



## AFFORDABLE HOUSING IMPLEMENTATION: CHALLENGES, GAPS & WAY FORWARD

Development of Thermal Comfort Action Plan 2050 and Thermal Comfort Performance based Design Standard cum Guidelines for Affordable Housing in India. [REF: 8338 0638]



Environmental Design Solutions  
Private Limited



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## Disclaimer

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## Abbreviations

ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers	IFC	International Finance Corporation
APHP	Affordable Plotted Housing Project	IHSDP	Integrated Housing and Slum Development Programme
BEE	Bureau of Energy Efficiency	ISHRAE	Indian Society of Heating, Refrigerating and Air Conditioning Engineers
BIS	Bureau of Indian Standards	JNNURM	Jawaharlal Nehru National Urban Renewal Mission
BMTPC	Building Materials and Technology Promotion Council	LIHTC	Low Income Housing Tax Credit
BSUP	Basic Services for the Urban Poor	MoHUA	Ministry of Housing and Urban Affairs
CLSS	Credit Linked Subsidy Scheme	NBO	New Buildings Organization
CPWD	Central Public Works Department	NRAS	National Rental Affordability Scheme
CRA	Commonwealth Rent Assistance	NSSO	National Sample Survey Organization
CSB	Climate Smart Buildings	OECD	Organisation for Economic Co-operation and Development
CSE	Center for Science and Environment	PMAY (U)	Pradhan Mantri Awas Yojana (Urban)
DDJAY	Deen Dayal Jan Awas Yojana	PWD	Public Works Department
ECH	Economic and Comfortable Housing Programme	RAY	Rajiv Awas Yojana
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit	SHASHU	Scheme of Housing and Shelter Upgradation
GoI	Government of India	TCAP	Thermal Comfort Action Plan
HfA	Housing for All	UDD	Urban Development Department
IBEF	India Brand Equity Foundation	ULB	Urban Local Body
ICAP	India Cooling Action Plan	UNCHS (Habitat)	United Nations Conference on Human Settlements (Habitat)

## I Introduction

Several policies and missions have been launched to provide for appropriate affordable housing to address India's housing shortage. The demand drivers for affordable housing in India are several.

- a) The **rapid population compound annual growth rate (CAGR)** of 2.8% over 2001-11, resulting in an increase in the urbanization rate from 27.8% to 31.2%. Out of India's population of 1.21 billion (year 2011), 377 million people were urban dwellers. With more than 10 million people being added to urban areas every year, India's urban population is expected to reach about 600 million by 2031<sup>1</sup>. Amid the growth of urbanization, the housing shortage in India touched 18.78 million units<sup>2</sup>. **EWS (economically weaker sections) and LIG (lower income groups), account for 95.6% percent of this urban housing shortage**<sup>3</sup>.
- b) Alongside the growth of the urban population, **rising incomes have led to the expansion of the middle class**. This has led to a **spike in demand for housing that is "affordable" but includes basic amenities**.
- c) The **real estate sector is a major component of the Indian economy**. It is estimated that the real estate sector contributed to 6.3% of the GDP in 2013-14, at an estimated 3.7 lakh crores and employed about 7.6 million people<sup>4</sup>. **Housing is the largest component of the financial as well as the construction sector**<sup>5</sup>. A thrust on affordable housing will not only lead to better quality of life, but also significantly provide a boost to the GDP of the country.

The significant amount of upcoming affordable housing construction will generate high carbon footprint, posing adverse environmental impacts. While, current affordable housing units have low electricity consumption, with rising incomes and comfort aspirations, energy use and associated costs in these houses is expected to rise. The housing sector lies at the intersection of the government's plan to meet both its sustainable development goals (SDG 7- Affordable and Clean Energy; SDG 11- Sustainable and Clean Cities) as well as climate change mitigation goals. **Large-scale construction of affordable housing provides an opportunity to evaluate, demonstrate and build housing that also focuses on providing thermal comfort hence, minimizing future energy and resource use, in line with India's climate change targets.**

**Affordable housing narrative is currently driven by the link between income and built space provisions and the cost of the dwelling unit, as the determining criteria of affordable housing.** The scale of the challenge in meeting the affordable housing demand and the Mission targets necessitates that energy impacts of housing construction are evaluated to avoid lock-in of a large inefficient housing stock. **Building to optimize energy use and provide thermally comfortable housing can significantly reduce the energy impacts from the affordable housing sector. Thermally comfortable design and construction practices need to be mainstreamed into the policy and the development of housing projects.**

This report examines the affordable housing implementation challenges and gaps in the context of the national and state policies and regulations. The report also presents best practices to address the affordable housing challenge globally by reviewing the international initiatives and policies.

## 2 Review of International Affordable Housing policies

Successful policies have been reviewed for best practices, implementation frameworks and success indicators. Key resources for study of international policies and implementations are United Nations Conference on Human Settlements

<sup>1</sup> Report by Task Force on Promoting Affordable Housing, Ministry of Housing and Urban Poverty Alleviation, 2012

<sup>2</sup> The Report on Trend and Progress of Housing in India – 2013, NHB

<sup>3</sup> Economic Survey of India

<sup>4</sup> CREDAI, 2013

<sup>5</sup> High Level Task Force on Affordable Housing for All, December 2008, p. 6

(Habitat), World bank, Organisation for Economic Co-operation and Development (OECD), etc. Table 1 outlines some of the policies/regulations followed globally for Affordable Housing.

Table 1 Key policy initiatives relevant to Affordable (or Low-cost or Social) Housing

Country	International Housing Schemes, Policies and Regulations	Key Features
Australia	Commonwealth Rent Assistance (CRA) & National Rental Affordability Scheme (NRAS)	Scheme to reduce cost to 20% below market rate. NRAS – Annual financial incentives to developers for 10 years.
Brazil	Strategies for Planning, Financing, and Sustainable Implementation of Housing and Urban Development Policy	Public-Private coordination and Community Participation
China	Economic and Comfortable Housing (ECH) program	Govt. provides subsidized land to developers
China	Housing Provident Fund Scheme	Both the employees and the employers contribute to a state-owned bank in return of low-cost housing loan.
China	Cheap Rental Housing scheme	Govt. provides rental assistance to low-income families
Europe	The European Responsible Housing Initiative	Program to lead the way towards embedding CSR in the social housing sector, through awareness, transfer of knowledge and tools and stakeholder dialogue at European level.
Europe	Affordable Housing Initiative	The initiative will pilot 100 lighthouse renovation districts focuses on creating quality, live able, affordable homes for people and will mobilize cross-sectoral project partnerships.
Singapore	Singapore Affordable Housing Project	Model lays emphasis on ownership rather than rental. As Singapore's sole housing agency, the HDB operates like a single, comprehensive source for housing development and coordinates planning, land acquisition, construction, financing, and policy for housing in Singapore.
USA	National Housing Act (1937)	Rental Affordability
USA	Brooke Amendment to the Housing and Urban Development Act (1968, 1981)	Max. proportion of income available for rent (30%)
USA	Housing Choice Voucher (HCV) program	Rental subsidy
USA	Low Income Housing Tax Credit (LIHTC) (1986)	Tax credits to developers

Financial incentives / assistance plays an important role in all affordable housing initiatives. Tax rebates, low-interest loans, etc, are key drivers to dealing with the affordable housing challenge, internationally.

