

SMALL AND MEDIUM ENTERPRISES: ENERGY EFFICIENCY KNOWLEDGE SHARING

SAMEEEKSHA

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NEWSLETTER

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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.



Bureau of Energy Efficiency



A PLATFORM FOR PROMOTING ENERGY EFFICIENCY IN SMEs

IN THIS ISSUE...

This issue has as its theme, a program launched by Bureau of Energy Efficiency (BEE) titled 'Energy and resource mapping of MSME clusters', that aims at overcoming the lack of comprehensive and updated knowledge on thousands of MSME clusters across the country—many of them in energy intensive sub-sectors—in regard to aspects such as production processes, technologies and fuels in use, energy saving potential, energy efficiency options, and so on. Under the program, BEE has identified nine energy intensive MSME sub-sectors—brick, chemicals, dairy, forging, foundry, glass & refractory, paper, pharmaceuticals, and steel reolling mills—for conducting a comprehensive energy and resource mapping exercise. The program involves activities that will be carried out in close consultation with the concerned industry stakeholders 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. The road map will set out an implementation plan covering technological, financing and capacity building aspects, and also include policy recommendations (i.e., specific policy-level measures that could create an enabling policy and institutional-level environment for the uptake of EE technologies).

Under the BEE program, TERI has been entrusted with carrying out the energy and resource mapping exercise in two energy intensive sub-sectors: (1) glass & refractory, and (2) chemicals. This issue carries an article on the inception meeting organized by TERI together with Federation of Safety Glass (FOSG) on 6th November 2020, which drew participants from float glass processing industries across the country including the Jaipur glass cluster, and officials from BEE and Rajasthan Renewable Energy Corporation Limited (RRECL).

The issue also summarizes the key points made during the 18th meeting of SAMEEEKSHA on 12th October 2020. The discussions focused on strategies that would enable revival of the MSME sector from the adverse impacts of the Covid-19 pandemic. The online format of the meeting enabled participation by a large number of MSME representatives from across the country.

SAMEEEKSHA Secretariat



ENERGY AND RESOURCE MAPPING OF MSME CLUSTERS

Backdrop

As the agency entrusted with executing the National Mission on Enhanced Energy Efficiency, the Bureau of Energy Efficiency (BEE) has spearheaded initiatives to improve the overall energy efficiency of the Indian economy. Three major nationwide programs to accelerate the adoption of energy efficient (EE) technologies and practices in the Indian MSME sector were initiated during the 11th Plan (2007–12) and 12th Plan (2012–2017) periods : (1) the BEE SME Program, (2) the GEF-UNIDO-BEE program titled 'Promoting energy efficiency and renewable energy in selected MSME clusters in India', and (3) the GEF-World Bank-BEE program titled 'Financing energy efficiency at MSMEs'. These programs have focused on energy intensive MSME sub-sectors and their representative clusters.

Over the last decade, a number of articles in this newsletter have described how these programs, as well as other major initiatives in the MSME sector such as the TERI–SDC Partnership (TSP) program and schemes of Ministry of Micro, Small and Medium Enterprises, have enabled MSMEs in the targeted clusters to implement EE technologies and practices, and thereby benefit from reduced energy consumption and costs, increased productivity and profits, and reduced CO₂ emissions. SAMEEEKSHA has made efforts to consolidate the cluster-level information and experiences gathered under these various energy efficiency initiatives in the MSME sector and to place them in public domain to generate awareness and facilitate knowledge sharing—the MSME Energy Map hosted by SAMEEEKSHA reflects these efforts.

Yet, given the sheer size and spread of the Indian MSME sector, there is still lack of comprehensive and updated knowledge on thousands of MSME clusters across the country —many of them in energy intensive sub-sectors— in regard to aspects such as production processes, technologies in use, types of fuels used and quantities of fuel consumption, energy saving potential, opportunities for energy conservation, and so on. The challenges of obtaining this knowledge are compounded by the diversity of MSME units within a sub-sector, and often even within the same cluster, in terms of their sizes, technologies, operating practices and products. All in all, this lack of knowledge continues to pose a barrier to the formulation of projects and design of appropriate policy instruments that could extend the benefits of energy efficiency to

all the MSMEs in these clusters/sub-sectors in a rapid and sustainable manner.

