



GLOBAL
HOUSING
TECHNOLOGY
CHALLENGE INDIA



Ministry of Housing and Urban Affairs
Government of India



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für Internationale
Zusammenarbeit (GIZ) GmbH



Thermal Comfort Performance based Design Standard for Affordable Housing in India

AFFORDABLE HOUSING IMPLEMENTATION:
CHALLENGES, GAPS & WAY FORWARD



eds
environmental design solutions
Wuppertal
Institut



Key Objectives

- 1) Review of international affordable housing policies.
- 2) Review of national housing schemes, related policies & regulations.
- 3) Review of state affordable housing policies and implications on thermal comfort.

Expected Outcomes

- 1) Identify challenges in Affordable Housing Implementation
- 2) Identify climate specific challenges and integration of Passive design practices.



Housing Policies : Global Context

Analysis of Thermal Comfort requirements in context of global Standards and Codes.

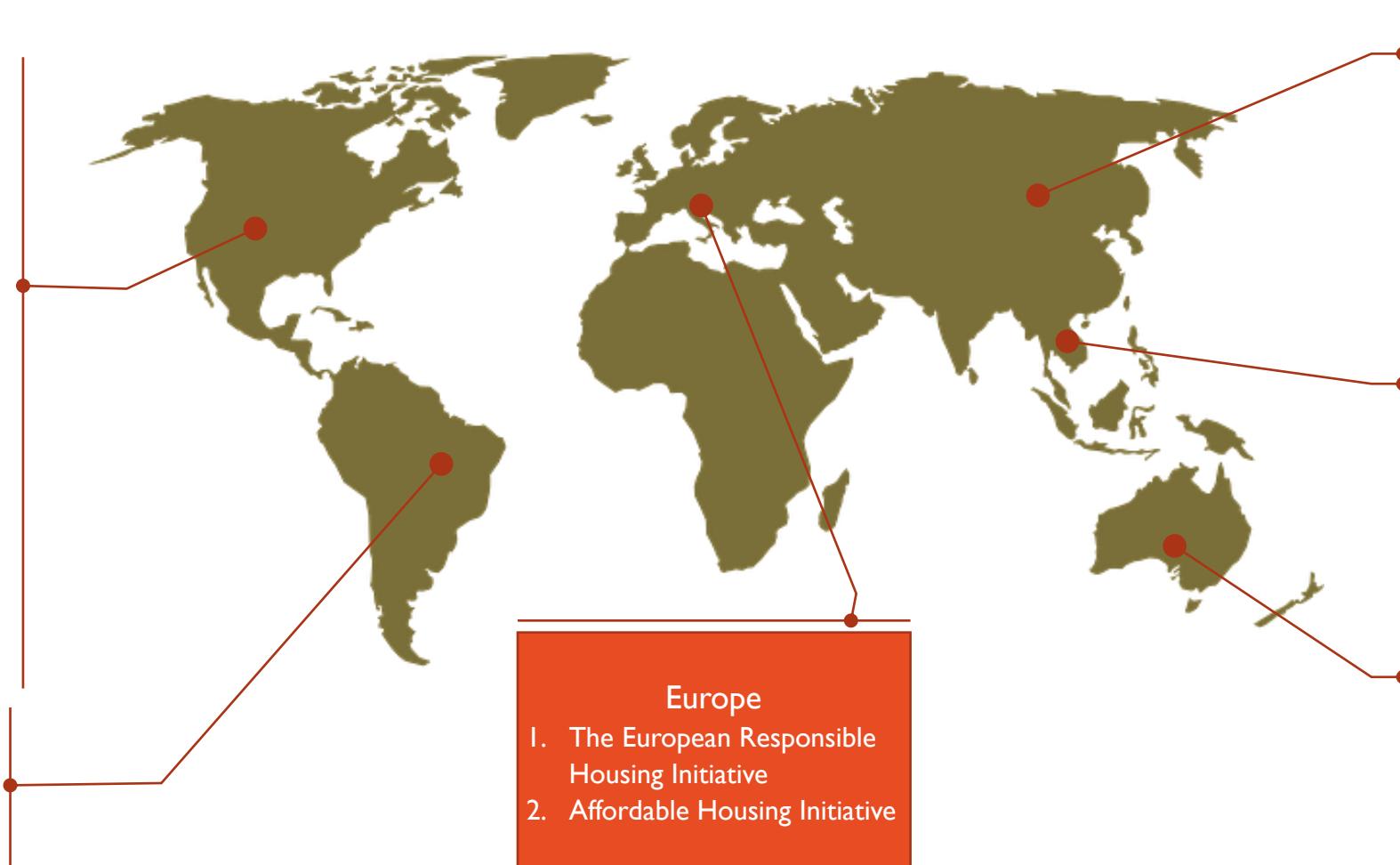
Global Context – Affordable Housing Policies

USA

1. Federal assistance to local govts. Rental assistance where tenants paid half-rent local govt paid rest.
2. Cap in public housing rent to 30% of renter's monthly income
3. Public housing agency pays part of the rent directly to the owner on behalf of low-income family
4. Tax incentive to construct or rehabilitate affordable rental housing. Tax Credit subsidizes the acquisition, construction, and rehab

Brazil

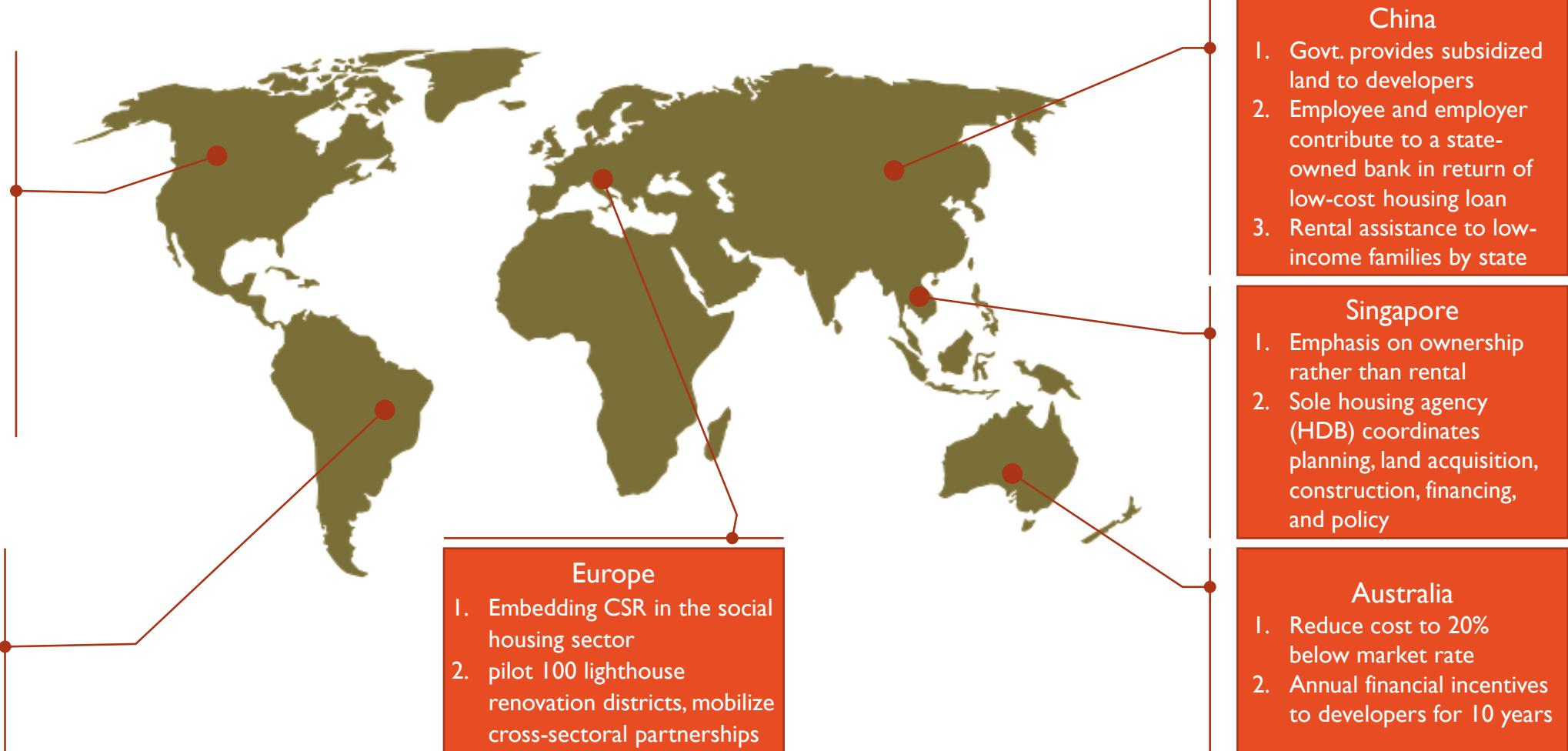
1. Public-Private coordination and Community Participation



