



TERI's interventions among MSMEs in South India: Foundry, Pump-sets, Aluminium, Air compressors



Creating Innovative
Solutions for a
Sustainable Future

SAMEEKSHA Platform – 15th meeting
Small and Medium Enterprises: Energy Efficiency Knowledge Sharing
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Coimbatore



Foundry

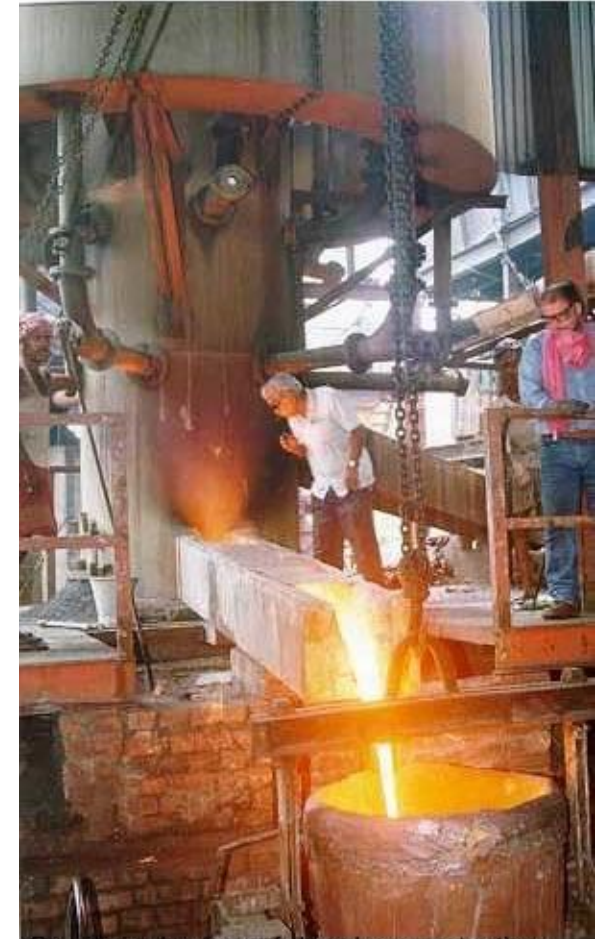
- ❑ Coimbatore is one of the largest foundry clusters with about 850 foundries
- ❑ Huge scope for energy savings and reduction in CO₂ emissions through the promotion of EE technology and best operating practices





Foundry

- ❑ SDC supported TERI to develop & demonstrate DBC (divided blast cupola) & pollution control system (venturi scrubber)
 - Energy savings achieved : 33 %
- ❑ DBC replicated at Coimbatore (Meltech/ CRI pumps) in 2003
- ❑ Technology replicated at Coimbatore, Nellore, Vijayawada, Belgaum, Manalore and Bangalore



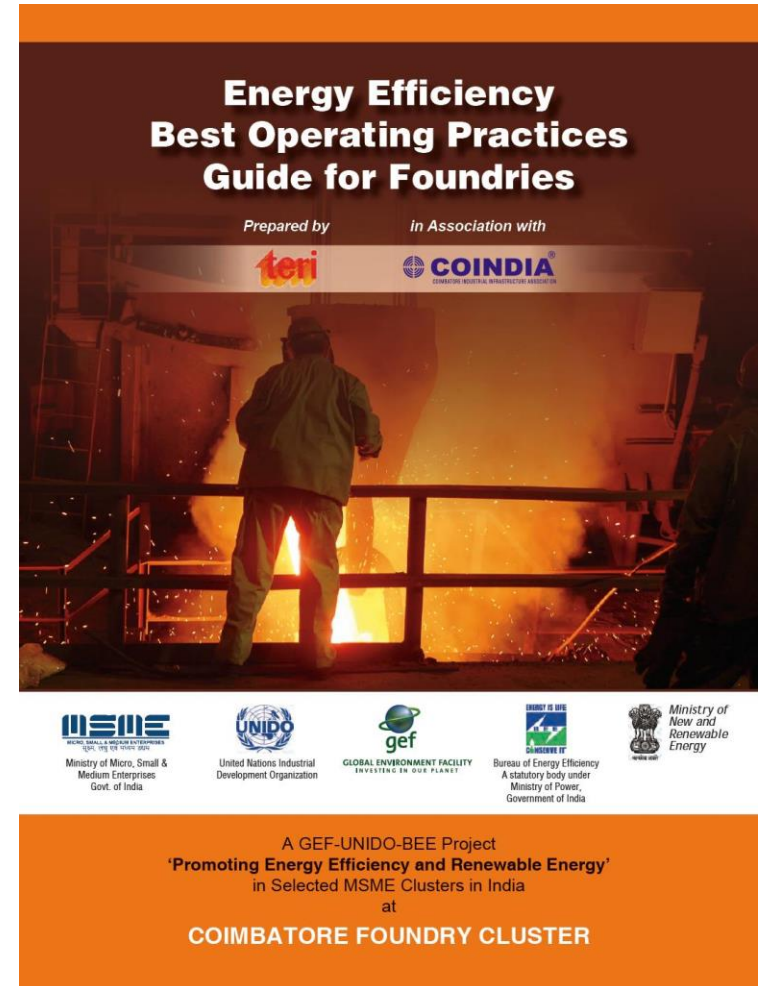
Commissioning of the demonstration plant





