

Energy Efficiency Programme for Small and Medium Enterprises (SMEs)



**Tarun Dixit,
Project Engineer
Bureau of Energy Efficiency,
Ministry of Power**





INTRODUCTION

- India has made rapid strides towards economic self-reliance over the last few decades.
- Impressive progress has been made in all sectors of economy necessitating growing consumption of energy
- Conventional source of energy such as coal, oil and gas are scarce and exhaustible.
- Consumption of fossil fuel resources also leads to Global warming and climate change
- Hence, all initiatives needs to be undertaken to ensure the efficient use of the available energy resources to manage energy supply and minimize the impact of energy use on environment.
- This has led the Government of India through the Energy Conservation Act and the Bureau of Energy Efficiency to launch several energy efficiency improvement initiatives.



THE ENERGY CONSERVATION ACT



- **EC Act enacted in October 2001**
- **Became effective from 1st March 2002**
- **Bureau of Energy Efficiency (BEE) operationalized from 1st March 2002 and State Designated Agencies established in 32 States/Union Territories**
- Strategic framework for the formulation and development of energy conservation policies
- Balance between regulatory enforcement & voluntary participation and between market driven methods & governmental mandates



THE ENERGY CONSERVATION ACT

- The **five major provisions** of EC Act relate to:
- **Designated Consumers** (mainly energy intensive industries and buildings) to comply with the specific energy consumption norms for the manufactured products and services and establishment of energy management system,
- **Standards and Labeling** of energy consuming appliances, gadgets and equipment to ensure promotion of energy efficiency of the new stocks entering the market
- **Energy Conservation Building Code** ensuring that new commercial buildings constructed in the country have less electricity consumption
- Creation of **Institutional Set up** (Bureau of Energy Efficiency at the Federal level and State Designated Agencies at the State level) for effective coordination of the energy conservation efforts in the country and
- Establishment of **Energy Conservation Fund** at Centre and States to provide necessary financial support for energy efficiency initiatives in the country.



Programs & Schemes

The important programs & initiatives

- Standard & Labeling (S &L)
- Energy Conservation Building Codes (ECBC)
- Bachat Lamp Yojana (BLY)
- Strengthening of State Designated Agencies (SDA)
- Designated Consumers and Small & Medium Enterprises
- Agriculture DSM & Municipal DSM
- Energy Manager & Auditor's Examinations
- National Energy Conservation Awards (NECA)
- **National Mission on Enhanced Energy Efficiency (NMEEE)**
 - *Perform Achieve and Trade (PAT)*
 - *Market Transformation for Energy Efficiency (MTEE)*
 - *Energy Efficiency Financing Platform (EEFP)*
 - *Framework for Energy Efficient Economic Development (FEEED)*



