



UNIVERSITY OF  
OXFORD



# CODE OFFICIALS ARE PEOPLE, TOO :

## The Role of Middle Actors in Energy System Transformation

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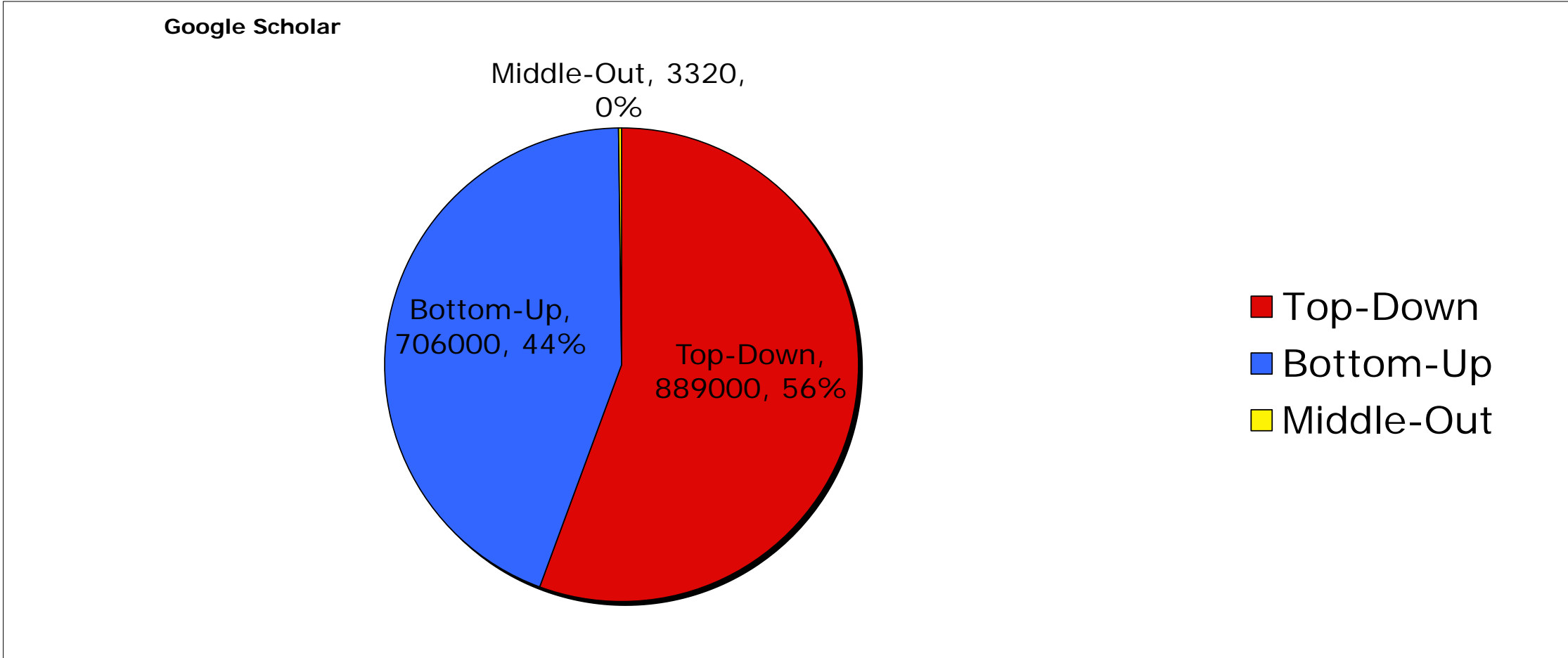
Smith School of Enterprise and the Environment, and the Oxford India Centre for  
Sustainable Development, University of Oxford

Behavior Energy and Climate Change conference  
Washington DC, USA Oct. 9 2018

# Overview

- Introduce
  - The “middle-out perspective” (MOP)
  - 4Cs “concern, capacity, and conditions within a community” (see [New Forms of Participation in the Commercial Sector, paper with R. Bull; 10:30 tomorrow](#))
- Use the MOP & 4Cs to focus on code officials in India
- Reflection on “behavior” and change
  - Whose behavior needs to change and how?

# How do we think change happens?



# What is the middle?

Government



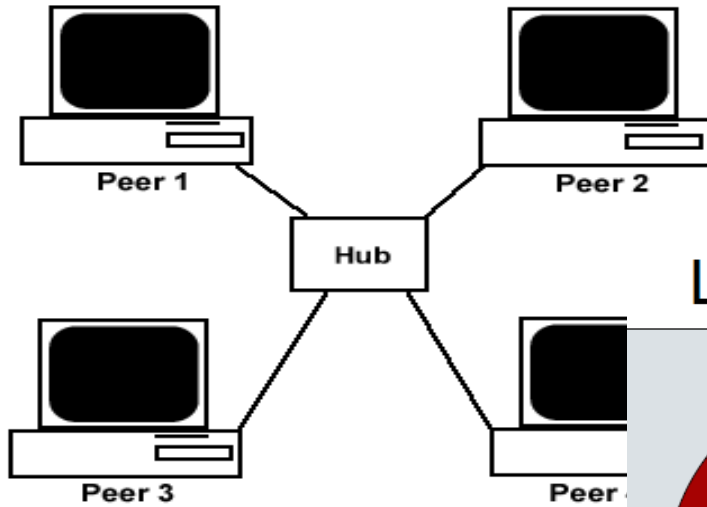
Citizens



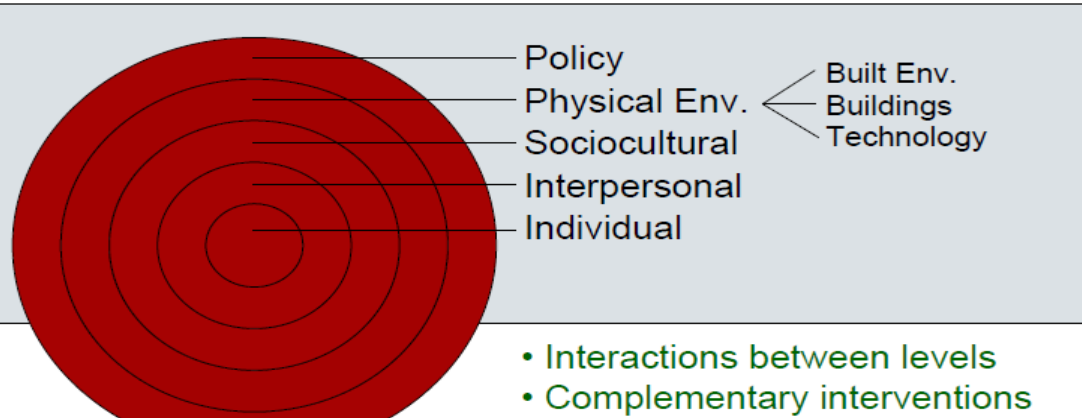
Missing Middle (s)

- Local government
- Utilities
- Community groups
- Building professionals
- Congregations
- Universities
- Etc...

