners in the urban development process.
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Issues and Options for Housing the Urban Poor in India

Issues and Options for Housing the Urban Poor in India

Introduction

Housing remains one of the most valued sector for the individuals, community, society, states and nations because of its complexity and large connotations it has in terms of economy, employment, security and quality of life. As per Habitat III National Report, 2016, 'Housing as a sector in the Indian context, accounts for 1.24% of the total economic output, 1% of GDP and 6.86% of the employment. In addition, more than 250 industries are said to be directly or indirectly connected with the construction sector'. Accordingly, growth and development of industry and economy is largely dictated by the growth of construction sector and construction of housing. Housing is said to be both growth escalator and a sector that contributes directly to the quality of life and productivity. Due to its far reaching implications, international human rights law recognizes everyone's right to an adequate standard of living, including housing.

Housing known for its complexity is largely dictated by demand and supply. The demand for housing rises in direct proportion to the increase in population, rate of urbanization, rate of migration, income, climate, culture and market conditions. However, supply is contingent on factors including economic, physical, social and the decisions of individual households, builders, promoters and developers. Matching the demand and supply of housing has been found to be most complex task leading to large gaps emerging in terms of over-supply for some sections of populations and under-supply for others. Undersupply of housing invariably leads to exclusion of large proportion of population from the housing market, resulting in mushrooming of slums and houselessness. UN Habitat Report on Right to Adequate Housing states that, '*Despite the central place of the right to adequate housing within the global legal system, well over a billion people are not adequately housed. Millions around the world live in life or health threatening conditions, in overcrowded slums and informal settlements, or in other conditions which do not uphold their human rights and their dignity*'. India Habitat III National Report further observed that, '*every sixth urbanite was a slum dweller in 2011 besides 1.77 million people were counted to be homeless - without any kind of shelter, roof and walls*'.

Considering the role and importance of housing in promoting the individuals and nation's growth and development besides large number of problems existing in the sector, Habitat II Conference—the Istanbul Declaration called for, '*constituting a framework for linking human settlements development to the realization of human rights in general and housing rights in particular*'. The Habitat Agenda also states that, '*Within the overall context of an enabling approach, Governments should take appropriate action in order to promote, protect and ensure the full and progressive realization of the right to adequate housing*'. In order to achieve the objectives enshrined in the international declarations and to provide quality of life to all Indians, Government of India has adopted the agenda, '*Housing for all, by the year 2022*'.

Existing Housing Scenario

Estimates made by, 'Technical Group' constituted by Ministry of Housing and Poverty Alleviation (MHPUA), placed urban housing shortage at 24.71 million dwelling units at the end of 10th Five Year Plan with 88% shortage recorded in EWS and 11% in LIG categories and merely 0.04 million dwelling units in MIG/HIG housing. For the 11th Five Year Plan (2007-12), total housing requirement for urban sector including backlog was estimated to be 26.53 million dwelling units. Technical Committee also observed shortage of 99.9% in EWS, 10.5% in LIG and merely 0.2% in MIG/HIG categories. However, consistent efforts made by the state and the centre governments, have resulted in increased urban housing stock from 52.06 million to 78.48 million (51 per cent increase) in the last decade. Absolute housing shortage in terms of the difference between the number of existing households and existing housing stock in urban areas has significantly reduced from 1.63 million in 2001 (3 per cent) to 0.39 million (0.5 per cent) in 2011. Despite quantitative improvement, in terms of qualitative terms urban housing shortage has increased considerably due to housing congestion and obsolescence factor, of which 96 per cent pertains to the economically weaker sections (EWS) and the lower income groups (LIG)' (India Habitat III National Report). Availability of funds for the housing sector has enabled an increase in the housing stock in urban areas. However, challenge posed by enormous shortage of housing in lower income categories, can be leveraged as an opportunity by developers and promoters to create housing stock for LIG/EWS categories, based on affordability and support. Considering the opportunity, Government of India, under PMAY has given four options to private sector, parastatal agencies and individuals to leverage housing for the lower income groups.

Issues facing provision of Housing

Being labor, time and capital intensive, with land, money, materials and construction as the major components, housing as a sector faces large numbers of economic, regulatory and urban challenges both on the demand and supply side. Rising cost of land / construction, delayed approvals, cost of money, outdated technologies and lack of resources are the major constraints emerging on the supply side whereas high cost and lack of access to home finance define challenges on the demand side. They

collectively define the major roadblocks in supplying adequate number of houses in the affordable category. Looking at the entire context, major issues in development of affordable housing can be defined as:

a) **Land** – Looking at the entire context, India is precariously placed so far as land man ratio is concerned. 2.4% of global land and 16.7% of world population makes India most vulnerable as a nation globally, considering land as the platform on which all human activities are performed. Cumulative impact of rapid population growth, massive urbanization, uncontrolled migration and haphazard industrialization has put enormous pressure on the land. With low land-man ratio, ever rising demand and numerous constraints emerging out of speculation, legal framework, pattern of settlement planning and building bye-laws, supply of developed urban land is diminishing very fast, making land and shelter highly unaffordable in the process. Major factors leading to operational inefficiency in the land market have been identified as:

i) Excessive government controls.

ii) Poor availability of marketable land parcels

iii) Large encroachments on public land

iv) Outdated and obsolete land information and management system

v) Cumbersome legal framework for sourcing land

vi) High degree of land speculation

vii) Large fragmentation of land

b) **Cost of Construction**- Ever rising cost of building materials, labor, transportation, government levies, taxes and charges, high cost of borrowed money etc, has led to rapid increase in cost of housing ..

c) **Government charges**- With parastatal and urban development authorities looking at urban development as major revenue earner, large number of taxes, fees, charges, levies etc. are imposed in terms of change of land use, layout/ building plan approvals, licensing, internal/ external development, registration of land / finished house, which make the housing expensive.

d) **Urban Planning**- Prevailing planning tools and planning practices, involving Master Plans, Development Plans, Controlled Area Plans and Zoning Regulations lock/freezes the major proportion of urban land, reducing the supply of land for development. Cumbersome procedure for planning permission invariably create artificial shortage of urban land , making it more expensive for housing.

e) **Building Bye-Laws** – Outdated and irrational building bye-laws, providing for low floor area ratio/population density/height etc invariably lead to inefficient land utilization. Non-use of cost- effective/state of art building materials and outdated construction technologies, make housing expensive and unaffordable for urban majority.

f) **Project approvals**- Large number of approvals, cumbersome and lengthy processes, procedures and long chain of manpower and departments deployed, invariably delay projects and building plans approvals (16-24months) which invariably leads to time and cost over- runs of projects.

g) **Housing finance** –Non- availability of documentations for providing security, proof of assured sources of income and residential address etc. with majority of urban poor engaged in informal activities coupled with reluctance on the part of lending agencies, invariably lead to reduced availability of funds for housing the poor.

h) **Multiplicity of agencies** – Large number of agencies involved in granting approval and regulating projects at local, regional and state levels, invariably delay the project adding to the cost and time of housing.

i) **Rental Housing**- Low priority and outdated and irrational urban rent favoring tenants have made rental housing least preferred option with house owners, creating large gap between demand and supply of the housing stock in the urban area.

j) **Private Sector**- Lack of adequate space and general perception of the builders etc, has led to the non-involvement of private sector in the affordable housing sector , adversely impacting its supply in the market

k) **Construction Technologies**-- Conventional, obsolete, outdated time and cost-intensive methods of construction, traditional project planning and management being deployed in the construction of housing projects invariably lead to wastage, delay and increasing cost of housing.

l) **Priority**—Housing remains low as priority on the agenda of all major industrial, public, institutional and commercial developments leading to perpetual shortage of low income housing in the industrial/commercial/institutional areas.

m) **Options**- All housing strategies and policies focus on the agenda of creating standard solutions without looking at the needs of the communities and various sections of the society.. Accordingly, the end product of such policies leads to creating , 'one solution fit all' making housing both expensive and irrelevant to the prevailing majority needs.

n) **Right to shelter**—Unfortunately all beneficiaries believe that right to shelter includes right to ownership, right to land and property. Accordingly, demand for creating housing on ownership basis has emerged as the only option in the category of affordable housing. Creating ownership has led to resale, transfer of housing to speculators and multiplicity of ownership, defeating the very basic purpose of right to shelter.

- o) **Government obligation**—Urban poor believe, state is under obligation to provide them appropriate housing. Providing free housing to urban poor invariably forms part of poll manifesto of political parties to fetch votes, leading to absence of any effort to create housing by the individuals, growth of slums and encroachment on public land.
- p) **Migration**- Uncontrolled migration of rural poverty to urban areas coupled with absence of housing for urban migrants/informal sector invariably leads to houselessness and growth of slums
- q) **Eviction**- Practice of letting slums grow initially coupled with policy of later removing/destroying shelter in the name of violation of law/encroachments/evictions, has invariably led to loss of large housing stock existing in the affordable sector, making people shelter-less

Way Forward

Housing as a sector is marked by dualities and contradictions. Despite the fact, decent and affordable housing is fundamental to the health and well-being of people and to the smooth functioning of economies, yet globally cities are struggling to meet that basic need of housing. Looking at the present trends of urbanization, it is estimated by 2025 the number of urban households that would live in substandard housing will number 1.6 billion, adversely impacting every third urban dwellers. Considering role and importance of housing in the human context, United Nations Committee on Economic, Social and Cultural Rights has underlined that the right to adequate housing should not be interpreted narrowly. Rather, it should be seen as the right to live somewhere in security, peace and dignity. However, separating right to shelter from right to ownership of shelter, would be critical to provide shelter to all. The right to adequate housing should include;

- *Right to enjoy decent and proper housing.*
- *Right, both for personally and family, to a dwelling of adequate size that meets satisfactory standards of hygiene, comfort and privacy.*
- *Right not to be arbitrarily deprived of a home by demolition or arbitrary evictions.*
- *Right to have access to adequate housing.*

UN Habitat Report further recommends that countries must graduate from affordable housing to the concept of adequate housing because a house is *much more than four walls and a roof*. For any housing to be adequate, it must, *at a minimum*, meet the following criteria:

- *Security of tenure: guaranteeing legal protection against forced evictions, harassment and other threats.*
- *Availability of services, materials, facilities and infrastructure: assured access to safe drinking water, adequate sanitation, energy for cooking, heating, lighting, food storage or refuse disposal.*
- *Affordability: not threatening or compromising the occupants' enjoyment of other human rights.*
- *Habitability: guaranteeing adequate space, as well as protection against cold, damp, rain, wind, other threats to health and structural hazards.*
- *Accessibility: taking care of specific needs of disadvantaged and marginalized groups*
- *Location: ensuring easy access to employment opportunities, health-care services, schools, childcare centers and other social facilities, and not located in polluted or dangerous areas.*

Making Housing for all a Reality

To make housing for all a reality in urban India, following approach is suggested:

- **Unlocking Urban land supply;** Cost of land constitutes, 30-50 per cent of any project cost in urban areas. This cost plays a major role in determining pricing and affordability of residential units. Considering land as a major component of housing, securing it at appropriate locations can be the most effective way to reduce costs. All urban centres have large number of land parcels which remain unoccupied or underused. Some of them may belong to government and could be released for development or sold to buy land for affordable housing. Private land can be brought forward for development through incentives such as density bonuses—increasing the permitted floor space on a plot of land and, therefore, its value; in return, the developer must provide land for affordable units. Leveraging available Government-owned land parcels within the specified areas for development for housing for the urban poor and the informal sector, will drastically reduce the pricing of the resultant housing units. Government may also launch schemes for creating 'Land Bank' in all the urban areas, where available land can be pooled to be made available to agencies involved in providing housing or to private sector on specified conditions. Supplementing this land with all requisite approvals will make value addition to land and ensure supply of affordable housing on fast track.
- **Convergence;** Adoption of the principle of convergence of mission and yojnas launched by government of India for urban sector can help in making housing for all, a distinct reality. Housing for All and Smart Cities mission can be

easily synergised. Options of green field development and redevelopment provided in the Smart City Mission can be appropriately leveraged for creating housing stock in the affordable category. Existing slum area can be developed under the retro-fitting/brown field development option. Development through convergence will be most appropriate and cost-effective option to create affordable housing. Converging one of the capsule of housing for shelter-less under the National Urban Livelihood mission with PMAY can help in creating more affordable housing stock in urban areas.

- **Ease of Doing Business (EoDB);** Streamlining of Building Plans approval process and approval procedures for housing and construction projects would require simplification and streamlining to avoid time-overrun and cost- overrun and to put all such projects on fast track. Involving Environment, Forests and Climate Change, Civil Aviation, Culture, Defence and Consumer Affairs ministries would be critical for setting up of a single window clearance for construction permits. Simplification of building plan approval would call for adopting concept of deemed building permission and layout approval in certain circumstances besides making it time bound.
- **Promoting strong Project and Cost Management-** would be both critical and essential to increase speed and reduce cost of construction besides eliminating cost overrun.
- **Technology intervention in construction:** Cost of construction and escalation of the cost during the construction period are the two critical factors which adversely impact the affordable housing. Improved construction technology and methodologies can help execute housing projects more efficiently and in lesser time. To address this issue and make housing for the informal sector more feasible, it is important to reduce construction costs and construction timelines. Residential housing is still built in the same way it was built 50 years ago. Bringing state of art construction technologies and using cost- effective locally produced building materials for creating large/green housing stock, have been observed to be most effective options to reduce cost of housing. Project costs could be reduced by about 30 percent and completion schedules shortened by about 40 percent if developers make use of value engineering (standardizing design) and industrial approaches, such as assembling buildings from prefabricated components manufactured off-site. However, a majority of developers use conventional construction methods, which are time-consuming. Projects often face time and cost over-runs, and increase in the construction period increases the cost of financing. Technology intervention in construction such as prefab technology will definitely address the gap between time, efficiency and funding for mass housing. Efficient procurement methods, process improvements, long term tie up for supply of conventional building materials with the manufacturers for the duration of the project have been seen to highly effective in making housing cost-effective.
- **Promoting institutional approach** involving enablers, providers and executors to make them work on a single platform will promote synergies for achieving the defined objective of creating affordable shelter for all
- **Increased involvement of private players:** There is a huge opportunity for private players, since the ‘Housing for All’ mission encourages participation of private entities under monitored terms and conditions, thereby increasing the productivity and quality of the projects. This will provide an integrated platform for private players such as housing developers and infrastructure service providers. McKinsey Global Institute (MGI) report, *A blueprint for addressing the global affordable housing challenge*, states that *affordability gap* (difference between the cost of an acceptable standard housing unit and what households can afford to pay, using no more than 30 percent of income), based on database of 2,400 metropolitan areas and case studies from around the world, stands at \$650 billion a year. To replace today’s inadequate housing and build additional units needed by 2025 would require \$9 trillion to \$11 trillion in construction alone. With land, the total cost could be \$16 trillion, which offer enormous opportunity for the private sector to partner the affordable housing on a large scale.
- **Promoting rental housing;** Rental housing as a segment represents one of the best option to ensure sustained supply of housing in the urban sector without any financial implications for the government. However, this sector needs to be encouraged through an appropriate and supportive legal framework. MoHUPA has drafted a National Urban Rental Housing Policy, 2016, to encourage promotion of rental housing for various segments of incomes and create adequate rental housing stock by promoting Social Rental Housing (SRH). The special focus is on affordability of vulnerable groups and urban poor through promoting shelter facilities for the most vulnerable groups and need based rental housing for specific target groups. Model Tenancy Act is also in the process of being finalized for adoption by states, which will promote rental housing market in India, keeping in view the concerns of both the tenants and land owners
- **Creating multiple housing options-** Creating housing options in terms of night shelters, dormitories, bachelor accommodation, institutional housing etc, other than formal housing, will be critical to create large housing stock in the most cost-effective manner in the urban areas. In addition to creating different options, it will also be critical to look at the various typologies of housing prevalent in urban India. Plotted development has largely hampered the efficient utilisation of land besides reducing the supply of housing stock, whereas flatted development has been found to be highly cost-effective and efficient in terms of land utilisation and making large addition to housing sock on time bound

basis. Accordingly, it needs to be mandated that majority of housing options offered by the parastatal agencies should focus on flatted development rather than on plotted development. In the flatted development category the co-operative sector should be given priority, in order to leverage the individual resources in creating affordable housing stock.

- **Creating Housing for Migrants** ;Housing migrants, which constitute major chunk of urban population (43% of population of Delhi and Mumbai), by making adequate housing provision on priority basis by involving large enterprises; creating informal settlements in villages/ periphery; partnering with corporate/ private providers and making provision like working women’s hostels, night shelters, bachelor accommodation, dormitories etc. MoHUPA has set up a working group to study the impact of migration on housing, infrastructure and livelihood in urban areas so that appropriate product mix of housing supply market catering to migrant population of various income segments can be devised along with infrastructure and livelihood support programmes. Creating affordable housing zones in city plans and development plans would be critical for creating space in the city framework to promote housing for the affordable segment on a time bound basis.
- **Creating Progressive right to adequate housing** —Considering the magnitude of problem / limitations imposed by resources, Government should adopt the strategy for achieving progressively the right to housing rather than providing housing for all in one go, to be achieved by allocating maximum available resources, providing basic services and ensuring that public housing is provided to those who are highly stressed, with their active participation in design/ implementation.
- **Skill Development for Construction Workers**; Despite massive expenditure on construction, the sector remains inefficient and most wasteful for the reason that it is served by a work force, which is largely unskilled with no knowledge of construction, materials, construction technologies etc. It is estimated that out of 45 million people employed in construction sector, less than 6 per cent have the benefit of structured training and skill building. In view of this, it will be desirable that action on priority needs to be taken to launch a focused program to intensify skill development training to make them adequately and appropriately skilled, in the art and science of construction so that construction workers are made more productive and efficient, to ensure cost-effective and time efficient construction of housing in India.
- **Renewed Slum Redevelopment Strategy**; In order to overcome the global challenge of affordable housing, Richard Florida in his article, 'How Cities Are Making the Global Housing Crisis Worse', suggests that, *'Approach should be to empower disadvantaged groups to upgrade their own communities. Poor themselves creating their own economic opportunity in the world's arrival cities and economic development comes from enabling local communities to solve their own problems and create their own opportunity. Slums cannot be successfully upgraded without the community's participation and community participation is amplified when governments make policy that builds on their existing capacity, and improves their access to city infrastructure.* Three key strategies suggested by Richard, for addressing the global housing crisis and upgrading global slums should revolve around;
- **Keep residents where they are**; *It's a big mistake to see slums as a problem, rather than an opportunity. It is an even bigger mistake to locate people away from their current settlements to new government projects. Slums typically crop up around centers of economic opportunity, however rudimentary. Slum dwellers are best judge to understand how to mobilize community resources and generate opportunity. The location of affordable housing is "as important as, or even more important than, the quality of this housing." When residents are displaced or relocated, they are disconnected from critical social and economic networks and livelihood options they themselves created. Making in situ improvements to these settlements allows slum dwellers to remain connected to their own networks and sites of economic opportunity.*
- **Repurpose existing infrastructure in urban centers**; *The disadvantaged and the poor benefit from locating in or around the urban center, where economic opportunities are more abundant. Urban centers, being engines of mobilizing talent and human capabilities that provide opportunities that can benefit both advantaged and marginalized groups. This is why some people migrate to cities in the first place. One way to do this is to convert underutilized urban land for affordable housing and economic development, with realistic standards for development. This includes incremental housing improvements, easy-to-understand planning processes that acknowledge wide range of market segments, and simple zoning rules and building codes. It also encourages cities to explore community ownership and creative solutions to revitalizing under-used land, buildings, and districts. Providing infrastructure like streets and transit can help connect slums to economic opportunity. The city of Medellin in Colombia famously did this by using escalators and gondolas to connect steep hillside slums to centers of jobs and economic activity.*

- **Shift from ownership to rental housing;** *For the very poor and those who lack the documentation, homeownership is simply not an option. Home ownership creates additional burdens for women and members of minority groups in many rapidly urbanizing parts of the world. This is because their rights are inextricably bound to male family members, marital status, or are otherwise restricted by cultural norms. Even in countries where property legislation is gender neutral, law enforcement often restricts women's ability to exercise their rights to purchase housing. Ultimately, the hundreds of millions of the urban poor who live in global slums are the key to resolving the global housing and urban crisis. They know their communities and are doing the best they can to mobilize resources and create opportunity.*

Conclusion

Enormity and complexity of housing sector in India calls for urgently redefining the agenda, problem and priorities for achieving the objective of *Housing for All by 2022*. Conventionally, housing for EWS/LIG sections has been the responsibility of parastatal agencies with limited role assigned to individual beneficiaries. This has to undergo a change by bringing all the stakeholders on a single platform to work for achieving the objective. In addition, priorities will have to be redefined with highest preference going to shelter-less numbering 1.77 million, to ensure that there is no shelter-less person in the country. Further, undue demolition which reduces/ destroys the available housing stock should be prohibited. Slums, housing 17% of Indian urban population, need critical/objective review and evaluation, before their housing stock is demolished/destroyed and rehabilitation schemes prepared. Slums qualifying for in-situ up-gradation, should be permitted with absolute tenancy rights given to eliminate any threat of eviction/demolition. This will help in pooling the resources by beneficiaries to upgrade their shelter. However, state must provide basic amenities and services, improve accessibility, sanitation and access to healthcare, education and open spaces to improve quality of life adopting a co-operative approach with right to transfer the property minimized. Providing housing to all can become a distinct reality by adopting holistic approach involving all the stakeholders based on Affordable Housing Friendly Policy framework put in place and removing existing roadblocks. Role of parastatal agencies shall be that of facilitator/enabler/promoters rather than of provider with key responsibilities given to the private/ co-operative/corporate sectors. Implementing reform linked policy framework, would be critical in making affordable housing a distinct reality. Looking at the criticality, housing sector can be effectively leveraged to create/ expand large job market for unskilled/ semi-skilled rural migrants; skilling India; creating state of art construction technologies; revitalize Indian industry; promote economy; achieving growth rate of 9% and marginalizing poverty in urban India besides making urban centers smart, more productive, effective, efficient, healthier, better habitable, better organized, well planned and more sustainable with assured quality of life. Critically, a minimum-standard housing unit must be defined in each of them. A better solution is to set standards that reflect rising aspirations—a housing “ladder” that can start with something very basic that might, for example, have communal kitchens and baths and serve as transitional housing for new arrivals.

Affordable housing could also represent a significant opportunity for the global construction and housing-finance industries. Building homes for all the low-income households added in cities by 2025 could cost \$2.3 trillion. That would represent a construction market of \$200 billion to \$250 billion in revenues annually, or about 10 percent of the global residential real-estate construction industry. As India's urban population continues to grow, there will be increasing number of urban poor and informal housing settlements - addressing their housing needs is going to become critically important in the years to come. Getting the basics right at this point in time can help the country cope with the pressures of informal housing and rapid urbanization.

A Slum, for the purpose of Census has been defined as residential areas where dwellings are unfit for human habitation by reasons of dilapidation, overcrowding, faulty arrangements and design of such buildings, narrowness or faulty arrangement of street, lack of ventilation, light, or sanitation facilities or any combination of these factors which are detrimental to the safety and health. -Census of India,2011



**Managing Cost and Making Housing
Cost- Effective**

Managing Cost and Making Housing Cost- Effective

Introduction

Owning house is a lifetime goal, dream and desire, which every individual wishes to achieve and fulfill during his/her lifetime. However, housing remains both cost-intensive and resource extensive activity, which involves lifetime investment and decision making, based on host of personal and extraneous factors. While constructing shelter every owner/builder wishes to have a house of highest quality, built in the shortest possible time but involving minimum financial cost. So cost remains at the core of house being constructed besides the quality and the time. However, majority of the individuals and architects consider only the housing cost, which only refers to the initial cost which goes into making of the house.

According to Le- Corbusier buildings are like machines which require both resources and service, for its operation and maintenance. Therefore, house invariably involves cost which has to be incurred after occupation in terms of using electricity and water besides heating and cooling of the house in terms of HVAC, to have both comfortable living, ambient temperature and appropriate humidity. These are operational costs, which the owner has to pay after the occupation of house. Further, house as structures, has a much larger life span, sometimes even longer than the life span of normal human beings, accordingly these costs add up to be considerable amount when compared to the initial cost of the house. In addition to the cost of operation, there are additional costs, which have to be incurred for the maintenance of the house.