## 2.1 International examples on Greening Affordable Housing

To ensure the energy efficient and thermally comfortable affordable housing, governments have either adopted or implemented sustainability standards. Some examples are

- a) Washington enacted green building legislation in the U.S., with its Evergreen Sustainability Development Standard. This standard required that all buildings that receive public funding meet "79 criteria that safeguard health and safety, increase durability, promote sustainable living, preserve the environment, and increase energy and water efficiency." This applied to all publicly subsidized affordable housing, but not private projects.
- b) City of Boston's Green Affordable Housing Program (GAHP) adopted certain criteria and levels under the green rating standards such as USGBC LEED for affordable housing. To address the issue of affordability, the city's LEED standard is that buildings must be LEED "certifiable," meaning that they must satisfy the requirements of the LEED system, but do not have to seek formal certification from the USGBC.
- c) The Selo Azul Program too was launched in 2010 with the goal of promoting green housing development in Brazil. The Selo Azul Program – followed the "Blue Angel" rating system, developed specifically for low-income housing in Brazil.

### **3 Affordable Housing policies and regulations in India**

Several policies adopted by Central Government have assisted in the delivery of affordable housing for the EWS, LIG and lower MIG. The first National Housing Policy was formulated in 1988. It was followed by the formulations of National Housing Policy in 1994, National Housing and Habitat Policy (NHHP) in 1998 and follow-up of 74th Constitution Amendment of 1992. These policy initiatives focused on transition of public sector role as 'facilitator', increased role of the private sector, decentralization, development of fiscal incentives, accelerated flow of housing finance and promotion of environment-friendly, cost-effective and pro-poor technology. Table 2 outlines national and regulatory policy landscape of India of from the past four decades. The policies help outline ingrained issues of scalability, demand mismatch and inequitable distribution.

*Table 2 Key policies that may point towards the intersection scalability, affordability (financial incentives and mechanisms) and thermal comfort*

<b>National Housing Schemes, Related Policies and Regulations</b>
Urban Land Ceiling and Regulation Act (1976, repealed in 2005)
Indira Awas Yojana (1985)
National Housing Bank Bill (91 of 1987)
National Housing Policy (1988)
Nehru Rozgar Yojana's Scheme of Housing and Shelter Upgradation (SHASHU) (1990)
National Slum Development Program (NSDP) (1997)
74th Constitutional Amendment Act (1992)
National Housing and Habitat Policy (1998)
Valmiki-Ambedkar Awas Yojana (2001)
National Urban Housing & Habitat Policy (2007)
Slum rehabilitation under Jawaharlal Nehru National Urban Renewal Mission (JNNURM) (2005-12) <ul style="list-style-type: none"><li>- Basic Services for the Urban Poor (BSUP)</li><li>- Integrated Housing and Slum Development Programme (IHSDP)</li></ul>
Rajiv Awas Yojana (2011)
Model State Affordable Housing Policy (2015)
National Urban Rental Housing Policy (2015)
Pradhan Mantri Awas Yojana—Housing for All (2015)

#### **3.1 Jawaharlal Nehru National Urban Renewal Mission (JNNURM), 2005**

JNNURM was launched in December 2005 with an aim to implement reform-driven, planned development of cities in a Mission mode with focus on up-gradation of urban infrastructure, creation of housing stock and provision of basic services to the urban poor, community participation and accountability of Urban Local Bodies (ULBs). For the housing sector in particular, its main aim was construction of 1.5 million houses for the urban poor during the mission period (2005–2012) in 65 mission cities.

- a) Basic Services for the Urban Poor (BSUP) scheme, managed by the Ministry of Urban Development seeks to provide seven services – security of tenure, affordable housing, water, sanitation, health, education and social security to low-income segments in the 65 mission cities.
- b) Integrated Housing and Slum Development Programme (IHSDP) aims to have an integrated approach in ameliorating the conditions of the urban slum dwellers that do not possess adequate shelter and reside in dilapidated conditions. The scheme is applicable to all cities and towns as per 2001 census except cities/towns covered under BSUP.

### **3.2 National Urban Housing and Habitat Policy (NUHHP), 2007**

Considering the emerging challenges of required shelter and growth of slums, the first policy specific to urban areas, the National Urban Housing and Habitat Policy was announced in December 2007. NUHHP 2007 has identified 'Affordable Housing for All' as a key focus area to address concerns that could potentially impede sustainable urban development.

### **3.3 Rajiv Awas Yojana, 2011**

Rajiv Awas Yojana (RAY), launched as a Centrally Sponsored Scheme (CSS), to be implemented in Mission mode during 2013-2022 for the slum dwellers and the urban poor envisages a 'Slum-free India' by encouraging states and union territories to tackle the problem of slums in a definitive manner.

- a) Affordable Housing in Partnership (AHIP) aims to increase affordable housing stock through promotion of various types of public private partnerships amongst the private sector, cooperative sector, financial services sector, state parastatals and urban local bodies.
- b) With a view to improve access to loans for EWS/LIG persons Credit Risk Guarantee Fund (CRGF) with a proposed corpus of Rs. 1,000 crore in the 12th Five Year Plan has also been created under RAY to guarantee the lending agencies for loans up to Rs. 8 lakh (earlier Rs. 5 lakh) without any third-party guarantee or collateral security.

### **3.4 National Urban Housing Mission (NUHM), 2015**

The NUHM was launched as a Centrally Sponsored Scheme in 2015. It seeks to meet the gap in urban housing units by 2022 through increased private sector participation and active involvement of the States. It has four broad components or verticals out of which credit linked subsidy would be implemented as a Central Sector Scheme and not a Centrally Sponsored Scheme. The Mission would initially cover 500 Class I cities and will be spread across 3 phases (2015-2022).

- a) Slum rehabilitation of Slum Dwellers with participation of private developers using land as a resource.
- b) Promotion of affordable housing for weaker section through credit linked subsidy, covering all the 4,041 statutory census towns.
- c) Affordable housing in partnership with Public & Private sectors.
- d) Subsidy for beneficiary-led individual house construction or enhancement.

