

# ECBC Adoption in India's Buildings

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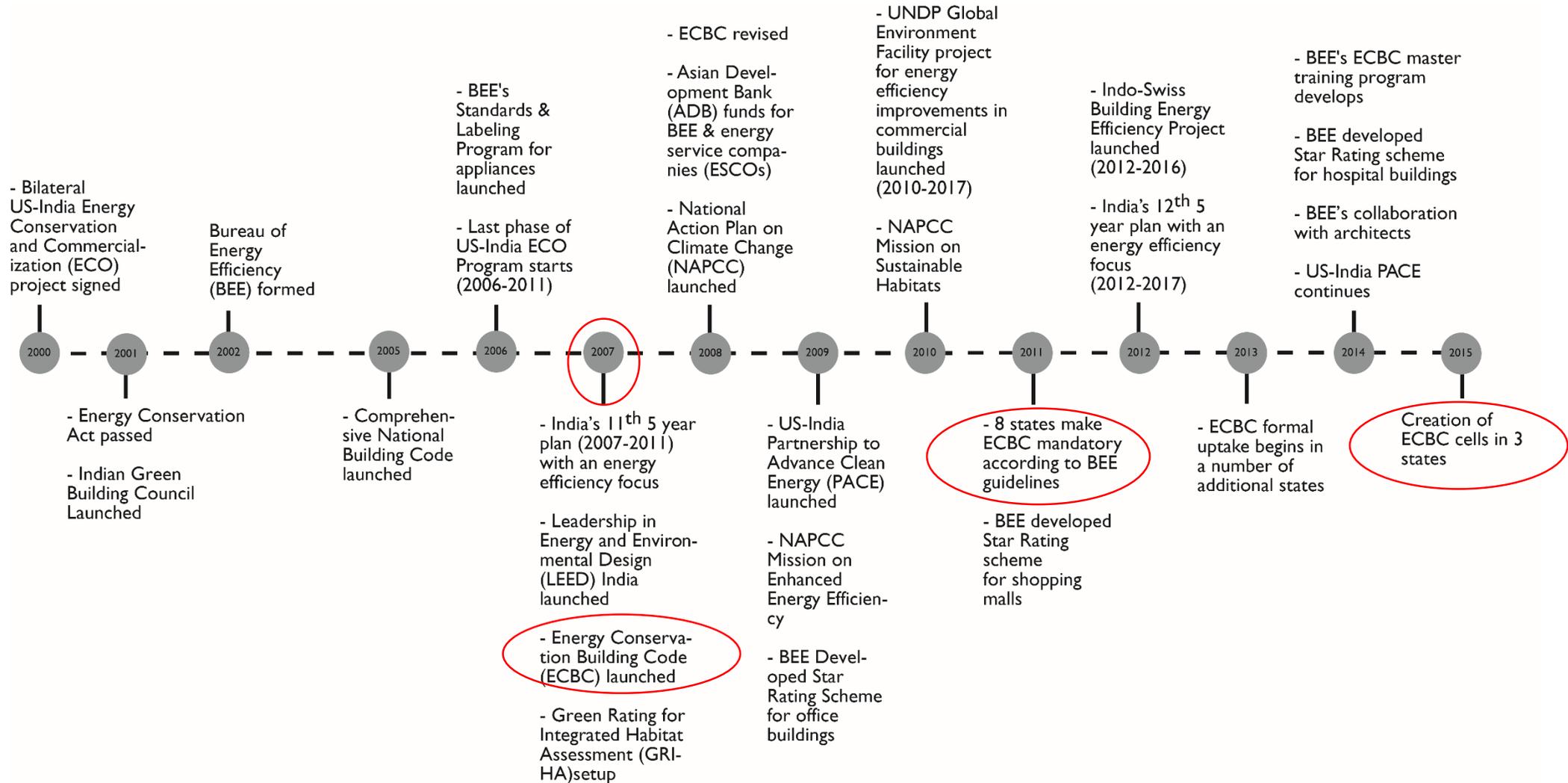
Niti Aayog-ACEEE-UNDP GEF 1<sup>st</sup> Regional  
Workshop on ECBC Implementation in States

