



August 2018

CAPACITY BUILDING OF LOCAL SERVICE PROVIDERS (LSP) UNDER GEF-UNIDO-BEE PROJECT “PROMOTING EE/RE IN SELECTED MSME CLUSTERS IN INDIA”

Workshop Proceedings Report- Sikkim Dairy Cluster

Submitted to
(Prepared under GEF-UNIDO-BEE Project)



Bureau of Energy Efficiency

4th Floor, Sewa Bhawan, Sector - 1, R. K. Puram, New Delhi - 110066

Prepared by



**Confederation of Indian Industry
CII - Sohrabji Godrej Green Business Centre**

Survey No. 64, Kothaguda Post, Near HITEC City
Hyderabad 500064

Table of Contents

List of Tables	2
List of Figures	2
List of Abbreviations	3
1. EXECUTIVE SUMMARY	4
2. WORKSHOP PROCEEDINGS	5
2.1 First Training Program, Gangtok	5
2.2 Second Training Program, Gangtok	7
3. CONCLUSION	10
4. ANNEXURE	11
4.1 Agenda for training programs.....	11
4.2 Attendance sheet for training programs	13

List of Tables

Table 1: Workshop summary	5
Table 2: Summary of 1st Workshop.....	6
Table 2: Summary of 1st Workshop.....	8

List of Figures

Figure 1: MD delivering welcome remarks	5
Figure 2: Glimpse of 1 st workshop	6
Figure 3: Frick India explaining about ammonia refrigeration system	6
Figure 4: UNIDO explaining about project activities.....	7
Figure 5: CII highlighting EE opportunities in electrical system	8
Figure 6: Glimpse of 2 nd workshop.....	8
Figure 7: Workshop Participation	10

List of Abbreviations

BEE	Bureau of Energy Efficiency
DPR	Detailed Project Report
EE	Energy Efficiency
EESL	Energy Efficiency Services Limited
GEF	Global Environmental Facility
LSP	Local Service Provider
MSME	Micro and Medium Scale Industries
OEM	Original Equipment Manufacturer
RE	Renewable Energy
SDA	State Designated Agency
UNIDO	United Nations Industrial Development Organization

1. EXECUTIVE SUMMARY

Bureau of Energy Efficiency (BEE), a statutory body under Ministry of Power, Government of India, in collaboration with United Nations Industrial Development Organization (UNIDO) is executing a Global Environment Facility (GEF) funded national project “Promoting energy efficiency and renewable energy in selected MSME clusters in India”.

The overall aim of the project is to develop and promote a market environment for introducing energy efficiency and enhanced use of renewable energy technologies in process applications in 12 selected energy-intensive MSME clusters across 5 sectors in India (with expansion to more clusters later). This will enable improvement in the productivity and competitiveness of units, as well as reduce overall carbon emissions and improve the local environment.

Key activities involved in the project are shown below

- Detailed Mapping of LSPs in the cluster
- Preparation of 10 Bankable DPRs
- Development of 5 customized training materials
- Conduct 4 training programs in the cluster for the capacity building of local service providers
- Facilitation of LSPs in becoming local dealers of OEMs

The report summarizes the two training programs conducted in Sikkim Dairy Cluster to train the local service providers and dairy units on Energy Efficiency/Renewable Energy. The objective of the workshop is to create an awareness on the concept of EE so as to fill the knowledge gaps and assist in creating an enabling environment for implementation of energy efficient measures in Sikkim Dairy Cluster. In this workshop, lectures and presentation were delivered by representatives of major OEMS, Dairy Units, UNIDO, and CII. The proceedings of these workshops are discussed in this report.

2. WORKSHOP PROCEEDINGS

One day training programs were organized at Gangtok, Sikkim to train the local service providers and dairy units on best operating practices, latest technologies/innovations and to create awareness on importance of energy efficiency and renewable energy. The workshops provided a platform to interact with 50+ stakeholders in the cluster.

The venue and agenda for each workshop was decided based on the training need assessment done in the cluster. At each event, CII introduced the workshop, followed by UNIDO providing more details about the workshop. This was followed by presentations from technology suppliers on energy efficient technologies and services available in the market with open Q & A sessions after each presentation. Each workshop was attended by different stakeholders such as MSMEs, consultants, association, technology suppliers and subject experts.