### **3.5 "Housing For All" by 2022**

The Government has rolled out "Housing for All by 2022" aimed for urban areas with following components/options to States/Union Territories and cities:-

- a) In situ rehabilitation of Slum Dwellers using land as a resource through private partnership wherever possible;
- b) Promotion of affordable housing for weaker section through credit linked subsidy (interest subvention);
- c) Affordable housing in partnership with Public & Private sectors
- d) Promotion of housing for urban poor by assisting beneficiary led construction.

## **4 Institutional framework**

MoHUA is the primary developing, implementing and executing agency for Housing policies in India. Housing, however, is a part of a larger Urban Transformation mission. The PMAY (U) scheme is not only a vital cog in the Urban Transformation mission, but it is also inter-linked with other initiatives of MoHUA and GoI. Figure 1 outlines some of the

key schemes of MoHUA. Linkages of Thermal Comfort Action Plan within various missions and initiatives of MoHUA will be explored.



Figure 1.1. Among MoHUA's missions PMAY, DAY-NULM, AMRUT and Smart Cities Mission have inter-linkages with Thermal Comfort Action Plan

The implementation framework will outline synergies between Public Sector, Private Sector and other Bi/Multi-lateral agencies. Key domains for implementation are Governance and Policy, Finance and Technology. Table 3 identifies actors from these domains.

Table 3 List of stakeholders that will be key to implementation of the Action Plan.

<b>Governance and Policy</b>	
Ministry of Housing and Urban Affairs	CPWD, BMTPC, HUDCO, Smart City Mission, State Urban Development Departments (UDDs) & Urban Local Bodies (ULBs), NBCC, State PWDs
Ministry of Environment Forest and Climate Change	Ozone Cell
Ministry of Power	BEE and State Designated Agencies
Ministry of Finance	Department of Economic Affairs, National Housing Bank
Ministry of Skill Development & Entrepreneurship	Construction Skill Development Council of India
Ministry of Consumer Affairs, Food & Public Distribution	Bureau of Indian Standards
Ministry of New and Renewable Energy	Indian Renewable Energy Development Agency (IREDA)
Niti Aayog	Managing Urbanisation (MU) Division
<b>Research and Innovation</b>	
Department of Science and Technology	TIFAC
Academia	Institutes of eminence
Research and Innovation Labs	CBRI Roorkee
Material Testing Labs	National Small Industries Corporation (NSIC)
<b>Housing Finance Institutions</b>	

Banks	Private Sector (HDFC Bank) and Public Sector (State Bank of India)
NBFCs (Micro Finance Institutions, Housing Finance Companies)	LIC Housing Finance, Svantra Micro Housing Finance Corporation Limited, IIFL Home Finance, etc. List of HFCs granted certificate by NHB <a href="#">here</a> .
<b>Development Aid &amp; Funding Agencies</b>	
International Financing Institutions	KfW (SBI-KfW JV, Housing Development Finance Program) World Bank (Inclusive Housing Finance Program), Asian Development Bank (Low-Cost Affordable Housing Finance Project), Asian Infrastructure Investment Bank (HDFC Line of Credit for Affordable Housing)
Global Development Network Agencies	United Nations (UN Habitat, UNDP)
Development Aid Agencies	GIZ, USAID, DFID, AFD, SDC, Etc.

## 5 Affordable Housing implementation in states

**State-wise progress** (as on September 27, 2021) has been tabulated below. 45% of the total affordable housing units sanctioned in India will be built in three states – Andhra Pradesh, Uttar Pradesh and Maharashtra. Andhra Pradesh is leading, 18% of the total number of affordable housing dwelling units sanctioned in India are being built in Andhra Pradesh, followed by Uttar Pradesh (15%) and Maharashtra (12%). 83% of the housing units sanctioned are concentrated in ten states highlighted in following table. These states have predominantly Warm-Humid and Composite Climates.

Table 4: Affordable housing implementation in states. [Source](#): PMAY-Urban

States	Project Proposal Considered	Physical Progress Sanctioned (Nos.)	Financial Progress Investment (crore)	Climate Zone(s)
Andhra Pradesh	1089	2,039,153	87,707.07	Warm-Humid
Uttar Pradesh	4393	1,731,544	81,311.41	Composite
Maharashtra	1167	1,350,113	154,444.61	Hot-Dry, Warm-Humid, Composite, Cold
Madhya Pradesh	1602	850,210	45,463.26	Hot-Dry, Composite
Gujarat	1604	841,888	80,306.36	Hot-Dry, Warm-Humid, Composite
Tamil Nadu	3689	717,858	46,187.46	Warm-Humid, Cold
Karnataka	2798	691,612	49,208.87	Warm-Humid, Cold, Temperate
West Bengal	532	531,179	29,233.97	Warm-Humid, Composite
Bihar	512	364,821	20,117.26	Warm-Humid, Composite
Chhattisgarh	1775	299,114	12,789.44	Warm-Humid, Composite
Haryana	538	286,375	29,117.39	Composite
Jharkhand	445	234,981	14,601.07	Warm-Humid, Composite
Telangana	286	226,410	27,234.88	Warm-Humid, Composite
Rajasthan	397	219,912	17,204.09	Hot-Dry, Composite, Cold
Odisha	824	177,814	9,267.52	Warm-Humid, Composite
Kerala	599	139,813	7,278.56	Warm-Humid
Assam	370	137,277	4,303.58	Warm-Humid, Cold
Punjab	885	108,938	6,638.82	Composite
Tripura	107	92,067	2,847.01	Warm-Humid
Jammu & Kashmir	332	55,851	3,080.63	Cold

States	Project Proposal Considered	Physical Progress Sanctioned (Nos.)	Financial Progress Investment (crore)	Climate Zone(s)
Manipur	42	53,450	1,368.99	Warm-Humid
Uttarakhand	228	46,509	3,698.55	Composite, Cold
Mizoram	52	40,021	867.04	Warm-Humid
Nagaland	75	34,227	1,119.46	Warm-Humid, Cold
Delhi	-	24,909	4,880.84	Composite
Puducherry	38	14,076	731.43	Warm-Humid
Himachal Pradesh	268	12,661	806.30	Composite, Cold
Dadar Nagar	9	7,914	628.81	Hot-Dry
Haveli, Daman Diu				
Arunachal Pradesh	48	7,281	423.64	Warm-Humid, Cold
Meghalaya	36	4,745	184.57	Warm-Humid, Cold
Goa	10	2,583	573.11	Warm-Humid
Ladakh	8	1,373	66.63	Cold
Chandigarh	-	943	213.40	Composite
Sikkim	11	614	25.80	Cold
Andaman & Nicobar	2	602	155.90	Warm-Humid
Lakshadweep	-	-	-	Warm-Humid
<b>Total</b>	<b>24,771</b>	<b>113.55 Lakh</b>	<b>7.50 Lakh Crore</b>	

The table below shows that over 60 percent approved projects are under the vertical of beneficiary-led construction. As self-construction will remain the dominant source of housing provisions, it is important to create an enabling mechanism within the PMAY-U framework to provide technical and professional help and support to the beneficiaries on design, material, and service planning of this type of construction.