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# Outline

- Context: What are the outcomes from ECBC implementation so far?
- Findings: What are the reasons behind these outcomes?
  - Challenges
  - Best Practice Examples
- Looking ahead: Ways forward for code adoption

# Context



Source: Khosla et al. (forthcoming 2017)

# Mapping the ECBC process

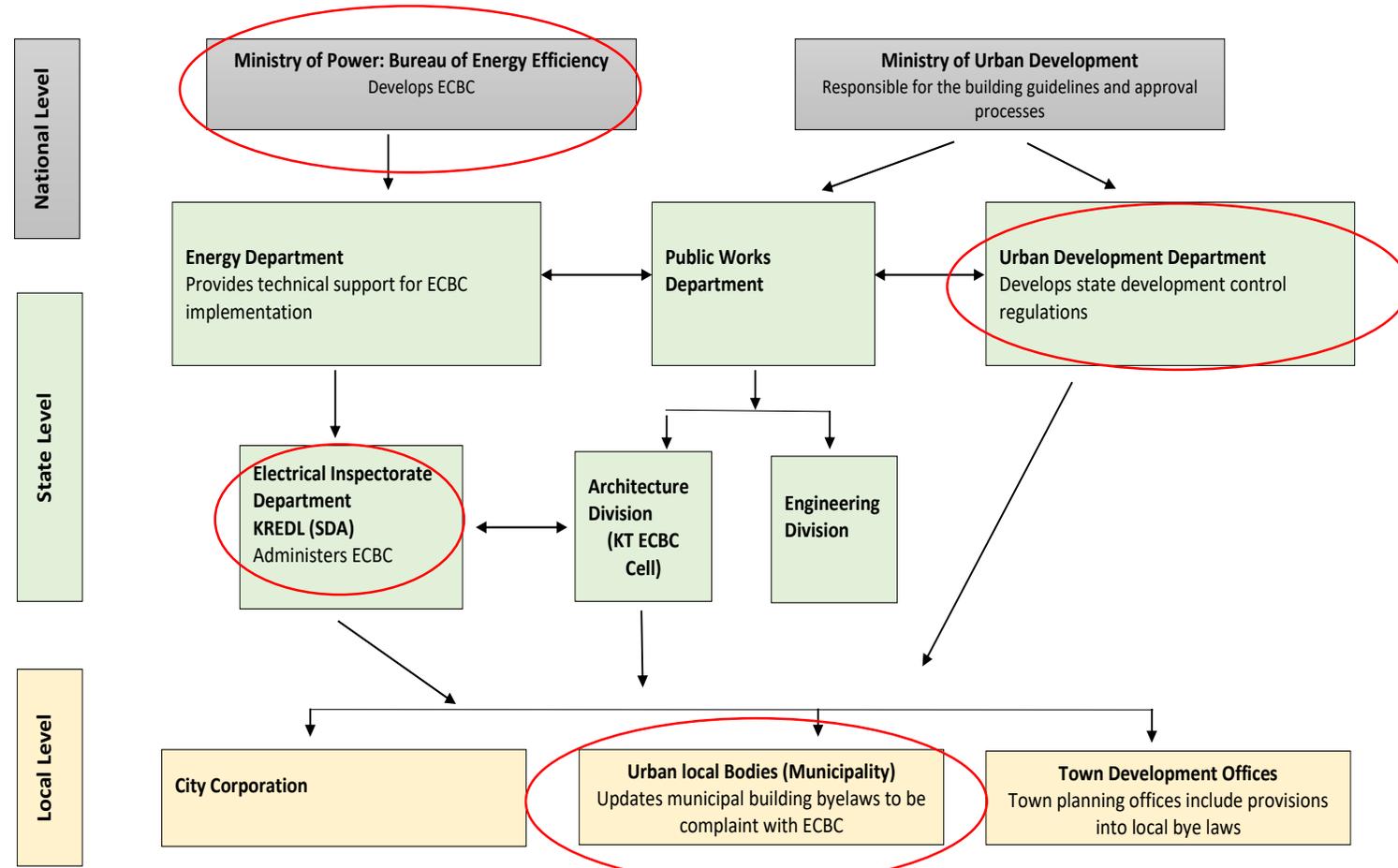
Technology and Policy Activities	Flows across governance levels			Illustrative List of Key Actors (Domestic-D, International-I)	Policy Context
	Inter-national	National	Sub-National		
Building energy code design and development				<p>D: Bureau of Energy Efficiency (BEE); Bureau of India Standards (BIS)</p> <p>I: United States Agency for International Development (USAID); Swiss Development Corporation (SDC); United Nations Development Program-Global Environmental Facility (UNDP-GEF)</p>	<ul style="list-style-type: none"> <li>-India's Energy Conservation Act</li> <li>-Energy efficiency inclusion in the revised National Building Code</li> <li>-National Climate Mission on Sustainable Habitat</li> </ul>
Building energy code adoption and implementation in states				<p>D: BEE; BEE's State Designated Agencies; State and sub-state departments; CEPT University (CEPT); Malviya National Institute of Technology (MNIT); Administrative Staff College of India (ASCI); Shakti Foundation; International Institute for Information Technology (IIIT)</p> <p>I: UNDP-GEF; Natural Resources Defense Council (NRDC); European Union; Pacific Northwest National Lab (PNNL); USAID</p>	<ul style="list-style-type: none"> <li>-Domestic political pressure to manage energy security</li> <li>-National policy trends supporting climate activities</li> <li>-Pressure from BEE to states to adopt building energy policies</li> </ul>

