



Promoting Energy Efficiency and Renewable Energy In selected MSME Clusters In India

A Joint Initiative of GEF, UNIDO and BEE



Sameeksha Workshop,
New Delhi

January 2018



About the Project

- **Title:** Promoting Energy Efficiency and Renewable Energy In selected MSME Clusters In India
- **Objective:** Introduce energy efficiency and enhance use of renewable energy technologies in process applications in the 12 selected energy-intensive MSME clusters in India
- **Project Partners:** GEF, UNIDO, BEE, MOMSME and MNRE

Sectors & Clusters: **Foundry**

Coimbatore
Belgaum
Indore

Brass

Jamnagar

Ceramic

Khurja
Thangadh
Morbi*

Hand Tools

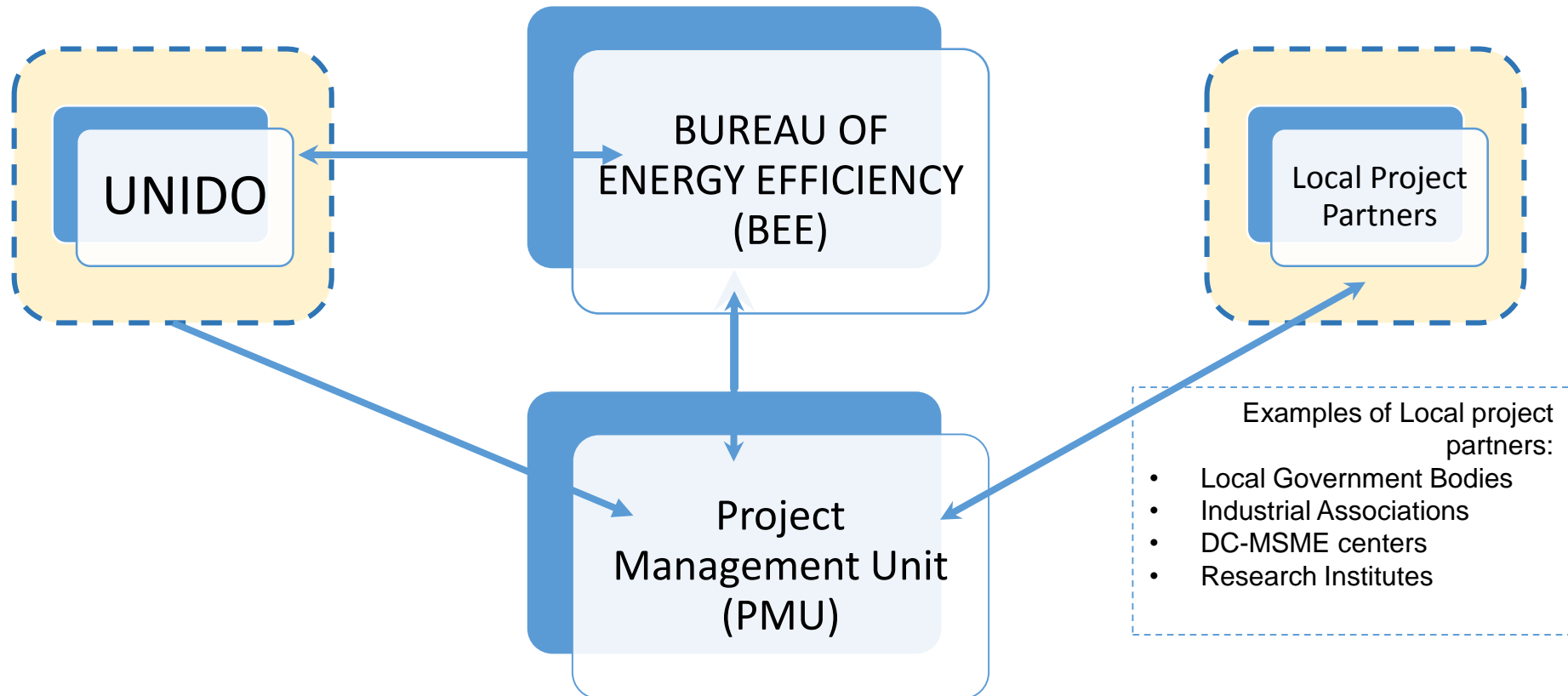
Nagaur
Jalandhar

Dairy

Gujarat
Sikkim*
Kerala*

* Came onboard very recently

Project Structure



Project Components

Increased capacity of

- Suppliers of EE & RE products
- Service providers
- Finance providers.

Component 1

Increasing the level of end-use demand and implementation of EE and RE technologies and practices by MSMEs.

Component 2

Strengthening policy, institutional and decision-making frameworks

Component 4

Component 3

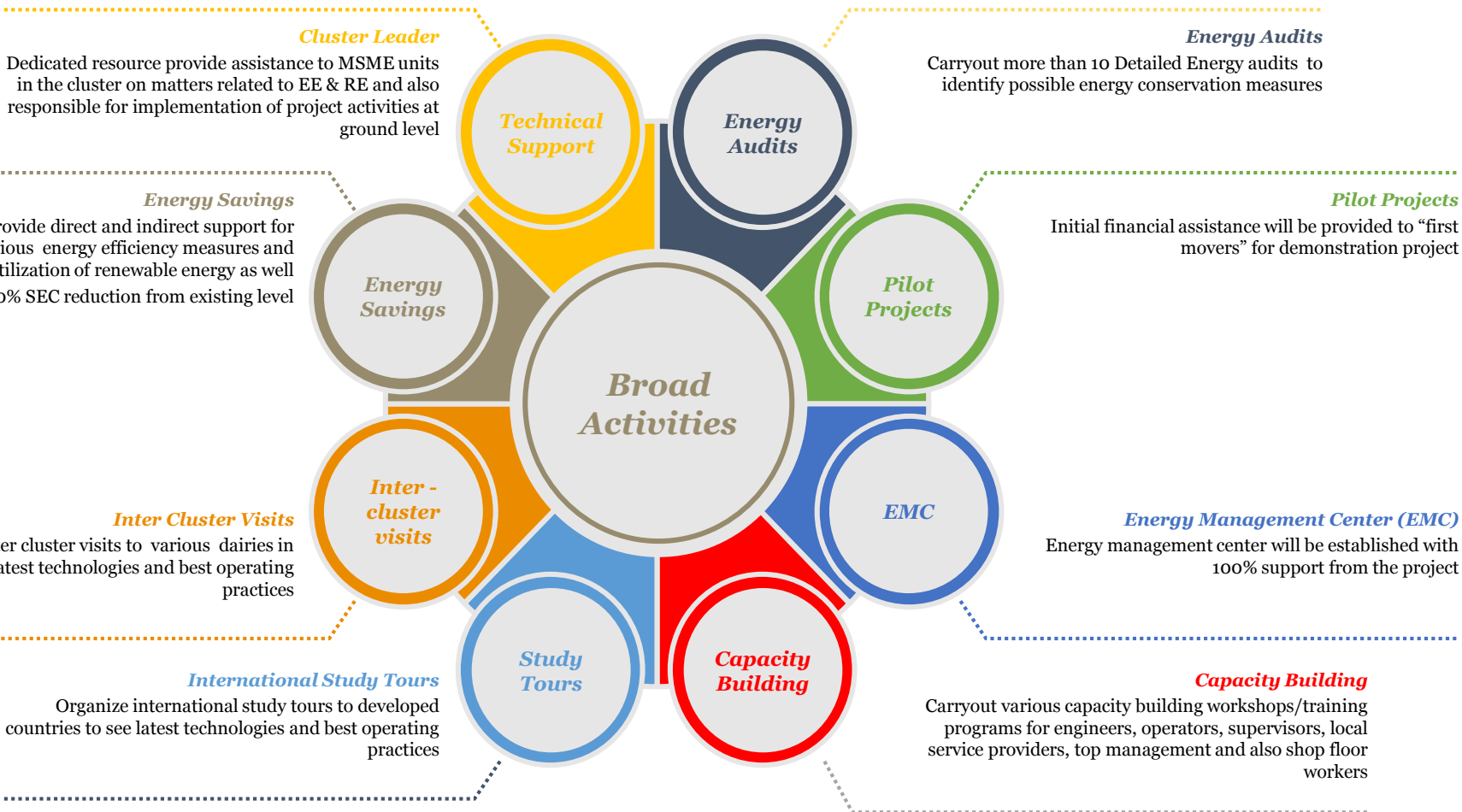
Scaling up of the project to a national level.