The following table shows the summary of workshops completed at Sikkim Dairy cluster

Table 1: Workshop summary

Dates	Location	Workshop Theme	No of LSPs/OEMs	Total No of Participants
11-May-18	Gangtok	Electrical & Utilities, Thermal Utilities, Refrigeration System & Renewable	7	55
25-May-18	Gangtok			

2.1 First Training Program, Gangtok

The first training program was organized on 11th May 2018 at Hotel La Maison, Gangtok had a participation of 36 people including local service providers, OEMs and representation from Sikkim Main Dairy and Sikkim Region Plant at Jorethang.

The workshop started with the inaugural program. The program started with a detailed presentation on the project objectives and deliverables by Mr. Vishnu P, Associate Counsellor, CII-GBC. During the opening session the participants were briefed on the key project elements such as technology feasibility studies for the preparation of DPR and different models for engaging the LSPs with OEMs to promote EE/RE in the cluster.

The introduction was followed by welcome remarks by Mr. Ragul K , MD, Sikkim Milk Producers Union. Mr. Ragul was invited as guest of honor for the program. In his welcome remarks he highlighted about need and importance of energy efficiency in the dairy cluster of Sikkim. He also highlighted that the environment performance improvement is critical for dairies to become more competitive and having an efficient and cleaner operations is not only cost effective but also leads to new business avenues. The welcome remarks was followed by the key note address by Mr. Vishal



Figure 1: MD delivering welcome remarks

Tewari, DGM Sikkim Milk Producers Union.



Figure 2: Glimpse of 1st workshop

He introduced the participants to the workshop and highlighted the importance of training program and how the learnings can be made into practical implementation. The second session started with the presentation by Mr. Atik Sheikh, Associate Counsellor, CII-GBC on Importance of Energy Efficiency in MSMEs. The objective of the presentation was to highlight the importance of energy efficiency in MSMEs and the approach for implementation of EE in MSMEs. Technical session started with presentation of best operating practices in motor by Mr. Vishnu P, CII-GBC. He highlighted about various energy saving opportunities in motor with practical case studies. He also highlighted about the ESCO model implementation of energy efficient motors by EESL.

Post lunch session started with presentation by Mr. Amitava, Frick India on Industrial Refrigeration specific to dairy sector. He explained about energy efficient practices in industrial refrigeration and also about the safety aspects that need to be considered for efficient operation of refrigeration system. In his presentation he introduced a new technology called Ammonia Over Feed System which reduces the energy consumption of chiller compressor and also helps in efficient cooling. The last session of the day was on Boiler and Steam Systems by Mr. Atik Sheikh. He explained how to do energy audit for boiler and steam system with case studies and what are the best operating practices. He also highlighted the importance of condensate recovery in dairy plant and how it can be used for boiler feed water heating. The workshop concluded with practical exercise, where the participants are provided with cases to identify the possible EE solutions to the problem.



Figure 3: Frick India explaining about ammonia refrigeration system

- Identification of EE measures in Boiler/Furnace System – In this exercise, the participants were presented a general situation in boiler systems and based on the existing systems the participants have to identify EE measures in the system.
- Identification of EE measures in Electrical Motors – In this exercise, the participants were presented a general situation in electrical motors and based on the existing systems the participants have to identified EE measures in the system

The following table shows the summary of 1st LSP workshop at Gangtok

Table 2: Summary of 1st Workshop

1 st LSP Workshop , Hotel La Maison, Gangtok	
Total no of Participants	19
No of technical sessions	4
No of LSP's attended	7

No of Dairy Units attended	2
Outcomes	<p>Increased capacity building of LSPs and other stake holders</p> <ul style="list-style-type: none"> • Facilitated discussion between LSPs and OEMs • Training for LSPs to consider EE as an important parameter in their services (Electrical vendors, boiler operator etc.) • Training given on EE measures such as <ol style="list-style-type: none"> 1. Energy Efficient Motors 2. Best operating practices in boiler and steam system 3. Energy saving opportunities in Industrial Refrigeration • Training given on the operational and safety aspects to be followed for ammonia refrigeration system <p>Supplier Unit Engagement</p> <ul style="list-style-type: none"> • Discussion on feasibility of VFD for refrigeration compressor and ammonia over feed system with Frick India. • Discussion on installation of energy monitoring system with Premise Instruments <p>Introduction of new technology/services</p> <ul style="list-style-type: none"> • Introduced the concept of ammonia over feed system • Introduced the concept of condensate recovery • Introduced the concept of VFD for refrigeration compressor

2.2 Second Training Program, Gangtok

The second training program was organized on 25th May 2018 at Hotel La Maison, Gangtok had a participation of 36 people including representation from Sikkim Main Dairy, Sikkim Region Plant, Pharma companies and Food processing companies. The program also had representation from Sikkim State Designated Agency.