Foundry

- ❑ Partnered with local industry associations like COINDIA, SIEMA, IIF
- ❑ Worked with GEF-UNIDO-BEE for activities such as Energy Audits, Capacity Building programs, Best Operating Practice manuals etc both at Coimbatore and Belgaum





Pumps

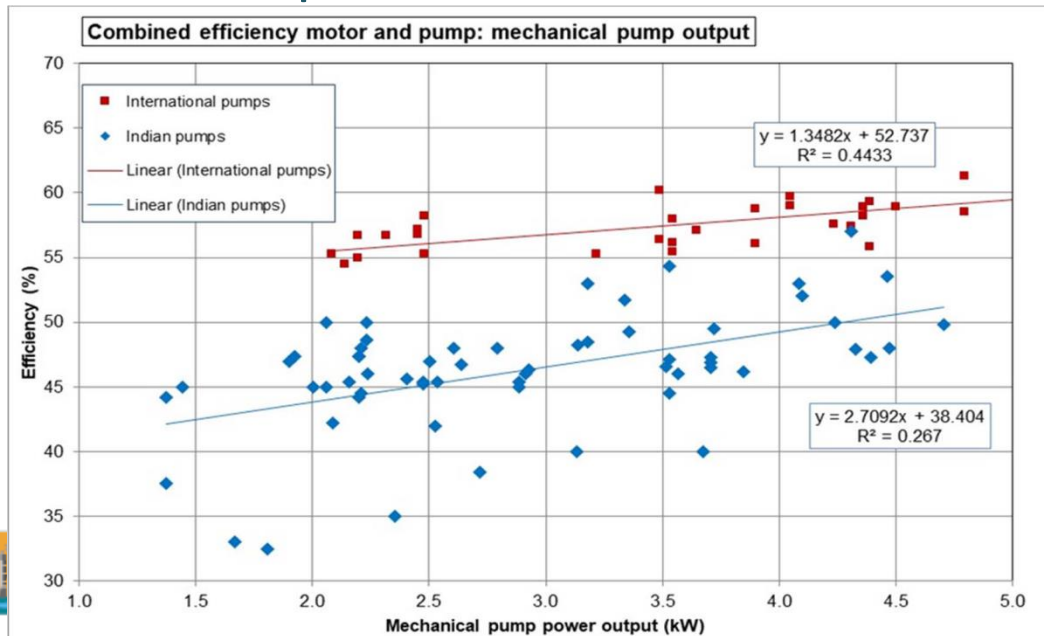
- ❑ Coimbatore has about 600 pump manufacturers
- ❑ Mainly producing Open-well and submersible pump-sets for agriculture sector
- ❑ Agriculture sector is major consumer of electricity (20 %)
- ❑ Good scope to save energy by improving the design of pumps & motors





Pumps

- TERI and Impact Energy, Switzerland did a comparative study of Indian and international agricultural pumpsets
 - Overall efficiency (pump and motor) of international products about 11 % higher
 - Energy savings potential 2.6% of the total electricity consumption of India



International $\eta = 57.5\%$

India $\eta = 46.3\%$



Pumps

A national program on EE agricultural pumpsets including

- ❑ Technical assistance: Design, develop and standardization of EE pumps; testing centres of international standards
- ❑ Capacity building: borehole drillers, pump service technicians and farmers
- ❑ Policy dialogue: on revising present standards
- ❑ Documentation and dissemination of best practices in pump manufacturing and water use for irrigation





Secondary Aluminum

- ❑ Highly energy intensive
- ❑ 1000 MSMEs concentrated in Tamil Nadu, Gujarat, West Bengal and Maharashtra
- ❑ Major sub-sectors are recycling, casting, extrusion, utensil and wire
- ❑ Electric resistance type crucible furnace & bulk melting furnaces commonly used
- ❑ Immense scope to enhance energy efficiency





Secondary Aluminum

- ❑ TERI, with support SDC, conducted energy audits in aluminium casting units
- ❑ SEC were in range of 480 – 600 kWh per tonne compared to 370 kWh per tonne in state-of-art electric resistance furnace
- ❑ Thermal efficiency of bulk melting furnace as low as 21%. Flue gas loss alone was 48% .
Losses from raw material charging opening was high
- ❑ Energy saving in compressed air system





Secondary Aluminum

A large multi-year program for the sector is needed consisting of

- Energy audits and implementation support to MSMEs
- Demonstration of EE furnace technologies for different sub-sectors
- Documentation and dissemination of best operating practice
- Strengthening capacities of furnace fabricators





Air compressors

- ❑ Coimbatore is one of the largest producers of conventional reciprocating air compressors
- ❑ 300 manufacturers of compressors and allied components in MSME
- ❑ Compressors upto 5/10 hp are produced for borewell pumps, automobile garages, paint shops and several small industries
- ❑ Major association Coimbatore Compressor Industries Association (COCIA)





Air compressors

- ❑ Improving product efficiency will lead to huge electricity savings at national level as compressors have long life (15-20 years)
- ❑ Technical assistance to MSME compressor manufacturers in areas like
 - Developing EE standardised compressor designs of compressors and motors
 - Support in manufacture of screw compressors





Thank you for your attention