# Models of Middles

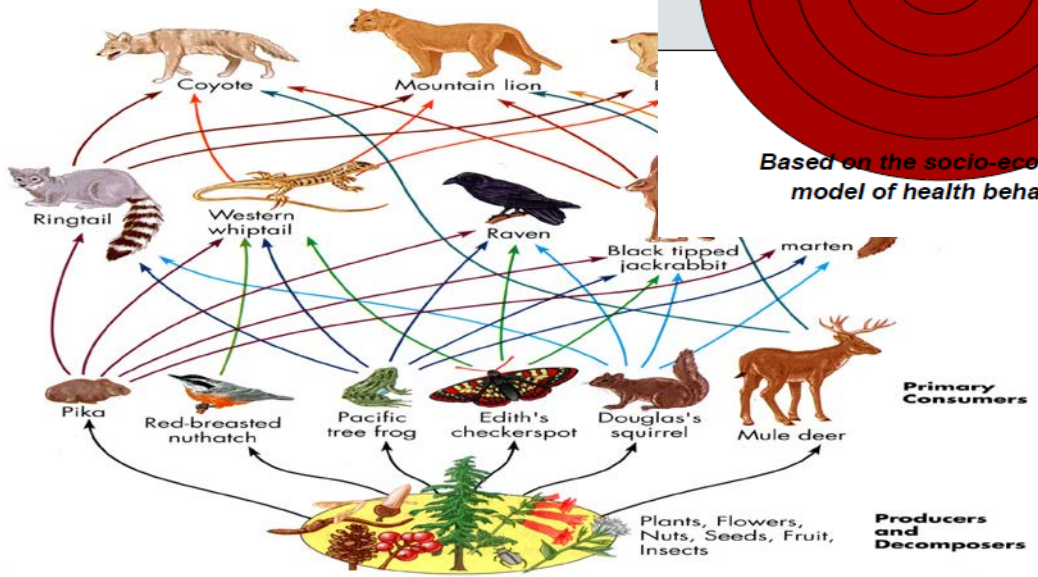


## Levels of Interventions

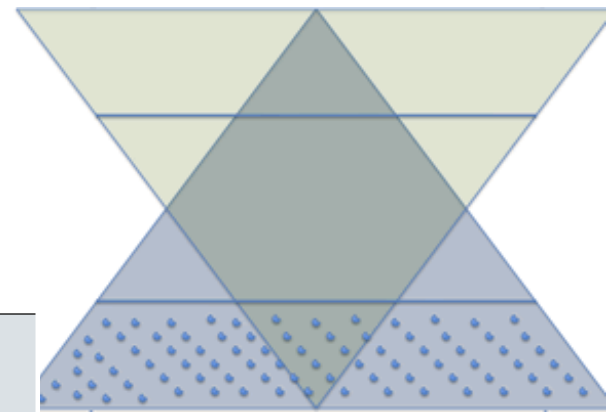


Based on the socio-ecological model of health behavior

- Interactions between levels
- Complementary interventions

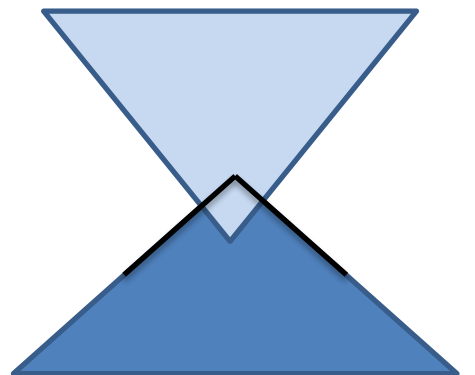


Top-down



Bottom-up

Top-down



Bottom-up

# How does change occur?

Janda, K. B., & Y. Parag. 2013.

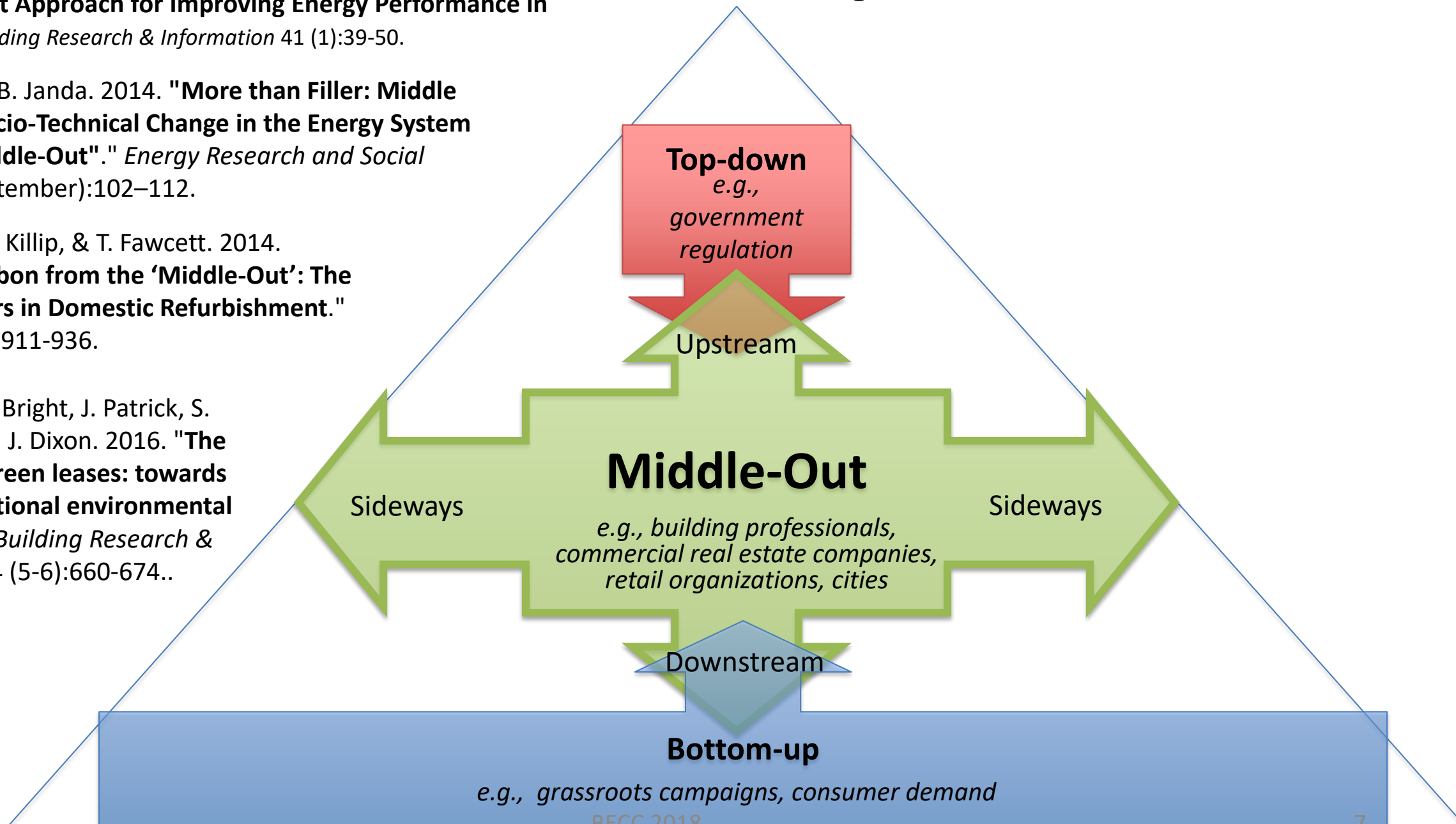
"A Middle-Out Approach for Improving Energy Performance in Buildings." *Building Research & Information* 41 (1):39-50.

