

SMALL AND MEDIUM ENTERPRISES: ENERGY EFFICIENCY KNOWLEDGE SHARING

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SAMEEEKSHA

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NEWSLETTER

Inside...

- SAMEEEKSHA after 12 years, 50 issues
- 22nd meeting of SAMEEEKSHA



VISION

SAMEEEKSHA envisages a robust and competitive SME sector built on strong foundations of knowledge and capabilities in the development, application, and promotion of energy-efficient and environment-friendly technologies.



A PLATFORM FOR PROMOTING ENERGY EFFICIENCY IN SMEs

IN THIS ISSUE...

This issue has, as its theme, the fact that the SAMEEEKSHA newsletter has quietly crossed a milestone of sorts this year, with the publication of its 50th issue in March 2023. Twelve years have elapsed since the first issue was brought out in December 2010, soon after the SAMEEEKSHA platform itself was established. During this period, the newsletter has reported on a number of prominent initiatives by different entities in improving the energy efficiency (EE) and reducing carbon emissions in the MSME sector.

At a time when the entire world is focused on reducing energy-related carbon emissions to mitigate climate change impacts, and when India is striving to achieve its ambitious target of becoming a net-zero economy by 2070, it is an appropriate moment to glance through previous issues and track the progress made in bringing about EE improvements in the MSME sector, which has a key role in ensuring that India remains on its path of steady yet sustainable socio-economic development. Towards this, the theme article presents a small gallery of snippets from articles carried in this newsletter since its launch. The idea is to provide a bird's eye view of some of the significant EE interventions and activities that have been carried out in the MSME sector during 2011–2022, including a few insights gathered and landmarks passed on the way.

The issue concludes with a summary of the 22nd Meeting of SAMEEEKSHA platform, held in Kolkata on 27th March 2023.

SAMEEEKSHA Secretariat



SAMEEEKSHA AFTER 12 YEARS, 50 ISSUES

A milestone crossed

The SAMEEEKSHA newsletter quietly crossed a milestone of sorts this year, with the publication of its 50th issue in March 2023. Twelve years have elapsed since the first issue was brought out in December 2010, soon after the SAMEEEKSHA platform itself was established. During this period, the newsletter has reported on some of the prominent initiatives by different entities in improving the energy efficiency (EE) and reducing carbon emissions in the MSME sector.

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The first issue - December 2010

SAMEEEKSHA is deeply grateful to the institutions that have extended their support to this knowledge-sharing platform since its establishment in 2010: namely, Swiss Agency for Development and Cooperation (SDC); Bureau of Energy Efficiency (BEE); Ministry of MSME; Shakti Sustainable Energy Foundation (SSEF); and SED Fund.

Gallery, 2011–2022

UNIDO–GEF project: 'Promoting energy efficiency and renewable energy in selected MSME clusters in India'

September 2011. This project was launched in collaboration with BEE, Ministry of MSME (MoMSME) and Ministry of New and Renewable Energy (MNRE), with the focus on development and promotion of a market environment for introducing energy efficiency and enhanced use of renewable energy (RE) technologies for process applications in 12 selected MSME clusters under five energy intensive MSME sub-sectors.



Inception workshop: UNIDO–GEF project

Promoting the manufacture of EE pump sets in Rajkot

December 2011. Under a World Bank–DFID–SIDBI supported project, TERI provided a local consultant in the Rajkot pump set cluster with expertise and training on the BEE Star Labelling Scheme for EE pump sets. Through the consultant's promotional efforts, 13 pump set manufacturers had obtained Star Labels for 216 pump set models by end-December 2011; and applications for Star Labels were in process for another 320 pump set models.





A pump set manufacturing unit in Rajkot

AfD–TERI study: ‘Benchmarking and mapping of energy consumption in SME clusters’

September 2012. This study was supported by Agence Française de Développement (AfD) and covered 36 MSME sub-sectors. It helped to provide an overall perspective on energy consumption patterns as well as to benchmark specific energy consumption (SEC) levels in these sub-sectors.

National Summit on energy efficiency in MSMEs

September 2012. SAMEEEKSHA hosted the first-of-its-kind ‘National Summit on energy efficiency in MSMEs’ during 30–31 July 2012 with additional support from AfD, Energy Efficiency Services Limited (EESL), and German Development Agency (GIZ). The event drew over 200 participants including representatives of 40 industry associations. The discussions centred on identifying and overcoming challenges to energy efficiency in the three critical domains of policy, technology, and finance.