India's MSME Sector: Context

✧ **MSME Sector Contribution to Indian Economy**

- 45% of Industrial Production
- 35% share in exports
- >8000 Products

✧ **Second largest sector after agriculture**

- >26 million units
- Provides employment to >59 millions

✧ **Accelerates the growth of Economy**

- MSME growth higher than GDP & Industrial growth

✧ **Energy Consumption was 50.5 Mtoe in 2012**

- Energy saving potential of 15%
- Expected growth rate is > 6%

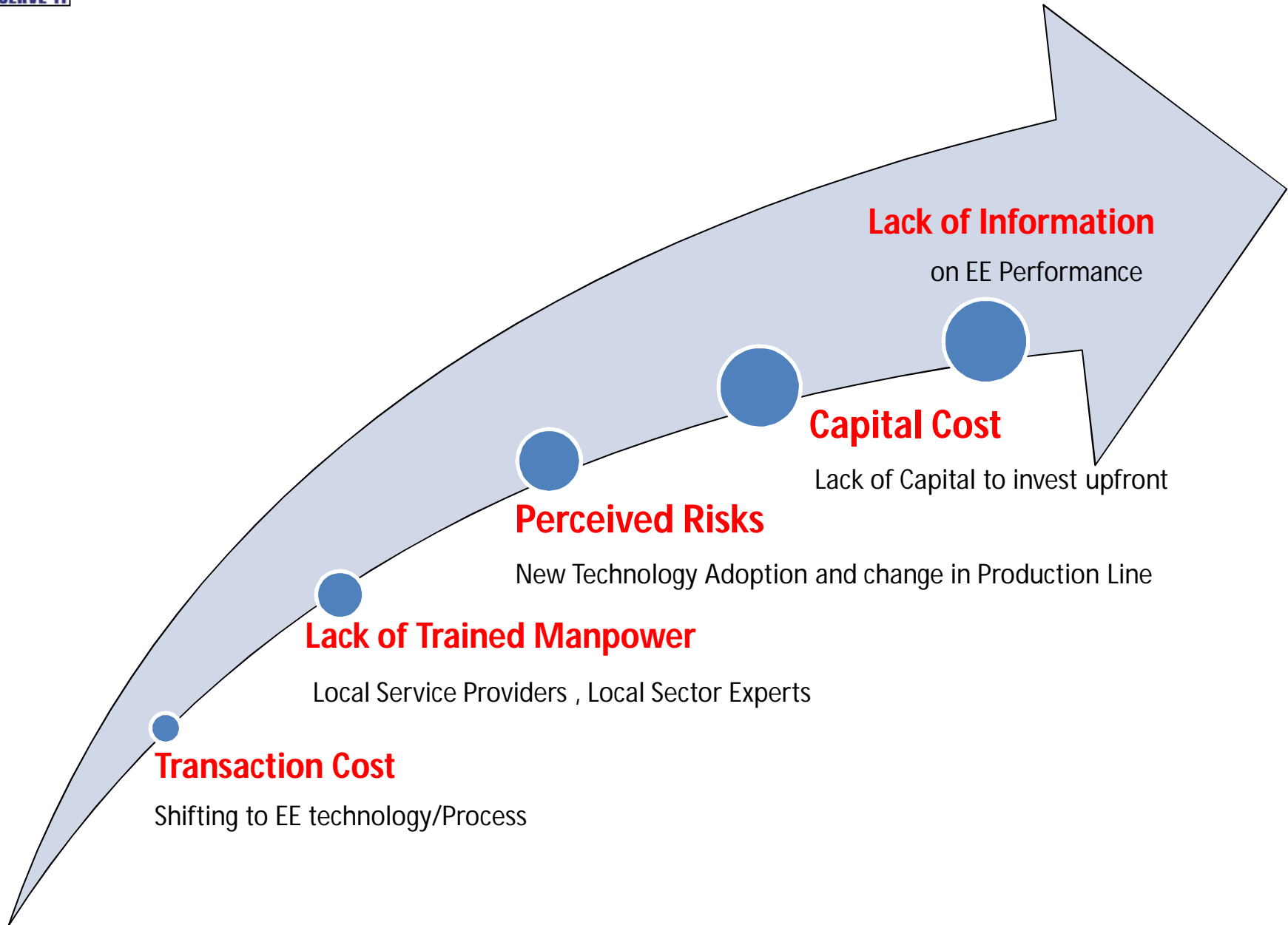
- ✓ Very small in size (majority are MSME units)
- ✓ Majority of units are proprietorship / family owned concern
- ✓ Very limited professional management
- ✓ Obsolete technology/ production process
- ✓ Low capital investment & labour intensive
- ✓ High energy consumption in many sectors
- ✓ Lack of Knowledge about energy efficient production options / technology

SME– Achievements (XI Plan)

- Situation analysis completed in selected 35 SME clusters.
- 25 SMEs clusters (18 Sector Type) undertaken for further interventions .
- Comprehensive energy audit and technology gap assessment completed in 1250 SME Units belonging to 25 SMEs clusters.
- 375 DPRs on energy efficient technologies prepared and peer-reviewed.
- Cluster specific manuals on energy conservation prepared for 25 clusters and 5 Awareness workshops organized
- Implementation of Small Group Activities focused on improving energy efficiency in 9 units of 3 clusters with the help of ECCJ, Japan.
- Capacity building of Local Service Providers/Technology Providers in 25 SMEs clusters.
- Energy saving potential of 0.66 MTOE in 25 SMEs clusters which is 15% of the total energy consumption in these clusters.