Taking forward its interventions in the MSME sector, BEE has now launched another program titled 'Energy and resource mapping of MSME clusters' with the aim of preparing a set of national-level roadmaps for specific energy intensive sub-sectors. Each roadmap will chalk out a path to bring about energy and resource-efficient development of MSMEs in the targeted sub-sector with the broader objective of bringing them on par with global standards. The program entails detailed studies on select energy intensive MSME sub-sectors in order to understand the existing scenarios at sub-sector and cluster levels; gather and analyse energy-related data; identify possible EE solutions; and formulate appropriate technological interventions that can bring about significant energy savings and other benefits for the concerned industries and other stakeholders.

The program

Under the program, BEE has identified nine energy intensive MSME sub-sectors—brick, chemicals, dairy, forging, foundry, glass & refractory, paper, pharmaceuticals, and steel re-rolling mills—for conducting a comprehensive energy and resource mapping exercise. The program involves activities in three broad and overlapping domains, as summarized below. (also see figure 1).

Sub-sector and cluster-level studies

Studies will be undertaken on each sub-sector, assisted by structured questionnaires and interactions with important stakeholders such as entrepreneurs and industry associations, R&D institutions, government agencies, and so on. The studies and stakeholder interactions will assist in developing a clear profile of each sub-sector including the important clusters, the diverse technologies and operating practices that are being used by MSMEs in different clusters, and market-related information for their products as well as for raw materials and services. The exercise will also help identify the various entities that have linkages with the MSMEs at cluster/sector levels and outline the nature of support they provide to the MSMEs (materials, machinery/equipment, services, etc.). These entities would include local service providers (LSPs); equipment/machinery suppliers; technical/academic institutes; banks and NBFCs; technical consultancy organizations; government departments such as MSME



Development Institute (MSME-DI), District Industries Centre (DIC), state pollution control board, and so on.

Five clusters per sub-sector have been identified for detailed analysis. Detailed energy audits (DEAs) will be conducted on ten units in each of these five clusters. Information and insights will thereby be gathered on the following key aspects:

- Current energy consumption scenario at the sub-sector and cluster levels, covering the various kinds of fuels used and the quantities consumed
- Various raw materials used and consumption levels
- The existing manufacturing processes, including the machinery and equipment used, and the potential for energy efficiency improvements
- Possible EE technological options and best operating practices (BOPs)
- Readiness of the MSMEs and other cluster-level stakeholders to adopt the identified EE options
- Market-related information on both supply and demand sides, including future prospects
- Relevant policy-level aspects

Benchmarking

Based on the knowledge from the sub-sector/cluster-level studies, key performance indicators (KPIs) will be determined for each energy intensive process and/or technology: for example, specific energy consumption (SEC) standards will be determined for each energy-consuming technology/stage of the production process such as batch preparation, preheating, melting, reheating, drying, and so on. By comparing these KPIs with the best KPI levels achieved by other industries within and outside India, benchmark standards will be set for energy efficiency for each process/technology. This exercise will also help assess and quantify the potential for bringing about energy efficiency improvements in each technology/process stage.

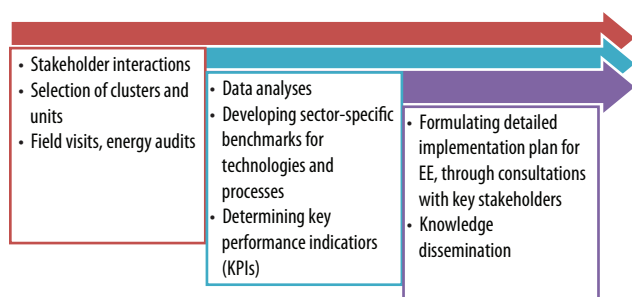


Figure 1. Primary focus areas and activities of the energy and resource mapping program

Road map

Based on the findings of the studies and the benchmarking exercise, a detailed road map will be prepared for an energy efficiency intervention in each sub-sector, in close consultation with the concerned industry stakeholders. The road map will set out an

implementation plan covering technological, financing and capacity building aspects, and also include policy recommendations (i.e., specific policy-level measures that could create an enabling policy and institutional-level environment for the uptake of EE technologies). The road map will include information on the following key elements.