National Summit on energy efficiency in MSMEs: 2012

World Bank–GEF project: ‘Financing energy efficiency at MSMEs’

December 2012. This project was executed by SIDBI and BEE in a number of energy intensive MSME clusters, and aimed at helping MSME units address and overcome the financial barriers to adopting EE technologies.

Japanese low carbon technologies implemented in Indian industries

September & December 2013. Under a research collaboration funded by Japan Science and Technology Agency (JST) and Japan International Cooperation Agency (JICA), TERI in partnership with Institute for Global Environmental Strategies (IGES), Japan, successfully implemented low-carbon technologies such as gas heat pump (GHP) systems in two investment casting foundries in Rajkot; electric heat pump (EHP) systems in two dairy plants, one each in Gujarat and Punjab; and best operating practices (BOP) in industries using electric induction furnaces and compressed air systems.



EHP system implemented in a dairy plant, Chandigarh

Knowledge document on EE financing for MSMEs

March 2015. TERI in collaboration with YES Bank developed a knowledge document on ‘Enabling finance for scaling up energy efficiency in MSMEs’. A key insight is that an EE technology (EET) can be in one of three stages of maturity, and different models of finance are required for each of these stages as follows.

- Pre-commercial. The EET is not available off-the-shelf; RDD&D is necessary. Funds are needed for the entire RDD&D cycle, and could take the form of grants or venture capital.
- Semi-commercial. The EET is relatively new; upfront costs are high, as are the perceived risks. Funds could take the form of capital subsidies, concessional interest rates, and grants for capacity building.
- Commercial. The EET is available off-the-shelf, but the market is not saturated (e.g. IE3/IE4 electric motors, EE pumps, etc.). Funds could be routed through ESCOs and concessional lines of credit.

Knowledge document on EE financing for MSMEs



Profiling of 10 energy intensive MSME clusters

December 2015. Under a project supported by Shakti Sustainable Energy Foundation (SSEF), TERI undertook studies to prepare cluster profile reports on 10 energy intensive MSME clusters in the states of Haryana, Gujarat and Tamil Nadu.



A unit in Panchkula engineering cluster, profiled under SSEF-TERI project

Encouraging the manufacture of resource-efficient bricks

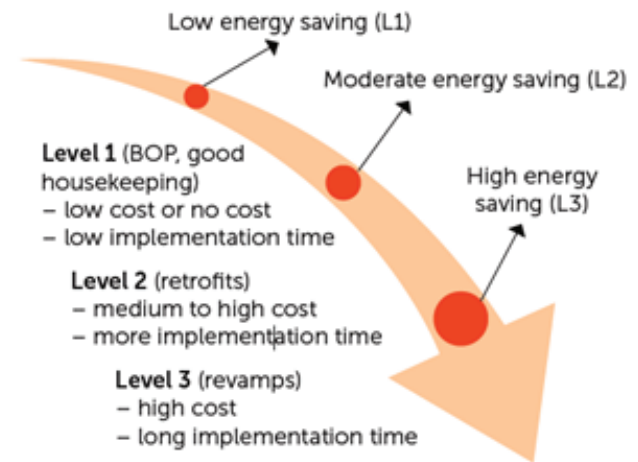
September 2016. The Indian brick industry is currently in a transition phase. Increasing fuel prices, difficulty in sourcing labour, and stringent environmental norms are driving the industry to look for improved moulding and firing technologies. On the market side, consumers are being driven by rapid urbanization and increased ecological awareness to look for affordable and 'greener' alternatives to the conventional solid bricks. In this backdrop, TERI undertook a project supported by GEF, UNDP and MoEFCC to identify and address the key barriers related to modernization of the Indian brick sector, and to spur the adoption of resource-efficient bricks (REBs) like perforated bricks and hollow blocks.

'Deep Dive' approach can promote energy efficiency on a cluster-wide scale

June 2018. TERI's experience in promoting energy efficiency among MSMEs highlights the fact that a number of EETs such as IE3/IE4 motors, EE pump sets, and EE air compressors are readily available in the market, and can be adopted by MSMEs across different sub-sectors to replace their existing low-efficiency equipment. Yet, MSMEs have been slow to adopt these EETs, due to low awareness levels regarding their benefits coupled with their relatively higher upfront costs compared to the existing equipment. In order to promote commercially available EETs as well as other EE technologies on a large scale, a cluster-wide 'deep dive' or 'saturation' approach could be followed, built around detailed energy audits (DEAs) and subsequent

technical assistance for implementation of the identified EETs. Deep dive projects help in identifying EE improvements at three levels:

- Level 1 (L1)—BOP and good housekeeping
- Level 2 (L2)—retrofits: major improvements in existing plant/process
- Level 3 (L3)—revamps: new plant/process



Deep dive approach: energy savings at different levels

Deep dive approach helps scale up energy efficiency in Rajkot foundry cluster

June 2018. Under the SDC-TERI partnership project, a 'deep dive' approach was adopted in the Rajkot foundry cluster to identify and promote EETs on a large scale during 2015-17. Detailed energy audits (DEAs) were conducted on 110 foundry units and a total of about 1040 ECMs were identified of which over 700 ECMs (67%) were in the nature of best operating practices (BOP) or improvements of existing plant/processes (retrofits) that required zero or low investments. By December 2017, 757 ECMs (over 70% of the total) had been implemented by the foundries concerned, resulting in annual energy saving of about 1409 tonnes of oil equivalent (toe) and emissions reduction of over 12,700 tCO₂.



Deep dive in Rajkot foundry cluster: lid mechanism installed for induction furnace



Train-the-trainer (TOT) approach strengthens technical capacities of plant personnel in Faridabad industrial cluster

September 2018. Under a project supported by SFEF, TERI in partnership with IamSMEofIndia adopted an innovative train-the-trainer (TOT) approach to strengthen the technical capacities of plant personnel in the Faridabad industrial cluster, which has over 12,000 units in diverse sub-sectors. Following baseline studies and needs analyses, customized training resources were developed and a select group of plant personnel from diverse industrial sub-sectors were given comprehensive training on EETs and BOP in TOT mode. With this, a core group of ‘animators’ has been established in the cluster, empowered with expertise on EETs and BOP as well as the training abilities and resources to impart their knowledge and skills to others.



TOT session, Faridabad industrial cluster

Reducing emissions on a state-wide scale through EE and RE measures

March 2019. UNDP implemented a GEF-funded project titled ‘Market Transformation and Removal of Barriers for Effective Implementation of the State-Level Climate Change Action Plans’ in partnership with Ministry of Environment, Forests and Climate Change (MoEFCC). One of the states covered was Jharkhand, where the project aimed at reducing greenhouse gas (GHG) emissions in various sectors as identified in the Jharkhand Action Plan for Climate Change (JAPCC), through EE and RE measures. Among the sub-sectors studied by the project was cold storage, which is of particular importance to Jharkhand considering the state’s predominantly agricultural-based economy and the need to reduce post-harvest losses of fruit and vegetable produce.

Electrification options for MSMEs to save energy, reduce emissions

September 2019. Under an SFEF-supported project, TERI undertook feasibility studies in select energy intensive MSME sub-sectors/clusters across the country

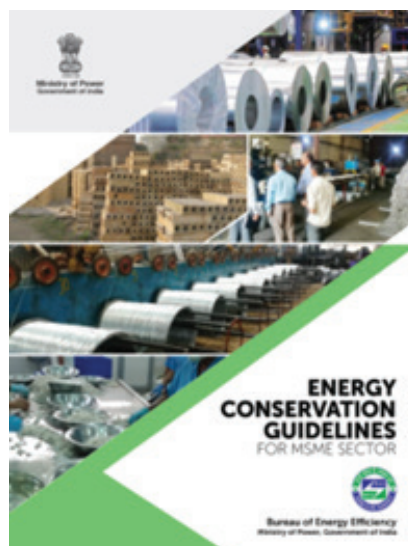
to explore the replacement of existing fossil fuel-based technologies with electricity-based solutions. A Consultation Workshop was held in July 2019 to share the project experiences with other MSME sector stakeholders, and to chart a future course of action.

Energy Conservation Guidelines for MSME Sector

December 2019, March 2020. BEE has prepared a manual titled ‘Energy Conservation Guidelines for MSME Sector’ with support from TERI. The guidelines cover the primary energy-consuming process equipment/systems used by MSMEs in 25 energy intensive sub-sectors, as well as a range of auxiliary systems and utilities such as air compressors, boilers, fans and blowers, etc. that are used by MSMEs in all sub-sectors.

Assessing EE and RE options for MSMEs

September 2020. TERI, with the support of SFEF, studied and assessed the potential for replacement of existing fossil fuel-based technologies with commercially available electricity-based and RE-based options in a number of energy intensive MSME clusters. The project covered eight MSME sub-sectors and two cross-cutting applications in its first phase, and five more sub-sectors in its second phase.