As per the studies made, it is said, only 10% of the cost makes the initial cost which goes into making of the house, whereas 90% cost involves the operation and the maintenance of the building, which amounts to nine times the initial cost of the house, when life- cycle cost of the house is considered. Accordingly, if the house has to be made cost-effective in the real sense of the term, then we have to consider both the life cycle cost and the initial cost. Accordingly, it will be prudent to look at the cost in long term perspective and not short term while evaluating cost-effectiveness of the house.

Considering the overall context of cost-effectiveness, even if while designing a cost-effective and resource efficient building, if the initial cost goes up by 2-5%, it should be permitted, if it helps in lowering or reducing the operational and the maintenance cost of the buildings over its life span. Initial higher cost, can be recovered within 3-5 years of operation of house, due to reduced cost of water /electricity bill generated by lower energy and water consumption. Globally, green buildings are known for their capacity, not only to make buildings cost-effective and affordable, but also help affordable housing to graduate from affordable housing to affordable living. Green buildings are known to save upto 40% electricity and 50% water during the usage. Accordingly while designing and constructing houses, if the building is designed as a green building, then it will make building highly cost-effective over entire period of its existence and operation. Studies made globally, have actually demonstrated that the green houses make inhabitants happy, healthy and more productive besides minimizing the cost of living. In fact green buildings are known for their distinct advantages of creating win- win situation, both for owners, tenants and users.

As already said, housing remains highly complex and large consumer of resources and time, so to make it cost- effective it requires lot of efforts, studies and analysis to achieve economy in the cost of the house. Cost of housing involves large number of factors including; size of the house to be constructed, place where construction to be made; climate zone in which house is located; context of the site on which house is to be constructed, design of the house; cost of approval of the house for construction and completion; design efficiency, carpet area; material to be used; specifications of the materials; building technologies to be used for construction; area, thickness and length of walls, number of toilet to be provided; specification for public health and electrification to be used; structural systems; materials for flooring roofing and walls; number of doors and windows/openings; size of openings; amount/type of wood and glass to be used; internal finishes adopted; capacity and capability of the contractor and labour hired; nature of the contract for construction; project management; quality of supervision; amount of wastage of materials ; profit margins of the contractor; cost and time of the money borrowed for construction, government levies, taxes, fees; cost of security etc.

It will be critical and important to understand the role of the designer engaged for the designing of the house and his capability and capacity to design, which will be very vital in achieving the cost-effectiveness in the house. If the house is not designed rationally and logically, then achieving cost-effectiveness will remain a distant dream and will be difficult to achieve. Accordingly, it will be desirable that only qualified architects are engaged for designing the buildings, who have the capacity and capability to design good and cost-effective house. Architect hired should have a good knowledge of materials, construction technologies and knowledge of the latest trends in vogue for promoting cost-effectiveness in the buildings. Knowledge of the architect to design green building will be an added advantage. Structural efficiency and designing and placing of services will remain important to achieve cost-effectiveness in the house. Using materials, requiring low maintenance and replacement will help the house to make it cost-effective.

In search for appropriate options for making housing really cost-effective, text tries to look at different options to make house cost-effective in the real sense of the term . Suggested options for promoting economy; looking at the components which constitute the cost of the house; initial and life- cycle cost; key drivers of cost reduction in terms of planning and designing ;

materials; labour; technology ; infrastructure ; marketing; management; finance; speed etc. However, cost-effective does not mean compromising in any way on the quality of construction/building/ housing. Factors enumerated for cost-effectiveness and their context/ impact has been explained in brief below;

1 Cost of Housing includes:

- i Cost of land
- ii Cost of construction
- iii Cost of Services- water supply, sewerage, sanitation, electricity, mechanical, HVAC, roads, pavement, landscaping, rain water harvesting etc
- iv Government Charges/ levies/fees/taxes– registration/ approvals
- v Maintenance cost and
- vi Cost of operations

- Building cost needs to be viewed in both--- long term and short term
- Building cost needs to be evaluated in terms of -- Initial Cost and Life Cycle Cost
- Short Time cost includes Initial Cost-- Cost of construction of building
- Long Term cost component --- whole life cost.

2. Whole life cost of building includes:

- Initial design cost
- Construction cost,
- On-going operations and
- Maintenance cost ,
- Parts replacement cost
- Disposal cost or salvage value, and
- Useful life of the system or building

3. Initial Building/ Project cost includes:

- Cost of Land, Land Registration, land survey
- Cost of Designing , plan approval
- Cost of developing Site
- Cost of Construction
- Cost of Money
- Carrying Charges
- Government fees and Taxes
- Cost of Advertisement
- Legal expenses
- Cost of Supervision
- Cost of Manpower and Security
- Cost of Equipment and Furniture
- Transportation and Travel Charges
- Cost of Making buildings Green, Energy efficiency
- Cost of Time
- Contractor' Margin
- Builder's Margin
-

Miscellaneous and Unforeseen Charges

4 Key Drivers to Cost Reduction in Housing –Architectural design and Planning– Best option to reduce cost—

- Site layout with optimum utilisation of the land
- Minimising area under roads,, services, parking etc
- Adopting optimum Design solutions- architecturally, structurally, Services etc
- Adopting Simple form,

- Evolving Functional design,
- Optimum utilization of spaces- both within/outside
- Multiple uses of spaces,
- Minimizing area under walls, circulation etc,
- High building efficiency(high carpet area/covered area ratio),
- Low rise- avoiding lifts
- Minimum wood work, minimum doors
- Minimizing variations in the sizes of doors and windows,
- Avoiding large openings
- Room/corridors sizes based on the available sizes of tiles /marbles for avoiding wastage when laying flooring etc
- Using windows/ glass opening sizes based on the available sizes of the wood/glass in the emarket
- Making simple safety provisions for disaster management
- Promoting Standardization
- Reducing Building Load- self/ occupied,
- Designing thin and lean structures
- Minimizing PH fixtures/toilets
- Clubbing all public health services in close proximity.
- Adopting efficient structural system
- Avoiding large spans
- Avoiding large projections
- Avoiding large area under balconies and projections.
- Making optimum use of day lighting
- Making optimum use of prevailing wind direction for cross –ventilation, where required
- Designing with nature
- Making optimum use of Panchbhutas while designing- Prithvi, Agni, Vaayu, Jal and Aakaash
- Making optimum use of orientation
- Making optimum use of sun for heat and light
- Adopt integrated approach to design
- Minimize single loaded corridors, promote doubly loaded corridors to minimize area under circulation
- Minimizing building foot prints
- Designing compact buildings
- Designing Green Buildings –to reduce cost of electricity/water and generating its own energy

5 Materials–

- Using cost-effective materials,
- Using pre-cast, pre- fabricated , re-cycled materials
- Using local materials,
- Using minimum variety of materials
- Using materials in the natural form
- Using recycled materials from demolished structures- bricks etc
- Using available building components from old buildings- doors, windows, fixtures furniture etc
- Using materials made from waste- fly ash bricks etc
- Minimizing use of steel and Cement,
- Using materials requiring minimum maintenance and upkeep/replacement
- Using materials which are light weight
- Using materials which are easy to handle
- Using materials not occupying large space
- Using materials which can be handled by locally available labour and manpower
- Using materials which donot requiring specialized cutting and shaping
- Using materials not requiring specially machinery and manpower for handling
- Using materials available in standard shape and size having little variations

- Using materials requiring minimum material for fixing and bonding.
- Using limited number of variety of materials for flooring, roofing construction to avoid wastage
- Using materials which leaves no wastage.
- Using materials involving less quantity
- Using materials requiring less water for manufacturing/laying/curing
- Using materials requiring less energy for manufacturing- low energy
- Using materials which permit speedier construction
- Using materials involving minimum transportation

6 Labour-

- Minimizing manual labour component
- Using local labour
- Involving labour actively in construction by explaining them the design and construction
- Using skilled labour having knowledge and experience of material used
- Avoiding outside/specialized labour
- Promoting standardization, pre- fabrication, cast in situ components
- Promoting repetitive and simple construction
- Managing labour skillfully for maximizing output
- Taking care of the labour for their basic day to day needs
- Making arrangement for shelter near the site for housing the outside labour- in large projects
- Creating a crèche for the children of the working women in projects having large duration and employing number of women as construction workers with children

7 Technology

- Making use of state of art technologies to promote cost-effectiveness
- Promoting technologies which lead to time reduction besides ensuring appropriate quality
- Using technologies for saving on -- labour, space materials and money
- Using innovative walling and roofing system
- Using Pre-cast and ferro- cement components
- Using pre-cast Aerated Cement Concrete Blocks
- Using technologies involving minimum wastage of materials
- Promoting technologies for repetitive work
- Using technologies for creating materials locally
- Using technologies for brick laying and plastering
- Using innovative technologies for sewage water treatment- phytometric system
- Using technologies which need low operational and maintenance cost
- Using state of art locally available refined technologies

8 . Infrastructure

- Using Solar Energy
- Using Solar water heating
- Promoting Water conservation
- Reducing electricity/water consumption
- Involving low energy consumption equipment
- Using only star rated electrical equipment
- Using water efficient WCs/urinals/ faucets
- Promoting recycling / multiple use of water
- Installing rain water harvesting system
- Using low energy LED lighting instead of florescent lighting
- Using day-lighting to the optimum level
- Making optimum use of landscaping and existing trees/ flora/fauna

- Using local variety of trees for landscaping
- Using landscaping requiring minimum water
- Planning all services near to location of municipal services – to reduce the length of service network
- Promoting recycling and reuse to minimize waste and promote reuse

9 Marketing –

- Minimizing supply chain- inter-mediatory
- Serving End -Users directly
- Promoting economy of scale
- Treating affordable housing as the Volume game and not the profit game
- Promoting Engineered Quality Products
- Promoting disposal of houses in minimum time span
- Constructing houses based on local demand, culture and needs only
- Promoting construction based on affordability
- Tying up with reputed financial institutions for adequate flow of funds and disposal of houses
- Displaying effectively the end products as sample on site.

10 Management

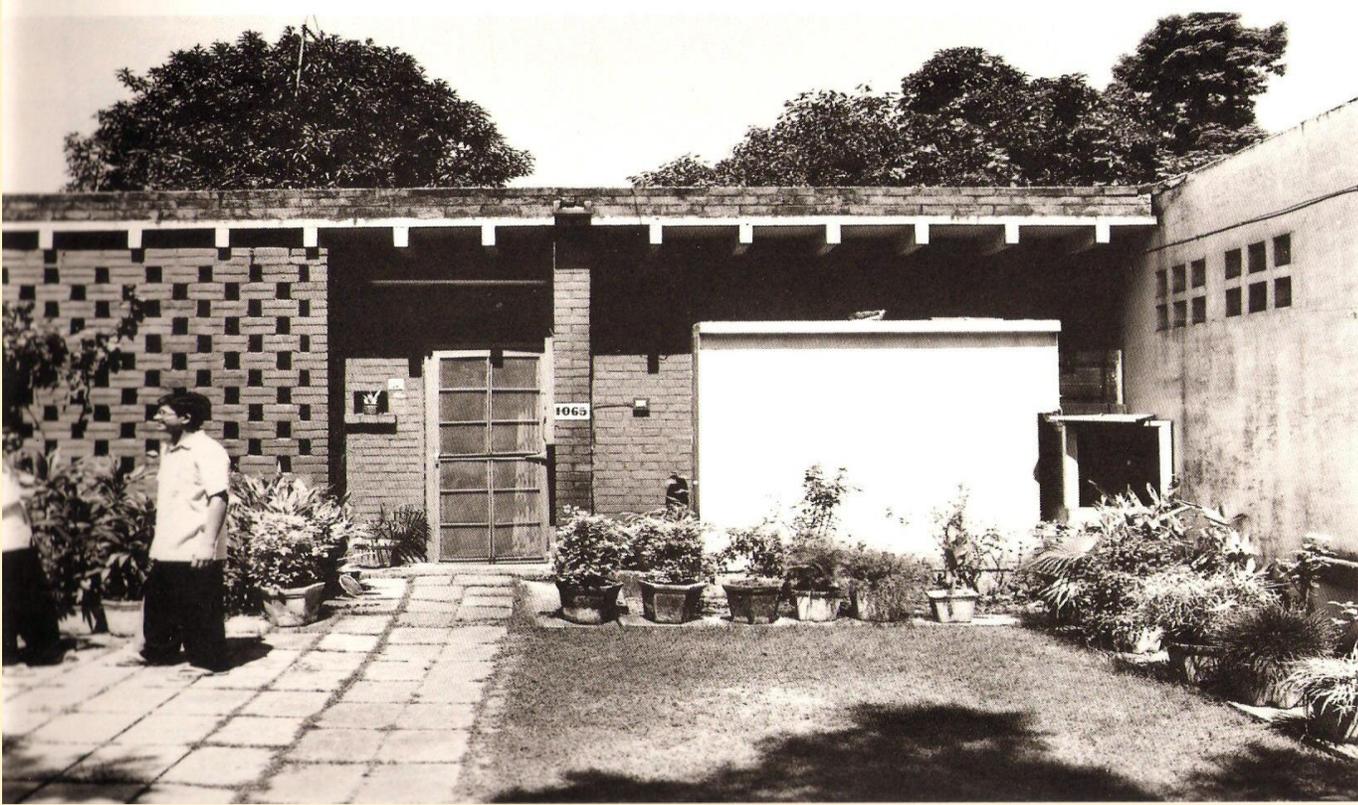
- Promoting Effective and efficient/ professional management for the project
- Using minimum time for construction / completion of building/project
- Minimizing overhead expenses to optimize housing cost
- Entering into long term contracts for essential materials- cement/ steel/sand/ tiles etc
- Outsourcing to trained petty contractors
- Promoting effective checks and balances
- Promoting security of site and materials
- Promoting effective planning of work schedule
- Ensuring quality
- Procuring materials directly from reputed manufacturers
- Avoiding hasty and unscheduled purchases
- Completing project within given time span
- Minimizing time over-run/ cost over-run
- Adopting technologies to minimize construction period

11. Financing

- Reducing cost of money
- Sourcing funds from reputed institutions offering lowest rates of interest
- Completing the project in minimum time span
- Ensuring shorter working capital cycle
- Making beneficiaries part of the project in financing

12 Others

- Sourcing land at most competitive price
 - Keeping Builders, contractor margins low
 - Rationalizing Government charges, taxes, levies and fees
 - Minimising transportation
 - Minimising specialized/hired machinery
-



Chandigarh Experiment with Low Cost Housing

Chandigarh Experiment with Low Cost Housing

INTRODUCTION

Housing, as a sector, is known for its criticality in promoting economy, generating employment and ensuring quality of life for any community, state and nation besides providing identity and security to individuals. Employing 10% (21 million) of the nation's work force and contributing 6% to the nation's Gross Domestic Product, housing is known to promote industrialization with more than 290 industries actively involved in producing products which go into making of built environment. Known for its physical, social, economic and environmental connotations besides role and importance in human living, UNO in its **Global Strategy for Shelter** has captured housing as a universal basic human right in terms of;

“The right to adequate housing is universally recognized by the community of nations. All nations without exception, have some form of obligation in the shelter sector, as exemplified by their creation of ministries or housing agencies, by their allocation of funds to the housing sector and by their policies, programs and projects. Strategy further states that, “All citizens of all states, poor as they may be, have a right to expect their Governments to be concerned about their shelter needs and to accept a fundamental obligation to protect and improve houses and neighborhoods, rather than damage or destroy them.

Looking at the entire context of human living, Government of India came out with three National Housing Policies in the years 1988, 1994 and 2007, which focused on the agenda to provide ‘**Housing for all.**’ In addition, various housing related programs were undertaken during the period spanning over eleven Five Year Plans, to improve the housing and human habitat with particular focus on the poor. However, despite numerous attempts made by central and state agencies, problem of housing remains largely unresolved. The recent initiative of the Government of India through, Prime Minister Awas Yojna (PMAY) mandates that target of housing for all should be met by the year 2022, when India turns 75 after independence. Looking at the massive housing shortage, placed at 24.2 million dwelling units at the end of eleventh five year plan with more than 99% shortage falling in the lower income categories of EWS and LIG, the task remains quiet formidable and challenging. Challenge becomes all the more pronounced because housing ,primarily and essentially, highly resource and material intensive activity. Accordingly, it will be essential that innovative options and state of art technologies need to be evolved and put in place to make housing cost-effective, resource efficient and qualitative in order to achieve the objective of housing for all.

Low Cost Housing

Low Cost Housing as an issue, option and strategy is assuming critical importance in achieving the global target of providing affordable shelter for all. Considering criticality of shelter as a major determinant of quality of life with majority of housing shortage falling in the EWS and LIG categories, low- cost housing appears to be the only option for creating, augmenting and expanding the housing stock in the country. Considering the prevailing high cost of land, materials, labour etc., most of the housing stock remains unaffordable for majority of urban dwellers. Urban migrants, pushed out of rural areas due to poverty, find it hard to secure minimal shelter due to prevailing high land, labour and material cost, which makes housing unaffordable. Accordingly, it becomes important that housing costs are minimized, reduced and rationalized, to make it affordable and accessible to even poorest of the poor residents of any city.

Housing Cost

Low-cost options call for looking at the entire gamut of housing including identifying various components which make it unaffordable. Studies have shown that major determinants of housing cost include Cost of land; Cost of materials; Cost of labour /machinery; Cost of designing; Cost of structure; Cost of approvals; Cost of money (loan sets); Cost of services; Cost of contractor; Cost of transportation; Taxes, levies, duties ; Cost of site development; Cost of machinery/ Construction technologies ; Cost of managing Construction; Cost due to wastage of materials; Cost of time for construction; Specification adopted etc. All these factors cumulatively add to make the cost of housing. In order to minimize the impact of various factors, it is important that they are studied and analyzed objectively. Achieving economy in housing is the most challenging task which

Architects face while designing & constructing the low cost housing. Creating low-cost housing is not a new concept. Cutting cost is not limited to only private sector. In fact public sector is the major contributor to the creation of low cost housing options. This concept has been followed on a large scale by various parastatal agencies while designing public and private housing. Numerous Development Authorities and Housing Boards, operating in the country, have also taken up the challenge of creating affordable shelter for slum dwellers, EWS & LIG categories. HUDCO has contributed substantially in the area of innovative building materials, building technologies, housing designs, etc to create low cost housing options in the country. Charging lower rates of interest and establishing Building Centers etc have also been used as mechanism for promoting low cost housing by HUDCO. However, the major focus has been on reducing the upfront/ initial cost of housing without taking into account their life-cycle cost involving operational and maintenance cost. Since buildings are known to have life spanning over 7-8 decades, sometimes more than the span of human living, accordingly the operational and maintenance cost constitute remains very high- in the range of 90% of the life cycle cost as against only 10% which goes into making of the building. Thus it becomes critical that if housing has to be made cost-effective in real sense of the term, we need to look at the life-cycle cost rather than the initial cost. In fact we now need to graduate from cost-effective housing to cost-effective living in order to make housing affordable. In search for innovative options, paper tries to showcase various innovative strategies used in the capital city of Chandigarh to create cost-effective housing in the early fifties, immediately after the partition of India.

Chandigarh Experiment

Known for its contribution and excellence, in the art and science of architecture, Chandigarh was conceived and conceptualized as the new capital city for the state of Punjab, which lost its capital city to Pakistan during partition of the country in 1947. Known for architectural and planning excellence, Chandigarh is largely ignored for its contribution and innovations made in the parlance of cost-effective built environment known by the name and style as Chandigarh architecture. Considering the financial and technological constraints, Chandigarh has the distinction of making enormous contribution to the low-cost housing through innovative design solutions. Stringent budget and strict adherence to accommodation defined besides climate were the major determinants of Chandigarh Architecture, urban form and housing design, which made Chandigarh a low density and low rise city with government housing forming bulk of construction. Economy in housing was achieved through the use of locally made inexpensive brick as the main material for construction; minimizing wood work and glazing, which were seven times more expensive than brick; keeping window sizes minimum; standardization of doors, windows and sanitary fittings besides using pre-cast roof battens and tiles for economizing on time, shuttering, labour, steel, concrete and using minimum machinery during construction.

Since Chandigarh was built on a new site, greatest challenge in city development was to provide large housing stock for the government employees who were to be shifted to the new city. Accordingly state government accorded highest priority to the construction of houses for its employees. In the initial program it was envisioned to house more than 20,000 people within 3 years of start of construction of the new capital. Initially 3208 dwelling units were to be constructed to which 4000 units were added in 1956 when PEPSU was merged into the state of Punjab. Out of 23,000 residential sites carved out in the first phase of development of the city, as much as 30% residential sites were earmarked for the government housing, which formed majority of the accommodation in the first two decades of city development.

Housing Program

Housing program envisioned for the capital city comprised of 13 distinct types of housing with Type 1 being the largest and Type 13 being the minimal house. Type 1 house was meant to accommodate the Chief Minister of Punjab whereas Type 13 was the smallest house, accommodating the peons and officials drawing salary less than Rs. 50/- per month. Subsequently Type 14 house was also added (cheap house) to accommodate sweepers, washer-men and other low paid employees who were not included in earlier program. In the approved housing program, specification, site area, accommodation to be provided and cost of the house were already fixed /defined by the government. Based on these considerations, houses up to Type 6 were designed as

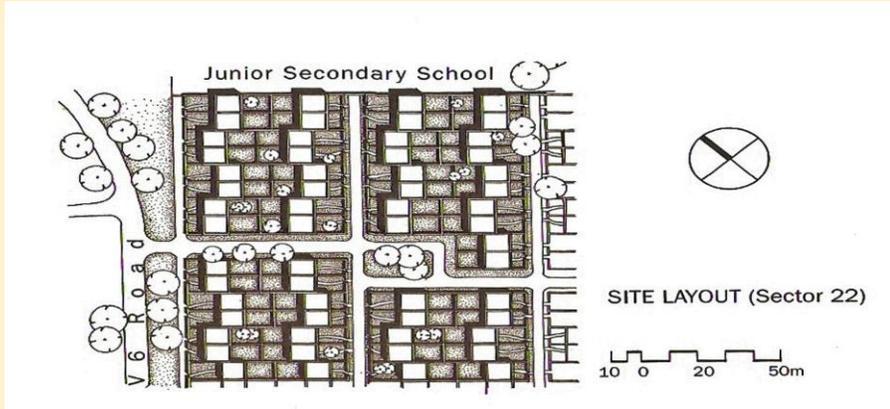
detached two storeyed bungalows, Type 7 was designed as semi-detached duplex houses whereas rest (Type 8-14) were designed as single/double storeyed terraced housing.

While designing the housing program, commitment was to provide minimal house to even poorest of the poor comprising of 2 rooms, a private compound, an independent kitchen, bath, W.C. with piped water supply and water-borne sanitation. Considering the stringent norms of housing defined above, initial team of Architects working on the project struggled to evolve innovative design solutions meant to accommodate lowest income groups which constituted 80% of the total government housing. Besides designing state of art high category housing, Chandigarh today has emerged as the role model to showcase the mechanism to create low cost housing without compromising with the quality of construction, quality of housing and quality of architecture. . In fact low cost housing of Chandigarh has emerged as the major contribution of the new city to the architectural vocabulary of housing in India. With team of three committed foreign Architects including Pierre Jeannerette, Jane B. Drew and Maxwell Fry under the leadership of Le- Corbusier, taking charge of city planning, designing and construction, high degree of economy in the housing cost was achieved through; Innovative and efficient architectural design solutions; Structural simplicity; Functional efficiency; Economy in layout of housing clusters; Small and limited openings; Using local building materials ;Using improved building technologies; Adopting Pre-cast options for roofing; Using Brick jallis on large scale; Clustering of services; Terraced/row housing; Optimization of building heights; Exposing brick work; Minimizing use of wood, glass, steel and concrete besides sharing walls and clubbing of services. In order to showcase and detail out the salient features involving design, services and construction adopted in Chandigarh to promote cost-effective/ low cost housing, design/construction solutions followed in lowest category housing of category 12, 13 & 14 have been taken up as examples. Most of the features remain common in these housing but variation in designs have been used as the mechanism for cutting down the cost and making housing low cost in reality.