- Production
- Energy consumption pattern
- Existing technologies
- Energy saving potential
- EE technologies that can be adopted
- Financial and other resources that might be required by MSMEs to adopt the EE technologies
- Awareness and capacity building measures that might be required at unit/cluster levels
- Existing institutional environment for supporting energy efficiency improvements
- Policy recommendations

A number of clusters have already been identified for coverage under the program in each of the nine industrial sub-sectors (figure 2).



Figure 2. Clusters already identified for coverage under the program



GLASS INDUSTRY: LAUNCH OF MAPPING EXERCISE IN JAIPUR GLASS CLUSTER

Under the BEE program, TERI has been entrusted with carrying out the energy and resource mapping exercise in two energy intensive sub-sectors: (1) glass & refractory, and (2) chemicals. As with most MSME sub-sectors, there is great diversity within each of these sub-sectors in terms of technologies, manufacturing processes, operating practices and products. One of the clusters identified for study is the Jaipur glass cluster, which has a number of units that process float glass into value-added products like coated glass, frosted glass, etc.

Overview

Float glass is the most common form of glass used in making consumer products, and hence lies at the very foundation of the glass industry. In essence, float glass is an extremely smooth and distortion-free form of glass. It is the basic material for manufacturing other forms of glass such as laminated safety glass, tinted (heat-absorbent) glass, coated glass, frosted glass, toughened glass etc., which have a vast range of applications in virtually every sphere of human activity. Float glass gets its name from the process by which it is manufactured, wherein molten glass is introduced into a bath of molten tin, causing the glass to form a smooth and freely floating layer on the molten metal.

The most prominent industry association of the float glass processing units is Federation of Safety Glass (FOSG), which has 278 member-units located in different parts of the country (table 1).

TERI together with FOSG organized a project inception meeting (online) on 6th November 2020. Among the 70 participants in the meeting were entrepreneurs from float glass processing industries across the country including Jaipur glass cluster, and officials from BEE and Rajasthan Renewable Energy Corporation Limited (RRECL). The discussions during the meeting, and the interactions with FOSG office bearers, have helped outline some of the major concerns and needs of the float glass processing industry, as summarized here.

Table 1. Location of FOSG-member glass units in India

Zone	State	No. of units
East	West Bengal	8
	Bihar	3
	Assam	2
	Jharkhand	1
	Sub-total	14
West	Gujarat	41
	Maharashtra	28
	Madhya Pradesh	10
	Chhattisgarh	4
	Sub-total	83
North	Uttar Pradesh	26
	Haryana	18
	Rajasthan	18
	Himachal Pradesh	11
	Punjab	9
	Uttarakhand	7
	Jammu & Kashmir	4
	Sub-total	93
South	Karnataka	34
	Tamil Nadu	22
	Telangana	19
	Kerala	8
	Andhra Pradesh	5
	Sub-total	88
	Total	278

Source: Presentation by Mr. R.K. Chauhan, FOSG during inception workshop for the Jaipur cluster on 6th Nov 2020





Figure 1. Some machinery used in a float glass processing plant

Concerns and needs

Capital finance

Float glass processing is a highly capital-intensive industry, with huge requirement of capital against the turnover and profit it generates. This is due to the near-total dependence on foreign machines (figure 1) coupled with frequent advancements in technology, which makes it necessary to change machines within periods as short as five years.

Need: For the industry to become and remain globally competitive, support is needed in terms of incentives like lower rates of interest on capital finance.