Progress as on September 27, 2021: **113.55 lakh houses sanctioned; 61% BLC**

Table 5: Progress made under PMAY-U. Source: PMAY-Urban

Houses in Lakhs	ISSR	CLSS	AHP	BLU
<b>Sanctioned</b>	<b>4.58</b>	<b>16.77</b>	<b>22.91</b>	<b>69.22</b>
Grounded	6.34		12.72	52.04
Constructed	4.53		5.74	23.72

## 5.1 Review of state Affordable Housing policies

A compilation of the State Housing Policies has been provided in the table below. Some of these state policies have been reviewed in detail.

Table 6 State Housing Policies in India. Source: [PMAY-Component-01](#), [Dr. Shivani Bhalla](#) (Course Content for BSc Community Science), [Urban Shelter And Housing For the Marginalised in Madhya Pradesh](#)

State(s)	Policy
All	Model State Affordable Housing Policy for Urban Areas (MoHUPA, 2014)
Andhra Pradesh	Draft Urban Affordable Housing & Habitat Policy
Uttar Pradesh	Affordable Housing Policy 2015
Maharashtra	Maharashtra New Housing Urban Policy (2015)
Madhya Pradesh	Madhya Pradesh Rental Housing Policy 2021 (Draft) Atal Ashray Yojana (2011) Madhya Pradesh Real Estate Policy 2019
Gujarat	Mukhyamantri Gruh Yojna
Tamil Nadu	Tamil Nadu Affordable Urban Housing and Habitat Policy 2020
Karnataka	Karnataka Affordable Housing Policy (KAHP) (2016)
West Bengal	Gitanjali Housing Scheme
Bihar	Affordable Housing and Slum Rehabilitation & Redevelopment Housing Policy - 2017
Chhattisgarh	Chhattisgarh Housing Board Housing Schemes
Haryana	Affordable Housing Policy (PMAY) 2018 Affordable rental housing policies (Retirement Housing, Student Rental Housing, Medico Assisted Living, Working Women's hostel, Affordable rental housing) Deen Dayal Jan Awas Yojana (DDJAY) Affordable Plotted Housing Project (APHP) 2016 Notification Notification Affordable Housing Policy 2013 Finalised
Jharkhand	Jharkhand Affordable Housing Policy 2016
Assam	Assam Urban Affordable Housing & Habitat Policy 2015
Kerala	Livelihood Inclusion and Financial Empowerment (LIFE) mission (2016) State Housing Policy
Odisha	Policy for Housing for All in Urban Areas Odisha (2015)
Punjab	Punjab Affordable Housing Policy 2021
Rajasthan	Chief minister Jan Awas Yojana (2015)

### 5.1.1 Model State Affordable Housing Policy for Urban Areas (MoHUPA, 2014)

This is a model policy for the states to modify as per their specific requirements. The aim outlined is to create an enabling environment for providing “affordable housing for all” **with special emphasis on EWS and LIG** and other vulnerable sections of society. The Policy further aims to promote Public Private People Participation (PPP) for addressing the shortage of adequate and affordable housing. This document requires the states to prepare an affordable housing action plan (period to be determined as per state) to ensure housing is provided for the immediate near future. It urges the state to stipulate FAR, Ground Coverage and Density requirements in the planning and development norms. **While this model document refers to promotion of innovative technology and building materials for low-cost and mass housing as well as “green housing”, the definition and elaboration of these aspects is absent in this model framework.**

### 5.1.2 Andhra Pradesh

As per census 2011, Andhra Pradesh has a housing shortage of 12.7 lakhs which is expected to increase to 37 lakhs by 2030. Housing in the state is currently handled by various departments such as the Andhra Pradesh State Housing Corporation Ltd. (APSHCL), **Andhra Pradesh Housing Board (APHB)**, **Andhra Pradesh Rajiv Swagruha Corporation Ltd. (APRSCL)**, independent urban local bodies (ULBs), Commissioner and Director of Municipal Administration

(C&DMA), Directorate of Town and Country Planning, Mission for Elimination of Poverty in Municipal Areas (MEPMA) etc. **Construction of affordable houses for EWS/LIG category is undertaken either by APHB or APSHCL. Private sector participation in affordable housing projects is virtually nonexistent.** The draft Urban Affordable Housing & Habitat Policy deals with the construction of EWS and LIG housing units.

**Aim:** “To Provide Affordable Housing for All That Reflects Social, Economic, Physical, Cultural and Emotional Needs of The Family to Live With Dignity, **Comfort** and Security and be accepted as an honorable member of the neighborhood /society”

### Housing Design guidelines provided to the ULB –

Even though the aim of the policy includes “comfort” as a criterion, there is no mention of the definition or specifications to achieve the same in the regulations.

Table 7 Tenement details. Source: Draft Urban Affordable Housing & Habitat Policy, Andhra Pradesh

Type	AHI	Design	Minimum Plinth	Housing Type	Structure
<b>EWS-1</b>	POP/BPL	1 room with common toilet	30 m <sup>2</sup>	Shelter home, Transit home	G+2/3 S+10
<b>EWS-II</b>	BPL/APL up to 1 lakh	1.5 BHK	40 m <sup>2</sup>	Rental Home Ownership – in-situ/resettlement	Independent house G+2/3 S+10
<b>LIG-I</b>	1-2 lakhs	2 BHK	50 m <sup>2</sup>	Rental Home Ownership	G+2/3 S+10
<b>LIG-II</b>	2-3 lakhs	2.5 BHK	60 m <sup>2</sup>	Rental Home Ownership	G+2/3 S+10

### 5.1.3 Uttar Pradesh

Housing and Urban Planning Department was established to ensure planned development of urban areas and create an enabling environment to provide affordable housing. The affordable housing policy of Uttar Pradesh includes a block plan for EWS, as well as it includes the specifications of roof (RCC), wall (brickwork), openings, etc. The policy provides regulations such as for AHP, the developer is mandated to construct 35% of the total housing for EWS.