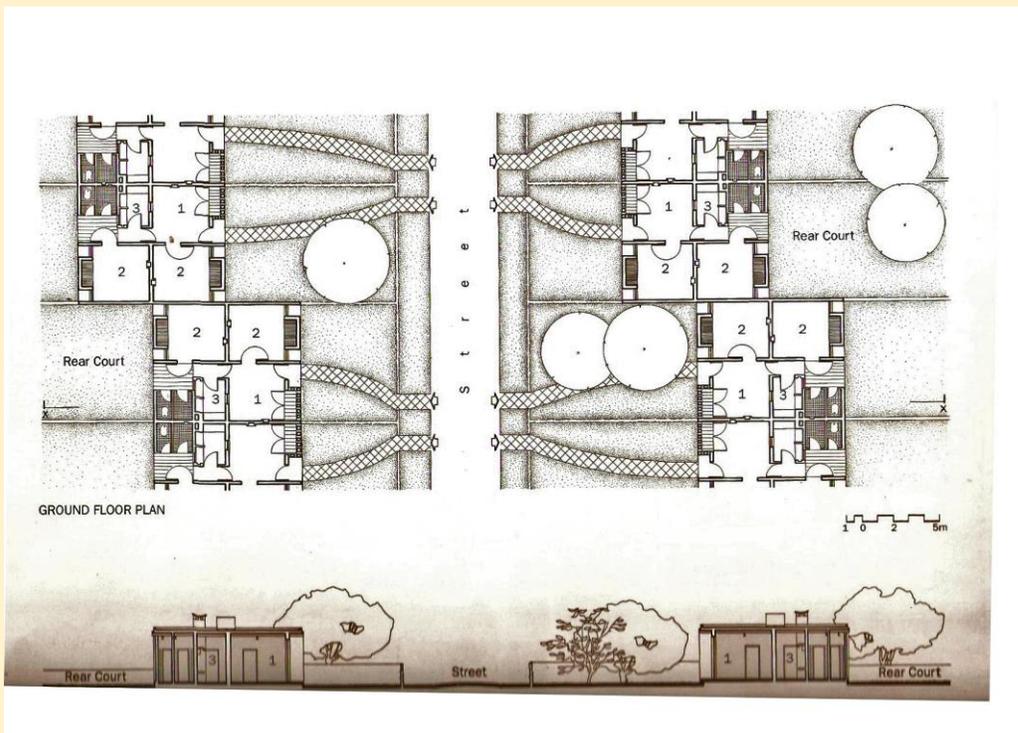
Housing- Type 12

Type 12 housing was meant to accommodate government employees drawing salary between Rs. 50-100 per month. Accordingly, these were meant to be low cost housing. These houses formed bulk of the housing stock created initially, considering large number of employees in this pay bracket. These houses were planned in two broad categories i.e single and double storeyed housing. Both these categories have been planned as row housing providing for a living room, 2 bed rooms besides kitchen and toilet. Bath & WC have been planned separately in order to cater to multiple use. All services including kitchen, bath & WC have been clubbed in the design for individual as well as adjoining houses in order to cut down the cost of services. Position of services has not been changed in upper floors in case of double storeyed houses for reasons of economy. Single storeyed houses have been designed in a number of variants including compact unit and in split design, where planning revolves around a courtyard. In all the houses, brick remains the major building materials with pre-cast battens and tiles creating the roof supported on parallel load bearing walls. Air, light and ventilation in the houses is ensured through perforations made in the brick wall and extensive use of brick jallis. Staircase is supported on shared structural walls and is meant to serve the adjoining houses in case of double storeyed houses. Windows remain small for reasons of economy and are properly shaded through an innovative system of sub-breakers to cut off the harsh sun. Cost-effectiveness in these houses has been the outcome of strategy involving-- Adopting design solutions providing for optimum utilization of space with high degree of design efficiency; using row housing as a strategy to minimize the area under walls; using mechanism of common walls between adjoining houses to economize on space and cost; using most economical building materials for construction. i.e bricks, locally available at that time ;using modular system of design based on most optimum grid of 8'-3"; using walls as the structural elements to support the roof; using pre-cast battens and tiles for the roof (12"x 6' x 2"); clubbing of services within house and of adjoining houses to minimize the cost of services ; extensively using brick jallis for perforation to ensure air, light and ventilation; minimizing size of openings to economize on cost of wood and glass; using standard battened doors with cross braces; bringing large area under exposed brick work to minimize cost of maintenance; variety in design achieved through recessed entrances, small square windows, projecting structural walls, exposed roof battens ;using pre-cast gargoyles for draining rain water instead of cast iron rain water pipes; variation in heights of building with maximum height of room placed at

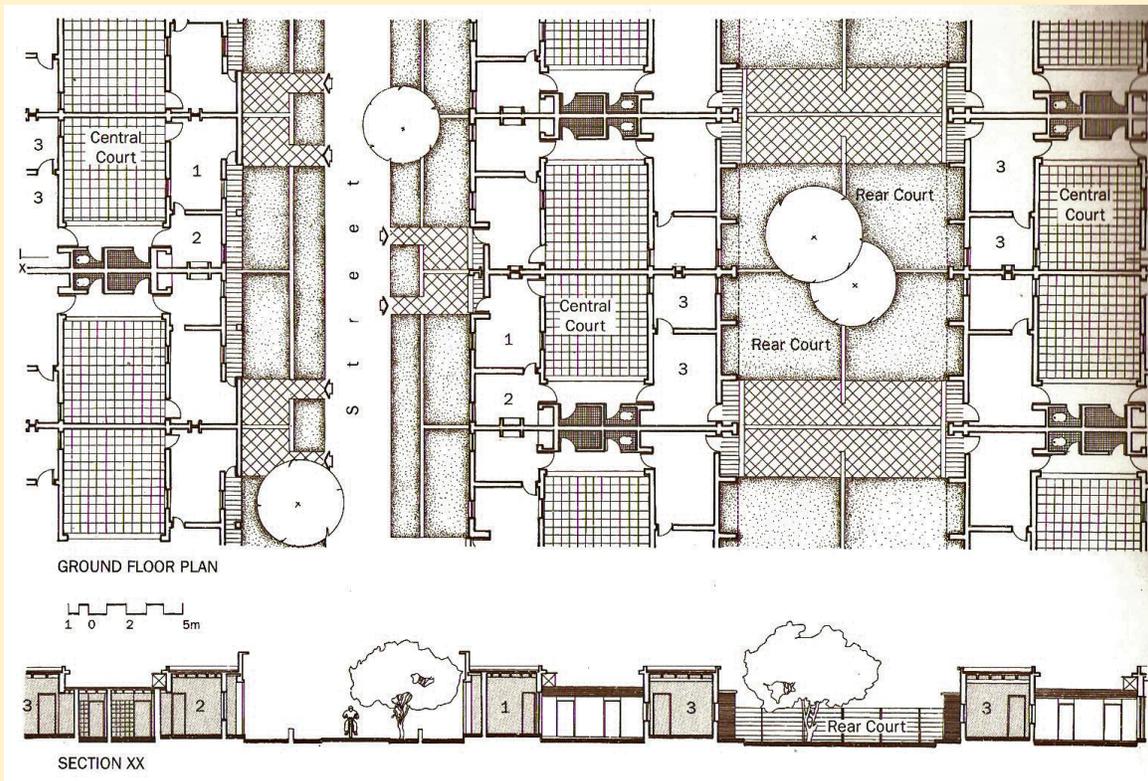
9'-6"; using simple floors made of plain cement; maintaining high quality of construction using quality bricks ; minimising use of steel ,concrete and shuttering.



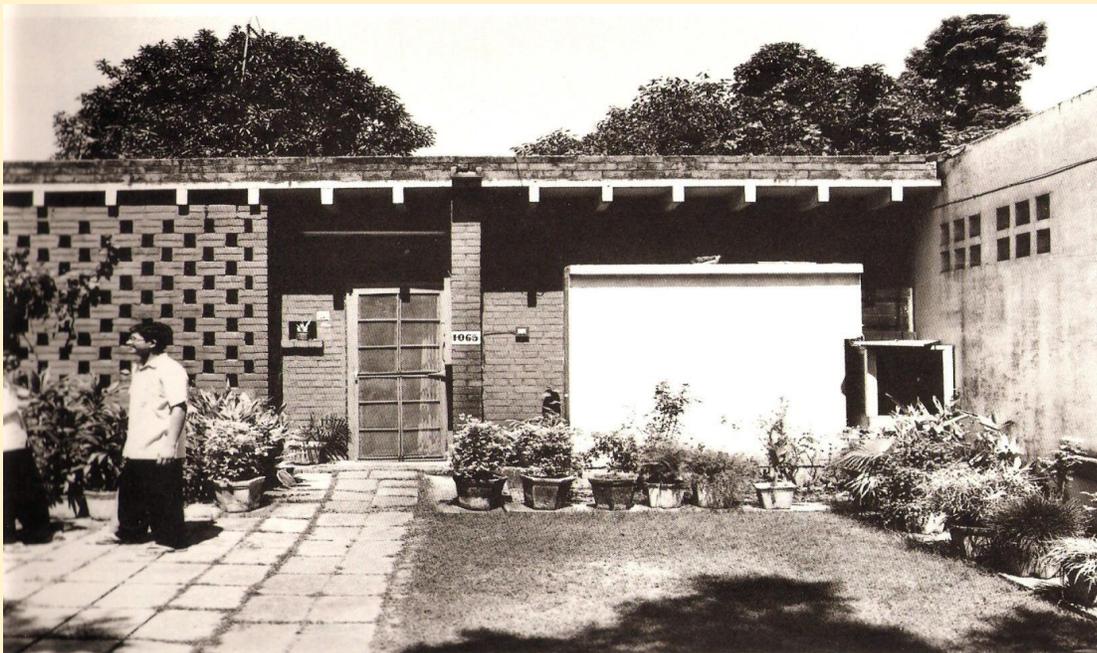
LAYOUT PLAN OF HOUSING TYPE 12-JB, SECTOR 22



FLOOR PLAN & SECTION OF HOUSING TYPE 12-JB, SECTOR 22



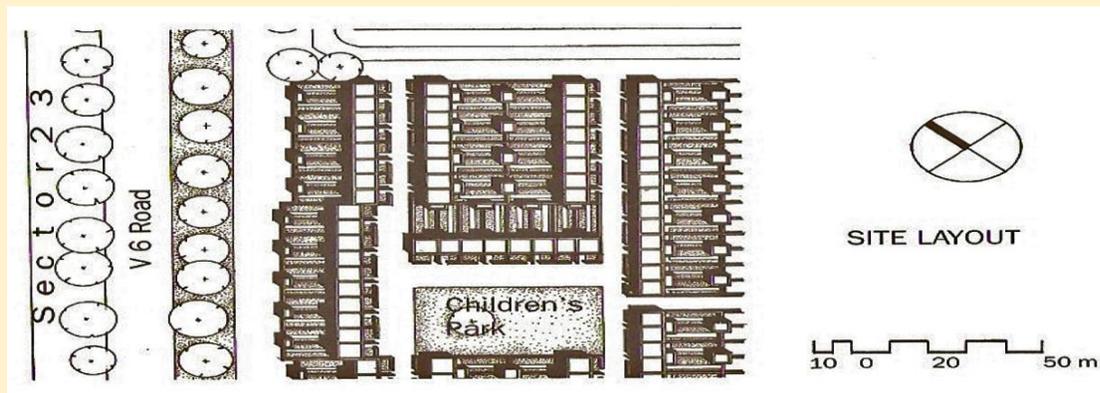
FLOOR PLAN & SECTION OF HOUSING TYPE 12-D, SECTOR 23



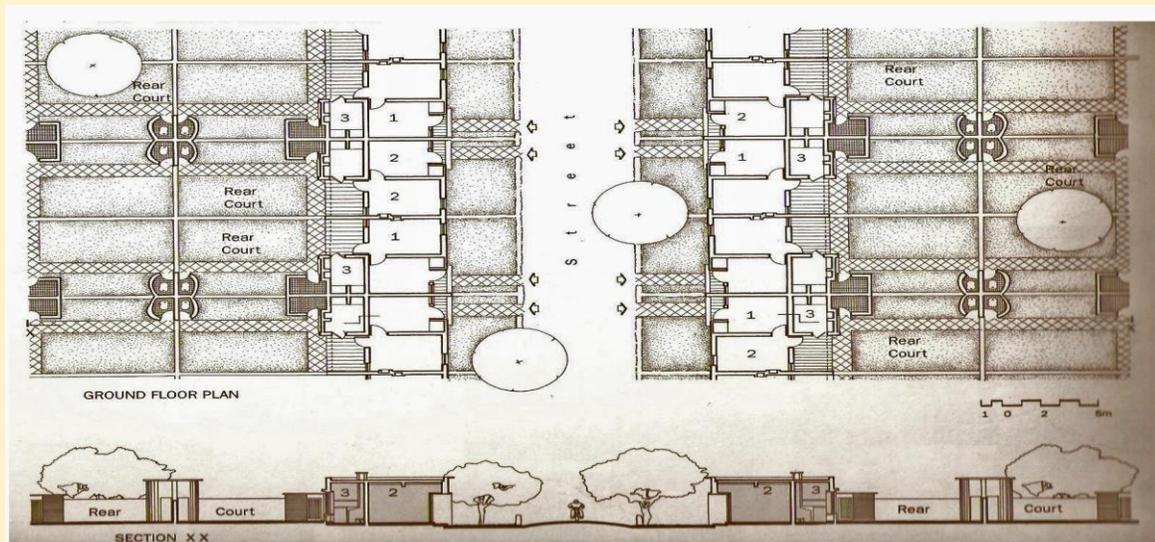
FRONT VIEW OF HOUSING TYPE 12-JB, SECTOR 23

Housing--Type 13,

Type 13 was meant to be the minimal house to be provided in the earlier program in the category of government housing, to which Type 14 was added subsequently. The house was provided in two variants i.e single and double storey. Designed to accommodate employees with salary less than Rs. 50/- per month, houses were designed with focus on economy, efficiency and cost-effectiveness. Two rooms besides kitchen, bath and water closet constituted the total accommodation. Row housing was the pattern adopted with each house sharing its external walls with adjoining houses. Large courtyards catered to outdoor living. Considering the Indian customs, toilets of 4 houses were combined and placed at the end of the courtyard for reasons of economy. The bricks were projected to act as louvers and provide protection to the openings besides minimizing the impact of western sun by the shadows created by projecting bricks. In the double- storeyed variant of the houses, single stair-case was used to serve the upper units to economize on the cost, space and materials. Portion of the verandah and kitchen were kept at lower height to reduce the quantity of materials and cost of construction. The entire design was based on a grid of 8.3” which permitted pre-cast batten and roof to rest directly on the structural walls. Number and size of openings were kept minimum in order to cut down on cost of expensive wood and glass. Major openings were provided with brick jallis to replace the glass and wooden windows. Major features providing economy included: adopting a cluster approach for designing and planning houses; making houses compact with minimum space under circulation; grouping houses on the pattern of row housing with common /shared walls; replacing roads with paved streets for providing accessibility to individual houses; rationalizing height of rooms with lower heights allocated to baths/WCs; clubbing kitchens, baths and WCs for minimizing cost of services; providing open to sky baths in case of single storeyed houses; minimizing/rationalizing size/ number of windows to cut down the cost of wood; using brick jallis to cover large openings for providing adequate light and ventilation; restricting number of doors and using batten and brace type doors for reasons of economy; making walls as structural elements to support the roof; using cost-effective bricks as the key material in construction; creating shading devices by using bricks in a variety of manners to cut down on lintel costs; using pre-cast gargoyles for rain water drainage instead of cast iron pipes; using differential wall heights considering actual requirement, usage, privacy etc; using single staircase to serve number of houses in double storeyed houses; using efficient structural grid of 8.3” with pre-cast battens and tile roof; saving space and cost through staircase supported directly on load bearing walls; promoting economy in services through clustering /repetition on different floors; minimising use of steel and cement; promoting standardization and pre-fabrication instead of in-situ construction.



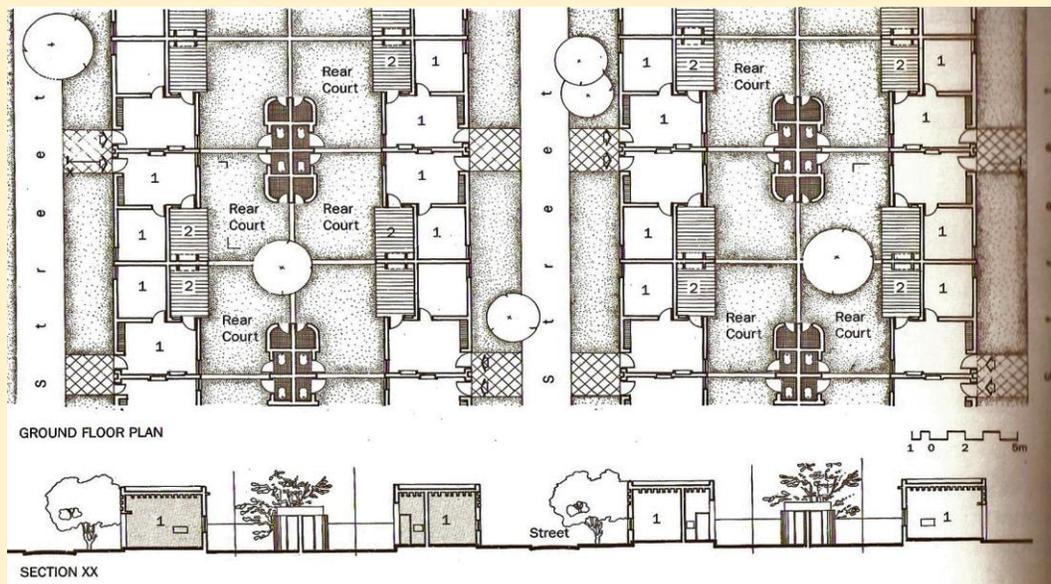
LAYOUT PLAN OF HOUSING TYPE 13-D, SECTOR 22



FLOOR PLAN & SECTION OF HOUSING TYPE 13-D, SECTOR 22

Housing - Type 14,

Planned to accommodate all left out categories below the rank of peons, Type 14 was introduced subsequently to be lowest category of housing in the government sector. Focus of the designing was to achieve high degree of economy besides making housing cost-effective, without compromising with the quality of construction/services.. Accommodation provided included norm of 2 rooms, made applicable for the first time in Chandigarh, besides providing separate independent toilets. Objective of low-cost housing and economy in this category of housing was also achieved through: adopting a cluster approach for planning and designing; making houses compact and space efficient with optimum area under rooms, walls and circulation; shared common walls for economizing on space, material and labour; adopting most efficient grid considering the most economical spans of pre-cast battens; using walls as the structural elements; sharing of services, i.e. toilets and baths of 4 houses to economize on service network; adopting pre-cast technology of battens and tiles for roofing; supporting roof battens, directly on load bearing walls avoiding cost of shuttering etc.; eliminating use of steel, concrete & R.C.C; Using locally available cost-effective brick as the major building material for construction; limiting size/ number of openings and doors/windows to minimize the quantity of wood; making extensive use of ethnic brick jallis in large openings for light and ventilation and avoiding expensive glass and wood; restricting height of rooms (9'6") and providing lower height for Bath/WC block (7'6"), for economizing on quantity of material/labour ; replacing metallised roads with paved streets to minimize cost of external infrastructure; creating multipurpose verandah for cooking/eating and other family needs; using pre-cast gargoyles to drain off rain water instead of cast-iron pipes; standardization of doors, windows and other structural elements and using cost-effective specifications requiring minimum maintenance.



FLOOR PLAN & SECTION OF HOUSING TYPE 14-D, SECTOR 15

Conclusion

Even after passage of more than six decades, when majority of these low cost house were constructed, they still stand testimony to their quality and cost-effectiveness which have made them brand ambassador of city beautiful. These houses have amply demonstrated that construction cost can be rationalized and scaled down without compromising with the quality of built environment by adopting innovative design solutions; making housing compact; using locally available building materials; using materials in the natural form; making innovative use of materials; evolving climate responsive design; avoiding costly materials; using innovative building technologies involving pre-cast and pre-fabrication; using ethnic brick jallis for spanning large openings; adopting efficient structural grid; rationalizing heights; standardizing/ mass production of components; clubbing and sharing of services/walls; adopting, cluster approach for grouping of houses; and economizing on external development etc. These concepts hold high degree of validity and potential even in the present context to achieve the cost rationalization and creating low- cost housing besides making housing for all a distinct reality.

Low Cost Housing as an issue, option and strategy is assuming critical importance in achieving the global target of providing affordable shelter for all. Considering criticality of shelter as a major determinant of quality of life with majority of housing shortage falling in the EWS and LIG categories, low- cost housing appears to be the only option for creating, augmenting and expanding the housing stock in the country. Considering the prevailing high cost of land, materials, labour etc., most of the housing stock remains unaffordable for majority of urban dwellers. Urban migrants, pushed out of rural areas due to poverty, find it hard to secure minimal shelter due to prevailing high land, labour and material cost, which makes housing unaffordable. Accordingly, it becomes important that housing costs are minimized, reduced and rationalized, to make it affordable and accessible to even poorest of the poor residents of any city.



Difference between Plotted Development (PD) and Flatted Development (FD)

Difference between Plotted Development (PD) and Flatted Development (FD)

Housing, because of its magnitude and quantity, remains the major and important component of any city. Occupying largest proportion of urban land, housing is also known to be the definer of the personality of the city. Urban housing comes in number of variants. However, these variants can be divided into two broad categories. These categories are generally defined as plotted development and flatted development. These categories have their own advantages, disadvantages, limitations and implications. Debate has been going on to understand the implication of these typologies in terms of physical, social, economical and environmental implications including cost-effectiveness and utilization of land. Accordingly attempt has been made to understand the context of these typologies in the parlance of economy, cost-effectiveness, operational efficiency, utilization of land, creating housing stock, pattern of development, land ownership etc

i. Pattern of Development

PD- Involves development based on and comprising of number of plots having variable size- both smaller and larger size

FD- Involves development based on plots having much larger area as compared to plotted development

ii. Pattern of Land Ownership

PD- Land generally owned individually or jointly in the name of few family/friends to promote individual housing

FD- Land held in joint ownership of all stakeholders comprising of all the flat owners.

iii. Pattern of development- Height

PD- Low rise-- going generally up to 3/4 stories

FD- High rise --generally going 4 or more stories.

iv. Land Utilisation

PD-Low level of land utilisation -with larger area going under roads, opens spaces and community facilities

FD- High land utilisation--with smaller area going under roads, opens spaces and community facilities

v. Population/Housing Density

PD—Low density and low population-- due to individual ownership, depending on size of plots carved. Smaller the size of plots, higher will be the density and population. Population also depending upon individual capacity, resources or willingness to construct entire or part of building

FD- High density-- due to joint ownership depending upon combined resources and combined effort to provide dwelling to all land owners, developed to full capacity using full density and floor area ratio.

vi. Open Spaces

PD- Small in area - Open spaces available within plots and held in private ownership with limited use only by the owners- Increases need for provision of large common open spaces at the neighbourhood/sub-sector/sector level for the community.