Global Context – Affordable Housing Policies

USA

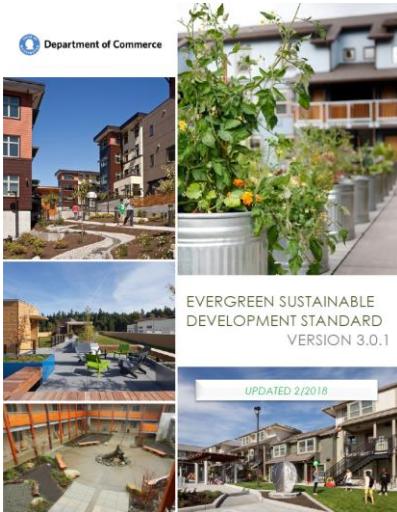
- 1. National Housing Act (1937)
- 2. Brooke Amendment to the Housing and Urban Development Act
- 3. Housing Choice Voucher (HCV) program
- 4. Low Income Housing Tax Credit



Brazil

- 1. Strategies for Planning, Financing, and Sustainable Implementation of Housing and Urban Development Policy

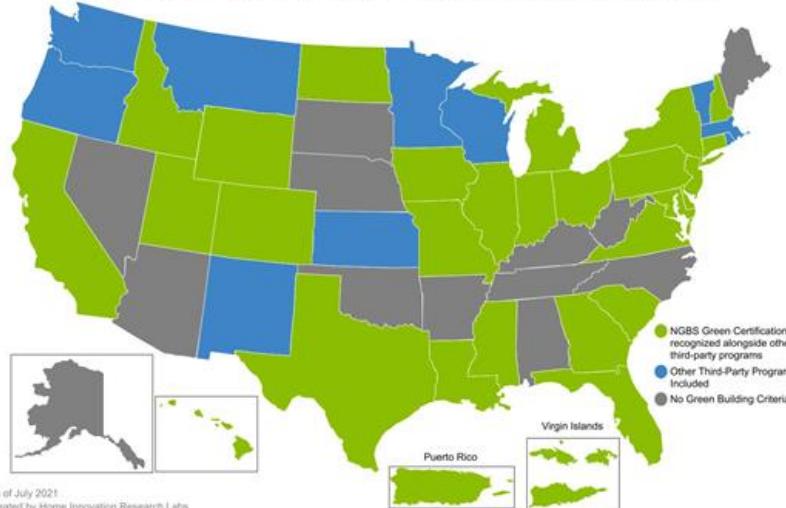
Programs for ‘Greening’ affordable housing



USA: Evergreen Sustainable Development Standard (ESDS)

All publicly funded Affordable housing must meet ESDS. Standard makes indirect reference to Thermal Comfort

State Qualified Allocation Plans That Require or Incentivize Third-Party Green Building Programs



USA: Qualified Allocation Plans
State housing finance agencies can allocate greater housing credits (LIHTCs) to projects that incorporate certification to credible third-party green building criteria.

[HomeInnovation](#), Accessed Feb 21, 22



SUNREF - Affordable Green Housing India Programme

Refinance support to eligible PLIs for financing eligible individuals/residential pre-certified projects. (4/5 star rating by GRIHA or Gold/Platinum rating by IGBC)

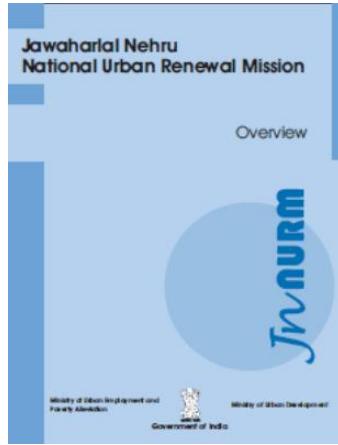


Map Source: [Wikipedia](#)

Housing Policies: Indian Context

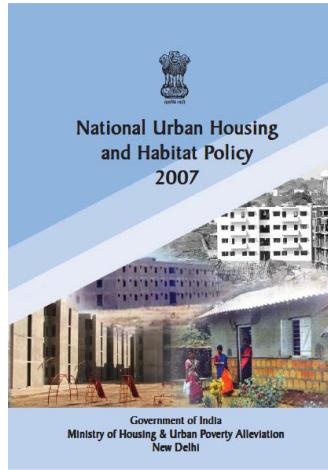
This section provides an overview of the key policies on affordable housing

National Policy Framework: Key Policies



Jawaharlal Nehru National Urban Renewal Mission (JNNURM), 2005

1. An umbrella programme for thematic sub-schemes like Basic Services for Urban Poor (BSUP), Integrated Housing and Slum Development Programme (IHSDP), Interest Subsidy Scheme for Housing the Urban Poor (ISHUP) and Affordable Housing in Partnership (AHP);
2. Identifies Integrated development of slums (slum rehab and improvement) and provision of affordable housing for EWS, LIG, etc. under the BSUP sub-mission.



National Urban Housing and Habitat Policy (NUHHP), 2007

1. Establishes need for 'Affordable Housing to All' with special emphasis on EWS and LIG sectors.
2. Stresses on 'Regional Planning Approach' which is ecologically sustainable.
3. Lays emphasis on earmarking land for the EWS/LIG in new housing projects.
4. Lays emphasis on Government retaining its role in social housing so that affordable for benefit of EWS and LIG.

National Policy Framework: Key Policies

Pradhan Mantri Awas Yojana - Urban (PMAY - U)

1. 'Housing for all' mission to be implemented b/w 2015-22.
2. Mission addresses EWS, LIG & MIG categories.
3. All homes must have basic amenities (toilet, water supply, electricity & kitchen)
4. Preference to vulnerable sections of society.
5. Scheme has 5 components that weave basic services, finance, PPP and migration crisis.
6. Package of Govt. Assistance and Incentives
7. Set up Technology Sub-mission, LHPs, Awareness programs and transparent & robust MIS.

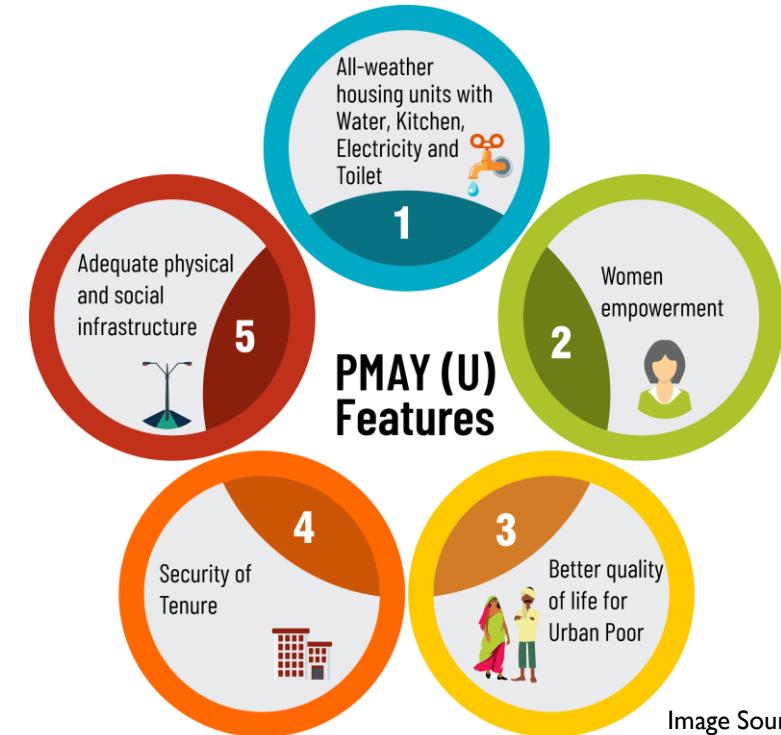
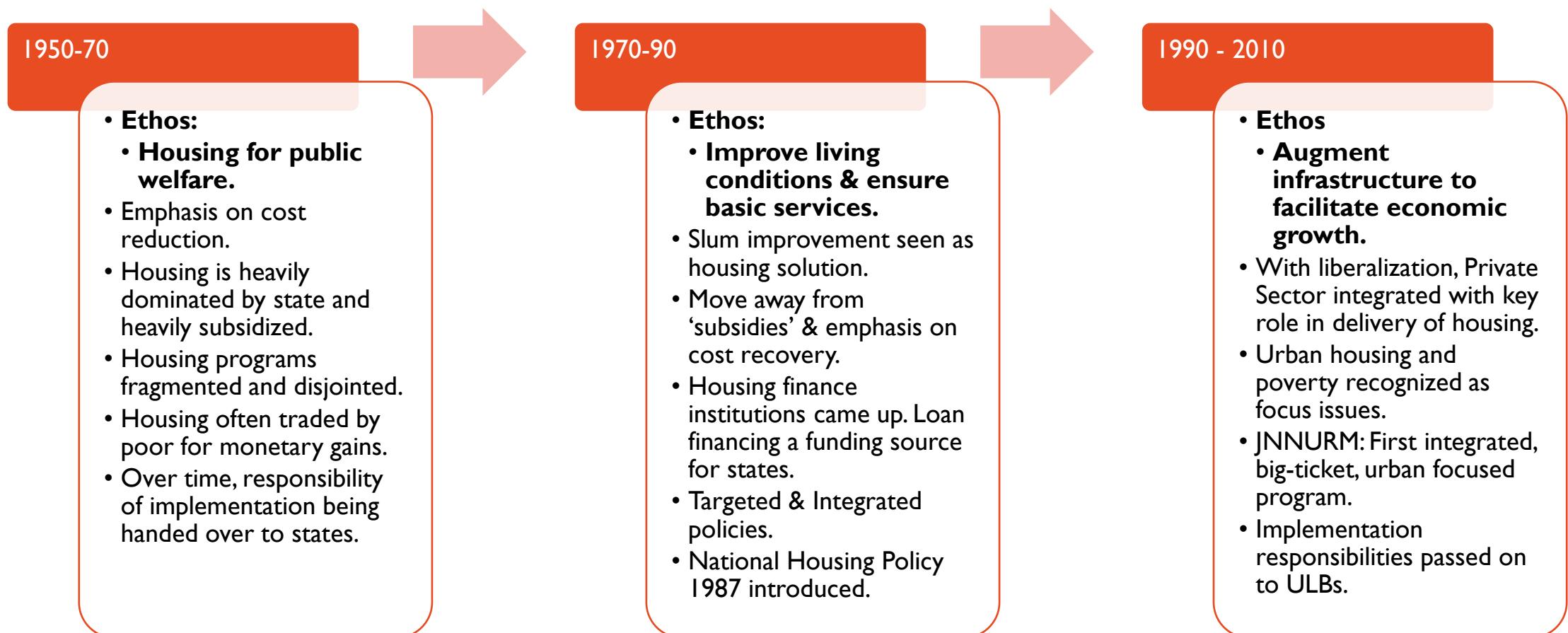