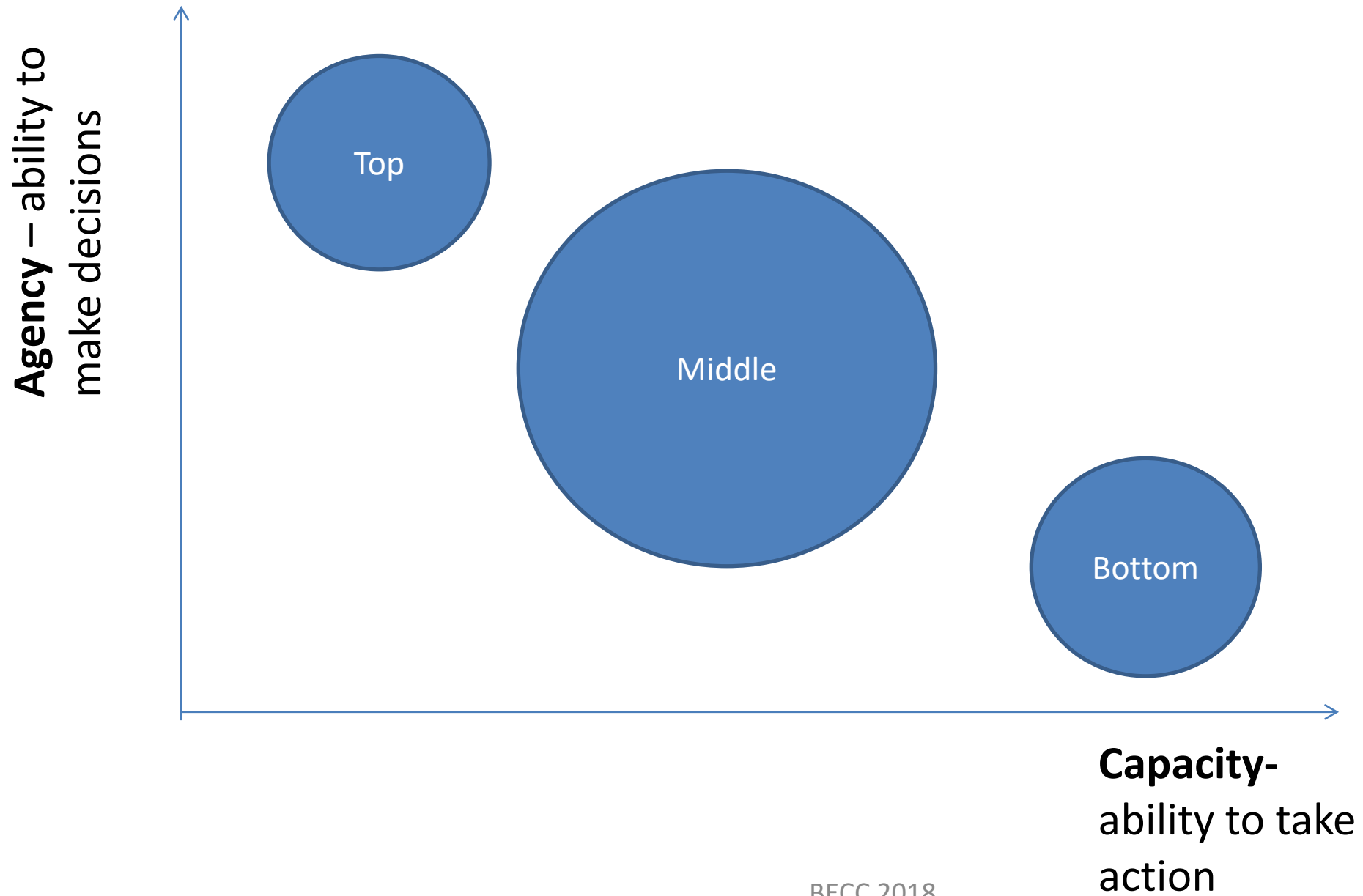
Parag, Y., & K. B. Janda. 2014. "More than Filler: Middle Actors and Socio-Technical Change in the Energy System from the 'Middle-Out'." *Energy Research and Social Science* 3 (September):102–112.

Janda, K. B., G. Killip, & T. Fawcett. 2014.