# Outcomes and patterns over ten years

- Weak energy performance metrics in spite of multiple activities
  - Energy Performance Index (EPI) average ~200-400 kWh/sq m/year (efficient building ~100 kWh/sq m/yr)
- 7 of 35 Indian states and UTs notified the ECBC almost a decade after its launch
- Most states in process of code notification, but yet to see widespread implementation
- Small segment of private developers adopt efficiency technologies
- Most activities flow top-down (international → national → subnational)
  - States seldom “laboratories of experimentation” or pioneers of policy initiation
- Systematic horizontal linkages between states are minimal

# Why weak outcomes? Institutional architecture

- ECBC Policy push from BEE (MoP)
- Notification: coordination between national (MoP)-state (UDD) levels
  - UDD usually coordinates w/MoUD
- Post-notification coordination between state (UDD)-local (ULB) to modify bye laws
- Success requires coordination, accountability and compliance monitoring between all three levels – MoP, UDD, ULB



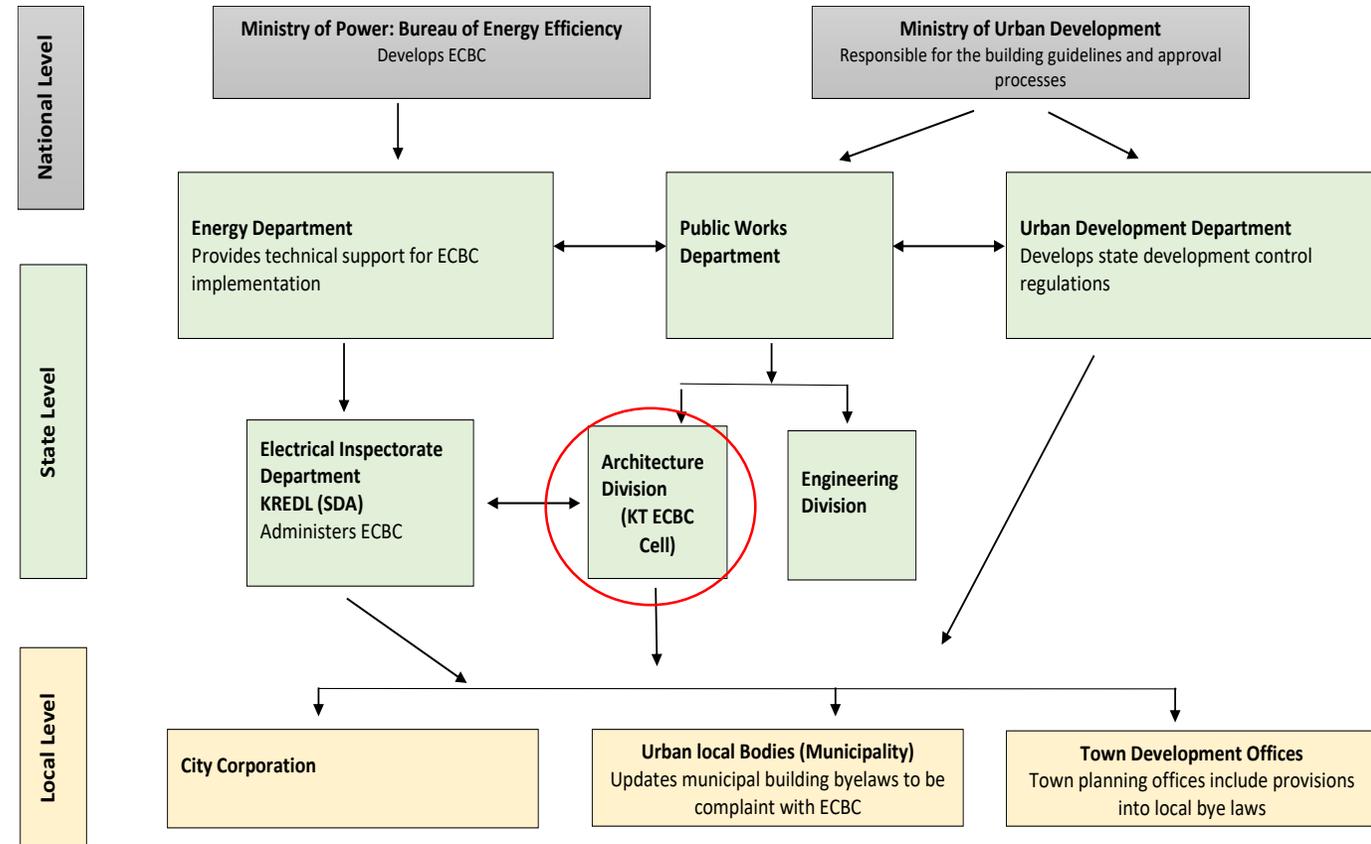
Illustrative ECBC governance map for Karnataka

# Why weak outcomes? Capacity Constraints

- Capacity often emphasized, but current capabilities do not mirror requirements for ECBC transformation
- BEE master trainers often not offered opportunities to use acquired skills
- State and local bodies require training to implement, monitor and assess the ECBC
- State and local bodies lack staff numbers to match needs of India's real estate growth
  - 80% of SDAs share MNRE and MOP objectives
  - Often the number of officials within the SDA to handle ECBC issues is less than 5 persons/state