Explainer on Project and EMC

- [../Project Explainer/GEF-UNIDO-BEE MSME Project/First cut for National Summit/Second Cut/UNIDO- Video 1 and 2 Combined.mp4](#)

How can we help Industries/clusters





Project Progress



Component 1: Increased capacity of suppliers of EE/RE product suppliers/ service providers/ finance providers

- 250 units were surveyed in 9 clusters
- 54 energy audits have been completed
- 20 big investment projects and 350 small scale projects are implemented
- 150 Case studies prepared
- 6 Dissemination workshops at Coimbatore, Belgaum, Indore, Thangadh, Jamnagar and Gandhinagar were carried out.

Output 1.1
EE/RE technologies
that are adjusted
for local needs.

Output 1.2.
Increased ability of
Local Service
Providers

- 27 workshops on Best Operating Practices and common monitorable parameters held
 - 80 DPRs were prepared (25 implemented and 20 are under implementation)
- Developed list of LSPs in 9 clusters
- Capacity building LSPs is under way

- Activity plan is prepared
- ToR under development to appointing an agency to carryout the various activities.

Output 1.4
Enhanced financing
opportunities for
EE/RE projects.

Output 1.3
Establishment of
"Cluster level
energy
management cells"

- 9 EMC were established and officially inaugurated during National Summit on EE for MSMS during 31st October
 - Three more EMC will be established within next 6th months

Component 2: Increasing the level of end-use demand and implementation of EE and RE technologies and practices by MSMEs

Output 2.1 Increased demand for EE/RE products/services and increased ability to apply for financing among the MSME units for EE & RE Projects.

- 4 demo projects implemented at Belgaum, Coimbatore, Indore and Gujarat clusters
- 3 demo projects are under implementation at Coimbatore, and Jalandhar and 42 projects are under evaluation
- More than 380 projects are implemented by SME units with the help of cluster leaders
- More than 10060 (28W) EE ceiling fans were installed at Thangadh
- 1 National Level Conference

Output 2.2 An increase in the awareness and implementation of Best Operating Procedures for energy management in MSMEs.

- Best operating practices (BOP) developed and shared
- 27 awareness cum training workshops were held to disseminate the BOPs and CMPs
- BOP and CMP booklets and posters are publishing and shared among the MSME units

Component 3: Scaling up of the project to a national level

Output 3.1 Cooperation and synergies established and enhanced within the project clusters.

- Nagaur cluster visited Jodhpur and Jalandhar hand tool clusters
- Sikkim Milk Union visited Amulfed Dairy, Gandhinagar
- Three international study tours organized
- Indore Country Cluster Visited
- Indore Foundry Cluster visited Belgaum Foundry Cluster
- Case studies and brochure were uploaded on GEF-WB- BEE project website and sameeksha website

Output 3.2 Expansion of the project to affect new clusters at a later date throughout the country

- This will be initiated at advance stage of the project (Beginning of - 2018)

Component 4: Strengthening policy, institutional and decision-making frameworks

Output 4.1 Improved monitoring and evaluation of energy use and development of a benchmarking system

- Demonstration project on energy information gathering and analytics will support this.
- In addition to that, cluster leaders have done surveys in respective clusters and regular upkeep the records

Output 4.2 Mainstreaming EE and RE into national policies and programs on MSMEs Development

- This activity will be taken up at the end of the project.
- Expert consultant will be hired to develop strategies and policies.