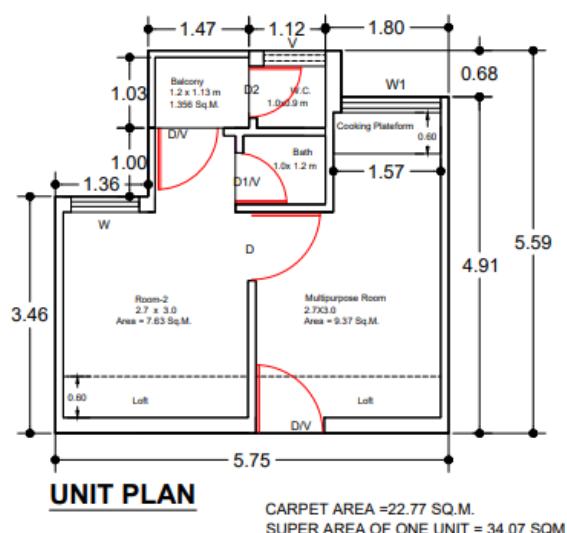


Figure 2: Layout of typical EWS Unit

#### 5.1.4 Maharashtra

Maharashtra has been given a target of construction of 19.40 Lakhs houses by 2022. In order to achieve this target and increase the pace of effective implementation of the Mission, Government of Maharashtra has formed “Maharashtra Housing Development Corporation Ltd.”, referred as “MahaHousing” with a primary objective of construction of 5 lakhs Affordable Houses across the state of Maharashtra by year 2022.

Maharashtra State New Housing Policy & Action Plan, 2015 considers EWS, LIG and MIG category of housing. The policy has set a target to create 11 lakh homes in the MMR (Mumbai Metropolitan Region) and 8 lakh homes outside MMR by 2022. The target is broken down scheme-wise/ city-wise/ region-wise. The target also includes rural housing.

One of the objectives of the policy is towards improvement in quality of life, overall living standards with due concern for environment. However, the definition and implementation framework for the same needs to be integrated. The policy, however, does mention that all projects which avail additional FSI/benefits under this policy shall be required to compulsorily obtain certification under the LEED Certification of the US Green Building Council or equivalent certification to ensure that the project under construction is environmentally sustainable project. However, this does not clearly state if the requirements also apply to the affordable housing constructed on the project site.

Table 8: Rentable Area. [Source](#): Maharashtra New housing Urban Policy, 2015

Category	Rentable Area (in square meters)		%
	Specified cities	Other cities	
<b>Economically Weaker Section (EWS)</b>	Up to 25	Up to 30	30
<b>Lower Income Group (LIG)</b>	Greater than 25 and up to 50	Greater than 30 and up to 60	30
<b>Middle Income Group (MIG)</b>	Greater than 50 and up to 70	Greater than 60 and up to 85	30

Note: Developer is permitted to use 10% of the overall area of the scheme for any purpose including HIG.

#### 5.1.5 Madhya Pradesh

MP Atal Ashray Yojana scheme launched in Madhya Pradesh is a major part of PMAY. It is a low-income housing development scheme, wherein 20 locations across the state have been identified for housing development. Those who cannot afford to purchase their homes will be able to acquire their homes in these locations. It is a loan scheme where people can request a home loan and for every loan, the government will offer a 6.5% grant to the applicant.

Madhya Pradesh has also drafted a Real Estate Policy 2019, which comprehensively considers affordable housing as well as rental housing within the real estate development. It is geared towards development of affordable housing with private developers.

Table 9: MP Atal Ashray Yojana. [Source](#): Directorate of Urban Administration and Development, Government of Madhya Pradesh

Particulars	EWS	LIG	MIG I	MIG II
Household income (Rs. Per Annum)	3,00,000/-	6,00,000/-	12,00,000/-	18,00,000/-
Interest subsidy (%pa)	6.60%		4.00%	3.00%
Maximum loan tenure (in years)	20		20	20
Eligible housing loan amount for interest subsidy	6,00,000/-		9,00,000/-	12,00,000/-
Dwelling unit carpet area	30 m <sup>2</sup>	60 m <sup>2</sup>	90 m <sup>2</sup>	110 m <sup>2</sup>

### 5.1.6 Gujarat

Gujarat has a Mukhya Mantri Gruh Yojana scheme adopted by various urban development authorities. Mukhya Mantri GRUH Yojana where GRUH stands for “Gujarat Rural Urban Housing” is an affordable housing scheme especially designed for home seekers belonging to EWS, LIG, MIG category of the society. Mukhya Mantri Gujarat Rural Urban Housing Scheme was announced during 12th Five-year plan in consideration of growing need for affordable houses in urban areas. Under the scheme, the government will provide pucca house to every slum dwelling family and family belonging to economically weaker sections. The minimum carpet area of houses for economically weaker sections will be 25 sq. meters and maximum will be up to 30 sq. meters which will include two rooms, kitchen, bathroom and toilet.

### 5.1.7 Tamil Nadu

Govt. of Tamil Nadu has approved the draft Tamil Nadu Affordable Urban Housing and Habitat Policy, submitted by the Tamil Nadu Slum Clearance Board (TNSCB) in March 2020. Institutions addresses the issues related to affordable urban housing, include Tamil Nadu Housing Board (TNHB), Tamil Nadu Slum Clearance Board (TNSCB), Tamil Nadu Co-operative Housing Federation (TNCHF) and Tamil Nadu Shelter Fund (TNSF). TNSCB and TNHB are the two main State providers of affordable urban housing in Tamil Nadu.

The objective of the Policy is to increase access to affordable urban housing solutions. The overarching policy objective guides the key policy principles and policy focus areas. The current public sector-led provision of affordable housing needs to be transformed to ensure access to housing for the population. Sustainability is one of the principles outlined in the policy. The policy guides towards construction of housing that is **climate-resilient and harmonious with the environment** to address climate vulnerability, especially households living in high-risk areas is crucial across housing programs. It also points to the increase in extreme temperatures and extreme weather events (heavy rainfall, cyclones, sea surges, etc.) expected in future decades in Tamil Nadu, with the vulnerable population affected the most due to their housing location (on waterways and along coastal areas prone to sea surges). Urban flooding is another significant problem identified with Chennai and its suburban areas worst affected by flooding. Acute shortage of housing stock in urban areas result in the proliferation of slums that are in high climate and disaster risk-prone areas. The policy provides indicators for measurement of its principles:

*Table 10: Indicators classified by principles. [Source](#): Tamil Nadu Affordable Urban Housing and Habitat Policy, Housing and Urban Development Department*

Principle	Indicators
<b>Inclusion</b>	<ul style="list-style-type: none"> <li>○ Annual increase in the available housing solutions for EWS/LIG segments</li> <li>○ Number of units developed through a public-private market solution.</li> <li>○ Proportion of households benefiting from public support that are screened through an affordability tool.</li> <li>○ Percentage of EWS/LIG beneficiaries that are Female Headed Households.</li> </ul>
<b>Sustainability</b>	<ul style="list-style-type: none"> <li>○ Proportion of at-risk households benefiting from TNSCB's sustainability framework.</li> <li>○ Proportion of TNSCB housing projects that adopt the new Operation &amp; Maintenance Mechanism.</li> <li>○ Amount of investment mobilized for affordable housing projects</li> </ul>
<b>Transparency &amp; Participation</b>	<ul style="list-style-type: none"> <li>○ Annual review of the implementation of housing program to monitor the progress of the housing sector is disclosed.</li> <li>○ Annual sector monitoring and performance using housing indicators are published</li> </ul>

### 5.1.8 Karnataka

The Karnataka Affordable Housing Policy (KAHP) 2016 focuses equally on improving existing housing and building new housing. This is aimed at BLC, EWS and LIG categories. Karnataka Housing Board (KHB) is the State Level Nodal Agency.