Reliable power supply

The float glass processing industry in Jaipur cluster consumes a huge quantity of power¹, and access to uninterrupted power is vital for smooth production. However, there are frequent power cuts, and with each power cut, a unit incurs losses estimated at Rs 25,000–50,000 depending on the glasses in process on various machines. On the other hand, it is beyond the financial capacity of a glass unit to invest in a dedicated electric line (in place of the regular power line provided by the DISCOM). Hence, all units maintain standby

generator sets, which produce power at more than twice the cost. Overall, the high energy costs reduce the competitiveness of the units within India as well as in overseas markets.

Need: Uninterrupted and good quality power supply at affordable cost. Also, the potential for promoting rooftop solar energy among glass units should be explored, as it can provide a very cost-effective solution to partly meet the electricity requirements of the plant. It is estimated that rooftop solar systems can help in replacing 20–25% of the total electricity consumption. The payback on installation of rooftop solar systems is 3–4 years.

Workforce skilling

Float glass processing is still a relatively young industry in India demanding specialized skill-sets; hence, the units continue to depend on well-established foreign companies for knowledge sharing and training at huge cost. There are also huge costs in developing second-line technicians, in-house.

Need: Specialized technical training curricula in glass production and affiliated topics need to be developed and introduced by educational institutions in India such as industrial training institutes. This will help generate, at lower cost, a steady stream of well-trained glass workers who can find ready employment in the float glass processing industry.

¹ An estimated 1.5 – 2.3 million KWh are consumed by each unit per year in the Jaipur float glass processing cluster



18TH MEETING OF SAMEEEKSHA

The 18th meeting of SAMEEEKSHA platform was held (online) on 12th October 2020. The meeting was attended by senior officials from BEE, Ministry of MSME, SIDBI, MSME associations, and entrepreneurs representing different energy-intensive MSME sub-sectors across the country.

Welcoming the participants, Mr Girish Sethi, Senior Director, TERI said that the discussions would focus on the adverse impacts of the COVID-19 pandemic on MSMEs, and on strategies that would enable revival of the MSME sector. Accordingly, the format of the meeting had been slightly changed so that the MSME representatives could present their perspectives on the relevant issues. He added that a positive aspect of having the meeting online was that it enabled participation by a large number of MSME representatives from across the country.

Dr Ajay Mathur, Director General, TERI stressed the relevance of energy efficiency (EE) for MSMEs at a time when units are struggling to recover from the shutdown forced by the pandemic—because EE can bring significant improvements in productivity and profits as well as help reduce emissions. He mentioned the numerous stimulus packages for economic recovery announced by the government under its Atmanirbhar Bharat Abhiyan, and underlined that these packages give special importance to agriculture and MSMEs as these two sectors play a vital role in employment generation, contribution to GDP, and overall economic recovery and growth. The initiatives to help MSMEs tide over their financial crises include the Emergency Credit Line Guarantee Scheme (ECLGS) of Rs 300,000 crores; Rs 20,000 crores subordinate debt for stressed MSMEs; measures to help restore and strengthen markets for MSME products (e.g., no global tenders are required for government procurements of up to Rs 200 crores);

simplification of the Udyam registration process for MSMEs; and directives to government departments to expedite the payments of dues to MSMEs.