Energy Conservation Guidelines for MSME Sector

Energy and resource mapping of MSME clusters

December 2020. BEE launched a program titled ‘Energy and resource mapping of MSME clusters’, aimed at overcoming the lack of comprehensive and updated knowledge on thousands of MSME clusters across the country. Nine energy intensive MSME sub-sectors—brick, chemicals, dairy, forging, foundry, glass & refractory, paper, pharmaceuticals, and steel re-rolling mills—were covered under the mapping exercise. The program activities were carried out in three broad and overlapping domains: (1) sub-sector and cluster-level studies; (2) benchmarking of key performance indicators (KPIs); and (3) preparation of a detailed road map for an EE intervention in each sub-sector.





Thermic fluid heater in chemical industry – mapped under BEE program

Policy package for scaling up EE in textile industry

September 2021. At the behest of International Energy Agency (IEA), TERI undertook a study of the energy intensive textile industry and developed a comprehensive, implementable policy package for scaling up energy efficiency.

Decarbonizing hard-to-abate industrial sub-sectors

June 2022. TERI is developing an evidence base that will help chart a roadmap for decarbonization of hard-to-abate industrial sectors like iron & steel, cement, textiles, etc. The project activities include:

- Situation analyses of selected clusters, to provide the foundations for undertaking deep dive EE interventions
- Identifying EE options and providing support for their adoption
- Development of technology and sectorial intervention plans for pilot plants, for decarbonization through direct electrification route in MSMEs

Tackling challenges of energy transition

December 2022. Energy transition away from coal and other fossil fuels towards clean energy sources will have huge and snowballing economic and social impacts in countries such as India, which are rich in coal deposits as well as heavily dependent on coal for generating electricity and for meeting thermal energy requirements in industry and other sectors. Coal-based MSMEs in particular will be severely impacted. To tackle the many challenges that transition will bring, comprehensive studies are required to gather qualitative and quantitative data on the entire coal value chain. As an important step forward in this direction, TERI is undertaking studies in two closely

linked domains: (1) the coal mining industry, and (2) selected coal-dependent MSME sub-sectors.

Taking stock

Since the establishment of SAMEEEKSHA, many collaborative initiatives have been undertaken by public and private entities for improving EE and competitiveness and reducing emissions in the MSME sector. The table summarizes some of the initiatives that have been featured in this newsletter.

Some EE initiatives featured in this newsletter

Title [with partners/collaborators]	Issue
Energy conservation in small-scale tea processing units in southern India' [UNDP, GEF, United Planters Association of South India (UPASI)]	December 2010
Achieving reduction in GHG emissions through advanced energy efficient technology in electric motors [UNDP, GEF, BEE, International Copper Promotion Council of India (ICPCI)]	March 2011
Benchmarking and mapping energy consumption in MSME sector [AFD]	December 2011
Promoting energy efficiency in pump Industry in India: addressing the energy and climate change problem [BEE, SSEF, TERI]	September 2012
Financing energy efficiency at MSMEs [GEF, World Bank, BEE, SIDBI]	December 2012
Upscaling energy efficiency in metal casting in Southern India [REEEP, TERI]	December 2012
Research Partnership for Application of Low Carbon Technology for Sustainable Development [JICA, JST, MoEF, IGES, TERI]	June & December 2013
Promoting Energy Efficiency and Renewable Energy in selected MSME clusters in India [GEF, UNIDO, BEE, MNRE, MoMSME]	September 2015
Profiling of 10 energy intensive MSME clusters in Haryana, Gujarat and Tamil Nadu [SSEF, TERI]	December 2015
Promoting the manufacture of resource-efficient bricks [GEF, UNDP, MOEFCC, TERI]	September 2016
SDC-TERI partnership [25 years: 1994–2018]	March 2018



Title [with partners/collaborators]	Issue
Promoting energy efficiency and renewable energy in selected MSME clusters in India [GEF, UNIDO, BEE]	December 2018
Market Transformation and Removal of Barriers for Effective Implementation of the State-Level Climate Change Action Plans – Jharkhand [GEF, UNDP, MoEFCC]	March 2019
Exploring electrification options for MSMEs [SSEF, TERI]	September 2019
Energy and Resource Mapping of MSME clusters [BEE and multiple agencies]	December 2020
Evolving policy package for scaling up energy efficiency in textile industry [IEA, TERI]	September 2021
Japan-India Technology Matchmaking Platform (JITMAP) [IGES, TERI]	March 2022
Energy mapping of the secondary steel sector [Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), TERI]	March 2023