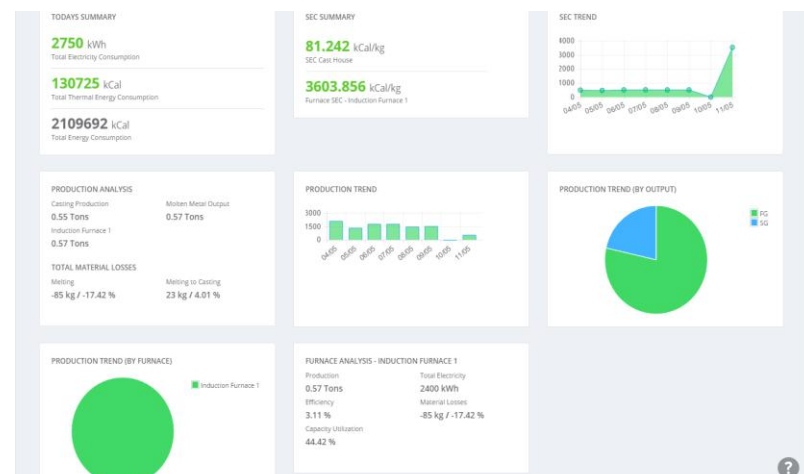
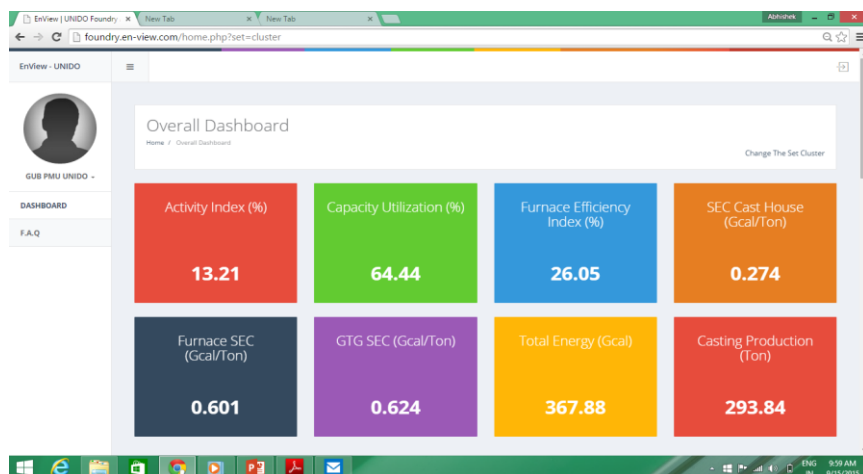
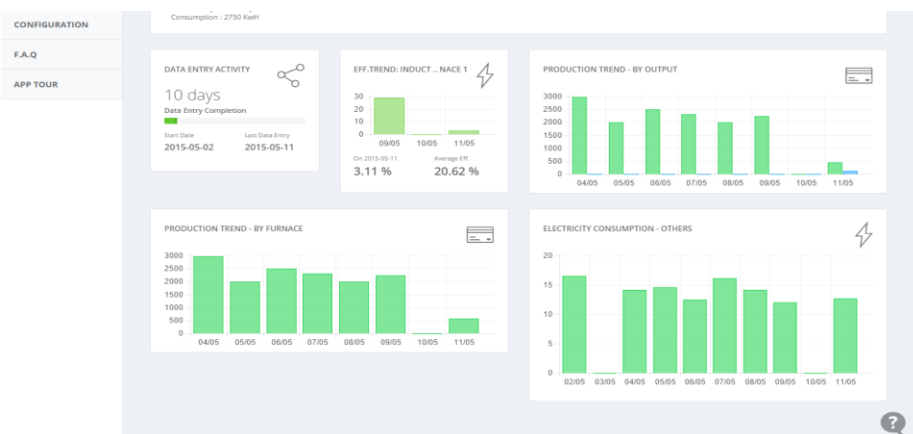
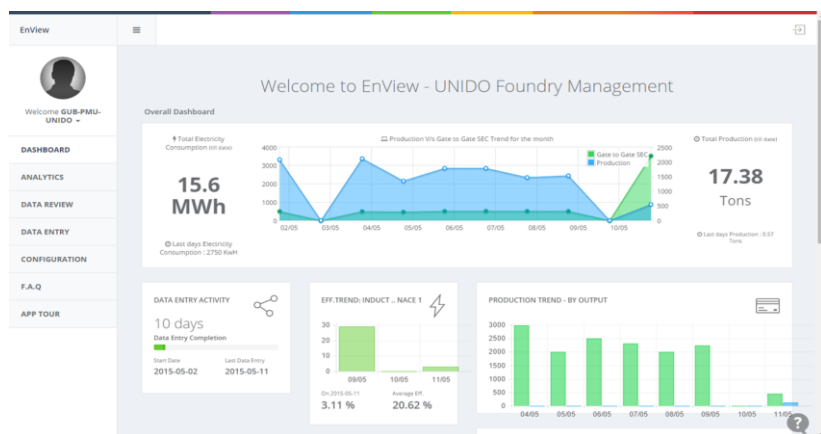
Innovative Projects –CST Based steam generation