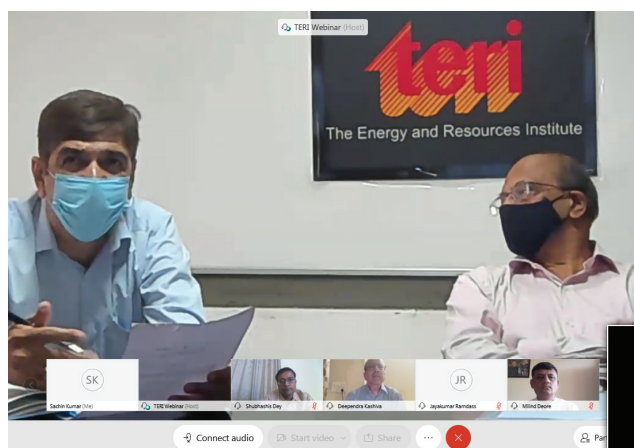
Mr Shubhashis Dey, Program Manager (Energy Efficiency), SSEF, summarized the severe and unprecedented impacts of the pandemic on the MSME sector and the overall economy. He urged MSMEs to use the packages provided via the Atmanirbhar Bharat Abhiyan as an opportunity for a 'greener reset', i.e., to improve productivity and profits and support employment while reducing carbon emissions and becoming more climate-resilient. SAMEEEKSHA sees great potential for working with policy-makers as well as MSMEs, financial institutions and other stakeholders to bring about this transformation.

Mr Milind Deore, Director, BEE summed up the various initiatives planned by BEE since the 17th SAMEEEKSHA meeting (8th January 2020), and added that BEE is developing a new strategic plan for the period 2021–25. He mentioned a recent survey undertaken jointly by BEE and Confederation of Indian Industry (CII) which elicited over 7000 responses from MSMEs across 19 states and highlighted the following points:

- In the face of complete or near-total shutdowns and fluctuating market demands during the pandemic (particularly in April 2020), about 21% of the MSMEs surveyed have started to manufacture new products.
- Sectorial analysis of survey data indicates that many units in the textiles sub-sector have switched to manufacturing health-related products, and that engineering units are enthusiastic about exploring new export markets that have opened up (with many overseas customers looking for suppliers other than China).
- Over 80% of the surveyed MSMEs are aware of the benefits of EE, and about 60% are interested in implementing EE projects—particularly under ESCO models.
- Looking to the future, MSMEs cite low market demand and unreliability of power supply among their major concerns. They also evince interest in greater levels of automation.

Mr Sachin Kumar, Secretary, SAMEEEKSHA and Senior Fellow, TERI, provided a brief overview of the platform for the benefit of first-time participants, and also highlighted the various activities undertaken by the SAMEEEKSHA secretariat during the previous few months.

Ms Rashmi Ranjan, Asst General Manager, SIDBI, gave a brief account of the various initiatives launched



by SIDBI to help MSMEs overcome their financial difficulties caused by the pandemic. These include:

- **Liquidity scheme:** Financial support is provided to banks, NBFCs and MFIs by way of term loans to ensure operational continuity and promote onward lending to MSMEs
- **SAFE (SIDBI Assistance to Facilitate Emergency Response Against Corona Virus):** Under this scheme MSEs engaged in manufacturing of hand sanitizers, masks, gloves, head gear, body suits, shoe covers, ventilators, goggles, testing labs etc. can avail collateral-free loans up to Rs 50 lakhs at a fixed interest rate of 5% for a maximum loan repayment tenure of 5 years.
- **SAFE PLUS:** This scheme provides up to 100% of working capital requirement against specific orders. The cost of credit guarantee cover is borne by SIDBI.



Dr S S Acharya, General Manager, SIDBI, highlighted SIDBI's efforts to revive and help MSME units stand on their own during this pandemic. He termed this as a 'RAFALE' (Regulatory, Administrative, Financial, and Legal reforms) moment for MSMEs. He also elaborated on the Emergency Credit Line for MSMEs that is being managed by SIDBI.

A panel discussion followed, moderated by Dr Rene Van Berkel, UNIDO Representative and Head of Regional Office in India. Some of the key points made are summarized below:

- **Mr Sanjay Gupta, President, Ambala Scientific Instruments Manufacturers Association,** spoke on the challenges being faced by the Ambala glass industry cluster, which comprises about 500 units that primarily manufacture laboratory glassware for the education sector. With the closure of educational establishments during the pandemic, the cluster has seen a drastic fall in demand for its products. Another major issue is that oxygen— an important raw material— has become very costly, and its availability for industrial use is constrained due to its mandated supply to hospitals on priority.