FD- Large in area- jointly held in ownership to be used widely for the benefit of all the owners. Reduces making provision of large open spaces at the sector level

vii. Cost of Construction

PD- Generally high—due to independent construction and being low rise buildings

FD- Generally low-- due to multiple and repetitive design of dwelling units and sharing of the foundation, walls and open spaces etc

viii. Social Sustainability

PD- Low social sustainability-- due to lower social interaction promote by individual living

FD- High social sustainability-- due to higher social interaction based on community living

ix. Safety and Security

PD—Low order of safety and security - due to individual living

FD- High degree of safety and security--due to community living

x. Pattern of Living

PD- Promotes individual living leading to anonymity and exclusion

FD- Promotes community living leading to higher social interaction

- xi. Design of Unit**
 PD- More flexibility in design--due to single unit and limited ownership
 FD- Low design flexibility --due to multiple units and joint ownership leading to repetitive nature of design of dwelling units
- xii. Cost of Maintenance of Services**
 PD- Higher cost-- due to individual maintenance. Expensive considering life-cycle cost of building.
 FD- Low maintenance cost- due to collective maintenance done by society created by the flat owners . Monthly maintenance charges are paid by each flat owner. Cost- effective considering life –cycle cost
- xiii. Creation of Housing Stock**
 PD- Low housing stock- due to non-construction on plot in one go leading to lower land utilisation
 FD- High housing stock- due to construction of all flats in one go – leading to higher land utilisation
- xiv. Affordable Housing**
 PD- Makes cost of housing high and unaffordable-- due to land cost and cost of construction-- . Inefficient method to create large affordable housing stock
 FD- Makes housing cost-effective and affordable-- due to shared land cost and lower cost of construction, best method to create large housing stock
- xv. Sustainability**
 PD- Low sustainability-due to large dependence on common facilities and services provided in the sector
 FD- High sustainability- due to provision of common facilities and basic services as part of group housing
- xvi. Technologies**
 PD- Offers limited options for using state of art construction technologies and minimising cost
 FD- Offers large options for using state of art construction technologies to promote cost and material efficiency
- xvii Green & Energy Efficient Buildings**
 PD- Offers limited effective /efficient and cost-effective options-- for promoting energy efficiency, rain water harvesting, ground water recharging and solid waste management
 FD- Offers large effective/efficient and cost-effective options--for promoting energy efficiency, rain water harvesting , ground water recharging and solid waste management- based on community living
- xviii Ground Coverage**
 PD- Ground coverage generally higher-- as compared to flatted development
 Ground coverage and FAR varies and gets lower with increase in plot area.
 Number of development units and population density not defined for plotted development
 FD- Ground coverage generally low as compared to plotted development
 . Ground coverage and FAR donot change even with increase/decrease in plot area.
 Development largely governed by pre-defined density, floor area ratio and size of dwelling units.
- xix Parking Norms**
 PD- Parking norms are generally not defined for plotted development.
 FD- Parking norms are clearly and precisely defined--for flatted development, depending on the size and category/number of dwelling units
- xx Rate of Return**
 PD-- Offers better internal rate of return for developers/owners due to higher demand from investors, clear land ownership and faster disposal
 FD - Offers comparatively lower internal rate of return for developers/owners – generally due to lower demand from investors, no defined title to land and slow disposal
- xxi Completion of Project**
 PD— Faster Completion of projects as compared to built up flats
 FD—Takes large time for completion of project- due to scale of project and large numbers of houses to be constructed and problem of co-ordination and co-operation among members of society
- xxii Risk .**
 PD—Lower risk- due to quick approval and faster disposal, with low risk due to minimum construction involved and faster exit from project
 FD— High risk- due to multiple approvals and slow disposal, with higher risk due to large scale construction involved and slow exit from project.

xxii Affordability

PD— Plots are more affordable and cater to wider segments of society by offering numerous options to buyers due to varying sizes of plots

FD— Flats generally become unaffordable and offer limited options to buyers due to their built up nature, predefined design and area.

xxiii Acceptability

PD— Plots are always acceptable and liked by buyers even in adverse market conditions due to human psyche of owning land. Plots are universally accepted both in large and small towns.

FD—Flats have low level of acceptability particularly in the adverse market conditions. Flats have least acceptability in small towns and are generally favoured in the large towns.

xxiv Developer's Preference

PD- Plotted development --has always been preferred by developers having large chunk of land and resources-- due to early exit and making large profit with minimal effort

FD— Flatted development-- has generally been preferred by small developers having smaller chunk of land with limited resources .

xxv Land Cost

PD- Low land cost in majority of cases promotes plotted development with large plot area. Plot size and Land Cost are negatively correlated with plot size reducing with increase in land prices..

FD- High land cost discourages plotted development but leverages flatted development. Land Cost and building footprints are negatively co-related with flat size - reducing with increase in land prices.

xxvi Housing Stock

PD- Plotted development –worst and most inefficient option for creating large housing stock

FD— Flatted development—best and most cost-effective option to create large housing stock at most affordable price

xxvii Living

PD- Plotted development –best option for individual based/ family living

FD— Flatted development—best option for living in case of individuals, working/old age couples etc

xxviii Safety

PD- Plotted development –low level of safety and security

FD- Flatted development-- High level of safety and security

xxxix Self- sufficiency

PD- Plotted development –less self-sufficiency-high dependence of neighbourhood level facilities

FD— Flatted development—More self-sufficiency- due to provision of common facilities- parks, shops, community spaces, crèche, school etc within the society complex

• *The strategic components of the Smart Cities Mission are city improvement (retrofitting), city renewal (redevelopment) and city extension (Greenfield development) plus a Pan-city initiative in which Smart Solutions are applied covering larger parts of the city. Area-based development will transform existing areas (retrofit and redevelop), including slums, into better planned human settlements, thereby, improving liveability of the whole cities. Development of well-planned and fully serviced new areas (green field) will be encouraged around cities in order to accommodate the rapidly expanding population in urban areas. Application of Smart Solutions will enable cities to use technology to improve infrastructure and services.. Comprehensive development in this way will improve quality of life, create employment and enhance incomes for all, especially the poor and the disadvantaged, leading to inclusive cities- **MoHUA***



Promoting Cost- effectiveness in Housing through Good Architectural Design

Promoting Cost- effectiveness in Housing through Good Architectural Design

Cost has always been an issue for any building to be constructed along with quality and time taken for construction. The three remain connected, depending upon one another. Cost is known to be the major driver of the quality of construction. Time, as a component, has also major implications for the cost. Longer the time taken for construction, higher will be the cost of construction. Higher is the quality of building envisioned, more will be the cost of building. Cost of building has also been debated in term of life cycle cost and the initial cost. It is estimated that only 10% of life –cycle cost goes into making of building, whereas 90% cost goes into the operation, maintenance and upkeep of building. Thus in order to make a building really cost-effective, its life-cycle cost has to be seen and analyzed.

Cost depends upon the processes of planning, designing and construction of building. Role of architectural design in making building cost- effective, remains critical. If a building is not designed rationally, it can never be cost-effective. In addition, role of material selected, technology used for construction and structural design adopted, holds weightage in promoting cost-effectiveness in building. It is said, buildings have to be design lean and smart to make them cost-effective. Adoption of passive design strategies also make buildings operationally cost-effective. Designing for proper services, both electrical, public health and HVAC also hold relevance for making building economical and cost-effective. Looking at the core of the issue of cost-effectiveness, it will be critical to understand the context of good architectural design as promoter of cost-effectiveness in buildings. Good Architectural design for any cost-effective housing should be based on the principles of—

- Design a compact building with minimum footprints of building
- Design buildings based on specified norms and standards to avoid their over/under-designing
- Design with least amount of waste & negative spaces.
- Stick to right angles and simple room shapes to minimize complexity of construction.
- Build multi-storied construction- since foundation and roofing costs remain comparatively high.
- Don't increase slab heights
- Plan for volume rather than floor area
- Don't design for additional floors/spaces , if not required
- Adopt a shape which leads to minimum length of walls
- Achieve high Building efficiency- Carpet Area-- i.e usable area x100/gross area
- Minimise area under walls circulation and amenities
- Make optimum use of space and where feasible make multiple use of space.
- Minimize area under walls-- using options of pre-cast concrete blocks, 71/2 “ walls instead of 9” walls
- Evolving design having low wall area/floor area ratio
- Adopt a system of Sharing --building common walls between adjoining houses to economize on space, labour, materials, time / structure.
- In narrower and longer plots having limited options of light – mechanism of courtyard could be used for ensuring air, light and ventilation to rooms.
- Courtyards ,where provided, should be effectively integrated as part/ extension of living spaces
- Covered balconies, where provided, should be used as extended space of the room to which attached.
- Design for flexibility of spaces
- Avoid smaller sub-division of spaces.
- Club public health services together--on a floor to minimize the cost of services.
- For multi-storeyed buildings--- repeat toilets one above other
- Keep your spaces that need plumbing close together or above each other to minimize cost
- Design all public health services near to supply / drainage network to reduce length of pipes and cost
- Look for life-cycle cost and not initial cost.
- Design Green Buildings which save lot of water and electric energy- makes building cost- effective over entire life cycle

- Provide standard sized doors with limited variations
- All finishing/fittings- floor, windows, glass, paneling etc designed based on standard size products available in market- to minimise wastage etc
- Build to match standard material dimensions- for example Plywood is 4' x 8'. Thus it is best to build in 4' modules.
- Using pre-caste /pre-fabricated products to the extent possible- doors/ windows cupboards etc to minimize cost
- Avoid fancy/false/decorative structures in building
- Make your rooms versatile- to optimize space utilization-- do you really need a living room --same space can serve many uses.
- A guest room can be an expensive luxury
- Avoid corridors to extent possible- Corridors can be dead space-- only used for moving between adjacent spaces. Wherever used, try to make it doubly loaded to minimize area under circulation.
- Think long term --as cost of ownership spans may be many years. Some extra insulation and passive heating / cooling may be beneficial over the length of your home ownership. .
- Select window placement well-- they are costly - in first cost and in energy loss---select standard window sizing.
- Keep bathrooms to a minimum, --most expensive - room per square foot in home.
- Try to design multi use bathrooms--- with private enclosures for shower, wc and sink--allowing 3 people using one bathroom at same time.
- Evolving design on optimum structural grid
- Design lean --to reduce structural load to minimise use of steel/concrete
- Use innovative technologies-- Rat-Trap brick walls to reduce number of bricks and mortar used, compact mud block
- Use new cost- effective materials ---aerated cement concrete blocks to reduce the width of walls, number/ size of joints, use of cement etc
- Use UPVC/ Aluminum Windows instead of teak wood, same goes for doors, use flush doors instead.
- Use same flooring material in all rooms/ toilets, to reduce wastage.
- Don't compromise on quality--reduce your requirements to fit your budget
- Use local & contemporary materials in design
- Make provision in the design for using materials in the natural form
- Use materials having minimum wear and tear- requiring minimum maintenance and replacement
- Plan properly/ rationally Electrical/Plumbing- avoid excessive provision
- Plan to use lightweight bricks to CC blocks ---reduces dead load in structural design
- Minimize projections and too many balconies, they remain expensive
- Provide windows , sufficient for providing day lighting and ventilation in the room- avoiding glare
- Plan with nature and make best use of Panchbhutas- Prithvi, Jal, Agni, Vayu and Aakash
- Make optimum use of orientation to have best advantage of the sun, air and light
- Make climate as the governing factor for evolving the building design
- Look at the climate in three contexts--regional climate, city climate and site climate before planning and designing the buildings.
- Plan living and habitable areas in the best orientation and non-living areas in the worst orientation.
- Make optimum use of available flora and fauna to cut off excessive heat/hot air.
- Propose flora and fauna which is local, to minimize cost of maintenance, use of water and to ensure survival of plantation
- Promote day-light harvesting to light the basements and areas having poor access to natural light
- Promote passive mechanisms to minimise the use of mechanical means for heating, cooling and ventilation
- Minimise the number of doors and woodwork, because they remain expensive
- Make rain water harvesting and solar energy integral part of design.



REINVENTING CONSTRUCTION SECTOR IN INDIA

REINVENTING CONSTRUCTION SECTOR IN INDIA

Introduction

It is said, “History of construction industry is the history of growth and development of human civilisations, building materials, construction tools and technologies. Construction starts with planning, designing, and financing; it continues until the project is built and made ready for use. Large-scale construction requires collaboration across multiple disciplines involving project manager, architect, design engineer, construction engineer/architect to supervise it. Evolving design and execution need consideration of zoning, environmental impact assessment, scheduling, budgeting, construction/site safety, availability and transportation of building materials, logistics, site management, manpower/machinery deployment, delays and bidding”.

Construction sector is known for its dualities and contradictions. Construction, as a sector, is known for its role and value in leveraging economies, promoting industry, generating employment and ensuring development of any community, state and nation. Construction sector is also known to be large consumer of energy, resources; promoter of global warming and responsible for creating large carbon footprints besides making people healthy and sick. 11% of India’s GDP is contributed by the construction sector besides having 1/6th share(35 million) in the total employment generated in the country. Sector ranks second in terms of total value output in the country. In the year 2015, India ranked fourth globally in the construction output after China, United States and Japan with total output placed at 333 billion US dollars. In India, construction has accounted for around 40 per cent of the development investment during the past 50 years and created assets worth over ₹ 200 billion. Considering ever increasing number of construction projects, their complexity and role and importance in community and national development, it becomes critical that construction sector is made more effective, efficient, productive and sustainable through advanced technologies and integration of many sub-systems so that full potential of the sector is realised to make India, global leader in the sustainable construction practices.

Sustainable Construction

Construction industry, known for its energy, resource and environmental implications has to be sustainable in order to minimise the adverse impact of global warming, carbon emission and ozone depletion. Studies made by United Nations Environment Programme (UNEP), has stated that “*the increased construction activities and urbanization will increase waste which will eventually destroy natural resources and wild life habitats over 70% of land surface from now up to 2032*”. Study further states that production and transport of building materials are known to consume 25 - 50 percent of all energy used, whereas construction industry counts for 47% of CO2 emission. Therefore looking at global warming and other environmental issues, construction sector has to be made sustainable.

In 1994, Professor Charles J. Kibert, called for construction industry to be sustainable during the final session of the ‘First International Conference of CIB TG 16 on Sustainable Construction’. He defined it as “The creation and responsible management of a healthy built environment based on resource efficient and ecological principles”. Comparing with the traditional concerns in construction (performance, quality, cost), he said concept of sustainable construction revolves around; minimising resource depletion, environmental degradation and creating healthy environment.

Six principles which define sustainable construction include;

- Minimize resource consumption (Conserve)
- Maximize resource reuse (Reuse)
- Use renewable or recyclable resources (Renew/Recycle)
- Protect the natural environment (Protect Nature)
- Create a healthy, non-toxic environment (Non-Toxics)
- Pursue quality in creating the built environment (Quality)

Sustainable construction, creates a win-win situation for owners, users, occupants, community, state and nation by lowering the life-cycle cost, promoting environmental protection, reducing waste, conserving resources, minimising energy consumption, promoting economy, generating employment; promoting choice of more sustainable, locally sourced products and materials; minimize amount of waste and water pollution; using rainwater and recycling waste water etc.

Prefabrication

Looking at the fact that India is passing through an era of rapid and massive urbanisation coupled with government launching number of missions and yojnas involving, ‘Housing for all by 2022’; constructing millions of latrines pan India under Swatchh Bharat Mission; creating space for millions of street vendors and homes for houseless in urban centres under National Urban Livelihood Mission; developing 100 cities under Smart City Mission besides taking up development under HRIDAY and AMRUT; India needs to create large built space, to take care of its needs of shelter, healthcare, education, industry, trade and commerce, entertainment, leisure, transportation etc. Considering the huge task of creating enormous built space and its physical, environmental and economic implications, construction sector needs to be made more effective and efficient by using state of art construction technologies to promote cost- effective, resource-efficient, sustainable and eco-friendly construction.

Pre-fabrication, as an approach, can go a long way in making construction sector more rational in terms of cost, time, economy, quality, sustainability, resources, material etc. Looking at the fact, that pre-fabrication/modular construction has proved its worth globally, it will be appropriate that this technology is also made operational in India on large scale. Despite limitations, prefabricated and precast construction methods offer numerous benefits involving optimal materials usage, recycling, freedom from pollution; improved construction safety; year round fast construction, reduced pilferage; better quality control besides providing a real alternative to on-site processes. With improvement in manufacturing technology, prefabricated construction is proving to be an extremely viable option. Use of prefabrication can significantly improve the efficiency and competitiveness of the construction industry. With construction industry facing acute shortage of onsite quality skilled labour and challenge of making structures leaner, it is time ripe enough to promote adoption of large scale offsite prefabrication/modularization solutions’

New Technologies

Considering the magnitude of construction to be undertaken in the urban and rural sectors, putting in place new state of art technologies will be critical to redefine the construction sector in India and to make it more productive and efficient. New technologies will have great relevance if the construction sector is to be made cost-effective, time-efficient and providing best of quality besides generating minimum waste. Despite rapid strides made in the infrastructure construction, building construction remains a laggard so far new technologies are concerned.

Globally, new techniques of building construction including 3D printing technology, in the form of *additive building construction*, similar to the additive manufacturing techniques for manufactured parts, has already revolutionised the construction sector. It is making possible to construct small commercial buildings and private habitations in around 20 hours, with built-in plumbing and electrical facilities, in one continuous operation, using large 3D printers. Working versions of 3D-printing building technology are already printing 2 metres (6 ft 7 in) of building material per hour as of January 2013, with the next-generation printers capable of 3.5 metres (11 ft) per hour, sufficient to complete a building in a week.

. Over the years, the construction industry has seen a trend in IT adoption, Nowadays, construction is starting to see the full potential of technological advancements, moving on to paperless construction, using the power of automation and adopting BIM, the internet of things, cloud storage and co-working, and mobile apps, implementation of surveying drones, virtual reality, augmented reality, project management etc. Looking at the emerging challenges of rapid urbanisation and globalisation, Construction industry is trying to come out of its past shadow. With science and technology leveraging the construction industry, the pace of change in construction practices is progressing and accelerating. India needs to adopt these emerging technologies for making construction sector most vibrant and productive.

Innovative Building Materials

Materials are known to have critical role in determining the future of the construction industry, design and structure of buildings. Innovations are being made on sustained basis to search for new materials which would facilitate the construction of cost-effective and sustainable buildings. Since buildings consume more than 30% of total materials sourced from nature, accordingly, there is an urgent need to minimise this exploitation and create materials which are lightweight, small in dimension, requiring minimum resources and minimum energy for its production. Such materials need to be stronger, resistant to pollution, heat and cold, having minimum wear and tear requiring minimum maintenance and upkeep. Researchers and various institutes are taking materials and technologies to the next level. Development in concrete and various other construction materials has been aggressive and intense. Few innovative construction materials that could revolutionize the building sector have been detailed below;

- **Translucent wood as construction material**

Stockholm's KTH Royal Institute of Technology has invented , *translucent wood* ,that can be mass produced and used commercially to develop windows and solar panels. It is created by first, removing the lining in the wood veneer and then through nano-scale tailoring. The resulting effect creates translucent wood that has various applications in the construction industry. As a low-cost, readily available and renewable resource, it has enormous capacity to make projects cost-effective by reducing cost of resource.

- **Hydro-Ceramics**

By combining clay and hydro-gel (group of polymeric materials), students at the Institute of Advanced Architecture of Catalonia have created a new material that has a cooling effect on building interiors. Hydro-ceramics have the ability to reduce indoor temperature up to 6 degrees Celsius. Its cooling effect comes from the presence of hydro-gel in its structure which absorbs water, up to 500 times its weight. The absorbed water is released to reduce the temperature during hot days. Incorporating an innovative cooling system in the current building structure has made Hydro-ceramics one of the coolest building materials to revolutionize construction. More progress in this direction may make household air conditioners obsolete.

- **Bricks made out of Cigarette butts**

6 million cigarettes, manufactured annually produce 1.2 million tonnes of cigarette butt waste, impact environment through arsenic, chromium, nickel and cadmium which enter the soil and harm nature. To reduce the impact on the environment, researchers at RMIT developed lighter and more energy efficient bricks by infusing cigarette waste in fired-clay bricks This helps in not only reducing waste, but also producing bricks that are lighter and requires less energy for manufacturing .

- **Martian Concrete**

North-Western University has created concrete that can be made with the materials available on Mars. The new concrete which doesn't require water, as an ingredient to be formed, can make this innovation truly beneficial for the development of structures in Mars. For making the Martian concrete, sulphur is heated at 240° Celsius which melts it into a liquid. The Martian soil then acts as an aggregate and once it cools down we get Martian concrete! According to the researching team, the ratio of Martian soil and sulphur needs to be 1:1.

- **Light Generating Cement**

Dr. José Carlos from UMSNH of Morelia, has created low energy smart cement with ability to absorb and radiate light. Considering the fact that construction industry is fast moving towards resource and energy efficiency, the implications of cement acting as a 'light bulb' have great potential by using them in swimming pools, parking lots, road safety signs etc Cement is produced by the process of poly-condensation of raw materials such as river sand, industrial waste, silica, water and alkali at room temperature.

- **Biologically Produced Furniture**

Biologically produced furniture made by a material called Mycoform, by combining wood chips, gypsum, oat bran together with a fungus called Ganoderma lucidum, has capacity to create furniture from waste, when used commercially. Fungus is added, as it has the ability to disintegrate waste products and leave a strong structural material. This combined effect creates plastic furniture that through time combusts. Process is low energy, pollution free requiring low technology for its creation.

- **Pollution absorbing bricks**

Pollution absorbing bricks, sucks in pollutants in the air and release filtered air. Designed to be part of a building's ventilation system, it has a two layer facade system, with the specialist bricks on the outside and standard insulation on the inside with central cyclone filtration system that separates out the heavy air particles from the air and collects them in a removable hopper. Its design is very similar to a vacuum. This technology can be easily applied to the current construction processes. By performing wind tunnel tests, it was proven that the system can filter 30% fine particle pollutants and 100% coarse particles such as dust.

- **Self healing concrete**

Dutch civil engineer, Dr.Schlangen has invented a self healing concrete which involves heating the broken pieces together for joining. Once the melted material cools down, it joins together. In case of concrete roads, the broken concrete can be made to heal by making a special vehicle pass on the road every four years .It is estimated that this innovative technology could save millions annually.

Skilling Construction Industry

Despite employing one-sixth of total workforce of country, involving huge money and consuming largest proportion of resources, construction industry remains highly unskilled. Majority of workforce has no formal knowledge and experience of complexities of construction industry. Accordingly, majority of malpractices in the industry are primarily the outcome of this lack of skill. In order to make construction industry more efficient, productive and innovative, it becomes critical that only quality and skilled manpower is deployed. Manpower should be adequately equipped with knowledge and understanding the processes and the products involved in the industry to make it vibrant and productive. Government of India and state governments must take the initiative of creating skilled manpower for construction industry by promoting dedicated institutions, which would impart necessary training, experience and practical knowledge to individuals in various trades involved in the construction industry. It needs to be done in collaboration with and involving all the stakeholders.

Building Centres need to be created at the local level for imparting skill and hand on experience to rural/urban workforce for employment in the industry. HUDCO once started the project of creating building centres across India, which need review with appropriate modification to make it more effective and efficient. ITI's and polytechnics, being run at local level, must be asked to start vocational courses relevant to the construction industry. In addition, funds available under National Urban Livelihood Mission must be used for imparting skill in the construction sector to create large skilled workforce. This will not only help in overcoming the problems of unemployment and poverty in the country but will also go a long way in making building industry more innovative and efficient. Engineering colleges and institutions imparting higher education, like NITs and IITs, should be leveraged to create new construction technologies and building materials from waste to make industry more cost-effective and resource efficient. Continued training of in-service professionals engaged in the construction sector (PWD/CPWD) should also be made mandatory so as to make them more skilled and innovative. PWD Codes should also be reviewed periodically to make them more inclusive and supportive of the innovations in construction industry. For skilling construction industry, government must mandate that only skilled manpower shall be employed for certain tasks in the construction projects. Initially, it could be limited to the larger projects but gradually it must be made mandatory for all projects.

Best Construction Practices in Singapore

For construction sector to be really effective and efficient, it must ensure not only structural integrity and stability of buildings but also their functionality besides ensuring safety of both users and occupiers. In majority of cases there does not exist any well-defined mechanism to keep a check on the quality of building during designing, construction and maintenance. For promoting quality built environment, Singapore has put in place a detailed mechanism of checks and balances which not only provides best construction practices but also ensures continued adherence to process improvements. This mechanism is the outcome of learning made from the collapse of Hotel New World, Singapore in March 1986 and the findings which came out of the enquiry conducted about the collapse of hotel building. Enquiry revealed that the building's structure was not only grossly under-designed but also quality of construction was very poor. In addition, it was found that building was poorly maintained because there were plenty of warning signs which indicated a possible collapse during the 13 years of existence of building.