Image Source: [PMAY](#)



Evolution of Housing Policies in India



Source: Hingorani P., Revisiting Low Income Housing: A Review of Policies and Perspectives, Indian Institute of Human Settlements

Thermal Comfort Action Plan 2050 & Development of Thermal Comfort Based Standard cum Guidelines for Affordable Housing

Advancement of Housing Policies in India

Five Year Plan (FYP)	Key features/coverage
<p>First FYP (1951-1956)</p> <div data-bbox="199 515 719 822" style="background-color: #e67e22; color: white; padding: 10px; border-radius: 10px; text-align: center;"> <p>Low Income Housing recognized as key concern.</p> <p>First steps to address issue through schemes.</p> </div>	<ul style="list-style-type: none"> - Housing for industrial workers; - National Building Organization (for cost reduction and improving building techniques) and Housing Boards (statutory autonomous bodies for implementation) (Tiwari & Rao, 2016); - Tax on vacant land (ibid.); - Low Income Group Housing Scheme (1954) led to addition of 1.3 million houses at year's end.
<p>Second FYP (1956-1961)</p>	<ul style="list-style-type: none"> - Industrial Housing Scheme extended to cater to EWS/LIG housing needs; - Construction of 1.9 million houses envisioned under National Housing Programme covering rural housing, 'sweeper's housing' and MIG housing - Life Insurance Corporation of India provided housing finance to MIGs and to State Governments for undertaking rental housing for low paid state employees; - State Housing Corporations (1957) to furnish debt finance for projects with CG subsidies.

Source: Herda, G., Rani, S., Caleb, P. R., Gupta, R., Behal, M., Gregg, M. and Hazra, S. (2017). Sustainable social housing in India: definition, challenges and opportunities - Technical Report, Oxford Brookes University, Development Alternatives, The Energy and Resources Institute and UN-Habitat. Oxford.

Advancement of Housing Policies in India

Five Year Plan (FYP)	Key features/coverage
Sixth FYP (1980-1985)	<ul style="list-style-type: none">- R&D grant to improve formulation of policy on urbanization and urban development.
Seventh FYP (1985-1990) Key Organizations for Housing Finance and R&D setup First National Housing Policy framed in 1987	<ul style="list-style-type: none">- Promotion of self-help housing, assistance to rural families- Promotion of low-cost housing techniques (BMTPC established in 1990) and standards along with modifications in building bye-laws, land use control, minimum plot sizes and others in order to reduce costs.- Minimum Needs Programme (MNP) to tackle rural housing deficit;- National Housing Bank (NHB), 1987;- National Housing Policy, 1988
Eighth FYP (1992-1997)	<ul style="list-style-type: none">- Importance of urban sector for national economy recognized;- National Housing Policy replaced by National Housing and Habitat Policy, 1998, focussing on fiscal concessions, carry out legal and regulatory reforms and creating strong PPPs to resolve housing problem.

Advancement of Housing Policies in India

Five Year Plan (FYP)	Key features/coverage
Ninth FYP (1997-2002)	<ul style="list-style-type: none">- Affordable housing program for Below Poverty Line (BPL) category- Social schemes with credit assistance from HUDCO and other monetary institutions.- Indira Awaas Yojana (IAY) to deliver free housing units to BPL rural poor- ULCRA, 1976, deemed unsuccessful: Urban Land (Ceiling and Regulation) Repeal Act, 1999
Tenth FYP (2002-2007)	<ul style="list-style-type: none">- National Urban Housing and Habitat Policy, 2007, to increase and strengthen housing stock in vulnerable regions for EWS/LIG;- Expansion of housing for weaker sections in rural areas; provisions for free of cost housing only to landless SC/ST families and shift to credit-cum subsidy system for other BPL families.

Source: Herda, G., Rani, S., Caleb, P. R., Gupta, R., Behal, M., Gregg, M. and Hazra, S. (2017). Sustainable social housing in India: definition, challenges and opportunities - Technical Report, Oxford Brookes University, Development Alternatives, The Energy and Resources Institute and UN-Habitat. Oxford.

Advancement of Housing Policies in India

Five Year Plan (FYP)	Key features/coverage
Eleventh FYP (2007-2012)	<ul style="list-style-type: none">- Housing finance disbursals expected to increase along with growth in the volume of outstanding housing loans from commercial banks to households10.- Initiatives for development of secondary mortgage market to increase liquidity of housing finance for EWS, LIG and MIG highlighted by National Housing Bank (NHB).- BMTPC to provide financial support for improving layout and design of EWS/LIG housings.- Proposal: five-year 5% pa interest subsidy to commercial lenders for lending to EWS/LIG- 1.24 crore houses constructed under Indira Awaas Yojana (IAY)

Source: Herda, G., Rani, S., Caleb, P. R., Gupta, R., Behal, M., Gregg, M. and Hazra, S. (2017). Sustainable social housing in India: definition, challenges and opportunities - Technical Report, Oxford Brookes University, Development Alternatives, The Energy and Resources Institute and UN-Habitat. Oxford.

Advancement of Housing Policies in India

Five Year Plan (FYP)	Key features/coverage
Twelfth FYP (2012-2017)	<ul style="list-style-type: none">- Availability of land to implement affordable housing plans recognized as major hurdle.- Phase II of Rajiv Awaas Yojana (RAY), discontinued in 2015, subsumed under PMAY-HFA (U)- Suggestions: reorienting the role of SLBs, establishing an agency under Metropolitan Development Authorities for delivery of affordable housing, promotion of PPPs, increasing the Credit Risk Guarantee Fund and simplification of approval processes for affordable housing projects;- Need for greater financial support, smoother transfer of funds, abolition of APL-BPL distinction, enhanced land access for the poor, improving quality of IAY houses, developing rural building centres, emphasis on disaster risk reduction, training of masons and artisans, and partnerships with civil society and Panchayati Raj Institutions (PRIs).- Increased assistance for house construction under IAY to adjust for increasing costs; increase in Differential Rate of Interest (DRI) loans to IAY families.

Source: Herda

Alternatives, The Energy and Resources Institute and UN-Habitat. Oxford.