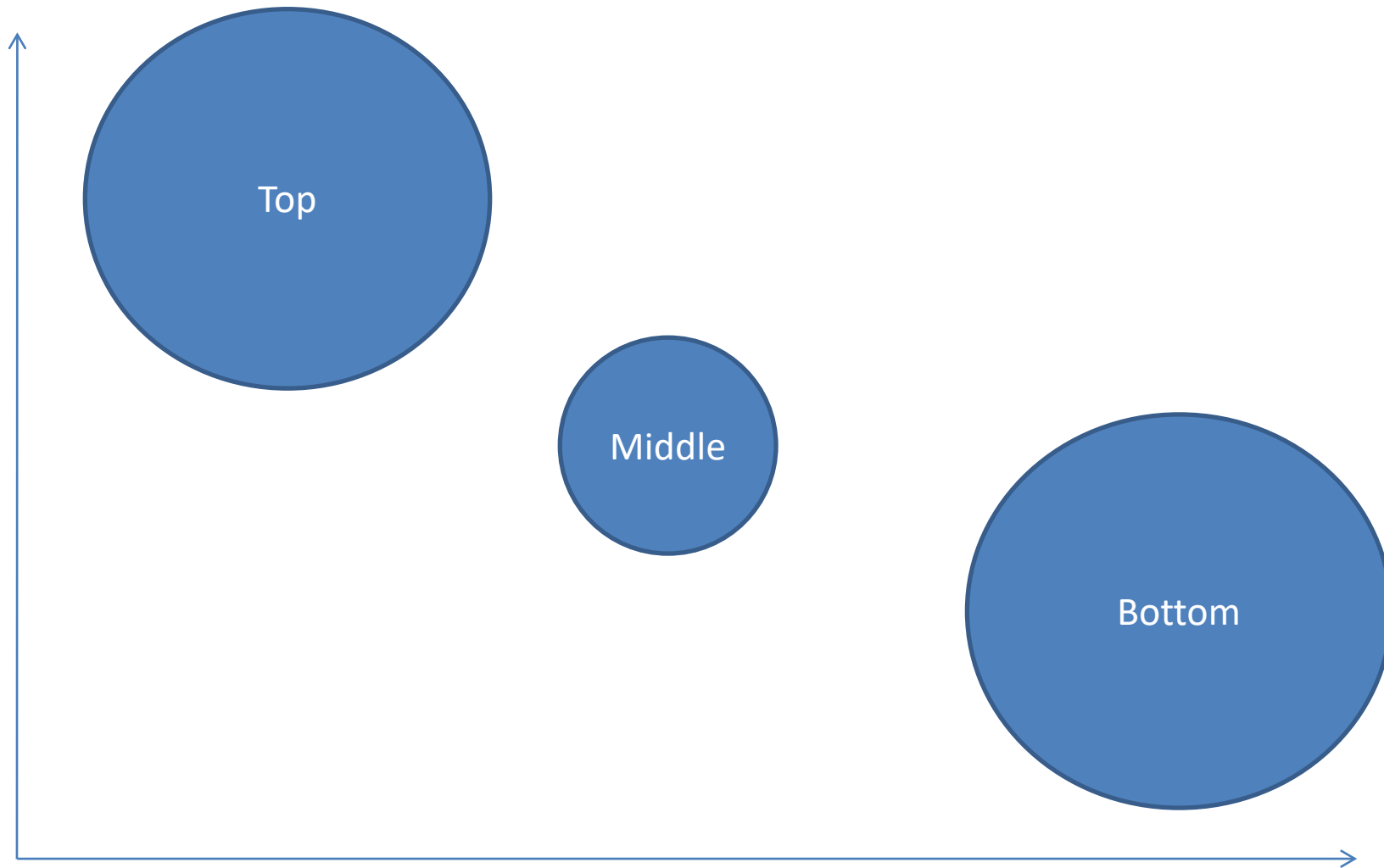
"Reducing Carbon from the 'Middle-Out': The Role of Builders in Domestic Refurbishment." *Buildings* 4 (4):911-936.

Janda, K. B., S. Bright, J. Patrick, S. Wilkinson, & T. J. Dixon. 2016. "The evolution of green leases: towards inter-organizational environmental governance." *Building Research & Information* 44 (5-6):660-674..





**Agency – ability to make decisions**



**Capacity-  
ability to take  
action**



# Evolution of the MOP:

From:



To:

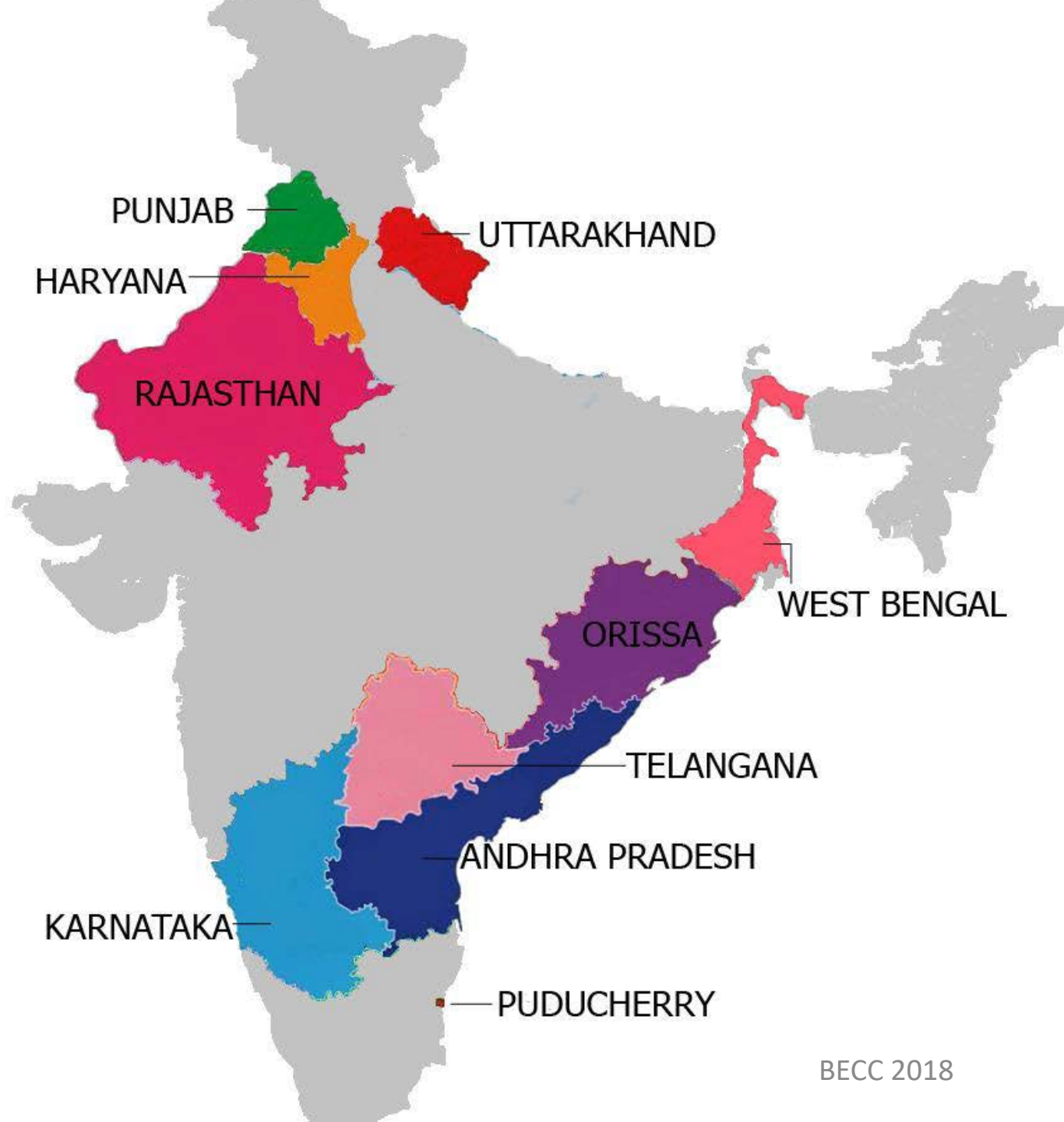
- providers of housing refurbishment (K. Reindl)
  - heating engineers (Wade, Hitchins & Shipworth)
  - community-based organizations providing space for collective action (Mayne, Hamilton, Parag & Bergman)
  - facilities managers (Goulden & Spence)
  - SME energy advisors (Hampton)
  - actors involved in energy storage (Devine-Wright et al)
  - Code officials in India
- **Development**
    - Community groups & palm oil producers in Indonesia
    - International financial institutions in Madagascar
  - **Public health**
  - **Material waste reduction**