In 1989, Singapore passed a legislation, which mandated all construction projects to undergo mandatory checks at the stages of design, construction and completion of buildings. It has been made mandatory for all construction projects to seek certified design reviews prior to the commencement of construction; independent construction supervision during the construction and periodic structural inspections of buildings, after completion of construction. As per the law, buildings are required to be designed by duly qualified professionals. In addition, building design is to be reviewed by an Accredited Checker (Senior professional engineer), before building is constructed. Design Review Certification which helps in providing structural integrity, building stability and user and occupier safety costs about 0.15% of the total construction cost. In addition to looking at the safety of design, Singapore law also provides for Mandatory Testing during construction through engaging professionally certified Engineers, costing not more than 1% of the overall cost of the construction project. In addition, law also mandates the periodic certification of building with regard to its usability and safety which is carried out through the process of Periodic Structural Inspections (PSI). Conducting PSIs ensures early detection of structural defects, wear and tear of building which normally goes undetected and which ultimately leads to eventual partial or full collapse of building.

Globally, it has been observed that there have been ample cases of building collapses in the past few years, leading to a tragic loss of lives. It has also been observed that if certification of buildings is conducted based on highest professional standards at the design, construction and post construction phases, then any subsequent rectification work becomes minimal. Periodic checks are also known to help in making buildings more cost-effective over its entire life span because of low cost of maintenance and longer life of building. Based on the Singapore experiences, it would be desirable that similar legislation in India also needs to be put in place to ensure that construction of buildings is carried out in a most professional manner so that only buildings of appropriate quality are constructed.



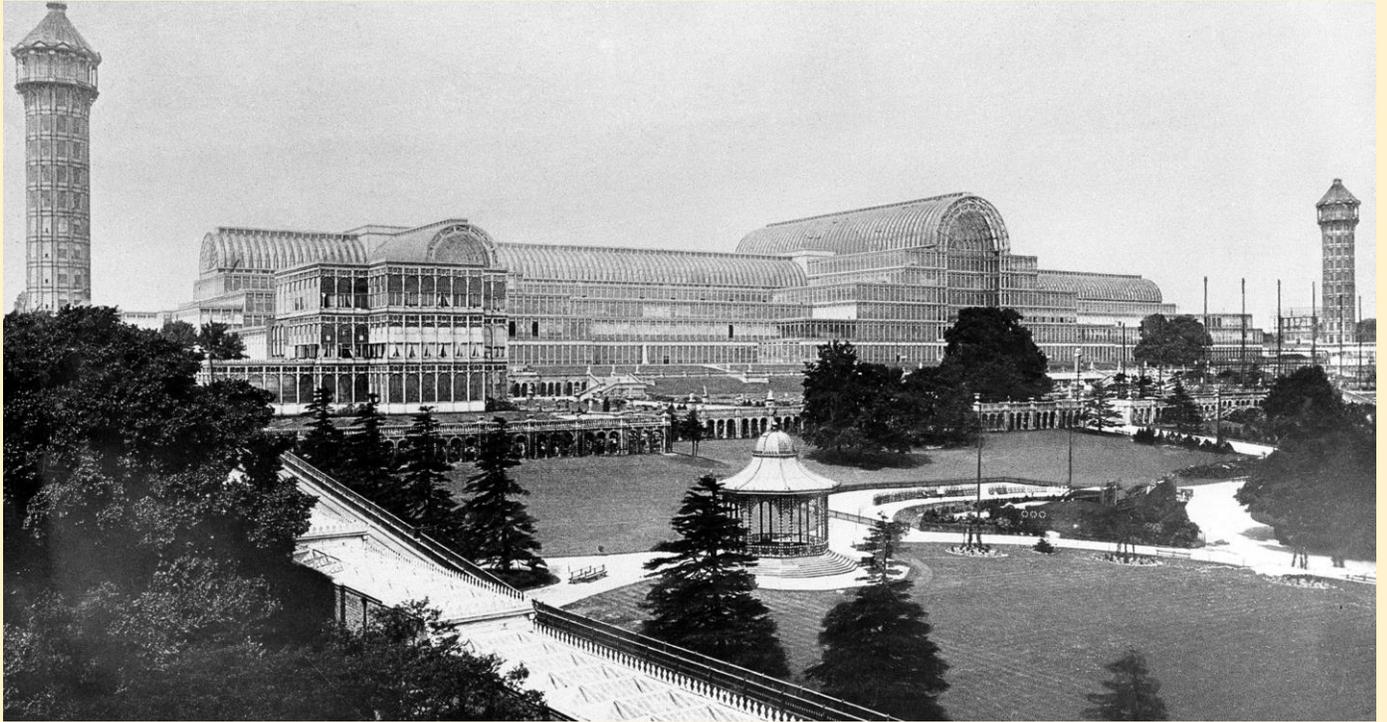
Redefining Policy Framework for Construction

With a view to make construction sector more productive and sustainable, it will be appropriate that Government of India should immediately come out with a policy framework and blueprint to evolve a long term strategy for the construction sector. The policy framework should be evolved by involving all the stakeholders including industry, builders, developers, construction companies, corporate houses, CREDAI, CII, development authorities, academic institutions of excellence including IITs, NITs, research institutes etc.

For promoting research and development, Government of India should create a dedicate agency at the national level besides a dedicated fund for promoting Research and Education for the construction industry on the pattern followed in Singapore, where in the year 2007, Government launched a S\$50 million “Research Fund for the Built Environment” to kick-start R&D efforts in sustainable construction. The agency, in addition to doing research should come out with publications in collaboration with academic institutions for guiding the various stakeholders involved in the construction sector to make it more efficient and productive. States should also be encouraged to create such dedicated agencies and dedicated funds for promoting research in the construction practices. All development authorities should be mandated to earmark dedicated funds in their annual budget for promoting research in construction methodologies and creating innovative building materials besides looking at the local available resources and the industrial waste. By promoting sustainable methods and products, people can be demonstrated the positive outcome of sustainable construction. Consequently, there would be potential to expand the market of sustainable concepts or products. According to a report published by USGBC, “The global green building market grew in 2013 to \$260 billion, including an estimated 20 percent of all new U.S. commercial real estate construction.”

Way Forward

Construction sector (public and private) makes both direct and indirect contribution to the economic output of a country as this sector has strong linkages to several other sectors of the economy. India is projected to become world’s third largest construction market by 2025 and thereby construction sector will be a key driver for the Indian Economy. The Construction Industry in India is highly fragmented. It needs to be made globally competitive, more productive, cost-effective, efficient and sustainable. Therefore, there is an urgent need to carry out an in-depth study and analysis of the prevailing gaps in the international and national standards regarding construction practices and technologies so that Indian construction industry is also put on the global standards by aligning national standards for design, construction, maintenance and operation with the global standards, This would go a long way in not only bringing down the cost of construction besides maintaining high standards of quality through adoption of innovative technologies and materials for construction. There is also a need to evolve a strategy to transform construction industry and make it more sustainable, from focusing not only on the traditional concerns of "cost, time and quality", but also to include “construction products and materials”, to reduce natural resource consumption and minimize waste on site



Role and Importance of Pre-Fabrication in Promoting Sustainable Built Environment

Role and Importance of Pre-Fabrication in Promoting Sustainable Built Environment

Advantages

Prefabricated/modular/off-site construction has numerous advantages which can be enumerated in terms of;

Building in Hazardous Area

Prefabrication has distinct advantages in remote area, areas prone to disasters, areas hit by disasters, where accessibility and availability of manpower, transportation of materials and time available for construction is minimal. In such cases pre-fabrication, offers the best option which can help in creating construction in minimum possible time at minimal cost. Further in hill areas, which suffer from extreme climatic conditions, pre-fabrication can also help in creating well insulated structures, making them least susceptible to extreme outside climate. Leh, Ladakh, Lahaul, Spiti etc are the areas where pre-fabrication is the best option for construction.

Assured Quality Construction

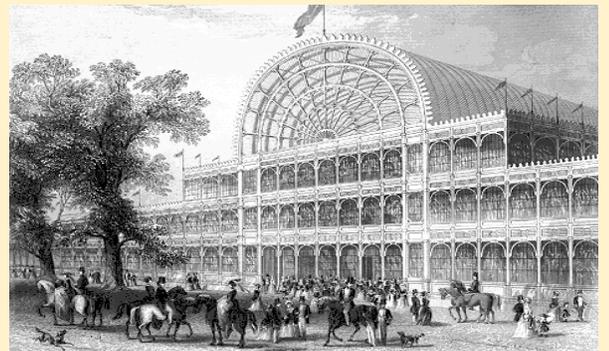
Since pre-fabrication has genesis in construction of majority of building components in industrial setting, under highly controlled environment, involving lot of quality checks and balances, the components produced are accordingly of assured uniform quality unlike site-built structures which are totally dependent upon varying skill levels and the schedules of independent contractors. Modular buildings are invariably manufactured to code, making owners free from the worry of quality, saving of time and energy involved in supervision, which is a major issue in the traditional method of on-site construction.

Material Efficiency

Prefabricated buildings are known for their material efficiency both onsite and off-site. These buildings do not produce waste, since all the required material for construction arrives in the finished state on site. Since the components are produced in the factory, they leave/ create very little waste during the manufacturing, assembly, disassembly and the construction process which involves just putting together all components as per approved design. Further, since no material is brought to site, as in the onsite construction, there is no wastage due to human operations and loss of material due to theft etc.

Cost- Efficiency

Greatest advantages of prefabricated construction lies in its capacity to promote economy and cost-efficiency, which is generally achieved through; large discounts received from material suppliers, reduction in construction time, mass production of components and economy achieved through standardisation, repetitive nature of operations and large scale operations. Reduction of wastage and in-house recycling of the extra materials also lowers down cost of components. Despite the fact, pieces being custom-made, modular construction remains inexpensive due to lower time frame prefabricated construction takes as compared to traditional construction and the financial advantage made due to saving more money on construction financing. In addition, factory setting of the prefabrication, increased controls, better material planning, reduced material surplus calling for less storage cost, less material loss from damage or pilferage; saving on labour hours and manpower cost in construction of building without weather constraints and on-site/off-site work done simultaneously



Green Construction

Though modular buildings, does require a lot of power consumption at the manufacturing site, but compared to traditional constructions, they are lot more eco-friendly, both in the long and short-term. Prefabricated buildings have lower life cycle energy implications as

compared to on-site construction due to optimum consumption of materials, assembly, disassembly and recycling of the building components. As they are made inside a factory, any waste or extra material is easily recycled. Prefab buildings have minimum requirement of water due to absence of onsite watering of brick/concrete works, making them least consumers of resources. Energy efficiency in prefab buildings is being achieved through using recycled materials, LED lighting and installing solar panels and better wall-insulation, leads to energy savings in the long run. Prefabrication/modularization is also becoming more widely recognized as a resource-efficient and greener construction process due to reduced material waste and pollution besides increased use of recycled materials.

Flexibility

Flexibility is one of the distinct advantage provided by the modular construction based on easy dismantling and relocation of buildings to different sites, reducing wastage, reduced demand for raw materials, minimum expended energy and decreased time. Considering the fact prefabricated construction units can be used in different spaces, it can easily blend neutrally in any building typology. Prefabricated structures, being made of numerous individual parts, also permit higher amount of flexibility in building structure/ design by changing the design of the specific prefab component.

Reduced Site Disruption

Traditional construction, involves major site disruption for the reason that all building processes are performed on site including transporting/storage/mixing of materials, water storage, creating residential space for labour etc whereas prefabricated construction takes much of these disruptions away from the site and limit the noise, pollution, waste and other common irritants. Since many components of a building are completed in the factory, there is significantly less truck traffic, equipment and material suppliers around the final construction site.

Time Efficiency

Prefab/ modular construction are known for their time efficiency to build, than on-site construction taking less than half the time when compared to traditional construction, due to better planning, reduced site disruptions and quicker fabrication of multiple components. This permits construction companies to take on multiple projects simultaneously, allowing businesses to grow and make larger profits. Due to reduced on-site construction, requirement of manpower and their supervision is considerably reduced leading to high degree of construction efficiency. Role of experts visiting the site is also minimised leading to higher operational efficiency. In pre-fabrications, building components are produced on a defined schedule, don't require any operation for finishing on site including watering of concrete/ brick walls, seasoning of wood, painting and polishing of wood/door etc, which minimizes the time span for construction

Safety

Prefab construction is known for overall safety of the building after construction including safety of workers at site during construction. The risks and dangers of outside construction posed by hazardous sites, weather, etc., are mostly neutralized by the fact that the components are mostly manufactured in a controlled and safe environment

Limitations imposed by the Prefab Buildings;

Despite numerous advantages which prefab construction hold, it has few limitations which are enumerated below

Monotony

Limitations imposed by the materials and the process used in the mechanisation of building products, has led to imposing numerous restrictions on the designers in creating state of art buildings. Based on the concept of mass production and standardisation, prefab buildings suffer from lack of design innovations and look monotonous.

Restricting additions and alterations



In addition to being monotonous, prefab buildings don't provide enough options to owners/tenets to make any change which may be necessitated, considering the changing physical, social and economic conditions. This generally leads to non-acceptability of the prefab buildings.

Reduced Resale Value

Dictated by monotony and limited options for additions and alterations, prefab structures don't find many buyers in the resale market and accordingly command very low premium. Further the general perception of the people hovering around that pre-fab buildings are of lower quality, also put these them in poor light and reduce their resale value.

Roadblock in Financing

Considering the fact that prefab buildings are constructed differently from traditionally buildings, accordingly, their funding requirements are also at variance from traditional buildings. In prefab buildings, since most of the products are manufactured off-site in a factory, accordingly, it is difficult to understand and evaluate the progress of buildings on site. In the traditional system, funding of projects is generally linked to the stages/progress of the construction. In the prefab buildings, this system does not hold good and cannot apply for the reasons of constructions being done off-site and majority of payments are required to be made upfront. Accordingly, financial institutions feel reluctant to give loans/advances for such buildings, creating disincentives for the buyers to go for such buildings



High Transportation Cost

Since majority of building components are manufactured off-site in the factory and these components are in the finished mode, having large volume and weight, therefore, they require specialised system of transportation to make sure the products don't suffer any damage during the loading, unloading and transportation. Accordingly, transportation cost in the prefab buildings is invariably high as compared to traditional buildings where the building materials can be packed more densely. In addition, large prefabricated sections would be requiring heavy machinery involving cranes and precision measurement and handling during loading, transportation and placing them in position, making them cost-intensive and unattractive. Besides high transportation cost, special vehicles are required to transport the building products calling for wide-bodied mobile vans and wide roads to facilitate their movement. Sustainability also emerges as a major issue during the transportation of the materials to the construction site due to cost and energy involved in transportation.

Accuracy and Precision

Prefabricated buildings require high degree of accuracy in manufacturing components besides working out the detailed design. Once the production starts, there are limited option of additions/alterations/changes, which if needed, will require huge cost and dilute all the saving in cost/time which prefab buildings command. High degree of precision is also required in the manufacturing of components because they are all made fit to size. Any variation in size will lead lot of complication/cost/time in replacement. It is rightly said, 'A mistake in the mass production of prefabricated elements ahead of the measurable site work is a serious risk'

Mass Production

Since prefab/modular structure is based on mass production, accordingly it requires an industrial setup with appropriate knowledge, machinery, technical manpower and expertise, which in turn is expensive and requires huge upfront investment. So prefab can only work if the industrial base for mass production is available in place. Creation of such base requires time and resources and a policy framework. Further mass production works on economy of scale and accordingly, for achieving economy, constant flow of order has to be ensured. In the absence of any assured inflow of order no mass production will be feasible and economically viable. However, looking at the entire context there exists dichotomy between industrial production and construction because factory production requires predictable and consistent demand, whereas construction tends to require large

numbers at the same time, then none. In addition, mass production will only succeed if there is a constant and adequate demand. Which means they are more viable near large urban centres or where large scale new construction is to come up? Its existence away from small centres, where there is periodic and limited demand - transportation cost may dilute the total process of prefab construction.

Skilled Manpower and Cost

Modular construction requires large skilled manpower, both at production and assembly site, along with machinery and infrastructure to complete the project, which in the developing countries is difficult to find across the board, which limits its application. Cost effectiveness to a large extent may not be achieved always due to additional cost involved in temporary bracing for transportation and/or lifting or permanent framing to support prefabricated assemblies besides cost involved in the pre-assembly in factory prior to dismantling for transport and delivery.

Conclusion

Looking at the fact that India is passing through an era of rapid and massive urbanization coupled with government launching number of missions and yojnas calling for, 'Housing for all by 2022'; constructing millions of latrines pan India under Swatchh Bharat Mission; creating markets for street vendors and home for houseless in all urban centres under National Urban Skill & Livelihood Mission; promoting rural development under RuUrban Mission; development of 100 cities under Smart City Mission besides taking up development under HRIDAY and AMRUT, demand for building is increasing many fold. In order to achieve defined objectives under these innovative missions, government will have to revitalize and empower the construction industry to make it more vibrant, cost-effective, energy-efficient, qualitative, sustainable, resource-efficient and safe. For this, government has to immediately come out with a well defined and innovative policy to promote state of art construction technologies. Looking at the fact, that pre-fabrication/modular construction has proved its worth globally, it will be appropriate such technology is also made operational in India on large scale. Despite limitations, prefabricated and precast construction methods offer numerous benefits involving optimal materials usage, recycling, freedom from pollution, wind & rain; improved construction safety; year round and fast construction, reduced pilferage; better quality control etc besides providing a real alternative to on-site processes. With improvement in manufacturing technology, prefabricated construction is proving to be an extremely viable option. Committee of experts appointed by the National Research Council of USA identified "greater use of prefabrication/modularization" as a key breakthrough opportunity that could significantly improve the efficiency and competitiveness of the construction industry going forward. With construction industry facing acute shortage of onsite quality skilled labour and making structures leaner, it is time ripe enough to promote adoption of large scale off-site prefabrication/modularization solutions'

Global housing technology challenge – india (GHTC- India) initiated by MoHUA aims to identify and mainstream a basket of innovation construction technologies from across the globe for housing construction sector that are sustainable eco -friendly and disaster – resilient . They are to be cost effective and speedier while enabling the quality construction of houses, meeting diverse geo- climatic condition and desired functional needs. future technologies will also be supported to faster an environment of research and development in the country.

For having an integrated approach for comprehensive technical & financial evaluation of emerging and proven building materials & technologies , their standardization , developing specifications and code of practices evolving necessary tendering process , capacity building and creating appropriate delivery mechanism MoHUA has set up a technology sub – mission under PMAY (U) with the mission statement as sustainable technological solution for faster and cost effective construction of houses suiting to geo – climatic and hazard condition of the country TSM facilities adoption of modern , innovation and green technologies ad building materials for faster and quality construction of houses . TSM also facilitates preparation and adoption of layout design and building plans suitable for various geo climatic zones . its also assists states cities in deploying disaster resistant and environment – friendly technologies . a total off 33 altrnate technologies have been identified . around 15 lakh houses are being constructed using alternate technologies pan india -MoHU



Pradhan Mantri Awas Yojana- Housing for All (Urban)

Pradhan Mantri Awas Yojana- Housing for All (Urban)

(Government of India ;Ministry of Housing and Urban Affairs0

Introduction

Pradhan Mantri Awas Yojana (Urban) (PMAY-U), a flagship Mission of Government of India implemented by the Ministry of Housing and Urban Affairs (MoHUA), was launched on 25th June 2015. The Mission addresses urban housing shortage among the EWS/LIG and MIG categories including the slum dwellers by ensuring a *pucca* house to all eligible urban households by the year 2022, when nation completes 75 years of its Independence. PMAY(U) adopts a demand driven approach wherein the Housing shortage is decided based on demand assessment by States/UTs. State Level Nodal Agencies (SLNAs), Urban Local Bodies (ULBs)/ Implementing Agencies (IAs), Central Nodal Agencies (CNAs) and Primary Lending Institutions (PLIs) are main stakeholders who play an important role in implementation & success of PMAY(U). The Mission covers the entire urban area consisting of Statutory Towns, Notified Planning Areas, Development Authorities, Special Area Development Authorities, Industrial Development Authorities or any such authority under State legislation which is entrusted with the functions of urban planning & regulations. All houses under PMAY(U) have basic amenities like toilet, water supply, electricity and kitchen. The Mission promotes women empowerment by providing the ownership of houses in name of female member or in joint name. Preference is also given to differently abled persons, senior citizens, SCs, STs, OBCs, Minority, single women, transgender and other weaker & venerable sections of the society. A PMAY(U) house ensures dignified living along with sense of security and pride of ownership to the beneficiaries.

PMAY(U) adopts a cafeteria approach to suit the needs of individuals based on the geographical conditions, topology, economic conditions, availability of land, infrastructure etc. The scheme has hence been divided into **four verticals** as given below:

i. **'In-situ' Slum Redevelopment (ISSR):**

Slum redevelopment grant of **Rs. 1 lakh per house** is admissible for all houses built for eligible slum dwellers under the component of ISSR using land as Resource with participation of private developers. After redevelopment, de-notification of slums by State/UT Government is recommended under the guidelines.

Flexibility is given to States/Cities to deploy this central grant for other slums being redeveloped. States/Cities provide additional FSI/FAR or TDR to make projects financially viable. For Slums on private owned land, States/Cities provide additional FSI/FAR or TDR to land owner as per its policy. No Central Assistance is admissible in such case.

ii. **Credit Linked Subsidy Scheme (CLSS):**

Beneficiaries of Economically Weaker Section (EWS)/Low Income Group (LIG), Middle Income Group (MIG)-I and Middle Income Group (MIG)-II seeking housing loans from Banks, Housing Finance Companies and other such institutions for acquiring, new construction or enhancement* of houses are eligible for an interest subsidy of 6.5%, 4% and 3% on loan amount upto Rs. 6 Lakh, Rs. 9 Lakh and Rs. 12 Lakh respectively. The Ministry has designated Housing and Urban Development Corporation (HUDCO), National Housing Bank (NHB) and State Bank of India (SBI) as Central Nodal Agencies (CNAs) to channelize this subsidy to the beneficiaries through lending institutions and for monitoring the progress. The scheme for MIG category has been extended upto 31st March 2021.

| Particulars | EWS | LIG | MIG I | MIG II |
|---------------------------|-------------|----------|------------|-------------|
| Household Income (Rs.) | upto 3 Lakh | 3-6 Lakh | 6-12 lakh | 12-18 Lakh |
| Carpet Area in sqm | 30 | 60 | 160 | 200 |
| Interest Subsidy (% p.a.) | 6.5% | | 4.0% | 3.0% |
| Maximum Loan Tenure | 20 Years | | | |
| Eligible Loan Amount (Rs) | 6,00,000/- | | 9,00,000/- | 12,00,000/- |

| | | | |
|---|------------|------------|------------|
| Discounted NPV Rate | 9% | | |
| Upfront amount (Rs) for Subsidy for a 20 Year Loan | 2,67,280/- | 2,35,068/- | 2,30,156/- |
| Approx. monthly savings @ Loan Interest of 10% | 2,500/- | 2,250/- | 2,200/- |

** for EWS/ LIG category only*

iii. **Affordable Housing in Partnership (AHP):**

Under AHP, a Central Assistance of **Rs. 1.5 Lakh per EWS house** is provided by the Government. An affordable housing project can be a mix of houses for different categories but it will be eligible for central assistance, if at least 35% of the houses in the project are for EWS category. The States/UTs decide on an upper ceiling on the sale price of EWS houses in rupees per square meter of carpet area in such projects with an objective to make them affordable and accessible to the intended beneficiaries. State and cities also extend other concessions such as their State subsidy, land at affordable cost, stamp duty exemption etc.

iv. **Beneficiary-led Construction/ Enhancement (BLC/ BLE):**

Central Assistance upto **Rs. 1.5 lakh per EWS house** is provided to eligible families belonging to EWS categories for individual house construction/ enhancement. The Urban Local Bodies validate the information and building plan submitted by the beneficiary so that ownership of land and other details like economic status and eligibility can be ascertained. Central assistance, along with State/UT/ ULB contribution, if any, is released to the bank accounts of beneficiaries through Direct Benefit Transfer (DBT) by States/UTs.