development



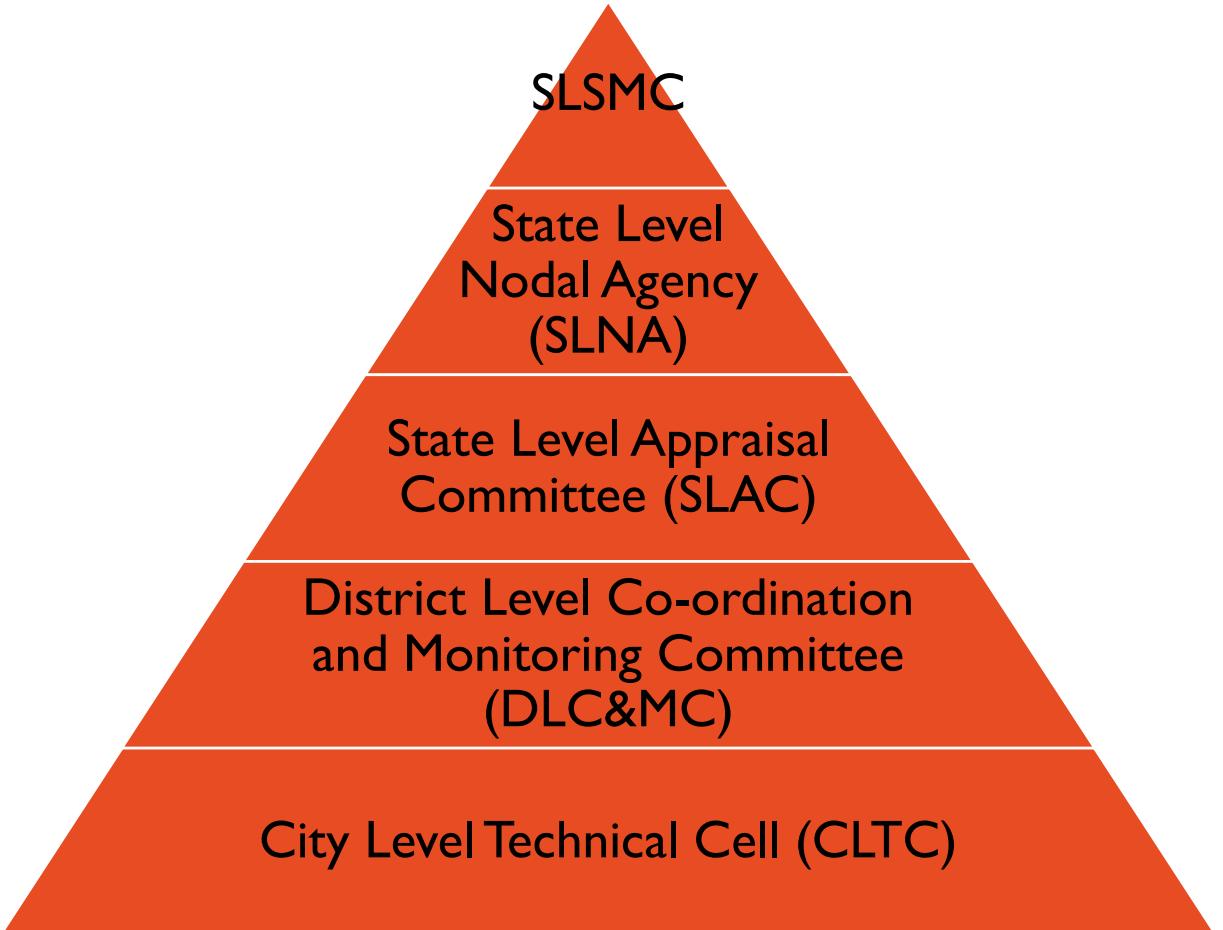
Map Source: [Wikipedia](#)

Housing Policies: States

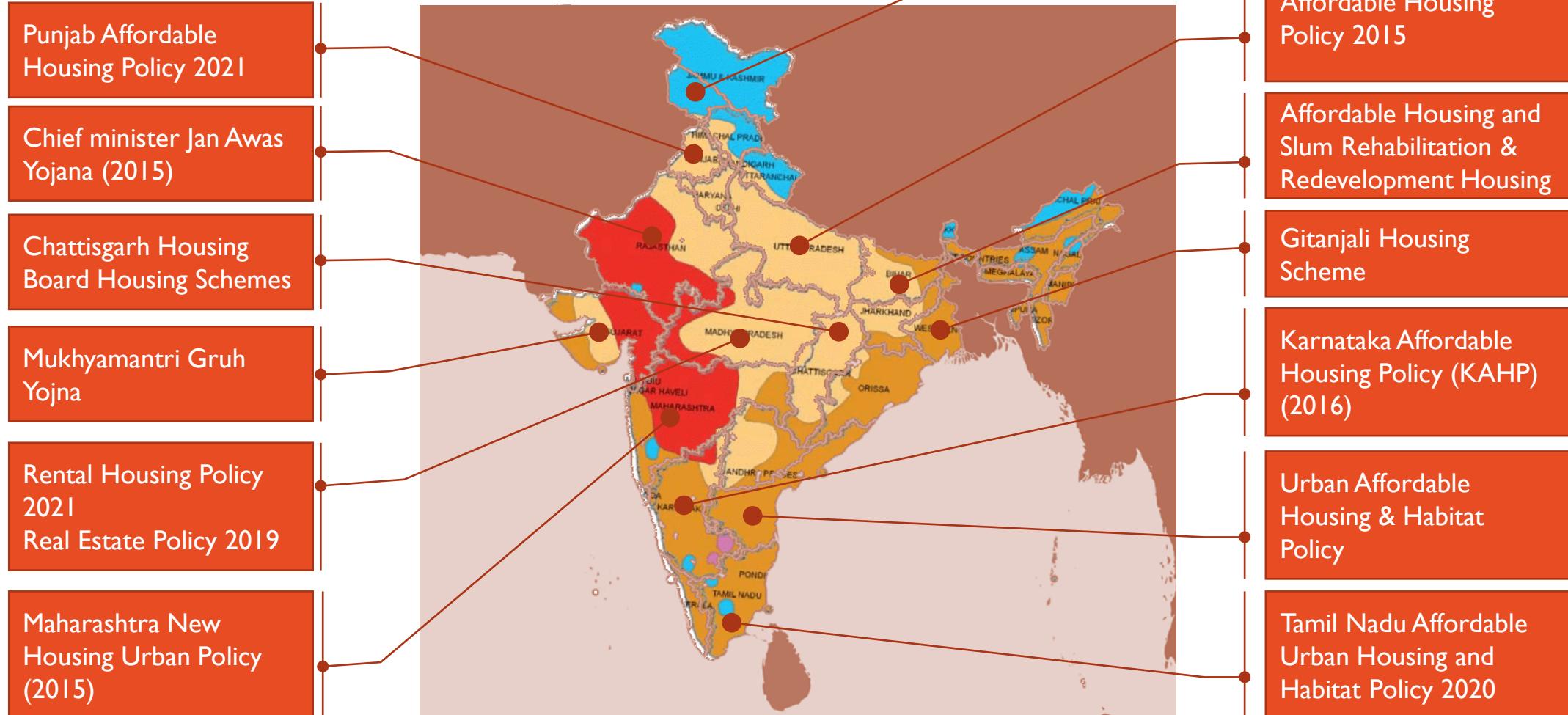
This section provides an overview of the key policies on affordable housing

State-level Implementation Framework

Agency	Primary Role
State Level Sanctioning and Monitoring Committee (SLSMC)	Approval of Housing for All Plan of Action (HFAPoA) Approval of Annual Implementation Plan Monitoring of implementation of Mission Coordination with CSMC & State agencies
State Level Nodal Agency (SLNA)	Technical scrutiny of Comprehensive City Housing Plan (CCHP) and DPRs
State Level Appraisal Committee (SLAC)	Techno-financial appraisal of the DPRs/CCHPs
District Level Co-ordination and Monitoring Committee (DLC&MC)	Coordination with implementing agencies of PMAY and the preparation of the CCHP, with assistance from the CLTCs
City Level Technical Cell (CLTC)	Prepare DPRs in coordination with PDAs and Private Developers. Lead implementation of approved DPRs Project management including post-occupancy management.