Seven models covered under this policy are:

- Model 1: Beneficiary Led House Enhancement
- Model 2: Beneficiary Led New House Construction.

- Model 3: In-Situ Upgradation.
- Model 4: In-Situ Slum Redevelopment.
- Model 5: Plotted Development and Sites with House and Services.
- Model 6: Group Housing and Township projects.
- Model 7: Affordable Group Housing in Partnership.

Table 11: Area standards for Affordable Housing Unit (AHU). *Source:* Karnataka Affordable Housing Policy 2016, Government of Karnataka

Housing Unit	Size Range	Source
For improved existing housing under Models 1 and 3	Minimum 15 m <sup>2</sup> of carpet area	-
New Housing: Plotted development under Model 5	25-100 m <sup>2</sup>	Relaxation for low-cost housing in Zoning Regulations and NBC 2005 requirements for low-income housing
New Housing: Site with house and services under Models 2 and 5	Minimum 25 m <sup>2</sup> of plot with a single room, toilet and bathroom of total of 15 m <sup>2</sup> of carpet area	As pr NBC 2005 requirements for low-income housing
New Housing: Group Housing under Models 4, 6 and 7	30-60 m <sup>2</sup> of carpet area	As per guidelines of PMAY 2015
Labour and Worker housing; Transit accommodation	Minimum 5 m <sup>2</sup> per person	-

### 5.1.9 West Bengal

A Gitanjali Housing scheme was drafted for new construction of housing in West Bengal catering to the EWS segment. The scheme was repurposed from IAY and caters to people (with family income less than 6000 INR/ month) from both rural and urban areas, or in disaster prone areas, or those affected by government rehabilitation projects.

### 5.1.10 Bihar

In Bihar, the total housing shortage in the urban sector is estimated to be 1.19 million of which more than 85% is in the EWS/LIG category i.e., around 1 million. The Affordable Housing and Slum Rehabilitation & Redevelopment Housing Policy – 2017 aims to target construction of 5,00,000 houses for economically weaker sections and lower income groups till 2022. The objective of the policy is to focus on creating housing stock for EWS & LIG category particularly in the urban areas/ planning areas of Bihar. The Policy mandates the private developers to reserve 15% of the total permissible built-up area for EWS/LIG housing for multistorey flats development in each of their Township/Group Housing Schemes and for BSHB/ULB/ Development Authorities to construct at least 50% plots/ houses/ flats of EWS/LIG category in their schemes.

**EWS Option – 1 (G+3 Format, Carpet area of unit – 27.7 sq.m.)**

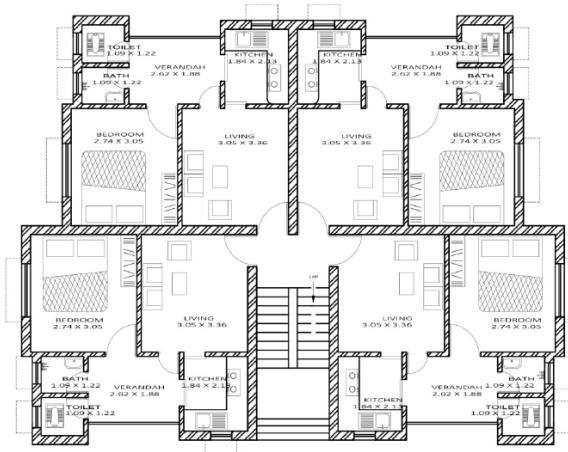


Figure 3: EWS Option. [Source](#): Affordable Housing and Slum Rehabilitation and Redevelopment Housing Policy 2017, Government of Bihar

### 5.1.11 Haryana

Affordable Housing Policy 2013 is intended to encourage the planning and completion of “Group Housing Projects” wherein apartments of “pre-defined size” are made available at “pre-defined rates” within a “Targeted time-frame” as prescribed under the present policy to ensure increased supply of “Affordable Housing.”

‘Deen Dayal Jan Awas Yojana’ is intended to encourage the development of high density plotted colonies in Low and Medium Potential towns of the State wherein small plots are made available through a liberal policy framework.

- Max area of plots to be permitted: 150 sqm.
- Min. and Max. density permitted: 240 to 400 persons per acre (PPA).
- Max. FAR on Res. Plot of up to 150 sqm: 2.00
- Minimum Area under organized Open Space: 7.5% of the licensed area.

Table 12: Allotment rate on carpet area. [Source](#): Affordable Housing Policy 2013 (Annexure A), Town and Country Planning Department, Haryana Government

S. No.	Development Plan	Maximum allotment rate on per sqft carpet area basis	Additional recovery against balcony of min 5 ft clear projection #
1.	Gurgaon, Faridabad Panchkula, Pinjore-Kalka	Rs. 4,000/- per ft <sup>2</sup>	Rs. 500 per ft <sup>2</sup> against all balcony area in a flat adding upto and limited to 100 ft <sup>2</sup> , as permitted in the approved building plans.
2.	Other High and Medium Potential Towns	Rs. 3,600/- per ft <sup>2</sup>	
3.	Low Potential Towns	Rs. 3,000/- per ft <sup>2</sup>	

Note #: Such cantilevered balconies (unsupported on three sides) shall not be part of carpet area and shall continue to be allowed free-of-FAR.