# Best Practice: Karnataka

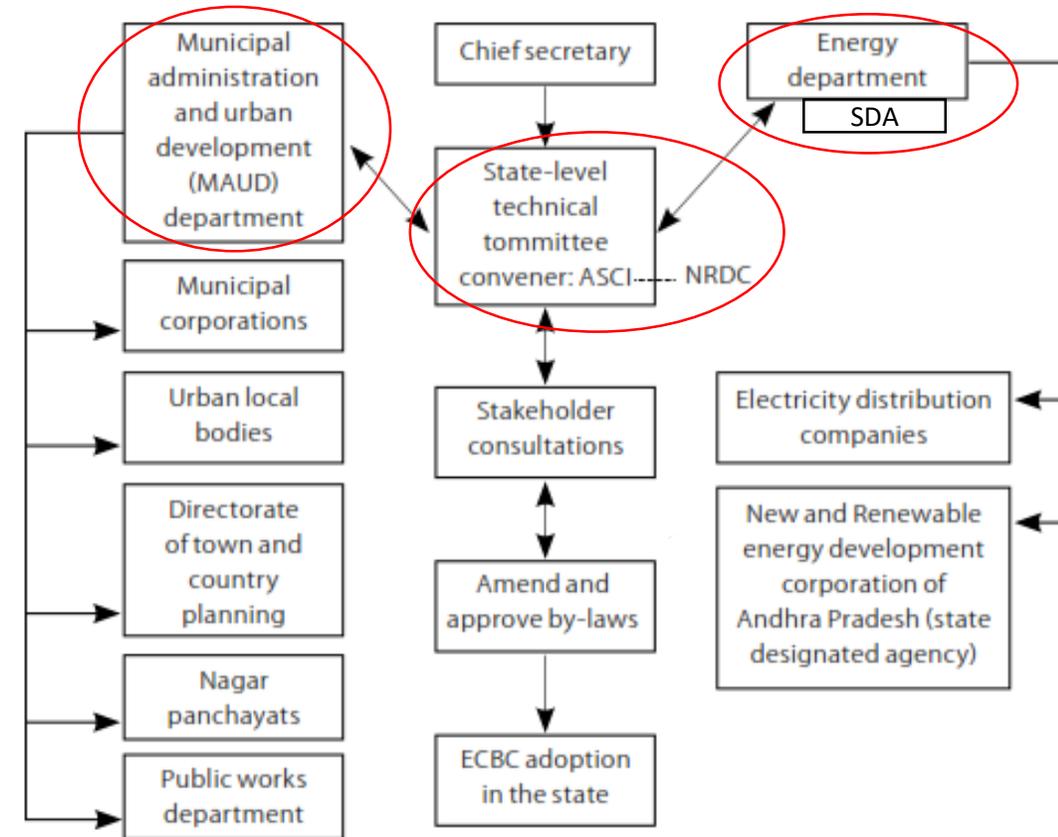
- 2nd state to approve ECBC cell (2015)
  - Post notification focus on UDD
- Cell created at the PWD
  - Contact point for BEE
  - 3 architects and 1 engineer
  - Senior third-party expert for training
- Leadership from ECBC cell
  - Principal chief architect drives functions
  - Work collaboratively across governance levels
- ECBC compliant design templates for public buildings
- Inclusion of EE materials in SoR
- Updating building bye laws
- Institutional memory developing around code implementation