In coming years, the newsletter will continue to play a key role in helping SAMEEEKSHA achieve its overall aim— to act as a springboard for catalysing collaborative efforts aimed at improving energy efficiency in the MSME sector, by:

- Enabling interactions among stakeholders through periodical 'platform meetings', workshops and other events organized from cluster to national levels.
- Tracking and reporting on international and Indian developments at the strategic, policy and regulatory levels that may have direct and indirect impacts on the MSME sector—such as climate change negotiations and agreements, trends and issues related to energy markets including coal, oil, gas and renewable energy; state policies and schemes aimed at encouraging MSMEs to adopt EE and RE technologies, improve productivity and competitiveness; and so on.
- Serving as a library of information and energy-related data that are collated by various agencies and organizations.
- Disseminating this growing bank of knowledge through its website; the quarterly newsletter; and other published outreach material (print and electronic).



22ND MEETING OF SAMEEEKSHA

The 22nd Meeting of SAMEEEKSHA platform was held in Kolkata on 27th March 2023, and attended by nearly 50 participants included representatives from BEE; MSME Development and Facilitation Office (MSME-DFO); Engineering Export Promotion Council (EEPC); Energy Efficiency Services Limited (EESL); West Bengal State Designated Agency (WBSDA); Department of MSME and Textiles (MSME&T), Government of West Bengal; Indo German Energy Programme of GIZ; Indian Iron and Steel Sector Skill Council (IISSSC); Indian Institute of Social Welfare and Business Management (IISWBM); industry associations including Institute of Indian Foundrymen (IIF), Indian Foundry Association (IFA), Steel Re-rolling Mills Association of India (SRRMA), Foundry Cluster Development Association (FCDA), Hooghly Chamber of Commerce & Industry (HCCI), Bengal Chamber of Commerce & Industry (BCCI), Indian Refractory Makers Association (IRMA), and Indian Jute Mills Association (IJMA); and entrepreneurs.

Welcoming the participants, Mr Girish Sethi, Senior Director, TERI mentioned that BEE had included the refractory sector in its 'energy and resource mapping' initiative only after an IRMA representative had suggested initiating EE activities in the refractory sector during an earlier SAMEEEKSHA meeting in Kolkata. He spoke on the tri-partite MoU between TERI, SSEF, and the Department of MSME&T, which focuses on promoting EE technologies in select clusters through energy audits and implementation support. He also mentioned that SED Fund has agreed to support the SAMEEEKSHA initiative.

Dr Sachin Kumar, Director (Industry, Building and Cooling), SSEF, spoke on the current activities under the existing MoU with the Government of West Bengal. Mr Sitanath Mukhopadhyay, IEDS, Assistant Director, MSME-DFO said that significant scope for EE improvements exists in the silverware, refractory (Asansol) and battery (Siliguri) clusters. Mr. Joydeep Chakravarty, Additional Chief Engineer, WBSDA mentioned the work being initiated in



the pulp & paper sector in association with GIZ. Mr Sudipta Saha, Joint Director, Department of MSME&T, mentioned that West Bengal has around 300 MSME clusters that offer significant scope for EE improvements, including energy intensive sectors such as textile, foundry, re-rolling, aluminium, galvanizing, rice mills, and food processing.

The following salient points were made in the presentations and discussions that followed.

- Towards gradual decarbonization of the emissions-intensive coal-based direct reduced iron (DRI) industry, a model DRI plant could be set up at cluster-level, incorporating the latest EE and low-carbon technology options.
- Among foundries, the safe disposal of slag remains an issue due to the presence of iron in it. Suitable technology options are required for recovering and reusing iron from slag.
- To increase awareness on EE across industry circles, sector-specific live dashboards could be hosted highlighting the benefits of implementing EE measures.
- West Bengal has a few ceiling fan manufacturing units that face a number of issues ranging from availability of raw materials to product design. The industry could list out its specific issues for BEE to take up with the relevant authorities at Government of India level.

SAMEEEKSHA is a collaborative platform aimed at pooling the knowledge and synergizing the efforts of various organizations and institutions—Indian and international, public and private—that are working towards the common goal of facilitating the development of the Small and Medium Enterprise (SME) sector in India, through the promotion and adoption of clean, energy-efficient technologies and practices.

SAMEEEKSHA provides a unique forum where industry may interface with funding agencies, research and development (R&D) institutions, technology development specialists, government bodies, training institutes, and academia to facilitate this process.

For more details, please contact

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