Parameters	Value
Total Project Cost	89 Lakhs
Grant under this project	30 Lakhs
Annual Steam Output	657 Tonnes
Annual Estimated Monetary Savings	25 lakhs
Annual Estimated GHG Reduction	309 Tonnes
Simple Payback Period	Approx. 3 years





Innovative Projects – Data Analytics



Innovative Projects – Demand Aggregation for 28W EE Ceiling Fans

Thangadh Ceramic Cluster

- Project facilitated implementation of 28W EE ceiling fans
- More than 10060 EE fans installed in the cluster
- Electricity savings of 30 lakh units and 2454 tonnes of GHG emission per year
- Discussions are in final stage to implement the another 10000 EE fans

Jalandhar Hand tool Cluster

- Around 300 EE fans are currently installed in the cluster
- Discussions are in final stage to implement 1000 EE fans



- Energy Efficient BLDC Motor
 - 65 % savings in electricity

75 W
Ordinary Fan

28 W
EE Fan

- 3 years manufacturing warranty
- Service value better than BEE five star rated fan
- Power factor is more than 0.94



Innovative Projects – 9 Energy Management Centers (EMC)



Innovative Projects – Power Quality Improvement

Project Name: Power Quality Improvement by incorporating Harmonics Filter

Unit Location: Coimbatore

Equipment: 150 Amps – Active Harmonic Filter and 100 kVAr Detuned Filter

Investment: 8.0 Lakhs

Payback period: 19 Months

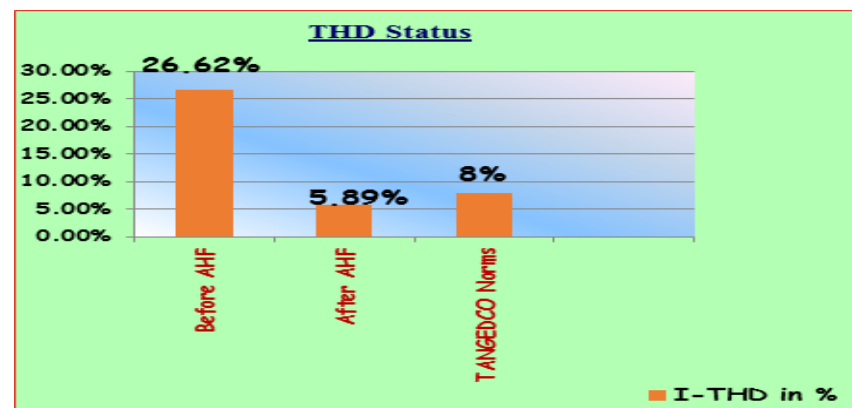
Benefits:

Energy Savings – 4500 kWh/month

Power Factor improvement – 0.93 to 0.97

Demand Reduction – 10 kVA

Monitory Benefits – 5.0 lakhs



Innovative Projects – Biomass Gasifier

Project Name: Biomass Gasifier for ladle preheating

Unit Location: Belgaum

Modification: Biomass Gasifier

Investment: 3 lakhs

Payback period: 20 months

Benefits:

Diesel Savings – 936
liters/month

Monitory Benefits – 0.25
lakhs/month



Innovative Projects – Graphite Bar for furnace Cooling

Project Name: Insert the Graphite Bar into the furnace to cool the furnace crucible by absorbing the heat & thus avoid the operation of cooling tower for additional hours

Unit Location: Indore

Modification: Graphite Bar

Investment: 0.12 lakhs

Payback period: 2 months

Benefits:

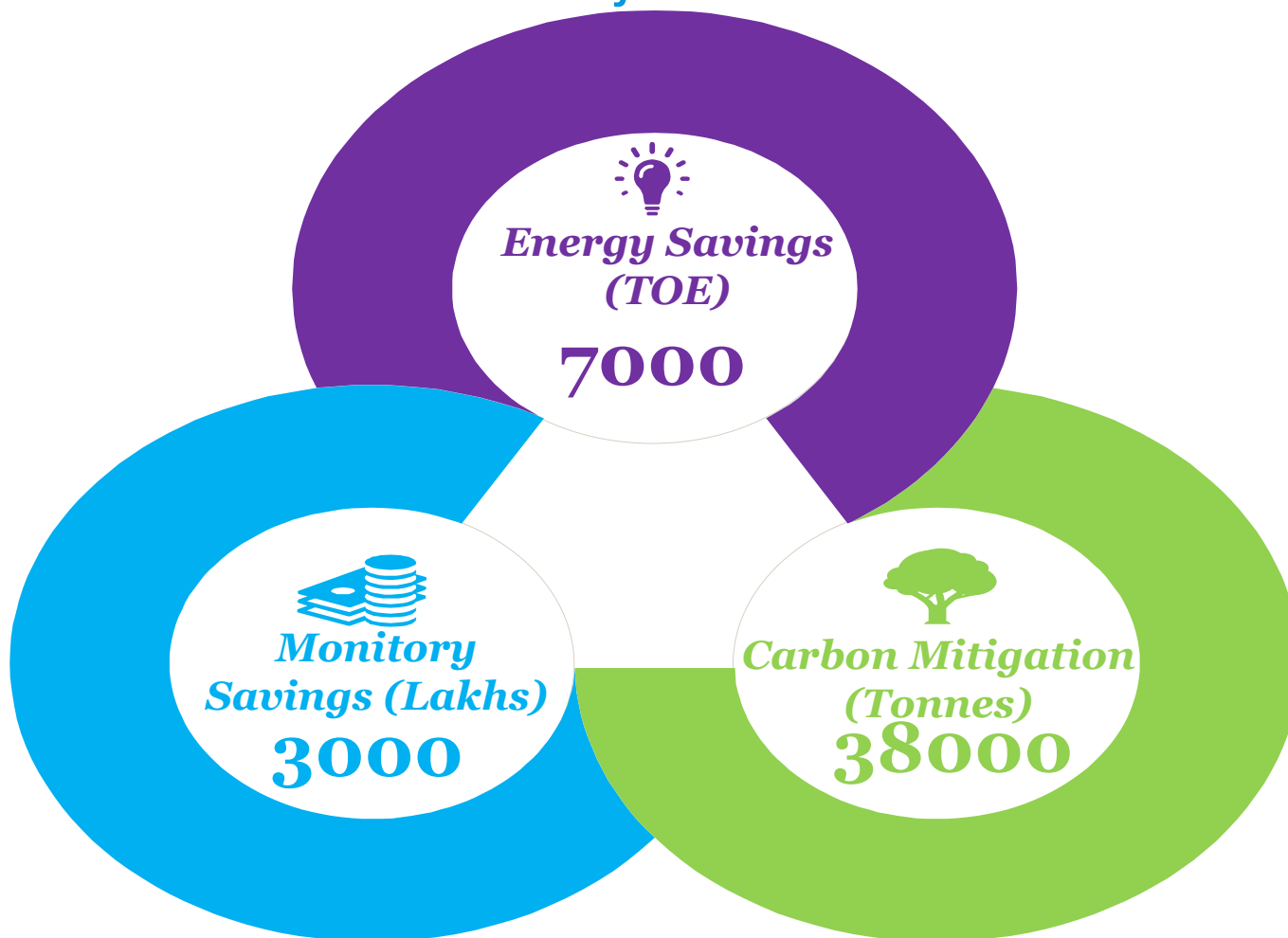
Energy Savings – 11250 kWh/year

Monitory Benefits – 0.84 lakhs/year





Status of Project Indicators



Small Scale Implementations

Cluster Name	Small Scale Projects	Energy Savings (MTOE)	CO ₂ Reduction (Tonnes)	Monetary Savings (Lakh ₹)	Investment (Lakh ₹)
Jalandhar	70	260	2184	176	111
Coimbatore	63	260	1992	189	125
Nagaur	41	21	218	22	6
Jamnagar	40	95	573	65	163
Khurja	3	86	207	40	4
Indore	19	63	353	32	15
Gujarat	87	5455	27525	2054	1891
Belgaum	60	231	1800	140	183
Thangadh	3	545	3344	378	564
Total	386	7016	38196	3096	3062



Future Activities



Component	Future activities
Component 1: <i>Increased capacity of suppliers of EE/RE product suppliers/ service providers/ finance providers</i>	<ul style="list-style-type: none"> • 15 awareness workshops to showcase the results of technology demonstrations • Establishment of 3 Energy Management Centers • Develop dissemination material (short video