Third Regional Workshop on ECBC Implementation in States
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PHILOSOPHY OF THE WORKSHOP

Workshop Objective –

- To fast track ECBC implementation pan-India
- To encourage government leaders in promoting ECBC implementation

Structure of the workshop designed to put spotlight on the states

Twin Pronged Approach –

- Addressing implementation and enforcement challenges for states having ECBC notified
- Handholding on ECBC process & approaches for states having ECBC NOT notified

Documenting ECBC implementation status and identifying best practices – through interviews and surveys

Developing database of all relevant officials - MoUD, NITI Aayog, ULBs, TCPs, PWD, SDAs
CHAPTER 6 OF EC ACT

Power of State Government to facilitate and enforce efficient use of energy and its conservation

SECTION 15 – Powers of State Government

• Amend ECBC to suit regional and local climatic conditions and may, by rules made by it specify and notify ECBC with respect to use of energy in the buildings
• Create awareness and disseminate information for efficient use of energy and its conservation
• Arrange and organise training of personnel and specialists in the techniques for efficient use of energy and its conservation

SECTION 16 – Constitute State Energy Conservation Fund for the purposes of promotion of efficient use of energy and its conservation within the State

SECTION 17 – Appoint inspecting officers as may be necessary for the purpose of ensuring compliance with energy consumption standard

SECTION 18 – Central Government or State Government may issue directives for efficient use of energy and its conservation

Source: BEE
THE REALITY

No State or City has formal ECBC approval process

ECBC compliant buildings have followed voluntary green buildings rating tools path

Huge impact on commercial buildings EE, locking-in inefficient buildings due to lack of ECBC implementation

As per ECO3, approx. 3 million sq. ft. commercial space building every day (i.e. ~ 1 billion sq. ft. per year)

Smart Cities Mission or Solar Cities Mission doesn’t indicate EE as a resource

Lack of awareness among officials about ECBC among state bodies – especially in UD at state level
CRITICAL STAKEHOLDERS

Policy Makers
- Develop code requirements, enforcement procedure and check compliance

Manufacturers
- Availability of compliant products

Professionals
- Expertise to design and construct, Professional Trainers

Occupants
- Operate and maintain buildings

Critical stakeholders for ECBC implementation

Source: USAID
KEY GOVERNMENT STAKEHOLDERS

- Urban Development Department
- Town & Country Planning Department
- State Designated Agency, under the EC Act
- Renewable Energy Department
- Development Authority(s)
- Municipal/ Urban Local Bodies
- Public Works Department (PWD)
- Electricity and Energy Department
SIMPLIFYING BUILDING ENERGY EFFICIENCY

1. BE LEAN
   - BETTER BUILDING DESIGN
   - BUILDING ENERGY CODE
   - ADAPTIVE THERMAL COMFORT

   Building EPI from 250 to 125 kWh/m²/year

2. BE MEAN
   - STANDARDS & LABELING
   - DEMAND RESPONSE READY SYSTEMS
   - INTELLIGENT CONTROLS

   Building EPI from 125 to 60 kWh/m²/year

3. BE GREEN
   - GREEN REFRIG.
   - RENEWABLE ENERGY, TRIGEN
   - SOLAR COOLING

   Building EPI from 60 to 30 kWh/m²/year

Source: Bill Bordass & AEEE

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IIT Kanpur: Energy savings achieved through ECBC interventions

**Typical Benefits from ECBC Compliance**

- **Lighting optimization**
- **HVAC technology adoption**
- **HVAC Controls**
- **Final HVAC selection** (e.g. Earth air tunnel)

**EPI Calculations**

- **Business As Usual (BAU)**
  - EPI = 240 kWh/m²/year
  - EPI = 208 kWh/m²/year
  - EPI = 168 kWh/m²/year
  - EPI = 133 kWh/m²/year
  - EPI = 108 kWh/m²/year
  - EPI = 98 kWh/m²/year