State-level Policy Framework

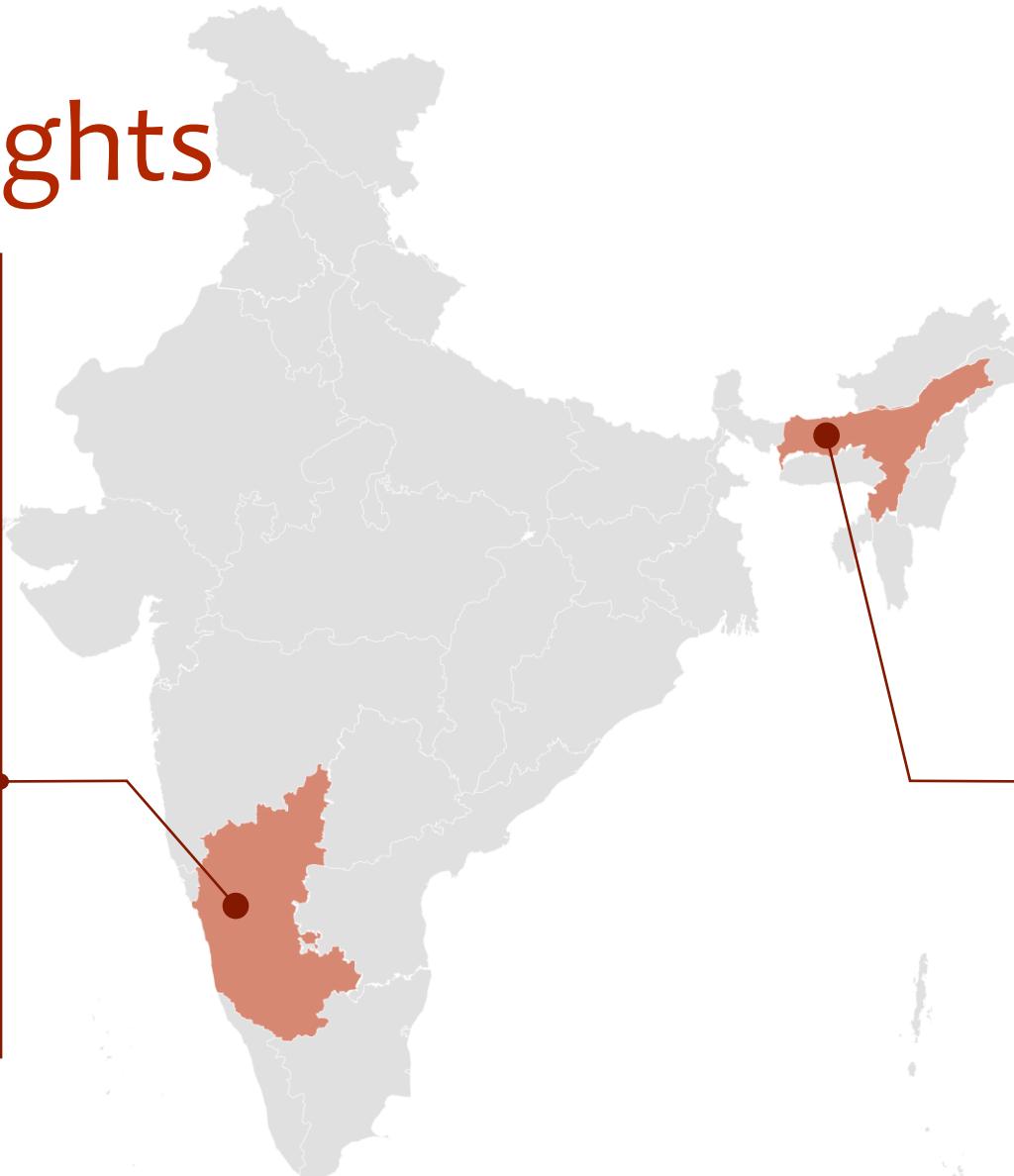


Policy Highlights

Karnataka

(Climates: WH, Cold, Temperate)

- Policy identifies 7 delivery models for PMAY. These range from AHP, BLC, Slum upgradation and redevelopment, plotted and group housing development.
- Policies to facilitate land use change, stamp-duty reduction, fast tracking approvals, easy transfer of development rights, additional FAR, exemption of approval fee.
- **Encourages use of local materials, skills and techniques that are eco-friendly and climate appropriate.**



Assam

(Climates: Cold & WH)

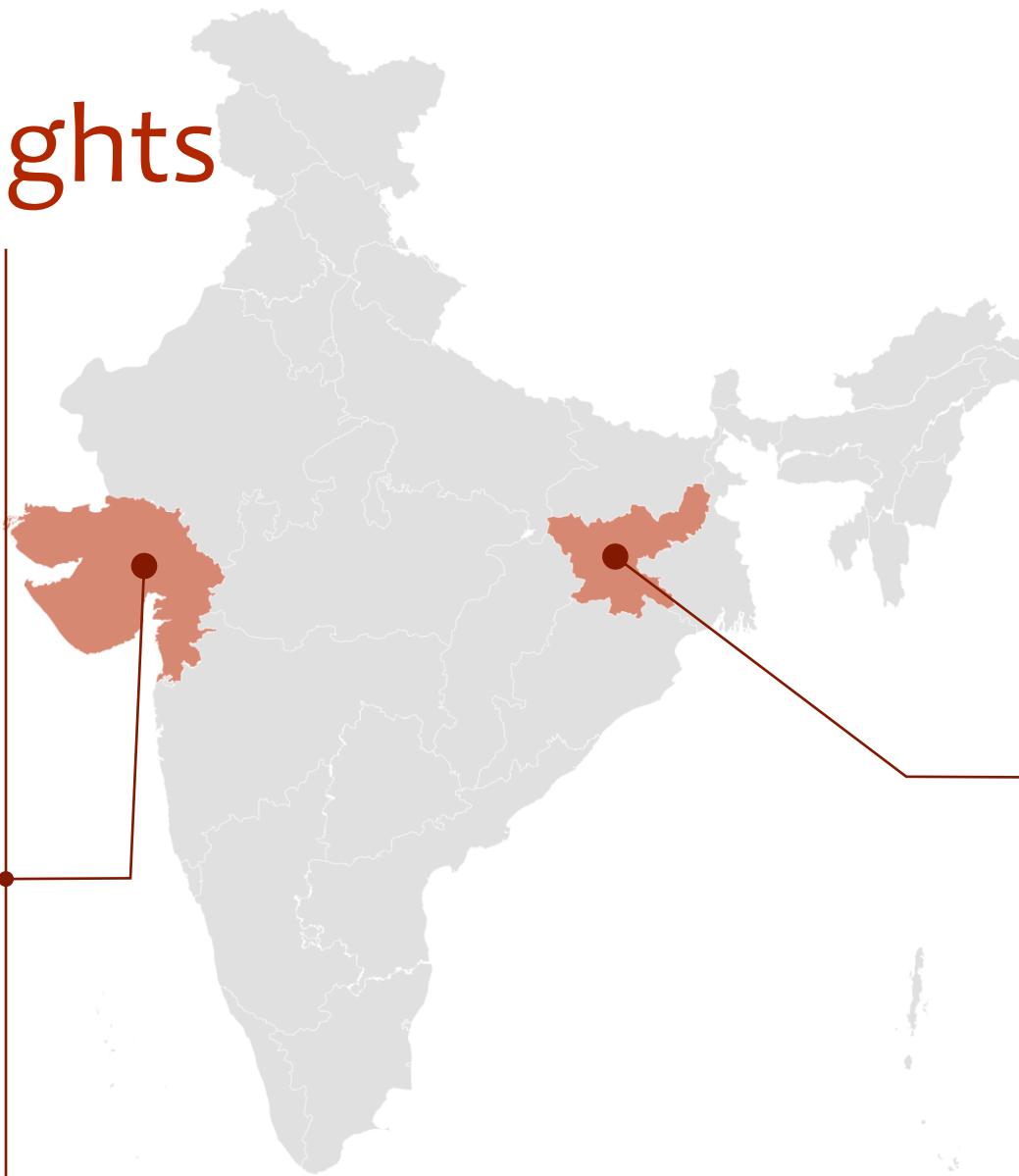
- Developers are incentivized with tax benefits (GST & others).
- Planning policies to improve land utilization such as 25% cap on super built-up area over carpet area.
- **Policy encourages energy saving, and use of eco-friendly building materials.**
- **Policy mentions climate specific landscape and plantations.**
- Policy earmarks 15% land for EWS/LIG categories in AHP & ISSR schemes.
- Policy includes Safeguards for consumers (such as Upper Ceiling Price in AHP projects)
- Construction linked disbursements.
- Policy provisions for single window clearances, fast-track approvals & NOCs

Policy Highlights

Gujarat

(Climates: Composite, HD, WH)

- Policy provides incentives like additional FSI, exemption from municipal charges and tax breaks. Policy also allows developing for commercial use in left over area.
- To improve land utilization, policy mandates 25% (of carpet area) cap on built-up area.
- For safeguarding consumer interests, policy outlines minimum specifications, processes for vigilance of quality construction, developers' accountability for defects.
- Policy for bar on selling/sub-letting allotted houses promotes judicious allocation.
- Provisions for maintenance in use and setting (housing infrastructure fund) corpus for amenities .
- Provisions for cross subsidization by Commercial/MIG developments is allowed provided mandated fraction of AH is met.
- **Policy encourages energy saving, and use of eco-friendly building materials.**
- **Policy mentions climate specific landscape and plantations.**



Jharkhand

(Climates: Composite)

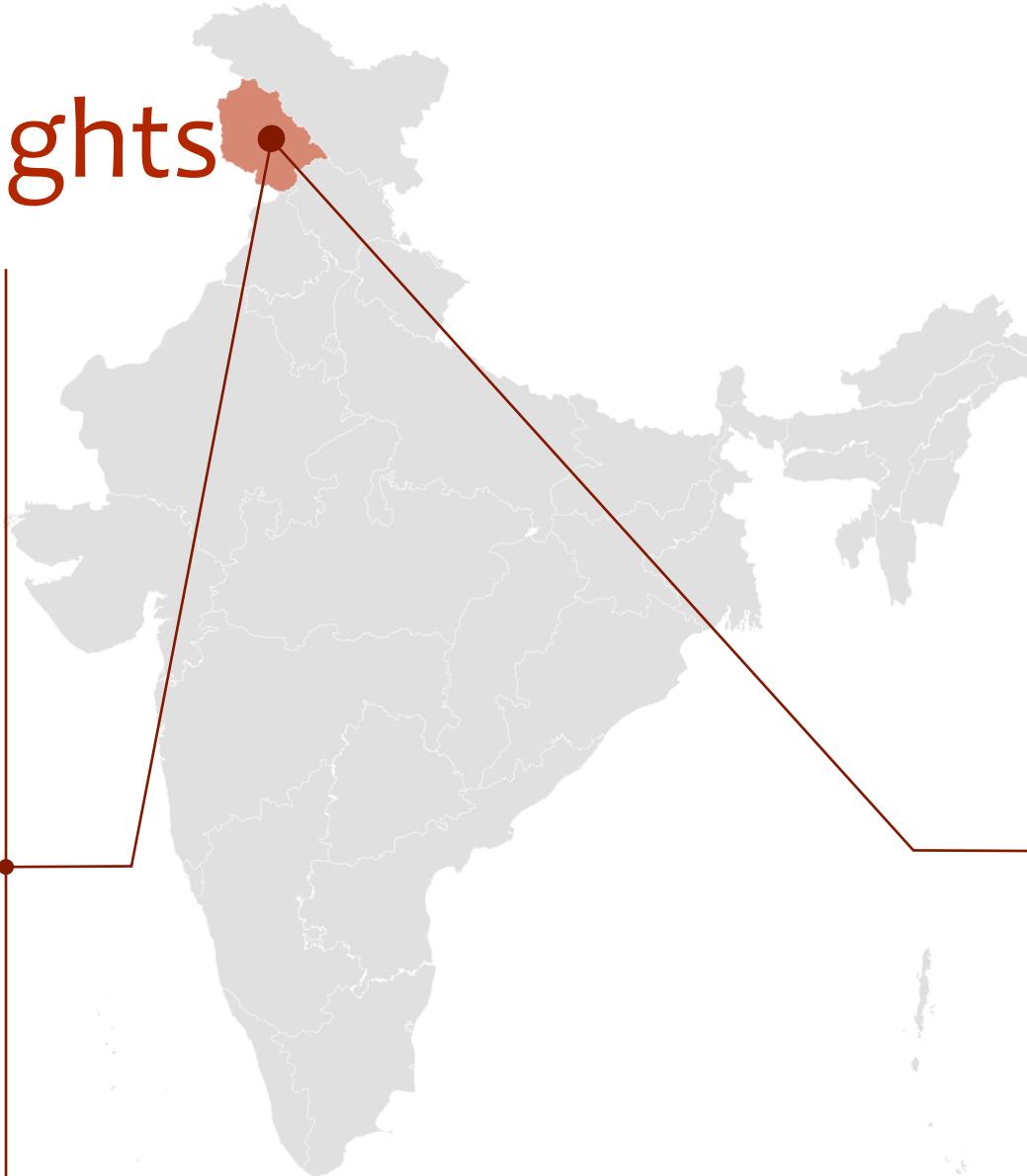
- Developers are incentivized with tax benefits (GST & others).
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- Policy provisions for single window clearances, fast-track approvals & NOCs