Illustrative ECBC governance map for Karnataka

# Best Practice: Andhra Pradesh/Telangana

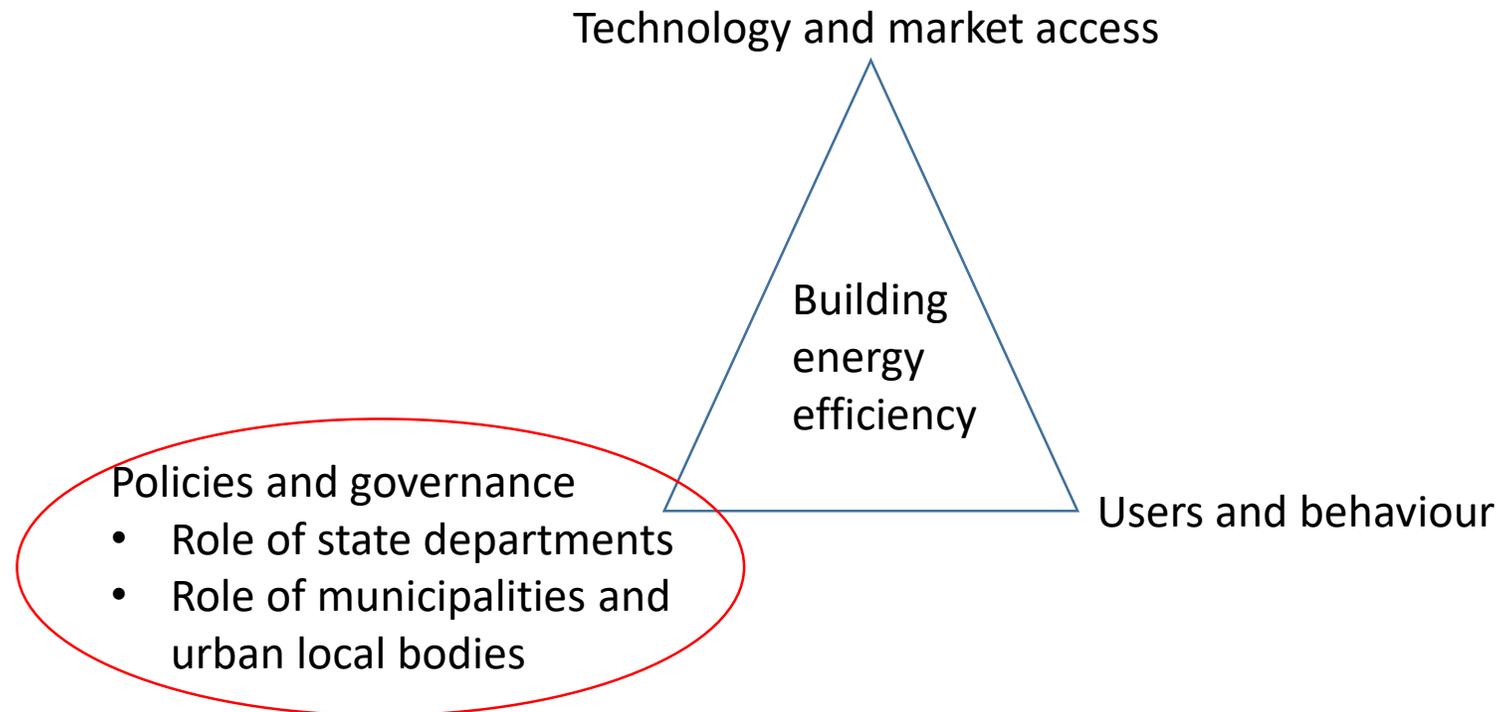
- One of 1st states to notify/mandate the ECBC
- Committed leadership to oversee ECBC adoption
  - Driven by state's chief secretary
  - Complemented by external knowledge partners
- Chief Sec. constituted "Technical Committee"
  - Inter-departmental membership, regular meetings
  - Seniors from depts. of Energy, Municipal Admin. and Urban Dev., Town and Country Planning; state's chief architect; technical experts
  - Consultative approach
- Adapted and simplified ECBC for local conditions
  - Code purview from connected load to built-up area to make comprehensible to ULBs who monitor construction
- 1<sup>st</sup> online compliance system
  - GHMC first ULB with online ECBC approval system
  - Working with Telangana New & Renewable Energy Development Corporation Ltd. (SDA) and MAUD



Organisation of the ECBC Notification Process

# Changing the status quo: Way forward

- Policy programs can assume that technologies/codes along bring change
- Re-think buildings efficiency from a technical problem to a socio-technical problem:



# Looking Ahead

- Role of leadership within a state
  - E.g., Chief Secretary, Principal Secys, ECBC Cell, SDA, Urban Development, Energy Department..
- Capacity building
  - Identify state specific local needs – pre and post notification (SDA vs. UDD)
  - Develop compliance framework and skills for state and local level officials
  - Develop technical skills for building professionals (third party)
- Strengthen linkages
  - How can the Energy and Urban Development Departments work more closely together?
  - Better links between state and local levels as effectiveness depends on outcomes on the ground
  - Better linkages within states -- network of state energy officials or of ECBC cells?
- Integrate between energy and climate change programs
  - Absence of buildings in most state action plan on climate change
- Start with a state and scale up local success stories – they are out there!

Thank you

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