films, brochures, case studies etc.) on demonstrations • Need assessment of 11 EMC • Develop EA templates, EX based tools, training materials and also to conduct trainings for carrying out energy audit at cluster level • Carryout activities to enhance financing opportunities (Bankers Training) for EE/RE projects.
Component 2: <i>Increasing the level of end-use demand and implementation of EE and RE technologies and practices by MSMEs</i>	<ul style="list-style-type: none"> • 3 National level project conferences • Minimum 26 demo projects • 15 Training workshops for Engineers, Experts and staff • 150 DPRs will be developed • 80 Projects need to implement based on DPRs prepared • 100 applications need to submit for financing

Component	Future activities
<i>Component 3: Scaling up of the project to a national level</i>	<ul style="list-style-type: none"> • Four international study tours to be organized for Dairy, Handtools, Brass and Ceramic clusters • Six inter cluster visits to be organized • Web-page and app needs to developed to promote/monitor the project activities • New Project proposal need to develop for widening and deepening the project to new clusters throughout the country.
<i>Component 4: Strengthening policy, institutional and decision- making frameworks</i>	<ul style="list-style-type: none"> • Develop benchmarking system and energy data base • Assess Biomass potential at selected clusters and develop sustainability standards • Develop strategies and policies at notational level on development of EE & RE in MSME sector. • Prepare roadmap for strengthening energy efficiency on end use and supply side



Thank you

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