# Energy Code Development in India



- Energy conservation building code (ECBC) established 2007
- Primary regulatory instrument for energy efficiency
  - Lots of new construction
- Expectation of reduction based primarily on models
  - Assumed implementation
- Disconnect between models and reality

# Energy Code Implementation in India



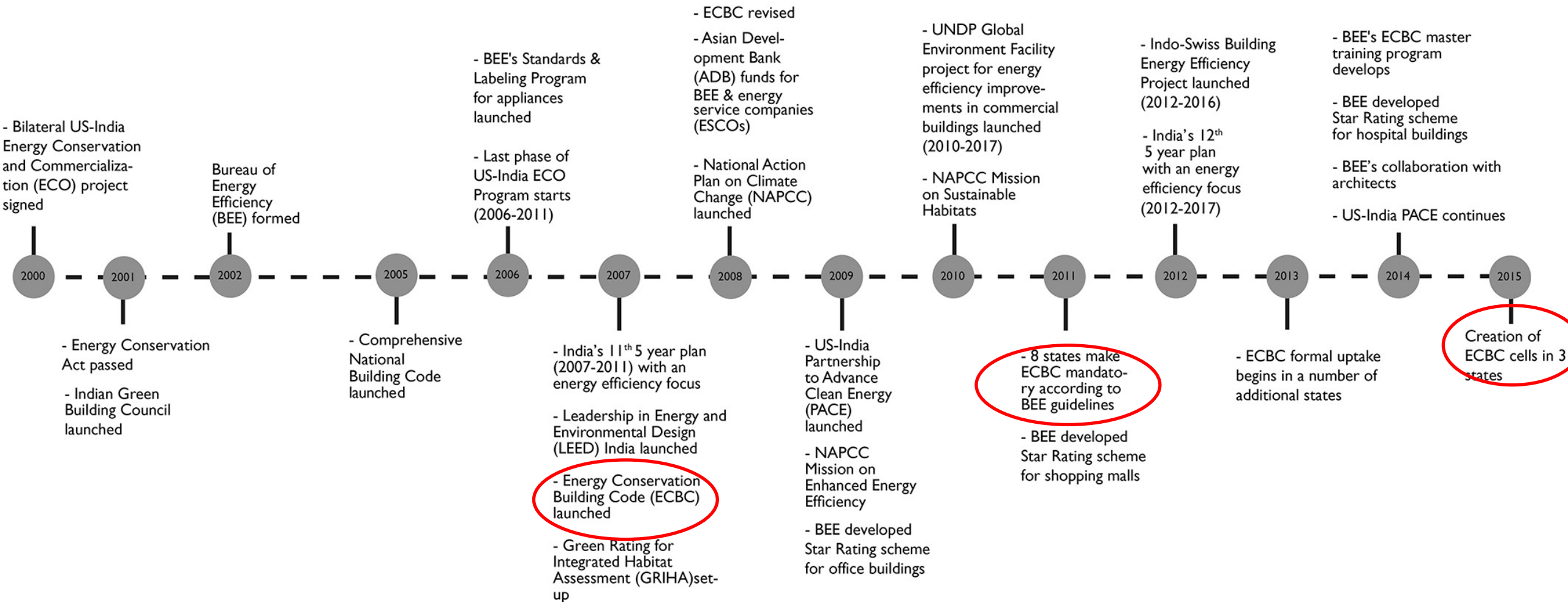
- 35 states & territories
- ECBC must be implemented at state & local levels
- **Over 10 years**
  - Only adopted by 9 states
- Weak energy performance
  - Energy Performance Index (EPI) average ~200-400 kWh/sq m/year (efficient building ~100 kWh/sq m/yr)

BECC 2018

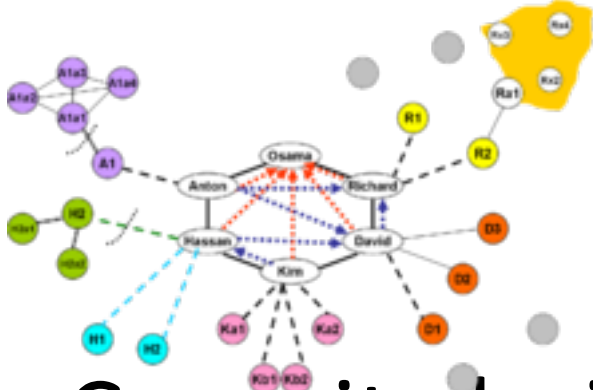
Source: ACE-E2. 2018. *Adoption, Compliance, Enforcement for Energy Efficiency*. Greece: EXERGIA, [Accessed: 5 September 2018]. Available from <http://ace-e2.eu>.