B. Affordable Rental Housing Complexes (ARHCs) for Migrants Workers/ Urban Poor

COVID-19 pandemic has resulted in reverse migration of urban migrants/ poor in the country. Urban migrants stay in slums/ informal settlements/ unauthorised colonies/ peri-urban areas to save cost on housing. They need decent rental housing at affordable rate at their work sites. In order to address this need, Ministry of Housing & Urban Affairs has initiated Affordable Rental Housing Complexes (ARHCs), a sub-scheme under Pradhan Mantri Awas Yojana- Urban (PMAY-U). This will provide ease of living to urban migrants/ poor in Industrial Sector as well as in non-formal urban economy to get access to dignified affordable rental housing close to their workplace. The ARHC scheme will be implemented through two models:

i. Utilizing existing Government funded vacant houses to convert into ARHCs through Public Private Partnership or by Public Agency

ii. Construction, Operation and Maintenance of ARHCs by Public/ Private Entities on their own vacant land

Incentives will be provided to public/ private entities by Central/ State Government for developing & operating ARHCs which will include additional FAR/FSI, Income tax and GST exemption, Single window approval within 30 days, Project finance at lower interest rate, Trunk infrastructure till project site, Municipal services at residential rates and Use permission changes for houses for the vacant land.

Beneficiaries for ARHCs are urban migrants/ poor from EWS/LIG categories comprising of street vendors, rickshaw pullers and other service providers, industrial workers along with migrants working with market/ trade associations, educational/ health institutions, hospitality sector, long term tourists/ visitors, students or any other category. ARHCs will be a mix of single/ double bedroom Dwelling Units and Dormitory of 4/6 beds including all common facilities and will be exclusively used for rental housing for a minimum period of 25 years.

MoHUA has provisioned for an additional grant in the form of Technology Innovation Grant (TIG) under TSM for the project using innovative & alternate technology for speedier, sustainable, resource efficient and disaster resilient construction. TIG of Rs. 1,00,000/- per dwelling unit in case of double bedroom (upto 60 sqm carpet area), Rs. 60,000/- per Dwelling Unit (upto 30

sqm carpet area) in case of single bedroom and Rs. 20,000 per Dormitory Bed (upto 10 sqm carpet area) shall be released by MoHUA to entities through BMTPC.

TIG will be applicable only for projects using innovative and alternate technologies and sanctioned during the PMAY(U) Mission period (March 2022) and completed within 18 months after getting all statutory approvals.

The ARHCs will ensure a dignified living environment for urban migrants/poor close to their workplaces at affordable rates. This will unlock existing vacant housing stock and make them available in urban space. It will propel new investment opportunities and promote entrepreneurship in rental housing sector by encouraging Private/Public Entities to efficiently utilize their vacant land available for developing ARHCs.

C. **Robust MIS System**

A comprehensive and robust MIS system is in place that helps all stakeholders to seamlessly manage information pertaining to physical and financial progress. The MIS allows submitting on-line demand survey with tracking facility and helps in housekeeping of various records through digitisation such as Survey, Project information, Beneficiary details, fund utilisation etc. The MIS is equipped with Geo-tagging features and integrated with BHUVAN Portal of National Remote Sensing Centre (NRSC) and BHARAT MAP of National Informatics Centre (NIC) for monitoring the progress of construction of houses under the BLC and projects under ISSR and AHP verticals. The MIS has also been integrated with UMANG Mobile App, NITI Aayog Dashboard and DBT Bharat Portal for dissemination of information.

Direct Benefit Transfer (DBT): The transfer of the Central and State/ULB share to the beneficiaries of BLC vertical of the Mission is being done by States/ULB through DBT mode where the instalments are credited directly into the beneficiary's bank account as per construction stage completed and geo-tagged.

CLSS Awas Portal (CLAP)

A web based monitoring system, CLSS Awas Portal (CLAP) is a common platform where all stakeholders i.e. MoHUA, Central Nodal Agencies, Primary Lending Institutions, Beneficiaries and Citizens are integrated in real time environment. The portal facilitates processing of applications along with tracking of subsidy status by beneficiaries. CLSS tracker has also been incorporated in PMAY(U) mobile App and UMANG platform.

D. **Capacity Building under PMAY(U)**

A total of 5% of allocation under the scheme is earmarked for capacity building, Information Education & Communication (IEC) and Administrative & Other Expenses (A&OE). Allocation available under the Capacity Building head is being utilised for carrying out various activities required for effective implementation of Mission. Illustrative activities under the Capacity Building head include the following ten components:

1. Housing for All Plan of Action (HFAPoA)
2. Establishment of State Level Technical Cells (SLTCs) & City Level Technical Cells (CLTCs)
3. Trainings and Workshops
4. Documentation and Research
5. Exposure and Handholding Visits
6. Information Education & Communication (IEC)
7. Social Audit
8. Third Party Quality Monitoring (TPQM)
9. Geo-tagging
10. Administrative and other Expenses (A&OE)

E. - **Angikaar- a campaign for change management**

Aligning to the Hon'ble Prime Minister's vision to address issues that arise from life transformation after moving into pucca houses, ANGIKAAR- campaign for change management was launched on 29th August 2019. The campaign focuses on adopting best practices such as water & energy conservation, waste management, health, sanitation and hygiene for PMAY(U) beneficiaries through community mobilization and IEC activities. PMAY(U) had converged with various Urban Missions and other Central Ministries like Health & Family Welfare, Jal Shakti, Environment Forest & Climate Change, New & Renewable Energy, Petroleum & Natural Gas, Power, Youth Affairs & Sports and Women & Child Development.

The campaign was formally launched on 2nd October 2019, commemorating 150th Gandhi Jayanti in more than 4,000 cities wherein need assessment is conducted along with door to door awareness for change management. Subsequently, this is followed by continuous and consistent ward level IEC activities in States/ UTs which includes key messages of FIT India (Ministry of Youth Affairs & Sports) and Poshan Abhiyan (Ministry of Women & Child Development) with active participation of sportspersons/ personalities, youth clubs, educational institutions, FIT India Plogging events and orientation/ awareness drives/ health camps respectively.

F. **Technology Sub-Mission (TSM)**

In order to have an integrated approach for comprehensive technical & financial evaluation of emerging and proven building materials & technologies, their standardisation, developing specifications and code of practices, evolving necessary tendering process, capacity building and creating appropriate delivery mechanism, MoHUA has set up a Technology Sub-Mission under PMAY(U) with the Mission statement as 'Sustainable Technological Solutions for Faster and Cost Effective Construction of Houses suiting to Geo-Climatic and Hazard Conditions of the Country'.

TSM facilitates adoption of modern, innovative and green technologies and building materials for faster and quality construction of houses. TSM also facilitates preparation and adoption of layout designs and building plans suitable for various geo-climatic zones. It also assists States/Cities in deploying disaster resistant and environment-friendly technologies. A total of 33 Alternate Technologies have been identified out of which CPWD has issued SoR for 29 technologies. Around 15 Lakh houses are been constructed using alternate technologies pan India.

G. **Global Housing Technology Challenge - India**

MoHUA has initiated the Global Housing Technology Challenge - India (GHTC India) which aims to identify and mainstream a basket of innovative construction technologies from across the globe for housing construction sector that are sustainable, eco-friendly and disaster-resilient. They are to be cost effective and speedier while enabling the quality construction of houses, meeting diverse geo-climatic conditions and desired functional needs. Future technologies will also be supported to foster an environment of research and development in the country. GHTC- India aspires to develop an eco-system to deliver on the technological challenges of the housing construction sector in a holistic manner.

Hon'ble Prime Minister of India inaugurated the Construction Technology India- 2019, a global Expo-cum-Conference, which was organized on 2-3 March 2019 in New Delhi. 60 Exhibitors with **54 proven technologies** from 25 countries showcased their technologies in the Expo. Prime Minister declared the year 2019-20 as the 'Construction Technology Year'.

Under **Affordable Sustainable Housing Accelerators- India** (ASHA-India) initiative, incubation and acceleration support is provided to potential future technologies that are not yet market ready (pre-prototype applicants) or to the technologies that are market ready (post prototype applicants). The ASHA-India Centres will also help in developing design guidelines, construction manuals and other necessary guidelines, relevant for effective use of such technologies in the region. ASHA-India Centres are to be set up at five host institutions: IIT Bombay, IIT Kharagpur, IIT Madras, IIT Roorkee and CSIR-NEIST, Jorhat.

72 potential future technologies (domestic) have been identified through the challenge which will be shortlisted for providing support under ASHA-India.

H. **Light House Projects (LHPs) under GHTC-India**

The Lighthouse projects, to be developed under GHTC India, will serve as live laboratories for different aspects of transfer of technology to the field. This includes planning, design, production of components, construction practices and testing for both faculty and students of IITs/ NITs/ Engineering colleges/ Planning and Architecture colleges, builders, professionals of private and public sectors and other relevant stakeholders. GHTC India ushered a paradigm shift in the construction technology to transform the eco-system of housing construction.

For use of innovative technology in construction, the Ministry has introduced a Technology Innovation Grant as an additional grant of Rs. 4.0 Lakh per house over and above the existing share of Rs 1.5 lakh per house under PMAY(U) for LHPs.

The LHPs are being implemented in Gujarat, Jharkhand, Madhya Pradesh, Tamil Nadu, Tripura and Uttar Pradesh to demonstrate the innovative construction technology which are cost-effective, green and sustainable.

I. Demonstration Housing Projects (DHPs):

In order to showcase the field application of new emerging technologies, MoHUA has taken an initiative to construct Demonstration Housing through Building Materials and Technology Promotion Council (BMTPC). A DHP provides on-site orientation to practitioners in the housing sector with knowledge on the application and use of alternate technology. Each DHP contains up to **40 Houses** with sustainable, cost and time effective emerging alternate housing construction technologies suitable to the geo-climatic and hazardous conditions of the region. Such DHPs have been completed in Bhubaneswar, Bihar Sharif, Hyderabad, Lucknow and Nellore and are under pipeline in Agartala, Panchkula, Goa and Hyderabad.



National Urban Housing and Habitat Policy 2007

National Urban Housing and Habitat Policy 2007

The Need for Policy

Urbanization and Development

1.1 Urban” in India is defined as a human settlement with a minimum population of 5000 persons, with 75% of the male working population engaged in non-agricultural activities and a population density of at least 400 persons per sq. km. Further, all statutory towns having a Municipal Corporation, Municipal Council or Nagar Panchayat as well as a Cantonment Board are classified as “urban.”

1.2 India’s urban population in 2001 was 286.1 million, which was 27.8% of the total population. Over the previous five decades, annual rates of growth of urban population ranged between 2.7 to 3.8%. During the last decade of 1991-2001, urban population of India increased at an annual growth rate of 2.7%, which was 0.4% lower than that registered during the preceding decade.

1.3 The process of urbanization in India is marked by increasing concentration in comparatively larger cities. In 2001, 68.7% of the total urban population was living in Class I cities (defined as cities having a population of over 100,000). The shares of medium and small towns in the total population stood at 21.9% and 9.4% respectively.

1.4 The spotlight is focused on the mismatch between demand and supply of housing units. 99% of the housing shortage of 24.7 million at the end of the 10th Plan pertains to the Economically Weaker Sections (EWS) and Low Income Groups (LIG) sectors. Given the fact that 26.7% of the total poor in the country live in urban areas, the issue of affordability assumes critical significance. In terms of numbers, 26.7% of the total poor implies 80.7 million persons or about one-fourth of the country’s total urban population.

1.5 Further, the National Sample Survey Organisation (NSSO) 61st Round reports that the number of urban poor has risen by 4.4 million persons, between 1993-94 to 2004-05. It is, therefore, of vital importance that a new National Urban Housing and Habitat Policy carefully analyses ways and means of providing the ‘Affordable Housing to All’ with special emphasis on the EWS and LIG sectors.

1.6 The number and proportion of cities with a population of one million or more has grown significantly in recent decades. From 12 in 1981 with 26.8% share of the total urban population, the number of million plus cities has increased to 35 in 2001 with 37% share of the total urban population.

1.7 The general trend towards urbanization shows considerable disparity amongst various States/Union Territories (UTs) of India. Whereas States such as Goa, Gujarat, Maharashtra, Punjab and Tamil Nadu have attained over 35% urbanization (Census:2001) and are continuing to register growth rates higher than the annual national average; States like Himachal Pradesh (9.80%), Bihar (10.46%), Orissa (14.99%) and Uttar Pradesh (20.78%) have displayed low rates of urbanization.

Rural To Urban Shift of Labour

1.8 The growth of the Indian workforce is also characterized by an increasing level of urbanization. At the onset of the 21st century (2001), 32% of the total workforce resided in urban areas. According to the 2001 Census, 29% of the urban workforce falls in the category of “main workers” and the balance in the category of “marginal workers.” The male-female composition of the urban workforce is structured in favour of male workers (the male-female ratio being 84:16 in 2001) although there has been some improvement in the volume of female employment. Further, it is of critical significance that 79% of the new jobs totaling 19.3 million between 1991-2001 were generated in urban areas and only 5 million jobs were generated in rural areas.

1.9 It is important to highlight the fact that the informal sector in urban areas is growing exponentially. In the decade 1991-2001, workers classified as “marginal workers” registered an increase of 360% as compared to an increase of only 23% for workers classified as “main workers.” As a consequence, the ratio of marginal workers to total workers increased from 2.2% in 1991 to 7.9% in 2001. Further, the proportion of female workers to total workers rose from 14.3% in 1991 to 16% in 2001. In a nutshell, the 1991-2001 decade has witnessed strong trends towards casualization and feminization of the urban workforce. Further, wage employment is being progressively replaced by sub-contracting.

Balanced Regional Development

1.10 As India's labour force witnesses a rural to urban shift, it is of critical importance that the rural and urban areas develop in a symbiotic manner. The way to bring about such a symbiotic development between rural and urban areas is by adopting "a Regional Planning approach." The objective of such an approach is to develop a symbiotic rural-urban continuum, which is ecologically sustainable. The Town & Country Planning Acts of some States provide an ideal basis for Regional Planning.

1.11 There is also a need to develop a special focus on the eight States of the North-Eastern Regional Council due to a lesser level of socio-economic development and on account of the highly sensitive ecology of the region.

New Integrated Townships and Green-Field Development

1.12 In view of the fact that 50% of India's population is forecasted to be living in urban areas by 2041, it is necessary to develop new integrated townships. These green-field townships should generally be located on comparatively degraded land excluding prime agricultural areas growing more than one crop with the help of assured irrigation. These green-field townships should be located at a reasonable distance from medium or large existing towns.

1.13 Further, it is also important to develop mass rapid transport corridors between existing medium and large towns and new green-field towns so that the relationship between industry and commerce is developed to an optimum level.

Role of Housing

1.14 As per a Central Statistical Organisation (CSO) estimate, the Housing Sector contributed 4.5% to India's Gross Domestic Product (GDP) in 2003-04 at current prices. The contribution of housing in urban areas to the GDP in 2003-04 was 3.13%. Further, the spotlight is focused on the fact that 16% of the Indian work force is engaged in Construction and Transport Sectors. It is estimated that overall employment generation in the economy on account of additional investment in the Construction/Housing Sectors is eight times the direct employment (IIM Ahmedabad : 2005). In view of the substantial use of cement, steel, marble/ceramic tiles, electrical wiring, PVC pipes and various types of fittings; construction activity has a multiplier effect on industrial demand for these items.

1.15 At the advent of the 21st Century (2001), the housing stock in India stood at 50.95 million for 55.8 million urban households. Significant segments of this housing stock was characterized by congestion and obsolescence. Congestion is particularly acute in inner city slums and peripheral slums. According to the Census 2001, 61.82 million persons or 23.1% of the urban population resides in slums. The quality of housing stock in slums is extremely poor. An important reason for this is insecurity of tenure. Slums are also severely deficient in basic services such as potable water, sanitation, sewerage, storm water drainage and solid waste disposal.

1.16 Given the degraded habitat in which slum dwellers live and the frequent episodes of illness characterizing slum families, it is of vital importance that special attention is paid to urban health and hygiene on the one hand and social and preventive medicine on the other hand. In order to improve the quality of life in urban areas, it is of critical significance that the housing stock is improved through urban renewal, in situ slum improvement and development of new housing stock in existing cities as well as new townships. Further, the enhancement of housing stock must be accompanied with high quality provision of basic services. It is a well established fact that safe, hygienic and spacious provisioning of housing duly buttressed with adequate basic services and a congenial habitat promotes significant improvement in productivity of workers.

Housing Needs

1.17 The magnitude of housing shortage was estimated by a Technical Group in the context of formulation of the 11th Five Year Plan. The Technical Group estimated the housing shortage at the end of the 10th Plan to be around 24.7 million for 67.4 million households. The Group further estimated that 99% of this shortage pertains to EWS & LIG sectors. During the 11th Plan, the Group estimated that the total housing requirement (including backlog) will be to the tune of 26.53 million units for 75.01 million households.

1.18 Whereas more than 23% of the urban population resides in slum (Census:2001), a much higher proportion of the urban population of metropolitan cities lives in slums; it is estimated that 55% of the population of Mumbai lives in slums. It is of

critical importance that the strategy of in-situ slum upgradation is adopted for preponderant proportion of the slum dwellers, since they provide valuable services to residents living close to their own dwelling places.

1.19 The Working Group on Urban Housing pertaining to the 11th Plan made different assumptions on unit cost of construction of houses in million plus cities and other urban areas for estimating the investment required for overcoming the housing shortage. The total estimated investment for meeting the housing requirement upto 2012 was estimated to be of the order of Rs.3,61,318.10 crores consisting of Rs.1,47,195 crores for mitigating housing shortage at the beginning of 11th Plan and Rs.2,14,123.10 crores for new additions to be made during the 11th Plan period (this includes construction of pucca houses & upgradation of semi-pucca and kutcha housing units).

Magnitude of Poverty

1.20 Non-affordability of housing by economically weaker sections of society and low income families in urban areas is directly linked with the magnitude of urban poverty. Poverty in India has declined from 320.3 million in 1993-94 to 301.7 million in 2004-05. While there has been a decline of 18 million persons in the total numbers of the poor in India, the NSSO reports that the number of the urban poor has risen by 4.4 million persons during the same period. One fourth of the country's total urban population, numbering 80.7 million persons is below the poverty line. The urban poor constitute 26.7% of the total poor in the country. The fact that the number of urban poor has risen is in stark contrast with rural poverty, where both the total number of rural poor and its incidence vis-à-vis the rural population has fallen.

1.21 The urban poor have limited access to basic services. According to the 2001 census, there is a 9% deficiency in drinking water, 26% in toilets and 23% in drainage. It is quite understandable that most of this shortage pertains to Slums.

Development of Sustainable Habitat

1.22 Development of sustainable habitat is closely related to the adoption of 'the Regional Planning approach' while preparing Master Plans of towns/ cities, District Plans and Regional/Sub-Regional Plans. It involves maintenance of the ecological balance in terms of a symbiotic perspective on rural and urban development while developing urban extensions of existing towns as well as new integrated townships. Promotion of sustainable habitat is closely linked with reserving a significant proportion of the total Master Plan area as 'green lungs of the city' (e.g. Master Plan for Delhi 2021 provides 20% of green areas), protecting water bodies with special emphasis on the flood plains of our rivers and developing green belts around our cities. It will be desirable to pursue a goal of 20-25% recreational land use area (excluding water bodies) which has been prescribed for Metro-cities by the Urban Development Plan Formulation and Implementation Guidelines (UDPFI) in order to enhance the sustainability of human settlements. Recreational land use refers to parks, playfields and other open space such as specified park, amusement park, maidan, a multipurpose open space, botanical garden, zoological parks, traffic parks, etc. It is also necessary to estimate the Gross Geographic Product (GGP) of a given sub-region and endeavour to enhance it while developing new urban settlements. The new Habitat Policy recognizes the sustainability limits of existing urban settlements. It also seeks to emphasize the mutual inter-dependence between towns and villages.

1.23 The new Habitat Policy reaffirms the importance of small and medium urban agglomerates/towns which have potential for future urban growth. The new Policy seeks to accelerate the development of such small and medium towns which can serve as generators of economic momentum while at the same time striving to reduce the rate of migration to existing large cities.

Policies & Programmes

1.24 In 1991, India adopted a more 'inclusive' view of economic development by emphasizing that it must integrate with the global economy. In pursuance of this, it reduced custom duties and welcomed Foreign Direct Investment (FDI) in several sectors of the economy. The National Housing Policy, 1994 was a product of this economic point of view. The 1994 Policy in its section on "Goals" sought to increase supply of land serviced by basic minimum services with a view to promoting a healthy environment. The National Housing & Habitat Policy, 1998 laid greater emphasis on the aspect of "Habitat" as a supplementary focus to housing. The emphasis on "providing" housing continued in this Policy with emphasis on both quality and cost-effectiveness especially to vulnerable sections of society. The New Urban Housing and Habitat Policy seeks to enhance the spotlight on 'habitat' with a 'Regional Planning approach' as well as further deepen the role of Government as a 'facilitator' and 'regulator.' Moreover, the new Policy lays emphasis on earmarking of land for the EWS/LIG groups in new housing projects. The new Urban Housing & Habitat Policy lays emphasis on Government retaining its role in social housing so that affordable

housing is made available to EWS and LIG of the population as they lack affordability and are hopelessly out priced in urban land markets.

1.25 (a) The various policies adopted by the Central Government, from time to time, were accompanied by initiation of various programmes and schemes. The National Slum Development Programme (NSDP) had provision for adequate and satisfactory water supply, sanitation, housing, solid waste management, primary and non-formal education. The scheme provided additional central assistance to States to supplement the resources of the State Government for provision of basic infrastructure and services in slum areas. The Swarna Jayanti Shahari Rozgar Yojana (SJSRY) was designed to provide gainful employment to the urban poor by encouraging setting up of self-employment ventures and provision of wage employment opportunities for families below poverty line in urban areas. The Two Million Housing Programme (TMHP) was launched with the objective of 'housing for all' with particular emphasis on the needs of economically weaker sections and low income group categories. The Valmiki Ambedkar Awas Yojana (VAMBAY) aimed at providing subsidies for construction of housing and sanitation for urban slum dwellers living below poverty line in different towns/cities all over the country.

1.25(b) The above mentioned policies and programmes have yielded fairly positive results in the area of housing and habitat. Some increase has been noticed in the supply of serviced land, shelter and related infrastructure. For example, in the first four years of the 10th Plan period, financial assistance was provided for construction of 4,42,369 dwelling units under VAMBAY scheme. Similarly, total number of beneficiaries under NSDP and SJSRY were 45.87 million and 31.77 million respectively during the same period. The period 1991 to 2001 witnessed a net addition of 19.52 million dwelling units in the urban housing stock (Census: 2001) involving average annual construction of 1.95 million houses. The share of ownership housing in urban areas has increased from 63% in 1991 to 67% in 2001 (Census: 2001). It is important to note that households having one room accommodation declined significantly in urban areas from 39.55 per cent to 35.1 per cent during the period 1991 to 2001. This is a result of upward mobility in accommodation indicating a robust economy and accelerated supply of improved housing stock.

Jawaharlal Nehru National Urban Renewal Mission

1.26 The recently launched Jawaharlal Nehru National Urban Renewal Mission (JNNURM) supports 63 cities (7 mega cities, 28 metro cities and 28 capital cities and towns of historical/religious importance) across the country in terms of perspective plans called City Development Plans (CDPs) for specifying infrastructure gaps relating to water, sanitation, sewerage, drainage and roads on the one hand and deficiencies in housing and basic services on the other hand. On the basis of City Development Plans, the JNNURM seeks to fill up the gaps in infrastructure and deficiencies in housing and basic services through appropriate investments. The Mission approach is reform based with releases being made subject to specified reform agenda being implemented. The Mission is reforms driven, fast track planned development of identified cities with focus on efficiency in urban infrastructure, services delivery mechanism, community participation and accountability of urban local bodies (ULBs) to citizens. JNNURM seeks to encourage private sector participation with the Government providing viability gap funding through the Mission for large projects where the open tendering process shows specific shortage in economic viability. In addition to these 63 cities, urban infrastructure and slums are also being addressed in the remaining Non-Mission cities through the Urban Infrastructure Development Scheme for Small and Medium Towns (UIDSSMT) and Integrated Housing and Slum Development Programme (IHSDP).

1.27 The Basic Services for the Urban Poor (BSUP) seeks to provide a garland of 7 entitlements/services – security of tenure, affordable housing, water, sanitation, health, education and social security – in low income settlements in the 63 Mission Cities. The Integrated Housing and Slum Development Programme (IHSDP) seeks to provide the aforementioned garland of 7 entitlements/services in towns/cities other than Mission cities.