As a consequence of such factors, about 50% of the glass units have not resumed operation even after lifting of lock-down.

- **Mr Vijay Beriwal, President, Indian Foundry Association** spoke on the varying demands for castings from different regions of the country— such as sluggish demand in the Western region, where customers are yet to recover from the effects of the pandemic; and the increase in export-oriented demand in the Eastern region, spurred by anti-dumping duties imposed on China by USA/ European markets which are now turning to India for their requirements. He also highlighted the reduced demand from Indian Railways, that has hitherto been a prominent customer for castings in the country. He recommended that capital subsidy should be provided to foundries for purchase of new machinery/equipment, and that a clear roadmap should be drawn up for the MSME sector to help units plan their investments effectively. He also expressed concern over the high cost of electricity for industry, and wanted to check if there could be a common policy for energy/electricity pricing across the country.
- **Ms Sujata Soparkar, Vice-President, Thane Small Scale Industry Association (TSSIA),** mentioned that the association has about 3000 members comprising engineering and ancillary MSME units. Following the lifting of lock-down, the units resumed operations with some restriction on timings. She highlighted issues related to finance and non-availability of labour due to the pandemic, and added that with the increase in power tariffs from 1st April 2020 that coincided with the lock-down, cost-cutting has now become crucial for industries. To address this issue, the association is trying to drive home the importance of EE interventions among its members. She also noted that the pandemic has highlighted the importance of on-line marketing.
- **Mr Rajive Chawla, Chairman, IamSMEofIndia,** underlined the relatively poor financial conditions in certain sectors in the country even before the pandemic, and added that while the pandemic has had a devastating effect on all sectors of the economy, it has also brought some unexpected benefits. For instance, the pandemic has brought to prominence new 'essentials' for consumers like two-wheelers, bicycles and small cars; it has spurred the growth of logistics services; and due to the surges in demand for such products and services— that too across the vast domestic market— the entire value-chains in these sub-sectors have revived very quickly. These sub-sectors have performed remarkably well during the period July–September 2020, and the impact is likely to spread to non-essential sub-sectors too in coming months.



- Mr Jaykumar Ramdass, representing Coimbatore Industrial Infrastructure Association, said that the overall working environment has improved and industrial units have started operating with 75–80% capacity. He shared details on the new 'PEACE' (Promotion of Energy Audit and Conservation of Energy) policy of the Government of Tamil Nadu, under which financial support is provided to industries for energy audits (with 50% of energy audit cost, up to a maximum of Rs 75,000 per unit, being met by the government) as well as for implementation of recommended energy efficiency measures (25% of implementation cost with a maximum support of Rs 200,000).
- Mr Pramod Chaudhary, representing South Gujarat Textile Processors Association, mentioned that 450 units operating out of the Surat textile cluster manufacture about 50 million yards of fabric per day. The cluster has to compete with products manufactured in China, and the manufacturing cost of Surat cluster is 20% higher than that of their Chinese competitors. The energy cost is about 23% of total manufacturing cost, and hence EE interventions are very crucial for the cluster. The Surat cluster has very

good scope for utilizing renewable energy (RE); but the existing policy discourages MSME units from setting up 100% captive power systems based on RE. Mr Chaudhary also highlighted the existing cash flow problems and urged that subsidies be granted for installing pollution control equipment, and that support be provided for export-oriented marketing of cluster products.

In his concluding remarks, Mr Abhay Bakre, Director General, BEE appreciated the activities of SAMEEEKSHA and added that he has taken note of the suggestions given by the panelists. Mr Bakre recommended that MSME units should avail the benefits of existing opportunities and follow the proven path of adopting EE measures to reduce energy costs and improve productivity. He mentioned about the five year plan being prepared by BEE for the period 2021–25, and urged the MSME stakeholders to provide their recommendations/wish lists to BEE for consideration and incorporation in the plan. The recommendations should fall within the overall domain of energy efficiency, but BEE will be open to considering them from a broader perspective as well.

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.

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