# A long road...



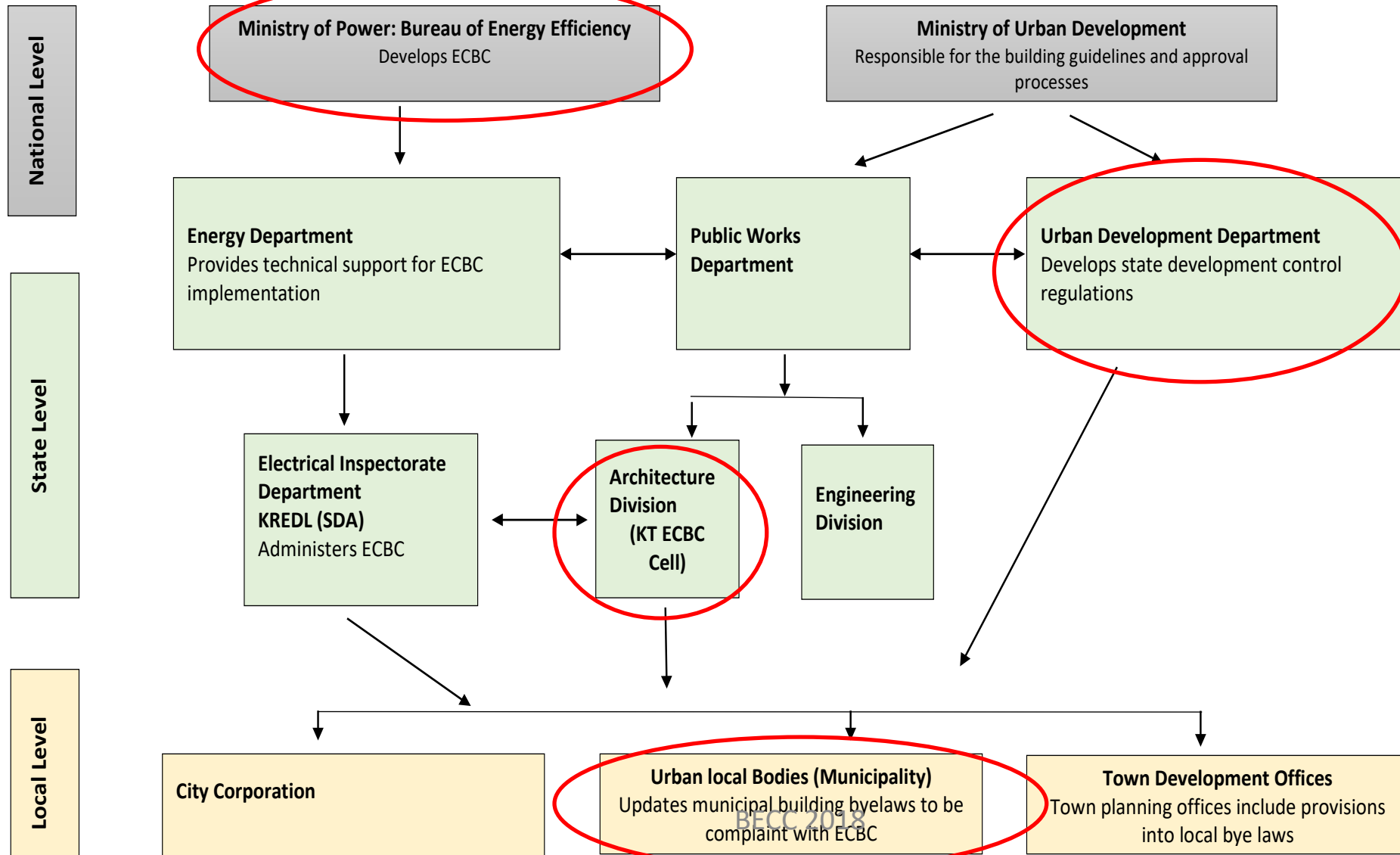
Source: Khosla, R., A. Sagar, & A. Mathur. 2017. "Deploying low-carbon technologies in the building sector: a view from India's." *Environmental Policy & Governance* 27 (2):Pages 149-162.



# ECBC “Cells”

- Capacity building idea from Bureau of Energy Efficiency (gov. ministry of Power)
- Supported by GEF funds
- Fund/bring in architecture & engineering expertise to help State Designated Agencies (SDAs) understand how to implement codes

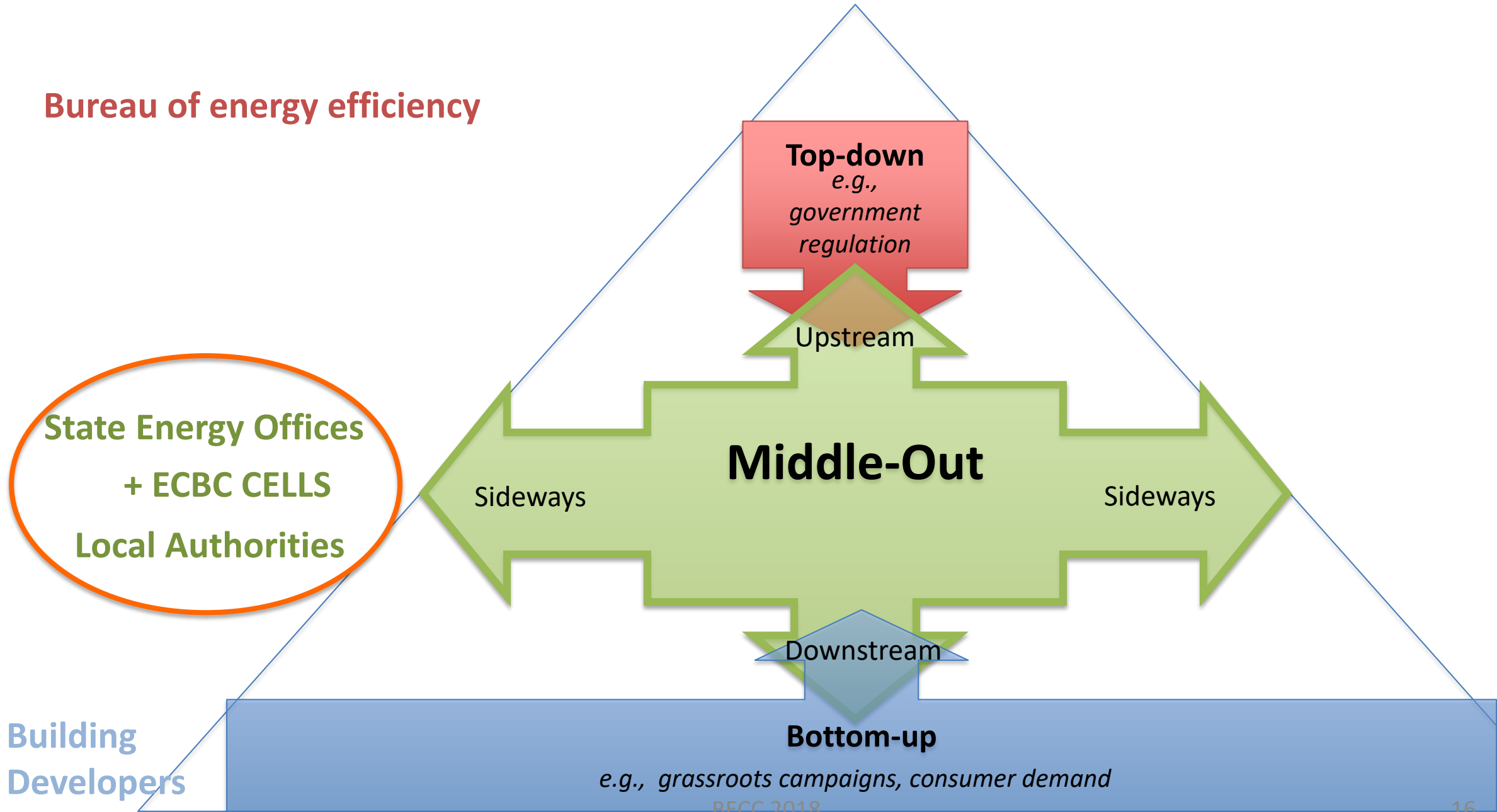
# Multilevel energy governance in India: case of Karnataka