1.28 The National Urban Housing and Habitat Policy, 2007 seeks to use the perspective of Regional Planning as brought out in the 74th Amendment Act in terms of preparation of District Plans by District Planning Committees (DPCs) and Metropolitan Plans by Metropolitan Planning Committees (MPCs) as a vital determinant of systematic urban planning. The policy seeks to promote a symbiotic development of rural and urban areas. In this regard, the policy seeks to ensure refinement of Town and Country Planning Acts (wherever required) and their effective implementation.

1.29 The core focus of this Policy is provision of “Affordable Housing for All” with special emphasis on vulnerable sections of society such as Scheduled Castes/Scheduled Tribes, Backward Classes, Minorities and the urban poor.

1.30 This Policy takes note of the substantive gap between demand and supply both for housing and basic services. This Policy seeks to assist the poorest of poor who cannot afford to pay the entire price of a house by providing them access to reasonably good housing on rental and ownership basis with suitable subsidization. The Policy seeks to enhance the supply of houses especially for the disadvantaged, duly supplemented by basic services.

1.31 This Policy seeks to develop innovative financial instruments like development of Mortgage Backed Securitization Market (RMBS) and Secondary Mortgage Market. It also seeks to attract Foreign Direct Investment (FDI) in areas like integrated development of housing and new township development.

1.32 This Policy draws from innovations in the area of housing and infrastructure in India and elsewhere. It also gives a menu of actionable points which inter-alia includes Public-Private-Partnerships, conservation of natural resources and formulation of regulations & bye-laws that are environment friendly, investment-friendly and revenue-generating.

1.33 This Policy seeks to emphasize appropriate fiscal concessions for housing and infrastructure.

1.34 This Policy seeks to accelerate construction activities for giving a boost to employment for vulnerable sections of society.

1.35 This Policy aims to promote development of cost-effective, quality approved building materials and technologies with a view to bringing down the cost of EWS/LIG houses. 1.36 This Policy aims to complement poverty alleviation and employment generation programmes for achieving the overall objective of “Affordable Housing for All” with sustainable development.

1.37 This Policy dwells upon the roles of various stakeholders and specific action required pertaining to Land, Finance, Legal and Regulatory Reforms as well as Technology Support and Transfer.

1.38 This Policy seeks to accelerate the development of small and medium towns which can serve as a generators of economic momentum with the objective of reducing the rate of migration to large cities.

1.39 The Policy lays special emphasis on the development of North-Eastern States on account of the fragile ecology of the North-Eastern Region as well as the need to accelerate the pace of its socio-economic progress. In this manner, the Policy seeks to improve accessibility to the North-Eastern Region.

Aims

The National Urban Housing and Habitat Policy aims at:

Urban Planning

- Encouraging State Governments, Urban Local Bodies, Development Authorities to periodically update their Master Plans and Zoning Plans which should, inter-alia adequately provide for housing and basic services for the urban poor.
- Promoting balanced urban-rural planning by following the Regional Planning Approach, take the whole State/UT as a region, under the Town & Country Planning Acts in the States.
- Planning of Mass Rapid Transit Systems (MRTS) at the city Metropolitan Planning Area and Sub-region levels.

Affordable Housing

- Accelerating the pace of development of housing and related infrastructure.

- Creating adequate housing stock both on rental and ownership basis with special emphasis on improving the affordability of the vulnerable and economically weaker sections of society through appropriate capital or interest subsidies.
- Using technology for modernizing the housing sector for enhancing energy and cost efficiency, productivity and quality. Technology would be harnessed to meet the housing needs of the poor. The concept of 'green' and 'intelligent' buildings would be put in place on the ground. Technological advances would be disseminated for preventing and mitigating the effects of natural disasters on buildings, e.g., in case of earthquakes, floods, cyclones, etc.
- Increase flow of Funds
- Promoting larger flow of funds from governmental and private sources for fulfilling housing and infrastructure needs by designing innovative financial instruments. viii) Designing suitable fiscal concessions in congruence with the Housing and Habitat Policy with appropriate monitoring mechanism to ensure that the concessions are correctly targeted and utilized.
- Removing legal, financial and administrative barriers for facilitating access to tenure, land, finance and technology.
- Shifting to a demand driven approach and from subsidy based housing schemes to cost recovery-cum-subsidy schemes for housing through a proactive financial policy including micro-finance and related self-help group programmes.

Spatial Incentive

- Innovative spatial incentives like relaxation of Floor Area Ratio (FAR) for ensuring that 20-25 % of the FAR are reserved for EWS / LIG and issuance of Transferable Development Rights(TDR) for clearance of transport bottlenecks in the inner-city areas and availability of additional FAR in Outer Zones will be promoted with a view to meeting the housing shortage amongst EWS/ LIG.
- Careful review of authorized Floor Area Ratio (FAR) in line with international practices for allowing more efficient use of scarce urban land by construction of high rise buildings.
- Increase Supply of Land
- Facilitating accessibility to serviced land and housing with focus on economically weaker sections and low income group categories. xiv) Suitable restructuring for enabling both institutions at the State and Centre levels as well as the private sector for increasing supply of land.

Special Provision for SC/ST/OBC/Minorities/Disabled

- Special efforts for catering to the needs of Scheduled Castes, Scheduled Tribes, Other Backward Classes, Minorities, Disabled persons, slum dwellers, street vendors other informal sector workers and other vulnerable sections of the society in relation to housing and access to basic services. Special Provision for Women
- Involving women at all levels of decision making for ensuring their participation in formulation and implementation of housing policies and programmes.
- Addressing the special needs of women headed households, single women, working women and women in difficult circumstances in relation to housing serviced by basic amenities.

Employment Generation

- Upgradation of construction skills and accelerated development of housing and infrastructure sectors for giving an impetus to employment generation.

Public-Private Partnerships

- Forging strong partnerships between public, private and cooperative sectors for accelerated growth in the Housing Sector and sustainable development of habitat.

Management Information System

- Establishing a Management Information System (MIS) in the Housing Sector for strengthening monitoring of building activities in the country.

Healthy Environment

- Developing cities/towns in a manner which promotes a healthy environment, encouraging use of renewable energy resources and ensuring effective solid waste management in collaboration with persons involved in recycling activities.
- Protecting our cultural heritage and architecture as well as promoting traditional skills with suitable adaptation to modern technologies.

Role of Government, Urban Local Bodies and Other Agencies

It will be the endeavour of the Central Government in collaboration with governments in States/UTs, Urban Local Bodies and other agencies to implement the aims of the National Urban Housing and Habitat Policy, 2007 through action-oriented initiatives at all levels of Government. Towards this end, Annual Action Plans will also be prepared at various levels.

3.1 The Central Government would (in consultation with State Governments):

Create a Supportive Environment

- Act as a 'facilitator' and 'enabler' with significant actionable steps being taken by State Governments, Urban Local Bodies, Parastatals and Private & Co-operative Sector and Non-Government Organisations.
- Advise and guide respective State Governments to adopt and implement the National Urban Housing & Habitat Policy, 2007 in a time bound manne
- Promote balanced regional development in the country by suitably decentralizing functions relating to development of the Housing Sector and promotion of an ecologically sound habitat.
- Act as an enabler and facilitator by developing suitable financial instruments for promotion of housing for the EWS and LIG groups serviced by basic amenities.
- Promote Action Plans for creation of adequate infrastructure facilities relating to water, drainage, sanitation, sewerage, power supply and transport connectivity.
- Develop economically viable housing promotion models and standards for provision of physical, social and economic services.
- Legal & Regulatory Framework
- Promote systematic planning at the City, Metropolitan Area, District and Regional levels.
- Encourage adoption of critical urban reforms relating to municipal laws, building bye-laws, simplification of legal and procedural frameworks, property title verification system and allied areas.
- Promote an innovative policy for safeguarding the rights of street vendors with appropriate restrictions in the public interest.
- Promote improvements for elimination of ambiguities in transaction of conveyance deeds, lease deeds, mortgages, gifts, partition deeds and allied property-related documents.
- Promote the observance of the National Building Code (NBC), 2005.

Housing Finance

- Devise macro-economic policies for enabling accelerated flow of resources to the housing and infrastructure sector.
- Develop suitable fiscal concessions in collaboration with the Ministry of Finance for promotion of housing and urban infrastructure with special focus on EWS/LIG beneficiaries combined with a monitoring mechanism for effective targeting. Further, facilitate viability gap funding of integrated slum development programmes with the consent of Planning Commission and Ministry of Finance.
- Encourage Foreign Direct Investment in the urban housing and infrastructure sectors.
- Develop convergence between urban sector initiatives and financial sector reforms.
Supply & Management of Land
- Develop a National Land Policy for optimal use of available resources including enhanced supply of serviced land for sustainable development.

Environment and Ecology

- Promote appropriate ecological standards for protecting a healthy environment and providing a better quality of life in human settlements. Special attention will be paid to housing in coastal areas in order to promote fragile ecology. Further, adequate mangrove and allied plantations will be promoted in coastal areas especially those which are in high disaster-prone zones to avoid loss to life from natural disaster.

Management Information System

Develop a nation-wide Management Information System (MIS) relating to housing and allied infrastructure for well informed decision making.

Research & Development

Promote Research & Development (R&D) relating to alternate building materials and technologies as well as energy conservation practices in the housing sector. xx) Take appropriate steps for standardization and quality marking of building materials.

3.2 The State Government would (in consultation with Urban Local Bodies):

Create a Supportive Environment

Prepare the State Urban Housing & Habitat Policy (SUHHP).

- Act as a facilitator and enabler in collaboration with ULBs/parastatals/ Private Sector/Co-operative Sector/NGOs with regard to Integrated Slum Development Projects as well as Integrated Township Development Projects. Further, the State Government will ensure suitable flow of financial resources to potential EWS/LIG beneficiaries as well as undertake viability gap funding of large housing and habitat development projects.
- Prepare medium term and long term strategies for tackling problems relating to provision of adequate water supply, drainage, sewerage, sanitation, solid waste management, power supply and transport connectivity.
- Promote and incentivise decentralized production and availability of local building materials. v) Prepare and update Master Plans alongwith Zonal Plans, Metropolitan Plans, District Plans and the State level Regional Plan by respective agencies with provision of adequate land for urban poor.
- Promote balanced regional development by observing appropriate prudential norms. Legal & Regulatory Framework
- Review the legal and regulatory regime for introducing simplification and rationalisation with a view to giving a boost to housing and supporting infrastructure.

Enable urban local bodies to take up regulatory and development functions. ix) Take all necessary steps for implementation of the State Urban Housing & Habitat Policy.

Public-Private Partnerships

- Promote well designed Public-Private Partnerships for undertaking housing and infrastructure projects.
- Encourage Cooperative Group Housing Societies, Employees Organizations, labour housing promotion organization, Non-Government Organizations (NGO) and Community Based Organizations (CBO) to have Partnerships with Urban Local Bodies/Parastatals in relation to housing related microfinance and housing development.
- Promote in-situ slum upgradation with partnership between the Central Government, State Government, Urban Local Bodies, Banks/MFIs and potential beneficiaries.

Skill Upgradation

- Facilitate training and skill upgradation of construction workers.

Management Information System

- Develop appropriate Management Information System for different level of governance.
- Research & Development (R&D)
- Promote R&D activities in the field of building materials and technologies and promote their use in housing and infrastructure projects.

Optimum Utilization of Land

- Promote optimal utilization of land by innovative special incentives like relaxation of FAR for ensuring that 20-25% of the FAR are reserved for EWS/ LIG units or issuance of Transferable Development Rights for clearance of transport corridors and availability of FAR in outer zones.
- Consider for upward review the presently authorized Floor Area Ratio (FAR) in line with international practice of making more efficient use of scarce urban land through construction of high rise buildings in consonance with densities specified in statutory Master Plans.

Integrated Townships, Urban Extensions & SEZs

xviii) Develop Greenfield towns & integrated urban housing extensions of existing towns with complementary infrastructure or Special Economic Zones (SEZs) with both FDI and national investments in housing and infrastructure.

xix) Ensure that such fully integrated housing projects are well connected by MRTS corridors.

3. Create a Supportive Environment

- Develop capacity building at the local level to design and take up inner-city development scheme, in-situ slum upgradation projects and slum relocation projects through suitable training programme.
- Implement Central and State sector schemes pertaining to housing and infrastructure sector at the city level with appropriate provision for EWS and LIG beneficiaries in the Master Plan as well as Zonal Plans. iii) Enforce regulatory measures for planned development in an effective manner. iv) Check the growth of unauthorized colonies, new slums, unauthorized constructions, extensions of existing properties and commercialization of residential areas.

Urban Planning

- Ensure that Development Plans/Master Plans as well as Zonal Plans and Local Area Plans are made and updated regularly so that adequate provision is made for the homeless as well as slum dwellers.

- Prepare Master Plan and Metropolitan Plans in consonance with the concerned District Plan and the State Regional Plan.
- Identify city specific housing shortages and prepare city level Urban Housing & Habitat Action Plans for time bound implementation. Wherever necessary and feasible, ULBs as well as other parastatal would provide viability gap funding especially for EWS/LIG housing and supporting infrastructure so as to ensure better affordability by the poor and financial viability of slum.
- Promote planning and development of industrial estates along with appropriate labour housing colonies serviced by necessary basic services.
- Incorporate provisions of model building bye-laws prepared by Town & Country Planning Organization (TCPO) and National Building Code in their respective building bye-laws. Make suitable provisions in the Building Bye-laws for innovative energy conservation practices and mandatory rain water harvesting for specified owners of buildings.
- Devise capacity building programmes at the local level.
- Public-Private Partnerships
- Promote participatory planning and funding based on potential of local level stakeholders.
- Develop suitable models for private sector's assembly of land and its development for housing in accordance with the Master Plan.
- Promote Residents' Welfare Associations (RWAs) for specified operation and maintenance of services within the boundaries of given colonies as well as utilize their assistance in developing an early warning system relating to encroachments.
- Involve RWAs/CBOs in collaboration with conservancy organizations at the local level for effective cleaning of streets/lanes and solid waste disposal at the colony level.
- Special Programme for Disadvantaged Sections
- Devise innovative housing programmes for meeting the housing shortage with special focus on vulnerable groups.
- Environment and Ecology

Security & Safety

xvii) Ensure Safety & Security in residential and institutional areas which may include construction of boundary walls around housing colonies as well as installation of security stems.

Banks and Housing Finance Institutions (HFIs) would:

Outreach

- Reassess their strategies to be more inclusive in terms of both low-income beneficiaries belonging to EWS and LIG as well as extend/intensify their coverage in low income neighbourhoods.

Housing Finance

- Promote innovative financial instruments like development of Mortgage Backed Securitization Market (MBSM), and Secondary Mortgage Market. iii) Enhance / strengthen the income spread of their housing loans portfolio to increasingly cover BPL and EWS beneficiaries.
- Adopt a more flexible and innovative approach in relation to credit appraisal norms. v) Develop financial products which encourage EWS and LIG housing beneficiaries to take insurance cover.
- HFIs could also look at ploughing part of their resources towards financing slum improvement and upgradation programmes.

Special Programmes for Vulnerable Sections

- Provide loans at concessional rate of interest to specified persons for purchasing a house site or house.
- Devise innovative housing finance schemes for targeting the EWS and LIG segments of the housing market with suitable subsidy support from the Central and State Governments.

- Promote MFIs and Self Help Groups for mobilizing savings and playing a significant role in the housing finance sector. Provide housing loans to EWS and LIG segments as a priority sector of banking as in the case of rural development programmes.
- Devising adequate safeguards for promoting a healthy environment with special emphasis on ‘green lungs’ of the city in terms of parks, botanical gardens and social forestry as well as green belts around cities/towns.
- Encourage potential EWS and LIG beneficiaries to form Cooperative Group Housing Societies.

Public agencies/parastatals would:

- Revisit their strategy of operations and chart out a role relating to land assembly and development of fully serviced land with essential services.
- Design multiple products to suit clients requirements.
- Forge partnerships with the private sector and cooperatives for housing and infrastructure development especially with reference to Below Poverty Line (BPL)/EWS and LIG segments of the market.
- Use land as a resource for housing with special focus on the urban poor. v) Reduce their dependence on budgetary support in a phased manner and access loans through better product development and implementation on the one hand and better bankability in terms of escrow account and land mortgage on the other hand.

Cooperative and Private Sectors would:

- Undertake land assembly and development with special focus on housing with complementary basic services.
- Design public-private partnerships for slum reconstruction on a cross subsidization basis.
- Augment housing stock at an accelerated rate both on ownership and rental basis with a view to overcoming shortage of EWS/LIG housing units.

Role of Research & Development, Standardisation and Technology Transfer Organisations

Research and Development, Standardization and Technology Transfer Organisations would:

- Undertake research to respond to different climatic conditions with a focus on transition from conventional to innovative, cost effective and environment friendly technologies.
- Develop and promote standards in building components, materials and construction methods including disaster mitigation techniques.
- Intensify efforts for transfer of innovative technologies and materials from lab to field.
- Accelerate watershed development to conserve water, stop soil erosion and re-generate tree cover in order to improve habitat

Specific Areas of Action

5.1 Land

- i) Land assembly, development and disposal will be encouraged both in the public and private sectors.
- ii) Assembly of land for specified use as per Master Plan will be done by observing the best norms of Regional Planning. District Plans and Metropolitan Plans will be prepared in compliance with the stipulations of the 74th Constitutional Amendment Act. District Plans and Metropolitan Plans will function as sub set of the Regional Plan.
- iii) Private Sector will be allowed to assemble a reasonable size of land in consonance with the Master Plan/Development Plan of each city/town.
- iv) 10 to 15 percent of land in every new public/private housing project or 20 to 25 percent of FAR / Floor Space Index (FSI) which is greater will be reserved for EWS/LIG housing through appropriate legal stipulations and spatial incentives.

- v) A Special Action Plan will be prepared for urban slum dwellers with special emphasis on persons belonging to SC/ST/OBCs/Minorities/Economically weaker Sections /physically handicapped and Minorities. Due consideration would be given so that Safai Karamcharies and Scavengers are not geographically and socially segregated.
- vi) Beneficiary-led housing development will be encouraged. Suitable percentage of land developed by the Public Sector will be provided at institutional rates to organizations like Cooperative Group Housing Societies, which provide housing to their members on a no-profit no-loss basis. Employee Welfare Organizations will also be promoted since they operate on a no-profit no-loss basis. A special package will also be worked out for Labour Housing.

Finance

- i) In order to ensure that 10 to 15 percent of land or 20 to 25 percent of FAR / FSI whichever is greater is earmarked in every new public/private housing project, appropriate spatial incentives will be developed by Urban Local Bodies (ULBs) and Development Authorities.
- ii) A Secondary Mortgage Market may be promoted by the Reserve Bank of India(RBI)/National Housing Bank (NHB). This will enhance transparency and flexibility in the housing market.
- iii) Residential Mortgage Based Securitization (RMBS) need to be nurtured through NHB, Scheduled Banks and Housing Finance Corporation (HFCs).
- iv) A Model Rent Act will be prepared by the Government of India to promote rental housing on the principle that rent of a housing unit should be fixed by mutual agreement between the landlord and the tenant for a stipulated lease period prior to which, the tenant will not be allowed to be evicted and after the expiry of the said lease period, the tenant will not be permitted to continue in the said housing unit.
- v) The feasibility of a National Shelter Fund to be set up under the control of the National Housing Bank for providing subsidy support to EWS/LIG housing would be examined in consultation with Ministry of Finance. The NHB will act as a refinance institution for the housing sector.
- vi) Housing and Urban Development Corporation Ltd. (HUDCO) will be directed to observe the aims and objectives listed in its Memorandum of Association and Articles of Association with a view to encouraging EWS/LIG housing.
- vii) Efforts should be made to encourage Foreign Direct Investment (FDI) from Non Resident Indians (NRIs) and Persons of Indian Origin (PIOs) in the housing and infrastructure sector in consultation with the Ministry of Finance and RBI.
- viii) Suitable fiscal concessions for promoting the housing sector may be developed by the Ministry of Housing & Urban Poverty Alleviation in collaboration with the NHB and the Ministry of Finance.
- ix) Central Government and Governments of States/UTs will promote innovative forms of public-private partnerships.
- x) States/UTs will be advised to develop 10 years perspective Housing Plans with emphasis on EWS and LIG sectors.
- xi) Special financial and spatial incentives would be developed for inner-city slum redevelopment schemes.
- xii) The Central and State/UT Governments would develop a special package of incentives for in-situ slum upgradation.
- xiii) In order to facilitate RMBS transactions, stamp duty on the instruments of RMBS across all states would be rationalized.
- xiv) Rental housing provides a viable alternative option to the home seekers and the house providers alike. Incentives are to be provided for encouraging lendings by financial institutions, HFIs and Banks for rental housing. Also, Companies and Employers will be encouraged to invest in the construction of rental housing for their employees.
- xv) Plan Funds and other assistance for housing and infrastructure would be dovetailed according to the Action Plan prepared and adopted by the States under their State Urban Housing and Habitat Policy (SUHHP). This would bring about synergies in the operation of various schemes and funding sources.
- xvi) Micro-Finance Institutions (MFIs) would be promoted at State level to expedite the flow of finance to urban poor. In this regard, suitable mechanisms would be evolved to develop simplified norms for prudential rating and providing finance to MFIs. Adequate regulation of MFIs would be undertaken to ensure that MFIs do not burden the poor by charging usurious interest rates and their operations are kept transparent.

Legal and Regulatory Reforms

Model Guidelines will be developed by the Central Government for use by States/UTs for regulation of land supply with a view to reducing speculation in land and haphazard development in urban areas and along inter-city transport corridors.

ii) In line with Central Government's decision to repeal the Urban Land Ceilings Act, the States (who have not already repealed the Act) will be encouraged to repeal the said Act.

A single window approach would be developed by the Urban Local Bodies/ parastatals for approval of Building Plans and securing Certificates in collaboration with the Council of Architects or their State/UT chapters.

iv) Adoption of the Model Municipal Law prepared by the Central Government with suitable modifications, if required, at the State/UT level needs to be encouraged.

v) Revision of Master Plans would be done periodically with wide public participation and should take care of the expansions of the city due to urbanization.

vi) Awareness generation and advocacy for increased use of the Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest Act, 2002 and the Recovery of Debts due to Banks and Financial Institutions Act, 1993 (DRT Act) to ensure expeditious recovery of housing debts. vii) Stamp Duty reforms should be initiated to bring incidence of duty in all States/UTs at par.

viii) Property Tax reform based on unit area method needs to be encouraged in all States/UTs and ULBs.

ix) States will be encouraged to adopt the Model Cooperative Housing Act. x) All States would be encouraged to refine/enact a Town and Country Planning Act in order to promote Regional Planning at the State/UT level.

States/UTs would be encouraged to use Information Technology for maintaining urban land records and providing non-encumbrance certificates on the basis of e-enabled data and digitized certification.

States/UTs will be encouraged to enact Apartment Ownership Acts.

States/UTs will be encouraged to undertake urban reforms listed under the JNNURM.

xiv) A Citizen's Charter should be developed to safeguard the interests of customers vis-à-vis housing schemes offered by both the public and private sectors.

xv) The land revenue records of the States/UTs would be computerized and put on Geographic Information System (GIS) mode within a time frame.

xvi) Environmental safeguards in respect of housing and construction projects will be considered in consultation with Ministry of Environment and Forests and modalities for compliance of their guidelines will be worked out.

Technology support and its transfer

States would be encouraged to prepare detailed city maps on the basis of the GIS mapping through satellite data, aerial survey and ground verification.

ii) Low energy consuming and using renewal form of energy for construction techniques and rain-water harvesting technologies will be encouraged.

Use of prefabricated factory made building components will be encouraged for mass housing, so as to achieve speedy, cost effective and better quality construction.

iv) Central and State/UT Governments should promote low cost, local building materials based on agricultural and industrial wastes, particularly those based on fly ash, red mud and allied local materials.

v) Enforcement of the Building Code/Building Guidelines relating to disaster resistant planning and technologies will be taken up and specific elements in different disaster prone zones will be made compulsory.

vi) Transfer of proven, cost-effective building materials and technologies would be encouraged by transfer from lab to land.

vii) States/UTs will be encouraged to include new building materials in their schedule of rates.

viii) Demonstration houses using cost effective materials and alternate technologies will be got constructed by the Building Materials and Technology Promotion Council (BMTPC) set-up by the Central Govt. and by other appropriate Public/Private Sector agencies.

ix) Use of wood has already been banned by the Central Public Works Department (CPWD). State PWD Departments need to take similar steps in this direction. Use of bamboo as a wood substitute and as a general building component would be encouraged.