### 5.1.12 Jharkhand

The “Affordable Urban Housing Policy – 2016” provides a unified policy framework for “Affordable Housing for All” with special emphasis on the urban poor. In order to meet the growing requirement for AH, SRRH& RH, an initial target has been set for construction of 1,50,000 dwelling units for EWS and LIG households over the next 5 years. The policy mandates the developers to reserve atleast 20% of land meant for residential development for Affordable Housing. The nine models covered under this policy are:

- Model - 1: Mandatory Development of EWS Housing

- Model - 2: Development of Affordable Housing Projects
- Model - 3: In-situ Slum Redevelopment
- Model - 4: Relocation and Rehabilitation
- Model - 5: Beneficiary - Led Individual Housing Construction and Enhancement
- Model - 6: Credit Linked Subsidy (under Pradhan Mantri Awas Yojana)
- Model - 7: Rental Housing Scheme.
- Model - 8: Housing Projects by Cooperative Societies
- Model - 9: Development of EWS/LIG Housing on whole of Private Land by private developers

The Policy promotes innovative technology and building materials for low cost and mass housing by providing special dispensation of the following:

- Prefab technologies
- Green Housing
- Low energy consuming building materials
- Rainwater harvesting and water conservations technologies
- Other latest technologies

The dwelling units developed under this policy will be as per the table given below:

Table 13: Carpet Area limit. [Source](#): Jharkhand Affordable Urban Housing Policy – 2016, Department of Urban Development & Housing, Government of Jharkhand

Criteria	Unit	EWS Dwelling Unit (Fixed Limit)	LIG Dwelling Unit (Fixed Limit)
Carpet Area (norm) Super Built-up Area	m <sup>2</sup>	30	60

#### 5.1.13 Assam

Curative Strategy for preparation of State Urban Affordable Housing & Habitat Policy takes into consideration the housing shortage that exists in all cities of Assam and creates an enabling environment for providing “affordable housing for all” with special emphasis on EWS and LIG. The dwelling unit sizes for the economically weaker section are outlined in Table 14:

Table 14: Carpet area allotment. [Source](#): Assam Urban Affordable Housing & Habitat Policy

Group	Annual Income Range	Area (m <sup>2</sup> )
EWS	Upto Rs. 3 Lakh	30
LIG	From Rs. 3-6 Lakh	60

The Policy mandates provision of ear-marking either 10% of the total built up area or 25% of total number of units, in all Group Housing and Group Development Scheme Projects (land area > 0.3 acres) and for projects having minimum of 100 DUs, at least 60% of the FAR/ FSI will be used for dwelling units of carpet area of not more than 60 sqm, in addition 35% of the total number of dwelling units constructed should be for EWS/ LIG category.

The Policy encourages use of local & environmentally sustainable building materials, use of solar panels, Rain Water Harvesting structures, Dewat technologies for sewage treatment and recycling water and other green practices included to be in line as per developed codes and rating system relevant and used by GRIHA/ BEE/ IGBC.

#### 5.1.14 Kerala

The main focus of the Policy is to provide adequate and affordable housing for all based on a human rights approach, in addition to adhering the need for cost effective, environment friendly, energy efficient technology, locally available building materials, its standardization and acceptance by the general public.

Under the policy, the following **sustainability framework** is formulated:

- Undertake research to respond to the different climatic conditions with the focus on transition from conventional to innovative, cost effective and environment friendly technologies.
- Undertake projects to promote green building technology and energy auditing.
- Use of natural lighting and ventilation systems is encouraged including the creation and maintenance of green open spaces, neighborhood parks and landscaping.
- Obligatory model bye-laws are drawn up for use of renewable energy source particularly solar energy in residential buildings. Rain water harvesting and aquifer recharging is insisted to be taken up on priority. Waste water recycling for larger neighborhoods need to be promoted for integrated water management and water conservation.
- Settlements are to be planned in a manner, which minimizes energy consumption in production of building materials, construction systems, various building services, transportation, power supply, water supply and other services.

Development of Green Buildings are encouraged with relevant Rating System promoted by Indian Green Building Council like LEED Rating and appropriate fiscal incentives are considered for encouraging such initiatives.

### 5.1.15 Odisha

The Policy for "Housing for All in Urban Areas" of Government of Odisha intends to create an enabling environment for all stakeholders to work together in achieving the set objectives. The Policy mandates the provision of affordable houses (reserve minimum 10% of the originally permissible built-up area) for urban poor as part of all new housing development projects both in the public and private domains and provides adequate incentives to make such mandatory provisions viable.

Models under the Policy:

- Model-1: Mandatory Development of EWS Housing
- Model-2: Incentives for market-based development of EWS and LIG Housing
- Model-3: Development of Affordable Housing Projects
- Model-4: In-situ Slum Redevelopment
- Model-5: Relocation and Rehabilitation
- Model-6: Beneficiary-Led Individual Housing Construction or Enhancement
- Model-7: Rental Housing.

### 5.1.16 Punjab

In view of facilitating affordable housing for lower middle- and lower-income families, "Punjab Affordable Housing Policy 2021" is mandated in the state for the areas developed/approved by Department of Housing and Urban Development. The Policy mandates to reserve 10% of plots under total saleable area, for plotted developments, and 10% of apartments, for group housing projects, for EWS. The carpet area requirement is defined in Table 15.

Table 15: Carpet area requirement. [Source](#): Punjab Urban Development Authority

S.No.	Dwelling Unit Type	Carpet Area (m <sup>2</sup> )
1	Affordable	Upto 90 m <sup>2</sup>
2	EWS	30 m <sup>2</sup> to 45 m <sup>2</sup>

For In-situ Slum Redevelopment projects, the Punjab Government has given relief on land use change charges (CLU), developmental charges (EDC) and license/permission fee. Where private developers are involved there is relaxation in CLU and EDC on slum saleable area, however, license/permission Fee and building fee are payable. In special case extra FSI may be allowed.

For Affordable Housing through Credit Linked Subsidy Scheme (CLSS), the state government provides land free of cost. The land cost serves as margin money for loan. The state government also has a reservation policy for Affordable Housing through CLSS with special emphasis on Scheduled Castes (35%) and Senior Citizens (15%).

In addition to incentives listed above, the state government has suggested exempting the HfA projects from Service Tax on any type of services. The state government has also suggested nomination of banks district/state-wise for greater participation in the CLSS scheme. Sample layouts with carpet area of 26 m<sup>2</sup> for EWS and 38m<sup>2</sup> for LIG have been

identified by the state government for development under the CLSS scheme (see Figure 4) (Review Meeting: HfA-urban, Department of Housing & Urban Development, 2016).



Figure 4: (a) EWS Cluster layout (b) LIG Cluster layout. *Source:* Department of Housing & Urban Development

### 5.1.17 Rajasthan

The Chief Minister Jan Awas Yojana intends to achieve the objective of Affordable Housing for All creation of EWS/LIG housing stock to fulfill housing shortage in the State. The land distribution for EWS (325-350 ft<sup>2</sup>)/LIG (500-550 ft<sup>2</sup>) category is mandated as follows:

Table 16: Reservation for EWS/LIG units. *Source:* Chief Minister's Jan Awas Yojana – 2015, Department of Urban Development & Housing, Government of Rajasthan

S.No.	Development Authority	Reservation for EWS/LIG units
1.	Rajasthan Housing Board (RHB)	50% houses in case of plotted development and 10% of FAR in case of flatted development
2.	UITs / Development Authorities / ULBs	25% of scheme area
3.	Private Developers	Flatted construction - 7.5% of proposed residential FAR area Plotted development - 10% of residential saleable area

The Policy provides additional weightage for shortlisting/selecting developers meeting the criteria for “**Quality Development**” i.e., Projects under development / completed with Indian Green Building Council /TERI certification. Also, an additional FAR of 5% is provided to projects in case of green building construction as per the provision of prevailing building byelaws is followed which is subjected to obtaining certification from the authorised agencies such as IGBC, LEED & GRIHA etc.