Policy Highlights

Jammu & Kashmir

(Climates: Cold)

- Policy document outlines host of strategies to create a holistic policy framework. Policy outlines supply side, demand side, service level, and livelihood level strategies.
- Policy outlines establishment of development fund (CIDF) mechanisms for creating and monitoring the corpus.
- Policy identifies 7 models of implementation ranging from slum redevelopment, slum relocation, market-based and govt led EWS and LIG homes, beneficiary led housing/enhancement, rental housing and township schemes.
- Policy outlines measures for land availability; amendment of land reforms act, master plans to earmark 20% of housing as affordable, provision of additional FAR, etc..
- Single window clearances and fast track approvals and removing other administrative hurdles.



Jammu & Kashmir

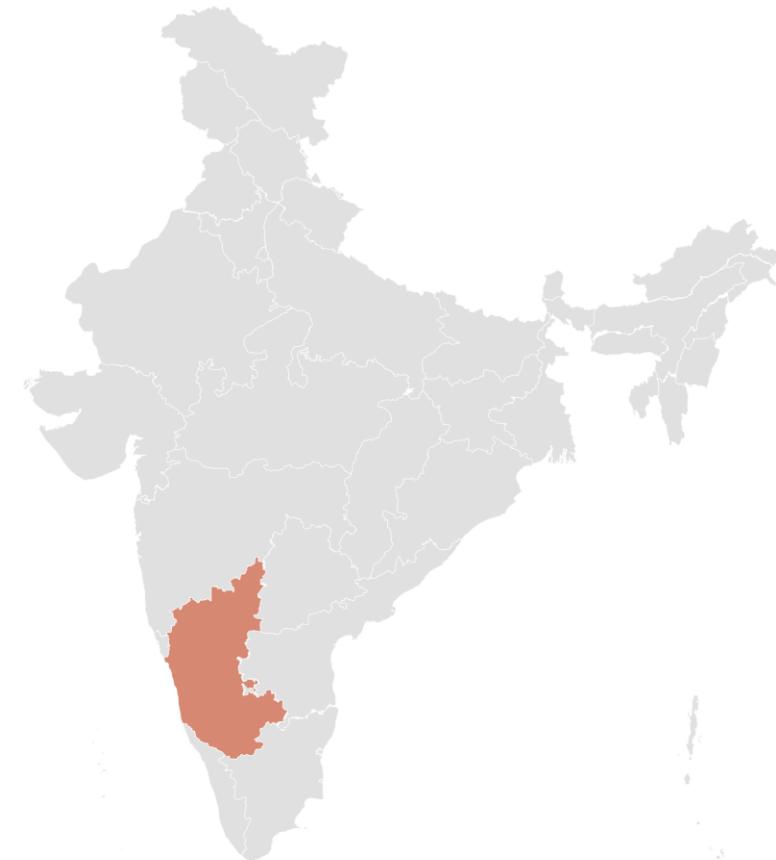
(Climates: Cold)

- Promote inclusive mixed housing development by mandating EWS developments in housing projects.
- Provision for mixed use development including neighborhood shopping facilities.
- Flexibility for developer offset EVS for practical reasons by either paying a Shelter fee or relocating EWS within 5 km.
- Cross subsidize developers by way of compensatory FSI and utilization of remaining land area for other housing and commercial purposes. These relaxations will also be extended to PDAs.
- Incentives to developers for exceeding mandatory allocation to EWS & LIG.
- Allotment of land to PDAs free of cost.

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Karnataka – Implementing Agencies

Agency	Primary Role
(SLSMC)	Approval of proposals.
Karnataka Housing Board (SLNA)	Technical scrutiny of Comprehensive City Housing Plan (CCHP) and DPRs
State Level Appraisal Committee (SLAC)	Techno-financial appraisal of the DPRs/CCHPs
District Level Co-ordination and Monitoring Committee (DLC&MC)	Coordination with implementing agencies of PMAY and the preparation of the CCHP, with assistance from the CLTCs
City Level Technical Cell (CLTC)	Prepare DPRs in coordination with PDAs and Private Developers. Lead implementation of approved DPRs Project management including post-occupancy management.



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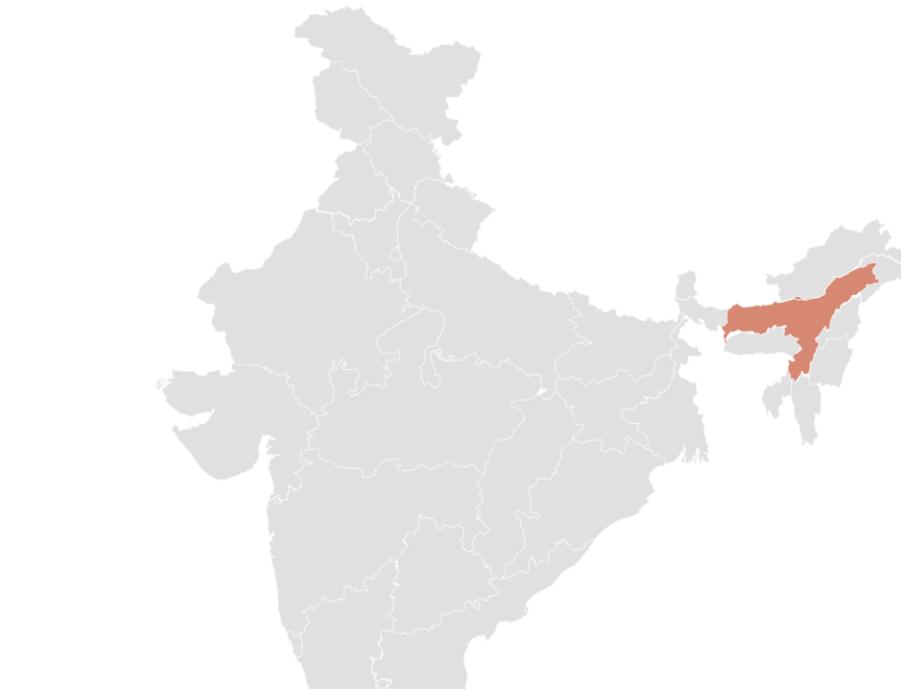
Source: Karnataka Affordable Housing Policy 2016, Government of Karnataka

Thermal Comfort Action Plan 2050 & Development of Thermal Comfort Based Standard cum Guidelines for Affordable Housing

Assam – Implementing Agencies

Agency	Primary Role
State Level Sanctioning & Monitoring Committee (SLSMC) – Headed by Chief Secy	Scrutinizing and approval of proposals from private developers.
Project Approval Committee (PAC) – Headed by Principal Secy, Urban Development Department	Sanctioning of technical and financial DPRs.
State Level Nodal Agency (SLNA) – Headed by Director, Directorate of Town & Country Planning	Project formulation, monitoring and evaluation.
Sub-committee at District level for ULBs	Extended arm of SLNA for monitoring and evaluation at ULB level.
ULBs	Responsible for on-ground implementation.
Assam State Housing Board	Implementing Agency/Regulator for rental housing

Source: Assam Urban Affordable Housing & Habitat Policy 2016, IPE Global, Development Alternatives Thermal Comfort Action Plan 2050 & Development of Thermal Comfort Based Standard cum Guidelines for Affordable Housing