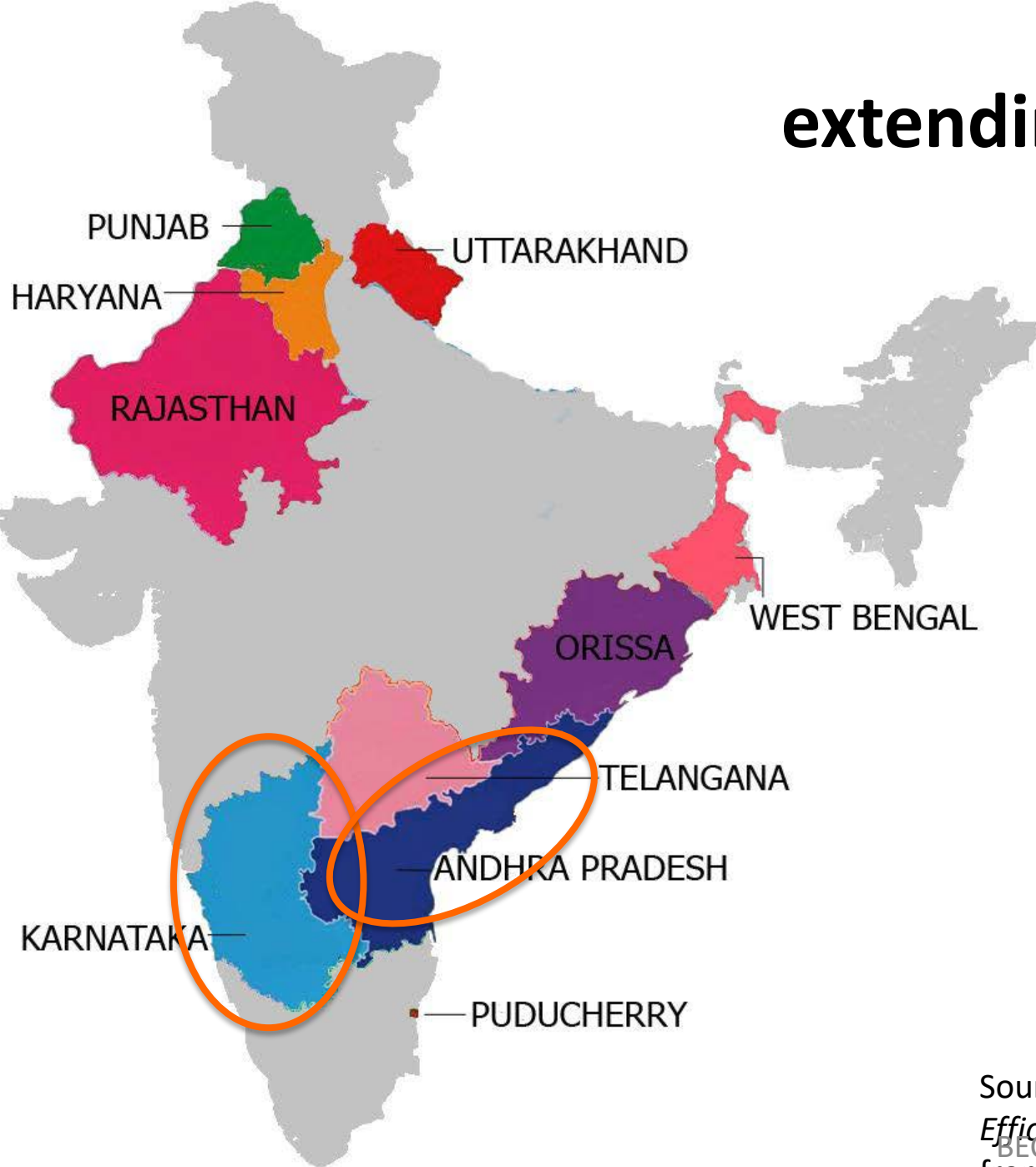
Source: R. Khosla

# A Middle-Out View of Building Energy Regulation in India

Bureau of energy efficiency



# Ongoing research: extending the agency and capacity of code officials

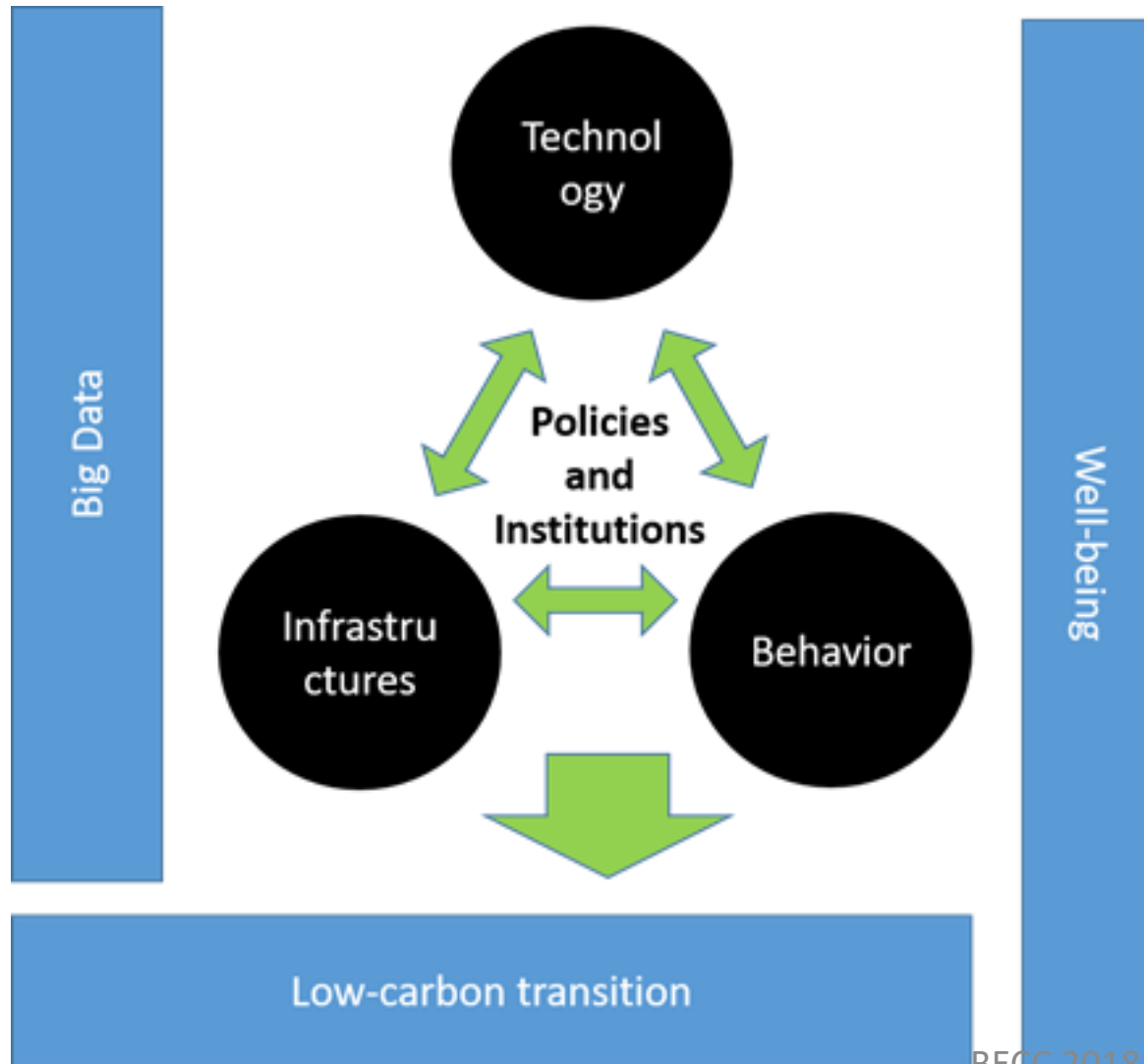


- ECBC “cells” supported by international aid
  - architects and engineers at state level
- “**sideways**” approach taken by new project “Adoption, Compliance, Enforcement for Energy efficiency” (ACE-E2)
  - Cluster states to learn from each other
  - Similar to US National Association of State Energy Officials (NASEO)