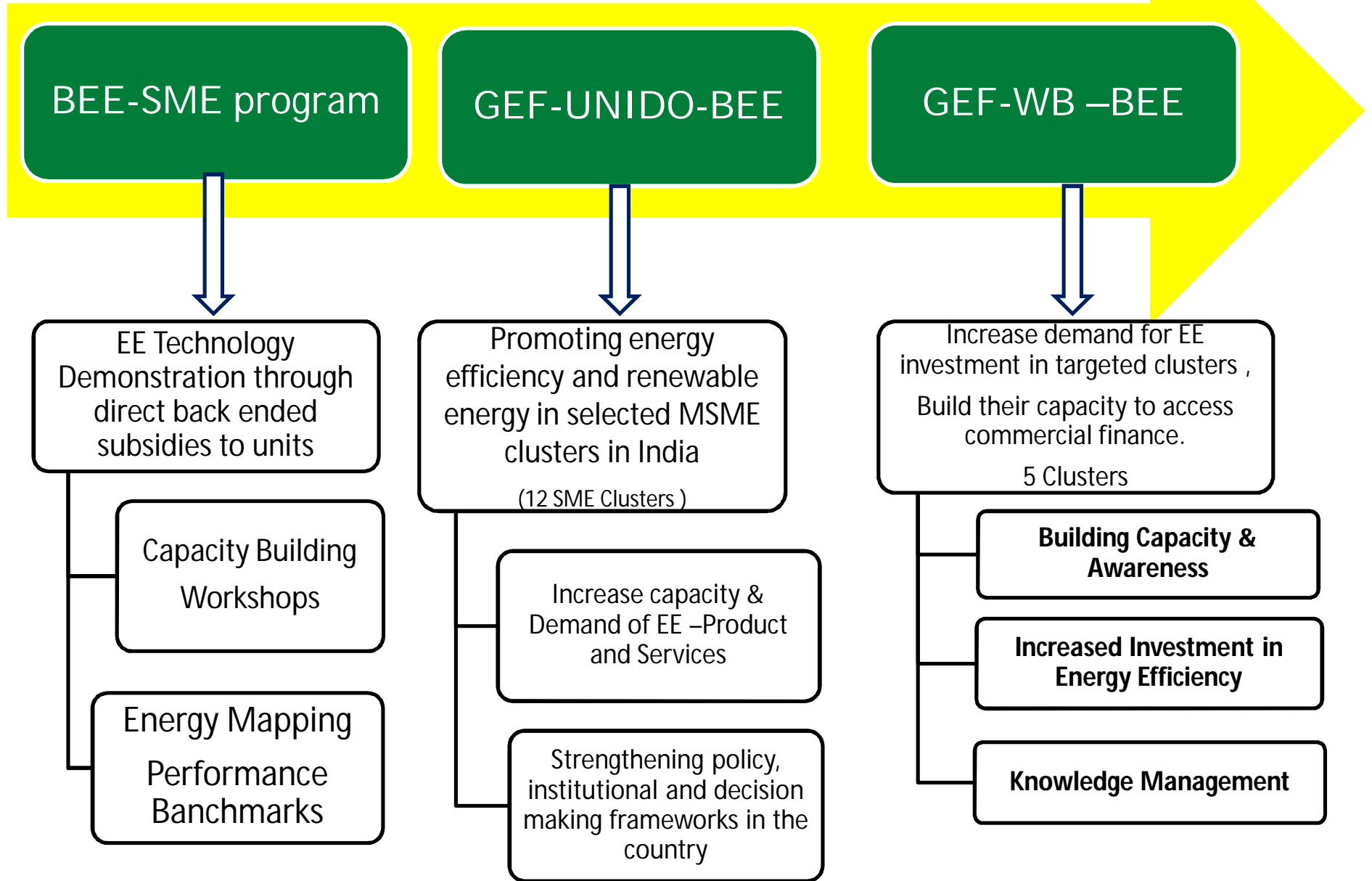


Inherent Barriers

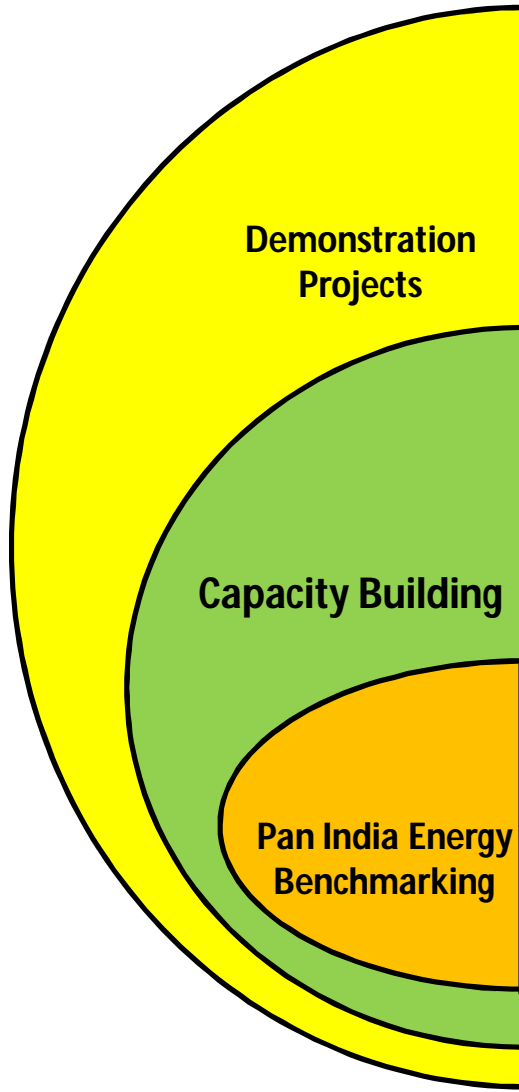




Current BEE initiatives in SME sector

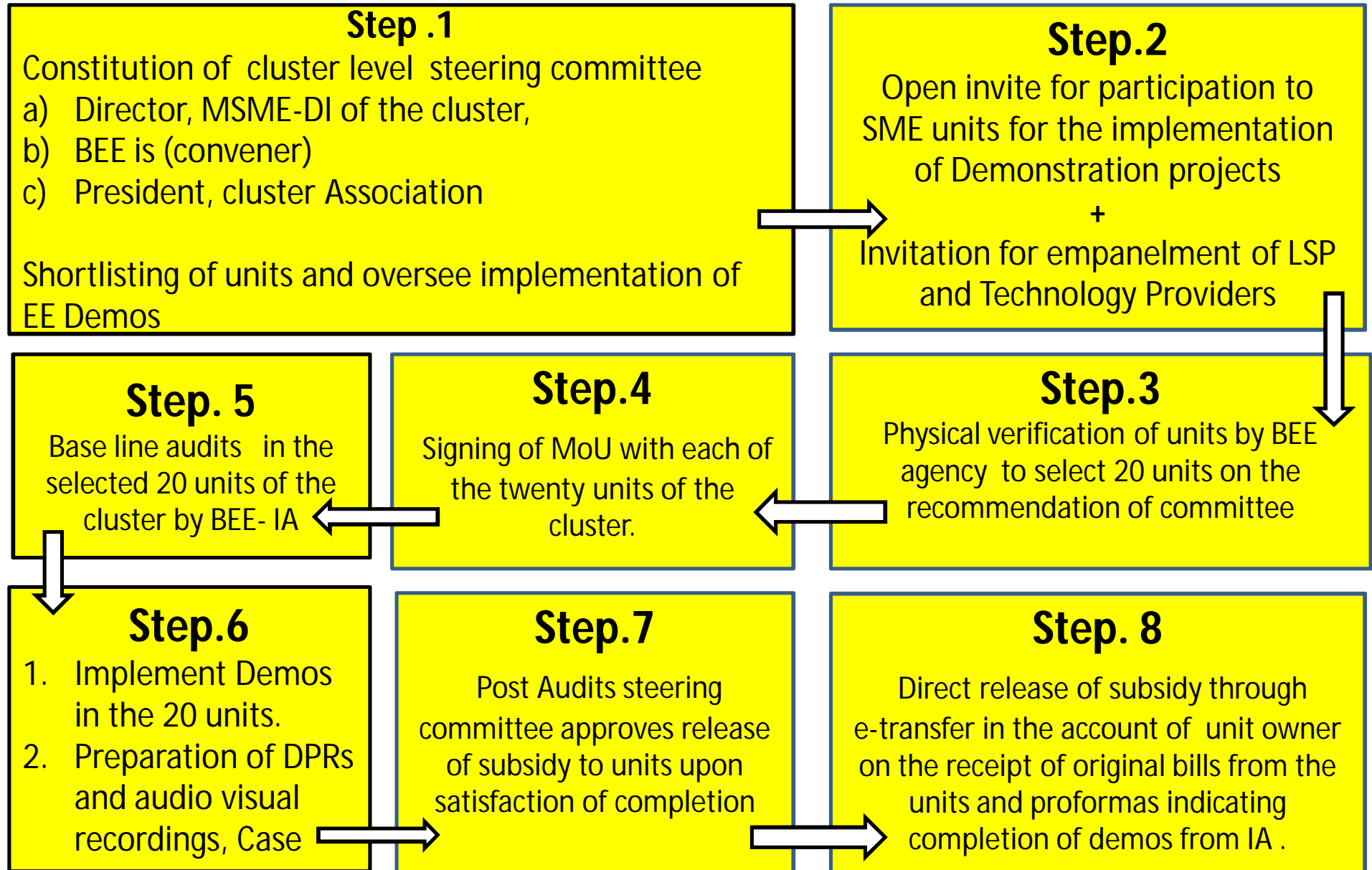


BEE SME Program



- Ludhiana: Forging Sector (Auto Parts Clusters)
- Indore :Food Sector (Dal , Wheat , Poha clusters)
- Pali : Textile Cluster (Dying and Printing)
- Kochi : Sea Food Cluster
- Varanasi : Brick Cluster (INP , Zig-Zag Kilns)

Implementation Framework





Varanasi Brick: Cluster Profile

- No. of brick kilns: Around 300
- Existing firing technology: Bulls Trench kiln
- Green brick molding process: Hand molding
- Type of fuel used: Coal
- EE Technology Identified: Zig-zag firing technology
- No. of kilns participating in the project: 10
- Local Industry Association: Int Nirmata Parishad (INP)
- **Project Initiation:** August 2014
- **Scheduled Completion:** July 2016