**Source:** BEE
CUSTOMISED APPROACH TO ECBC AWARENESS AND COMPLIANCE

NOTIFY AND AMEND – MOUD & MOP

Building design and construction stakeholders

Regulatory Bodies - Govt. stakeholders

Assists

CAPACITY BUILDING

Architect
MEP Consultant
Energy Consultant
Developers
Manufacturers
End User

Construction sanction
ULBs
Assists construction
ULBs bye laws/ TCP rules & regulations/ Development Plan

Compliance check
ULBs/ SDAs/ TCPs/ PWDs

Source: BEE & AEEE Survey

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INTERVENTIONS FOR ECBC IMPLEMENTATION AT VARIOUS LEVELS

NATIONAL LEVEL
- MoP – BEE developed Energy Code under EC Act

STATE LEVEL
- State UD/ Power Dept. – Notify ECBC
- SDA – Assist notification, amendment & compliance
- State UD – Amend and adopt code
- TCP - Amend rules and regulations also, amend bye laws applicable outside city level

CITY LEVEL
- ULB – Amend Bye Laws
- SDA – Assist notification, amendment & compliance

City can amend its bye laws and support ECBC compliance even without State intervention

Source: MoUD, MoP, BEE

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ROLES & RESPONSIBILITIES: NATIONAL LEVEL

**MouD**
- Urban Development
  - Division of MoUD
  - TCPO
    - Technical Wing
      - Developed Model Building Bye Laws
  - CPWD
    - Attached Office
      - Inclusion of green building norms in specs docs

**MoP**
- BEE
  - Developed ECBC
  - State Purview

**State Purview**

Source: MoUD, MoP, BEE

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ROLES & RESPONSIBILITIES: STATE LEVEL & CITY LEVEL

**State Urban Development Department**
- TCP
- PWD
- ULBs

**TCP**
- TCP Rules & Regulations
  - Refer Model Building Bye Laws
- Develop Development Plans/ Master Plans

**PWD**
- Develop dept. const. specs – Refer CPWD specs

**ULBs**
- Develop BYE LAWS

**State Power Department**
- SDA
  - By BEE

- **Source:** MoUD, MoP, BEE, 7th Amendment

- **Not dependent on State or City, can amend their Specs and set examples**

- **Authority to amend Bye Laws by themselves**

- **Mandatory to amend Bye Laws, if States notifies**

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ROLES & RESPONSIBILITIES

CENTRAL GOVERNMENT
- Ministry of Power
- Ministry of Urban Development

ECBC Development and Update

STATE GOVERNMENT
- UDD
- PWD
- DoE..

Amend ECBC to meet State requirements
Notification of ECBC in the State Gazette
Revision of DCR/ Building Bye-laws

ECBC Cell
- facilitates ECBC implementation by bridging the communication, technical and Human Resources Gap

LOCAL GOVERNMENT
- UDD
- PWD
- DoE..

Enforcement of ECBC
Revision of ULB Byelaws and approval process

Source: BEE & UNDP
WAYS TO UPSCALE ECBC IMPLEMENTATION

**ECBC Program to be expanded** by BEE/MoP

**Activate all government stakeholders** – MoUD, NITI Aayog, ULBs, TCPs, PWD, SDAs

**Technical Assistance to be provided** to MoUD, PWD, ULBs

**Enhance inter-ministerial coordination** – coordination between MoUD, MoP, PWD, ULBs, SDAs,

**State/City ECBC implementation approaches/challenges/learnings to be shared** across States
PRIORITIES/NEXT STEPS

State Government: Notify ECBC; Amend ECBC

TCP/ Development Authority: Amend rules & regulations/ byelaws

ULBs: amend & adopt code in building byelaws; build capacity and code awareness; expand training programs

Building professionals: enhance awareness and understanding of code specifications/requirements (also in preparation for certification program)
THANK YOU
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