Source: ACE-E2. 2018. *Adoption, Compliance, Enforcement for Energy Efficiency*. Greece: EXERGIA, [Accessed: 5 September 2018]. Available from <http://ace-e2.eu>.

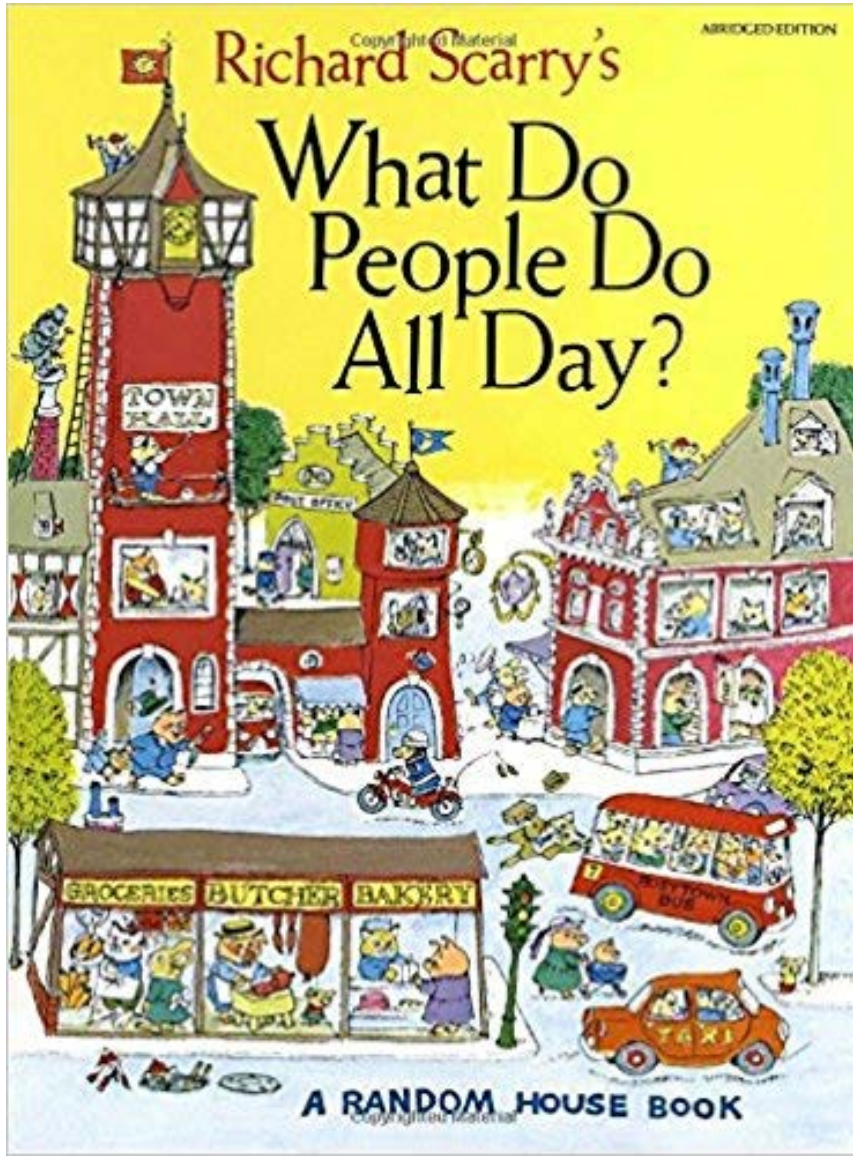


# Reflections



- Capacity building can also change behavior
  - Code officials are people, too
- Importance of work and “workstyles”
  - Professional capacity building is essential to durable change
  - Professional “norm” vs. social norm

# Thank you



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