Kilns Participating in the Project

S. No.	Name of the brick kiln	Contact Person
1	M/s Singh Int Bhatta, village Kharupur, Varanasi	Mr. Parikshit Singh
2	M/s R.B. Company, village Bandaha, Varanasi	Mr. Ramashraya Singh
3	M/s Khiladi IntBhatta, village ShainaKalan, Varanasi	Mr. MotiYadav
4	M/s Swarup Int Udyog, village Cholapur, Varanasi	Mr. Rajesh Singh
5	M/s Asim brick field, village Undi, Varanasi	Mr. Kamlesh Narayan Singh
6	M/s Shyam Int Udyog, village Jaipar, Varanasi	Mr. Inder Pal Singh
7	M/s Shail Int Bhatta, village Raichandpur, Varanasi	Mr. Chandershekhar Singh
8	M/s Sahara Brick Industry, village Sultanpur, Varanasi	Mr. VirenderTiwari
9	M/s Dilip Kumar, village Todarpur, Mohan sarai, Varanasi	Mr. Dilip Kumar Jethani
10	M/s B.S. Enterprises, village GosainpurMahauan, Cholapur, Varanasi	Mr. AkshyawareYadav

Outcome of Baseline Audit

S.No.	Parameter	Value
1	Production capacity per circuit	5.0 – 9.5 lakhs
2	Av size of fired brick	231 x 110 x 72 mm
3	Av weight of green brick	3.0 kg
4	Av weight of fired brick	2.9 kg
5	Firing temp (°C)	920 - 1069
6	Energy Consumption (MJ/ton of fired clay)	1360 - 1674
7	Specific Energy Consumption	1.33 – 1.67 MJ/kg – fired brick



Status of Activities

Implementing Agency: TERI, New Delhi

Main Activities:

- Carry out pre and post energy audits
- Verify and authenticate successful completion and commissioning of demonstration projects in 10 units
- Prepare DPR for each unit along with case study and video clipping for demonstration purpose

Activities status:

- **Baseline energy audit:** Completed in all 10 kilns
- **Adoption of zig-zag technology:** Under process in 2 kilns, about to start in 1 kiln
- **Reason for delay:** Strike called by brick kiln owners association

Thank You