List of Implementing Agencies

Development Authorities, Urban Local Bodies, Assam State Housing Board, Assam State Cooperative Housing Federation Ltd (HOUSEFED) and Guwahati Metropolitan Development Authority (GMDA)

Agencies notified Vide Notification No UDD(T) 155/2015/Pt III/108

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Gujarat – Implementing Agencies

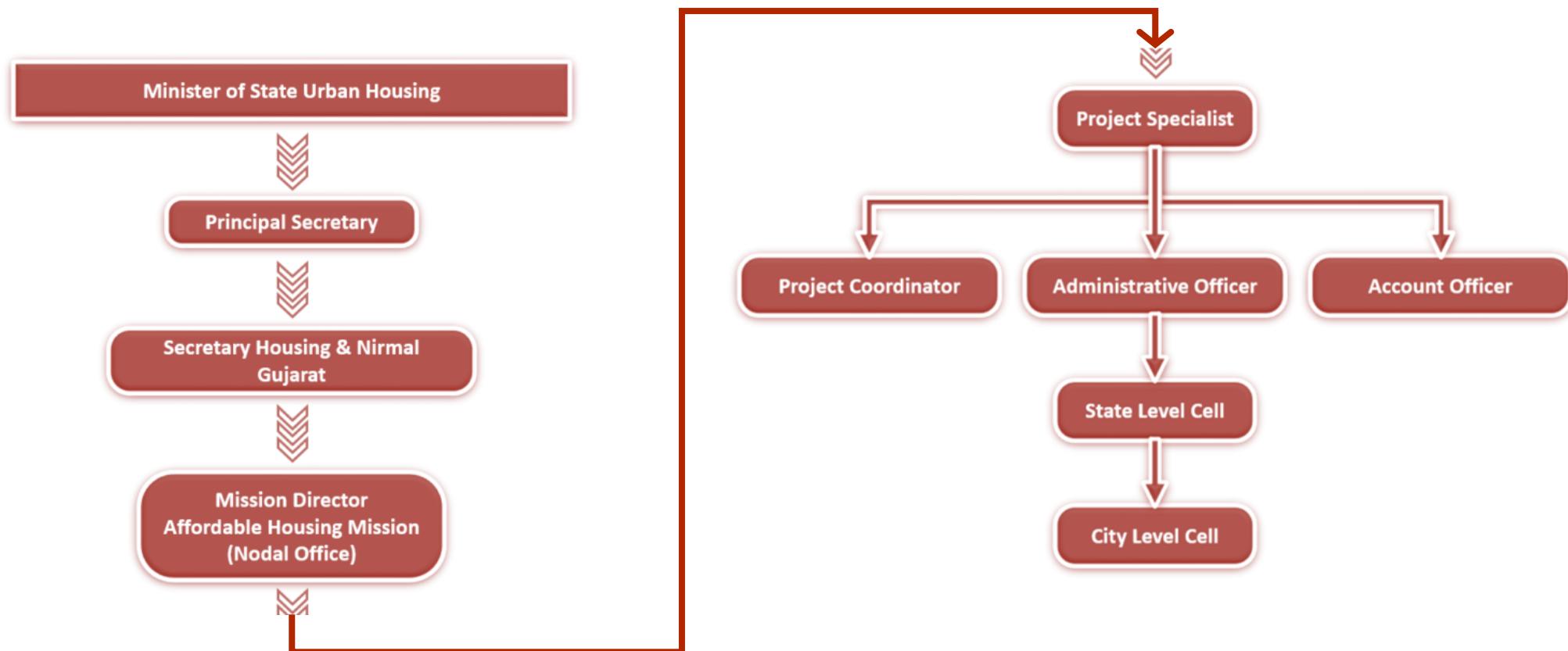
Agency	Primary Role
Affordable Housing Mission (SLNA)	Formulating policy and program. Evaluation of proposals. Capacity building of agencies. Facilitate project planning and implementation. (Limited information available)
Gujarat Housing Board	Para statal agency provides housing to all categories (Limited information available)
ULBs	Undertake demand surveys and prepare HFAPoA (Limited information available)
Urban Development Authorities Area development Authorities	(No information available)



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Source: Assam Urban Affordable Housing & Habitat Policy 2016, IPE Global, Development Alternatives
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Affordable Housing Organizational Framework: Gujarat



Jharkhand – Implementing Agencies

Agency	Primary Role
Jharkhand Housing Mission Directorate (Urban Development & Housing Department)	Undertake policy decisions and necessary administrative and legislative measures to implement the policy. Amendments to policies and approvals for exemptions to projects,
High Level Committee (HLC)	Chaired by Chief Minister and includes state cabinet ministers for UD&H and Revenue & Land Reforms. Chief Secy, Dy Commissioner and Principal Secy complete the committee.
State Level Housing Sanctioning and Monitoring Committee (SLHSMC) Chaired by Chief Secy.	Prescribe detailed SOPs for implementation. Prioritize, approve & sanction projects. Streamline interdepartmental cooperation. Inspect, review and monitor projects. Provision technical and manpower support to PDAs and assign implementation targets. Empanel HFCs, MFIs, NGOs for successful implementation.



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Source: Karnataka Affordable Housing Policy 2016, Government of Karnataka

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Jharkhand – Implementing Agencies

Agency	Primary Role
State Level Housing Sanctioning and Monitoring Committee (SLHSMC)	Promote and support R&D activities. Coordinate with Central Govt Departments.
Mission Director*	Ex-officio Additional / Joint Secretary to Govt. in UD & H Department.
Project Development Agency (PDA) (JUIDCO, Housing Board and Urban Local Bodies (ULB) can serve as PDA)	Coordinate amongst various govt agencies. Undertake planning, designing, obtaining approvals and implementation. Monitor construction and development of projects Appraise, approve and recommend RFPs and bid process documents of PPP projects to Housing Mission. Appoint third party auditors to monitor quality construction. Ensure fair and transparent allotment.

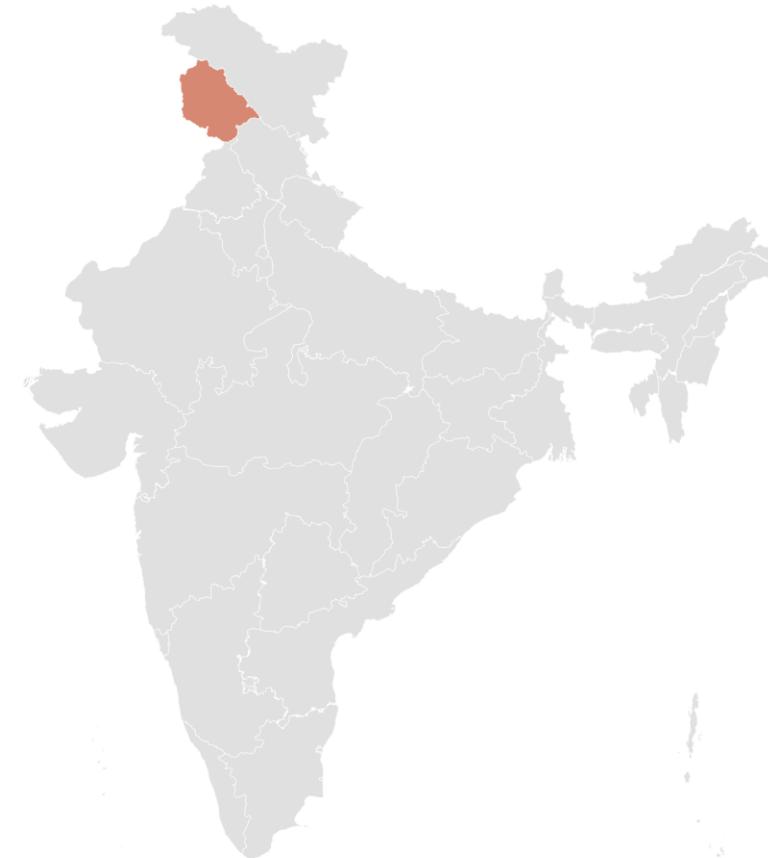


* Limited information available on Constitution/Appointment

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J&K – Implementing Agencies

Agency	Primary Role
J&K Housing Mission (JKHM) under the J&K H&UD Department (UT level Nodal Agency)	Undertake policy decisions and necessary administrative and legislative measures to implement the policy. Amendments to policies and approvals for exemptions to projects. Responsible for implementation of govt. schemes.
Hi level Committee*	Undertake policy decisions and necessary administrative and legislative measures to implement the policy.
UT level Sanctioning and Monitoring Committee (ULSMC)*	Sanctioning and monitoring committee for all housing other than Slum Redevelopment and Rehabilitation Housing (SRRH).
UT level Slum redevelopment Area (ULSRA) & City/District level Slum Redevelopment Committees*	



Source: J&K Housing, Affordable Housing, Slum Redevelopment and Rehabilitation and Township Policy 2020, Government of J&K