Infrastructure

Efforts will be made to encourage ULBs/Development Authorities and other concerned agencies to follow the Urban Development Plans Formulation and Implementation(UDPFI) Guidelines issued by the Ministry of Urban Affairs and Employment in 1996 in order to improve the quality of Master Plans/Development Plans, Zonal Plans and Local Area Plans of all cities/ towns. The States will be advised to prepare a dynamic plan with provision for review every five years.

ii) Development of a Mass Rapid Transit System (MRTS) at the sub-regional level around metropolitan cities will be encouraged.

iii) All States would be encouraged to develop a 'Habitat Infrastructure Action Plan' for all cities with a population of over 1,00,000.

Sustainability Concerns

- Green belts will be developed around cities with a view to maintaining the ecological balance.
- Suitable green recreational areas like zoo, lakes and gardens will be earmarked /developed for public visits in the Master Plan of each city/town.
- Water bodies will be protected with special emphasis on keeping the flood plains of tropical rivers free from construction or encroachments.
- Efforts will be made to ensure that Master Plans protect large depressions from being filled up since they are natural drainage points for conservation of water and can be developed as suitable water bodies.
- Efforts will be made to encourage cities/towns to keep a significant proportion of the total Master Plan area as 'green lungs of the city.'

- Efforts will be made to encourage States/UTs to develop Sub-regional / Special Area Development Plans for areas with fragile ecological characteristics on the basis of Environment Impact Assessment (EIA) so as to take care of all environmental concerns at the planning stage itself in consultation with the Ministry of Environment & Forests.
- Growth of a city beyond reasonable limits imposes unbearable strain on its services. City planners would be encouraged to lay down norms for development of urban sprawls and satellite townships.
- Reduction in the rate of in-migration into mega and metro cities is urgently needed through preparation of State/UT level regional Plans based on fast transport corridors for balanced growth.
- Model bye-laws will be developed to promote the use of renewable energy sources particularly solar water heating systems in residential and commercial buildings.
- Poverty and unemployment are detrimental to the well balanced growth of urban settlements. States/UTs Governments and local authorities will be encouraged to formulate and implement poverty alleviation and employment generation programmes based on skills' training especially in the services sector.

Employment issues relating to the Housing Sector

- Efforts will be made to provide good quality training to construction workers with a view to improving their skills in tandem with technological advancements in the construction sector.
- The Construction Industry is one of the biggest employers of women workers and is perhaps their biggest exploiter in terms of disparity in wages. Concerted efforts will be made to upgrade the skills of women construction workers, induct them at supervisory levels and also develop them as contractors. Both public and private agencies would be encouraged to take a lead in this. Training institutions will be requested to enroll women trainees on a preferential basis.
- Efforts will be made to get States/UTs to enact legislation on the pattern of the Building & Other Construction Workers (Regulation of Employment & Conditions of Service) Act, 1996 of the Central Government with a view to ensuring that adequate measures are undertaken by employers for the occupational health and safety of all workers especially women engaged in construction activities. Efforts will also be made to ensure use of modern techniques and modern safety equipment at construction sites with strict penalties for non-compliance.
- Construction companies/public authorities will be directed to provide adequate support services like crèches and temporary rest accommodation with appropriate toilet facilities at construction sites.
- Effort will be made to get States/UTs to enact legislation on the pattern of the Building & Other Construction Workers Welfare Cess Act, 1996 of the Central Government and ensure adequate provision for skills upgradation of construction workers.
- States/UTs will be encouraged to adopt a decentralized pattern of training for ensuring better coverage.

Slum improvement and upgradation

- The Jawaharlal Nehru Urban Renewal Mission has started to play a vital role both in slum improvement as well as in-situ slum rehabilitation along with provision of security of tenure, affordable housing and basic services to the urban poor.
- Specially designed slum improvement programmes will also be encouraged which focus on upgrading of basic services and environment improvement of urban slums with a participative, in-situ slum rehabilitation approach.
- Inner-city slum redevelopment programmes for creating a better environment would be encouraged with cross subsidization and special incentives.

- Land pooling and sharing arrangements would be encouraged in order to facilitate land development and improvement of basic amenities in slums.
- Release of Transferable Development Rights and additional FAR would be carefully considered for accelerating private investment in provision of shelter to the poor. Community Based Organizations (CBOs), Non-Governmental Organizations (NGOs) and Self-Help Groups (SHGs) would be involved in partnership with the Private Sector.
- The Policy gives primacy to provision of shelter to the urban poor at their present location or near their work place and efforts will be made to ensure that rights provided are non-transferable for a period of 10-15 years.
- Only in cases, where relocation is necessary on account of severe water pollution, safety problems on account of proximity to rail track or other critical concerns relocation of slum dwellers will be undertaken. In such cases, special efforts will be made to ensure fast and reliable transportation to work sites.
- Income generating activities in slums, which are non-polluting, will be encouraged on a mixed land use basis. Efforts will be made to structure such activities as an integral part of housing and habitat projects.
- The process for integrating the Valmiki Ambedkar Awas Yojana (VAMBAY) and the environment improvement scheme titled National Slum Development Programme (NSDP) has been undertaken through the Basic Services to the Urban Poor (BSUP) in Mission Cities and Integrated Housing & Slum Development Programme (IHSDP) in Non-Mission cities. Efforts will be made to remove hurdles faced by the States/UTs in implementing these integrated schemes. Further, efforts will also be made to enhance funds under IHSDP as well as develop a new scheme for meeting water, drainage, sanitation and sewerage concerns in slums located in smaller towns with a population below 5 lakhs.
- Formation of Group Cooperative Housing Societies of urban poor and slum dwellers will be encouraged across the country for providing better housing serviced by basic amenities through thrift and credit based CBOs.

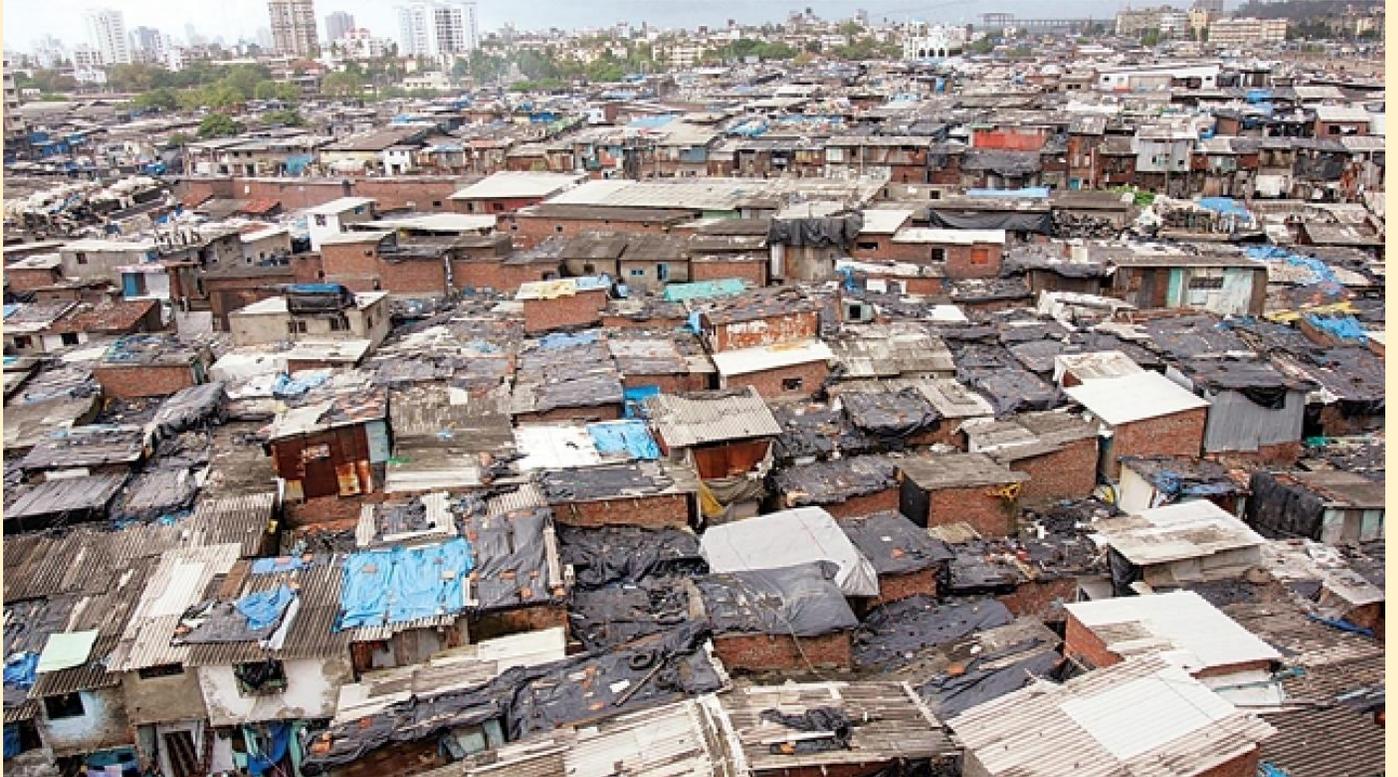
Action Plan

- The Central Government will encourage and support the States to prepare a State Urban Housing and Habitat Policy and also a State Urban Housing & Habitat Action Plan. This may include passing of specific Acts by the States/UTs (with legislature) for achieving the housing policy objectives through legal & regulatory reforms, fiscal concessions, financial sector reforms and innovations in the area of resource mobilization for housing and related infrastructure development at the State/UT level.
- In order to augment sustainable and affordable housing stock alongwith related infrastructure like water, drainage, sanitation, sewerage, solid waste management, electricity and transportation, the Action Plans of States/UTs should focus on accelerated flow of funds for housing (including various cost-effective slum-related options) and infrastructure. The State/UT Action Plan should also encourage promotion of planned and balanced regional growth, creation of sustainable employment opportunities, protection of weaker sections/ vulnerable groups preferably in their present residential location, conservation of urban environment and promotion of public private partnerships.
- The State/UT level Policy and Plan should also provide a road map pertaining to institutional, legal, regulatory and financial initiatives in relation to
 - supply of land
 - modification of Acts/Bye-laws
 - promotion of cost effective building materials and technologies
 - infrastructure development and in situ slum development. Further, the Action Plan should make specific provision for use of information technology for planning, MIS and online e-connectivity in a time bound manner.
 - The State/UT level Policy and Plan should also indicate concrete steps for motivating, guiding and encouraging a participatory approach involving all stakeholders like CBOs, NGOs, State parastatals, ULBs, Cooperative Sector and Private Sector in order to synergise community, cooperative and private resources alongwith Government resources.
 - A Monitoring framework at the State/UT level should be set up to periodically review the implementation of the Policy and concomitant Action Plan.
 - At the local level, cities should prepare 15-20 years perspective plans in the form of City Development Plans which take into account the deficiencies in housing and urban infrastructure with special emphasis on the

urban poor and indicate a vision based on various levels of spatial plans – Master Plan and Zonal Plans, Metropolitan Plan, District Plan and State/UT based Regional Plan – alongwith an investment plan for their implementation.

- A High Level Monitoring Committee at the Central Government level would be set up to periodically review the implementation of the National Urban Housing & Habitat Policy 2007 and make amendments/modifications considered necessary.

- ***Pradhan Mantri Awas Yojana – Urban (PMAY-U)***, a flagship Mission of Government of India being implemented by Ministry of Housing and Urban Affairs (was launched on 25th June 2015). The Mission addresses urban housing shortage among the EWS/LIG and MIG categories including the slum dwellers by ensuring a pucca house to all eligible urban households by the year 2022, when Nation completes 75 years of its Independence. PMAY(U) adopts a demand driven approach wherein the Housing shortage is decided based on demand assessment by States/Union Territories. State Level Nodal Agencies (SLNAs), Urban Local Bodies (ULBs)/ Implementing Agencies (IAs), Central Nodal Agencies (CNAs) and Primary Lending Institutions (PLIs) are main stakeholders who play an important role in implementation and success of PMAY(U). The Mission covers the entire urban area consisting of Statutory Towns, Notified Planning Areas, Development Authorities, Special Area Development Authorities, Industrial Development Authorities or any such authority under State legislation which is entrusted with the functions of urban planning & regulations. All houses under PMAY(U) have basic amenities like toilet, water supply, electricity and kitchen. The Mission promotes women empowerment by providing the ownership of houses in name of female member or in joint name. Preference is also given to differently abled persons, senior citizens, SCs, STs, OBCs, Minority, single women, transgender and other weaker & vulnerable sections of the society. A PMAY(U) house ensures dignified living along with sense of security and pride of ownership to the beneficiaries.- **MoHUA**
- COVID-19 pandemic has resulted in reverse migration of urban migrants/ poor in the country. Urban migrants stay in slums/ informal settlements/ unauthorised colonies/ peri-urban areas to save cost on housing. They need decent rental housing at affordable rate at their work sites. In order to address this need, Ministry of Housing & Urban Affairs has initiated **Affordable Rental Housing Complexes (ARHCs)**, a sub-scheme under Pradhan Mantri Awas Yojana - Urban (PMAY-U). This will provide ease of living to urban migrants/ poor in Industrial Sector as well as in non-formal urban economy to get access to dignified affordable rental housing close to their workplace. The ARHC scheme will be implemented through two models: Utilizing existing Government funded vacant houses to convert into ARHCs through Public Private Partnership or by Public Agencies ii. Construction, Operation and Maintenance of ARHCs by Public/ Private Entities on their own vacant land- **MoHUA**



Slums in India- 2011 Census

Slums in India- 2011 Census

- Slums, as integral part of haphazard and unplanned urban growth and development, are known to be shadows of urbanization.
- Slum, for the purpose of Census, has been defined as residential areas, where dwellings are unfit for human habitation by reasons of dilapidation, overcrowding, faulty arrangements and design of such buildings, narrowness or faulty arrangement of street, lack of ventilation, light, or sanitation facilities or any combination of these factors which are detrimental to the safety and health.
- Slums under Indian Census have been categorized and defined to be of three distinct types including: **Notified Slums; Recognized Slums; Identified Slums**
- All notified areas in a town or city notified as 'Slum' by State, UT Administration or Local Government under any Act including a 'Slum Act' are termed as **Notified Slums**.
- All areas recognized as 'Slum' by State, UT Administration or Local Government, Housing and Slum Boards, which may have not been formally notified as slum under any act are known as **Recognized Slums**.
- A compact area of at least 300 population or about 60-70 households of poorly built congested tenements, in unhygienic environment usually with inadequate infrastructure and lacking in proper sanitary and drinking water facilities are termed as **Identified Slums** under the Census of India,2011
- Slums have been found to exist in majority of Indian towns and cities with 2 out of 3 towns reporting the existence of slums in the city. Out of 4,041 Statutory Towns existing in India, Census 2011 reported Slums from 2,543 Towns .63% of Indian towns recorded the existence of slums in 2011.
- In terms of Census Enumeration blocks , number of Slum Enumeration Blocks (SEBs) recorded were about 1.08 lakh in the country. Largest number of Slum EBs was reported from state of Maharashtra (21,359). State alone contained about one-fifth of identified slum blocks.
- Largest number of slums in the country fell under the category of Identified slums, followed by Notified slums. Recognised Slums were found to be minimum Based on categories, **Notified Slums** numbered 37,072(34.30%); **Recognized Slums** were 30,846(28.50%); and **Identified Slums** count was placed at 40,309(37.20%);.
- Total number of Households in India reported to be living in slums in the year 2011 were of the order of **137.49 lakh**; out of which 49.65 lakh HH(36.1%) lived in **Notified Slums** ;whereas **Recognised Slums** count was placed at 37.96 lakh HH(27.6%); and **Identified Slums** had49.88 lakh HH(36.3%);
- Slum household distribution was found to be uneven in the country with few states reporting existence of large slum household as compared to others. State of Andhra Pradesh was found to provide worst placed in the country in terms of providing quality of life to its citizens, with every third household being a slum dweller. Northern states were found to be better placed in terms of number of slums. Existence of slums and level of urbanisation were not found to be co-related at the state level **Top 5 States in the country reporting Slum Households included Andhra Pradesh (35.7%); Chhatisgarh (31.9%);Madhya Pradesh (28.3%); Odisha (23.1%);West Bengal (21.9%)**..
- Few states did much better, considering the existence of slum households in the country. State of Kerala was found to be best placed with minimum number of slums household placed at only 1.5% of total households in the state. Chandigarh, despite being the best planned city, reported every tenth household living in slums. **Bottom 5 States Reporting Slum Households included; Chandigarh(9.7%); Gujrat (6.7%); Jharkhand(5.3 %); Assam(4.8 %); Kerala (1.5 %)**;
- Despite low level of urbanization standing at 31.16%;India, as a nation, was reported to have high incidence of slum dwellers. **Every sixth urbanite in India was reported to be living in slums** in 2011. As against total household of 789 lakhs, slum households were counted to be **137 lakh (17.4%)** and non-slum households were placed at **652 lakhs (82.6%)**.
- Size of the city was found to have positive co-relation with the slum population the city was holding. Accordingly, large concentration of slum households were found to be concentrated in metro cities, Every third resident of

metropolises were a slum dwellers as against every sixth in the urban India. **46 Million Plus Cities** held 52lakh slum households (38.1 %) as against 85 lakh (61.9%) in other cities .

- Number of slum households was found to at variance in the mega cities. Mumbai, being the largest populated city in India, recorded large slum population with every second resident of the city leading a degraded life. Dharavi, largest slum settlement in India, is also located in Mumbai. Capital city of Delhi is found to be better placed as compared to Mumbai, so far as slum households are concerned with only every seventh urbanite a slum dweller. **Proportion of Slum Households in Metros were found to be - Greater Mumbai (M Corp) 41.6%; --Kolkata(M Corp.)- 29.6%, Chennai(M Corp)-28.5% , Delhi MC (U)- 14.6%, BBMP(M Corp)- 8.5%.**
- Great variation is also observed in the number of households living in million plus cities. Vishakhapatnam was found to have largest proportion of population living in slums with on an average every second household counted to be slum dweller, followed by Jabalpur cantt, Greater Mumbai, Vijaywada etc. Top 10 **Million Plus Cities with High Proportion of Slum HHs** in 2011 include-- Greater Visakhapatnam M Corp-44.1% ; Jabalpur Cantt (CB)- 43.3; . Greater Mumbai (M Corp.)- 41.3% ; Vijayawada (M Corp.)- 40.6%; Meerut (M Corp.)-; Raipur (M Corp.)-40.0%,Nagpur (M Corp.)-39.0%;Greater Hyderabad M Corp(GHMC)-. 34.3%; 31.9%; Kota (M Corp.)-31.8%; Agra (M Corp.)-29.8%
- In terms of typologies of the housing, majority of houses were found to be permanent followed by semi-permanent with minimum proportion of temporary houses in both urban areas and slums. Proportion of Permanent houses matched both in urban and slum areas, whereas proportion of Semi-permanent and Temporary households was found to be higher in slums as compared to urban areas. Proportion of Households by Type of Census Houses in urban India and slums include- Permanent - U -84.3/ S-77.7 %HH; Semi-permanent -U -11.6/ S- 16.0 %HH; Temporary-U-3.2/ S-5.3 %HH; Any other - U 0.9/ S-1.0 %HH;
- Majority of households in slums were found to be the owners of the house. Ownership of housing was found to be higher in slums as compared to urban India. Slums also follow the pattern of ownership and providing renting facilities. One –fourth of household were found to be living in the rented housing in slums, following the pattern in urban areas. Details of the households by Ownership Status in India included –**URBAN/SLUMS**---- OWNED – U-69.2%/S-70.2%; **RENTED**-- U-27.5%/S-26.3% ;**OTHERS**- U- 3.3%/ S- 3.5 %
- Variation was also observed in the availability of rooms both in the urban areas and the slum households, which makes an interesting study .It varied as widely as with no rooms to more than five rooms. Three- fourth of the slum households lived in either one room or two room accommodation; whereas every sixth slum household was placed in three/four room house. Number of households in slums with no room was placed at 4.4%. Slum household were also found to have five or more rooms. As per Census 2011; Households by Number of Rooms in urban/slums in %age terms were found to be – No Exclusive Room—3.1/4.4; One Room—32.1/44.8; Two Room- 30.6/ 29.5; Three Room- 18.4/12.3 ; Four Rooms 9.3/5.4; five Rooms& above -6.5/3.5 .
- Households size in slums were also found to be varying from as low as one member to as high as more than 9 members. Largest proportion of households was found to be comprising of four members; followed by 6-8 members and 5 members. Household pattern based on size was found to be quite similar both in urban areas and slums. As per Census 2011, Households by Household Size– India--- urban/slums in %age -1 member- 3.6/3.7 ; 2members- 9.5/9.5; 3 members-15.9/14.9 ; 4 members –26.4/25.1; 5 members-18.5/19.4 ; 6-8 members—20.6/22.2 ; 9 and above members -5.4/5.2
- Considering the use to which houses were put in slums, majority of houses-four out of five- were used for residential purposes. In addition, houses in slums were also used as shops, offices, schools, factories, workshops, place of worships etc, indicating slums also served for activities other than residences only. Details of houses based on Use of Occupied Census Houses recorded in census 2011 included --Total Occupies Census Hous - urban/slums in %age--Residence— 76.9/ 82.5 ; Residence-cum-other use- 2.4/2.4 ; Shop/Office- 10.8/6.7; School/College etc- 0.4/0.3 ; Hotel/Lodge/Guest House—0.4/0.2;Hospital/ Dispensary etc- 0.3/0.2; Factory/ Workshop etc- 1.5/1.2 ; Place of worship -0.6/0.6; Other non-residential use-6.0/5.1 ; Locked Census House- 0.7/0.6 .
- In slums, three- fourth household had access to tap water supply, whereas only one-eighth used wells as source of water supply. More than half (56.7%) household had source of water supply located within the premises in which they were living while remaining(43.3%) depended on outside sources.
- 9 out of 10 households in slums (90.5%) had access to electricity as the source of lighting, whereas remaining households depended on kerosene, solar, oil etc for lighting the premises. However 0.5% household had no access to any source of lighting except nature.

- 81% household in slums could access bathing facility within their premises with 19% having no access to such facility. However, every seventh household had no roof over the available bathing facility (14.%) within the premises.
- Regarding waste water drainage connectivity, one third households (36.9 %) enjoy facility of covered drains; whereas majority are still to live with open drains(44.3%). About one-fifth (18.8%) are without any drainage option.
- Regarding latrine facility, two-third of slum households (66.0%) have latrines within their premises, whereas rest of 34% go for outside facility including both public and open defecation More than half of slum households(57.7%) have access to WC, whereas 6.2% used pit latrines. One fifth slum households(18.9%) in urban areas defecated in the open
- Cooking inside the house was being done by almost all the slum households (94.1%), whereas only 5.4% slum households were cooking outside the house. However, only 65.3% slum household had the facility of kitchen within the house , whereas remaining 28.8% households were cooking without any kitchen . No cooking was reported in the 0.5% slum households.
- LPG/PNG was being used by majority (51.3%) as the fuel for cooking in the slums. Next preferred fuel for cooking was fire wood(25.8%) followed by kerosene(14.0%). Bio gas was used by only 0.5% slum households
- Availing banking facility was equally divided between haves and have-nots with facility was being used by (53.2%) slum households, whereas. (46.8%)had no access to banking facility.
- More than two third slum households (69.6%) had televisions along with 18.7% having radio/transistors. As many as 10.4% slum households had computers with them but majority of them were without internet facility(7.1%)

Among assets in possession of urban slums, 72.7% owned telephones, out of which 63.5% owned mobiles and 4.4% owned landline, whereas 4,8% household owned both mobile and land line connections.40.2% owned bicycles whereas scooter/motor cycle/moped was owned by 22.0%. Car/van Jeep was owned by 3.6% of the slum households whereas 10.7% slum households had no such assets.

**Above text is based on the data and details reflected in the ppt titled; 'Housing Stock, Amenities& Assets in Slums- Census 2011; by Dr C Chandramouli ; Registrar General & Census Commissioner, India- which author fully appreciates and thankfully acknowledges.*

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