Figure 5 outlines indicative building layouts for scaling EWS and LIG developments in Rajasthan.

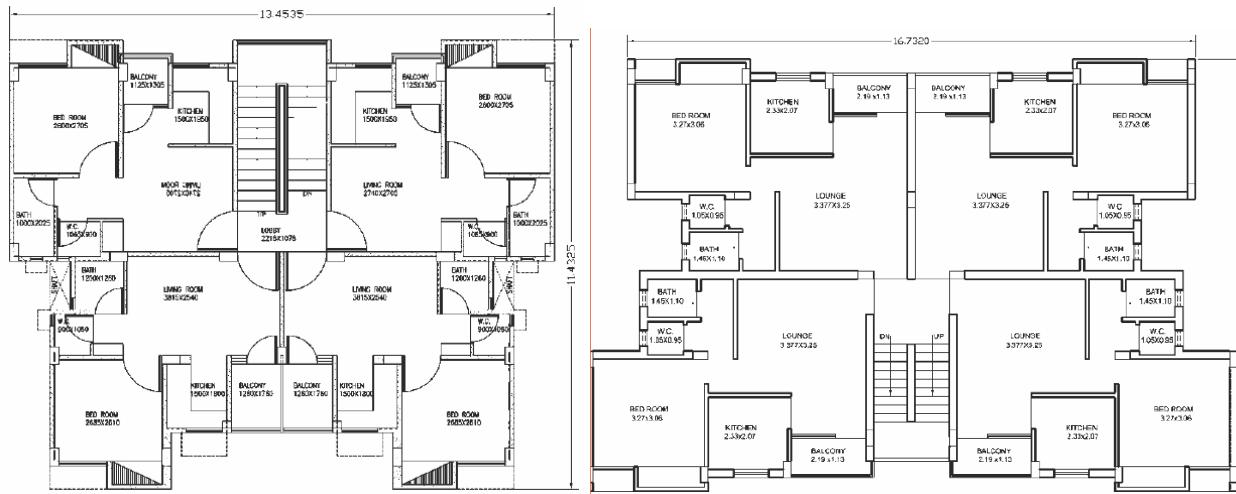


Figure 5: (a) EWS cluster layout (Carpet Area - 27m<sup>2</sup>), (b) LIG cluster layout (Carpet Area - 43m<sup>2</sup>) [Source](#): Chief Minister's Jan Awas Yojana – 2015, Department of Urban Development & Housing, Government of Rajasthan

### 5.1.18 Chattisgarh

Chattisgarh Housing Board (CGHB) is constantly working on the policy of providing "Houses for All", by initiating the schemes like Atal Awas Yojana and Deendayal Awas Yojana to cater the housing needs of every section of society. These schemes are particularly for economically weaker sections and low-income groups.

**Atal Vihar Yojana** - LIG families with annual income less than Rs. 6 lakh and EWS families with less than Rs. 3 lakh annual income are provided subsidy by the state government.

**Atal Awas Yojana** - Beneficiary belonging to EWS family gets 50,000 as subsidy.

**Deen Dayal Awas Yojana** - Houses are provided on subsidized rates to lower-income sections of people under the scheme.

**General Housing Scheme** – Houses of different sizes, types, shapes and costs, equipped with modern amenities have been constructed to cater the demands and requirements of different sections of society.

**Nav Raipur Atal Nagar Pradhan Mantri / Mukhya Mantri Awas Yojana** - Under these scheme EWS & LIG beneficiaries is provided subsidy from Central as well as from state government.

## 6 Implementation challenges

There are various factors affecting the pace of affordable housing development in India and restricting private sector participation:

- a) lack of suitable low-cost land within the city limits
- b) lengthy statutory clearance and approval process
- c) shortcomings in development norms, planning and project design
- d) lack of participation of large organised real estate players due to low profit margins
- e) high cost of funds for construction finance making the projects unviable
- f) lack of suitable mechanism for maintenance
- g) challenges in beneficiary selection
- h) capacity constraint or inadequate capacity of the implementing agencies

Following are a few challenges related to implementation of “thermally comfortable” affordable housing:

- a) State Model policies and the specific state housing policies do not include the requirements for thermal comfort.
- b) Lack of integration of green and climate responsive / passive design strategies in the housing policies. Nor is there an integration of green ratings that are applicable to the affordable housing market.
- c) Availability and access to information / guidelines on best practices, passive design strategies, for improving thermal comfort.
- d) Availability and access to information on cost benefit of passive design strategies.
- e) Availability of financing schemes and incentives for construction of green / thermally comfortable housing.
- f) Awareness amongst the beneficiaries on benefits of energy efficient, thermally comfortable housing.
- g) Dependence on external or additional technical assistance for construction of thermally comfortable housing. Institutional capacity building and training will be required to overcome this.

## 7 Case Study: Lucknow Development Authority's housing scheme

A case study of a thermally comfortable and energy efficient housing scheme implemented in Lucknow is being presented as a case study here. The case study exemplifies a modus operandi that extends beyond the policy framework to realize implementation on ground. A key aspect of this case study that translated into implementation of thermally comfortable affordable housing has been mandating compliance with ECBC for new residential buildings. The case study has been summarized below.

Lucknow Development Authority (LDA) embarked on an ambitious plan to ensure that all the new building establishments under their purview are green and energy efficient. To realise this, a 'Vision and Roadmap for Green & Energy Efficient Buildings', was prepared which covers the following key aspects:

- Specifications for new residential and commercial buildings
- Additional environmental requirements
- Green building certification

Specification includes mandatory compliance to ECBC-Residential (ECBC-R) for new residential buildings. To address environmental issues other than energy, such as water scarcity, pollution caused by waste and construction activities, etc., LDA has adopted strategies to ensure that these issues are not neglected. These environmental requirements are mandatory. The document also outlines Green Building Certification options that could be pursued as an optional requirement, in addition to the two mandatory requirements. In addition to the key aspects briefed above, recommendations for efficiently managing the document submission process – a part of LDA's administrative tasks and an implementation roadmap, which outlined tasks during the design approval and construction stages, have also been provided in the document. So far more than 5000 dwelling units have been constructed in Sharda Nagar Extension & Basant Kunj following green and energy efficient strategies.