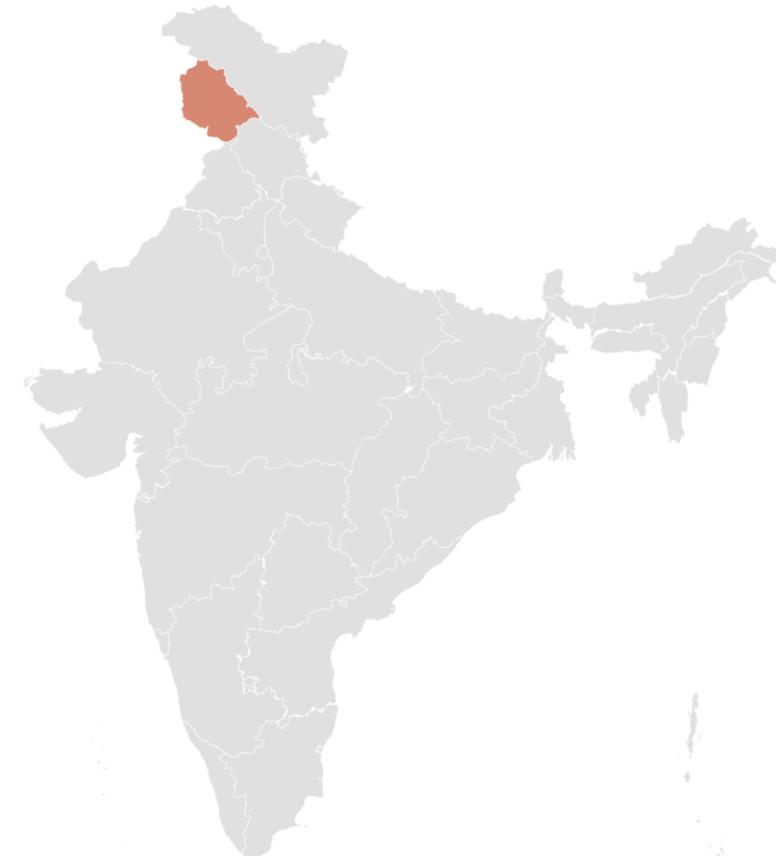
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* Limited information available on
Constitution/Appointment

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J&K – Implementing Agencies

Agency	Primary Role
Mission Director*	Ex-officio Special Secretary to Govt. in UD & H Department.
Project Development Agency (PDA) J&K Housing Board, R&B, JKPCC, & ULBs act as PDAs	Coordinate with govt. agencies for on-ground implementation of projects. Coordinate with J&K housing mission. Mobilize NGOs for facilitating housing finance to vulnerable groups. Undertake planning and design, approval of projects, and implementation. Appraise, approve and recommend projects to J&K housing mission. Appoint 3 rd party auditors. Setup and oversee operations of Affordable Housing Facilitation Centre. Ensure fair, transparent and smooth allotment to beneficiaries. Ensure maintenance after completion of project.

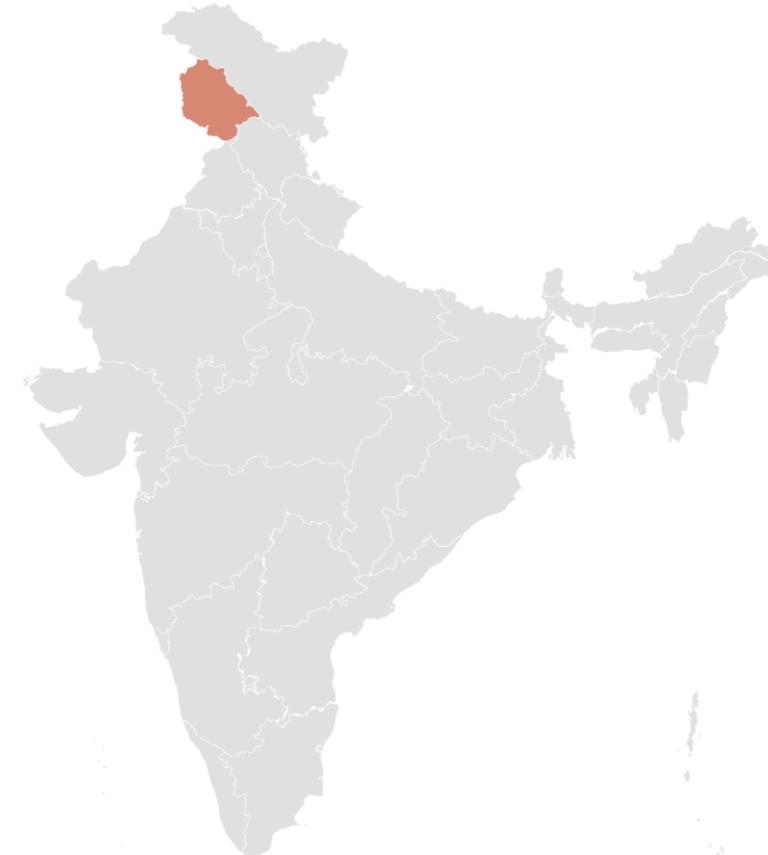


* Limited information available on Constitution/Appointment

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J&K – Implementing Agencies

Agency	Primary Role
Affordable Housing Facilitation Centre (AHFC) Experts from various fields (Finance, Social Development, GIS, e-Governance, etc.)	



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Source: J&K Housing, Affordable Housing, Slum Redevelopment and Rehabilitation and Township Policy 2020, Government of J&K

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Key Outcomes

I. Implementation challenges

Impressions – Challenges

WRI India conducted Training Needs Assessment (TNA) survey b/w May & June 2018. Respondents included officials from Housing Board, Slum Development Board and Urban Local Bodies, and key representatives from Govt agencies and academia. These interactions outlined following challenges.

- **Contextualization**

- Policies designed at Centre tend to overlook ground realities and complexities in the delivery of affordable housing.
- Central policies are replicated and not adapted. Few state govts have the expertise to develop housing policies and deliver affordable housing at scale.
- Diverse issues plague metros and non-metros

- **Capacity Building**

- Govt. agencies lack exposure to
 - new construction technologies,
 - development of DPRs, PoAs, etc.
 - knowledge of MIS and GIS
 - conducting social audits

Agencies keen to undertake trainings.

- ‘Classroom; style training and capacity building in govt. agencies is ineffective. Learnings are rarely applied in practice.
- Limited capacity and experience of local agencies is a barrier to PPP schemes.

Impressions – Challenges

- Poor availability of serviced land
 - Leads to distant allotments and consequently poor uptake
- Limited transparency
 - Lack of trust in the way programs are conceived, beneficiaries/ projects, etc. are identified.
 - Tendering systems are designed to promote low promote undeserving partners/beneficiaries.
- Poorly designed housing
 - Inadequate natural light and ventilation
 - Often thermally uncomfortable
 - Simple passive design strategies and climate responsive architecture are not practiced; these can improve the livability of affordable homes

Impressions – Challenges

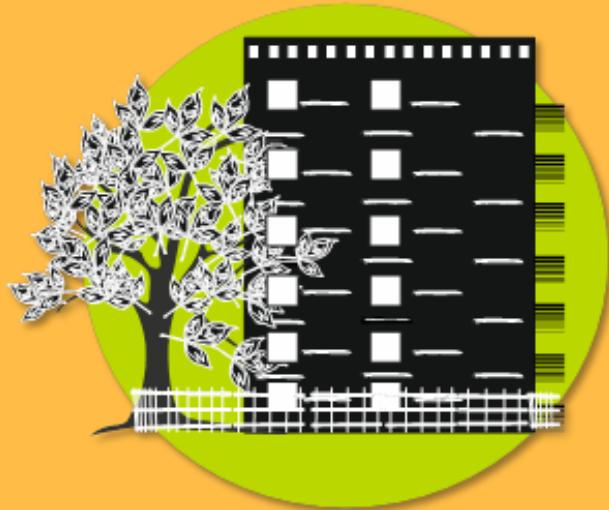
- Poor private sector participation
 - Limited participation of private sector is indicative of restrictive policy framework.
- End-user/beneficiary apathy
 - Absence of handholding for legal processes to attain tenure rights.
- Limited financing
 - Banks unwilling to finance affordable housing projects.
 - Funding from state and beneficiaries is often delayed, leading to project delays and cost overruns.
 - Unstable incomes from informal sector make formal finance inaccessible.

Implementation Challenges

- Lack of suitable low-cost land within the city limits.
- Lengthy statutory clearance and approval process.
- Shortcomings in development norms, planning and project design.
- Lack of participation of large organised real estate players due to low profit margins.
- High cost of funds for construction finance making the projects unviable.
- Lack of suitable mechanism for maintenance.
- Challenges in beneficiary selection.
- Capacity constraint or inadequate capacity of the implementing agencies.

‘Sustainability’ aspect does not trickle into State Policies

- PMAY-U explicitly outlines Technology Sub-mission’s Mission Statement as **“Sustainable Technological Solutions for Faster and Cost-effective Construction of Houses suiting to Geo-Climatic and Hazard Conditions of the Country”**.
- State Policies outline comfortable homes as outcomes, but do not outline policy actions for meeting thermal comfort.
- Climate specific guidance is restricted to encouraging climate specific landscape and plantations in state policies.
- State policies do not include ECONIWAS requirements in specifications.
- International policies establish a clear case for developing Sustainable Affordable Housing.



Thanks!