The program started with a detailed presentation on the project objectives and deliverables by Mr. Vishnu P, Associate Counsellor, CII-GBC. Thereafter Mr. Niranjana Rao Devela, National Project Manager, UNIDO gave a brief talk on UNIDO's activities in Sikkim dairy cluster. During his presentation the participants were briefed on the key project elements such as technology feasibility studies for the preparation of DPR and different models for engaging the LSPs with OEMs to promote EE/RE in the cluster. The opening session was followed by special remarks from Mr. D K Sharma, SDA, Sikkim, he highlighted about the various programs of SDA for promoting energy efficiency and renewable energy in Sikkim. He also highlighted the importance of energy efficiency and how it can benefit the industries on a long run.



Figure 4: UNIDO explaining about project activities

Technical sessions started with presentation by Mr. Jasbir Singh, Associate Counsellor, CII Godrej GBC on best operating and energy efficient practices in Electrical System which covered energy transformers, power factor and harmonics. The session was really interactive as there were lots of questions on power quality and electrical safety. He also discussed in detail regarding the importance of PF and how to do proper sizing for selection of capacitor banks. The second session was on EE financing and various models by SIDBI. He explained about different programs of SIDBI like 4E program and its benefits. There were discussion among the participants regarding the interest rate of various schemes offered by SIDBI for implementing EE/RE project.



Figure 5: CII highlighting EE opportunities in electrical system

Post lunch session started with presentation by Mr. Jasbir



Figure 6: Glimpse of 2nd workshop

Singh, CII- GBC on compressed air system. During his presentation he explained about importance of compressed air and various performance measure tests like FAD and leakage test for compressor. He also highlighted how to monitor the performance of compressor with help of SEC. The last session was on energy efficient pumping system by Mr. Vishnu P, CII-Godrej GBC. He highlighted about the selection of pump based on operating curves and what all factors need to be considered for purchasing a new pump. He also shared different case studies of best operating practices in pumping.

The workshop also had several practical exercises, where the participants are provided with cases to identify the possible EE solutions to the problem.

- Identification of EE measures in Electrical System – In this exercise, the participants were presented a general situation in electrical system and based on the existing systems the participants have to identify EE measures in the system.
- Identification of EE measures in Utilities – In this exercise, the participants were presented a general situation in utilities and based on the existing systems the participants have to identified EE measures in the system

The following table shows the summary of 2nd LSP workshop at Gangtok

Table 3: Summary of 1st Workshop

2 nd LSP Workshop , Hotel La Maison, Gangtok	
Total no of Participants	36
No of technical sessions	6
No of LSP's attended	4
No of Dairy Units attended	2

Proceedings of Training Program

No of Pharma companies attended	3
No of Food Processing companies attended	1
Outcomes	<p>Increased capacity building of LSPs and other stake holders</p> <ul style="list-style-type: none">• Training for LSPs to consider EE as an important parameter in their services (Electrical vendors, boiler operator etc.)• Training given on EE measures such as<ol style="list-style-type: none">1. Compressed air system2. EE financing3. PF and harmonics4. EE Pumping system• Training given on the operational and safety aspects to be followed for electrical system <p>Introduction of new technology/services</p> <ul style="list-style-type: none">• Introduced the concept of Transvector nozzle• Introduced the concept of harmonic filters• Introduced the concept of VFD for pumping system

3. CONCLUSION

The two training programs organized in Sikkim Dairy Cluster helped in the capacity building of all the stake holders which include service providers, OEMs, dairy units, pharma and food processing units. All the workshops had several discussions among the participants focusing on various energy efficient technologies, various technical challenges faced in implementing a new technology in the cluster and also on availability of local service providers for any technology. The graph below shows the workshop participation in Sikkim dairy cluster.

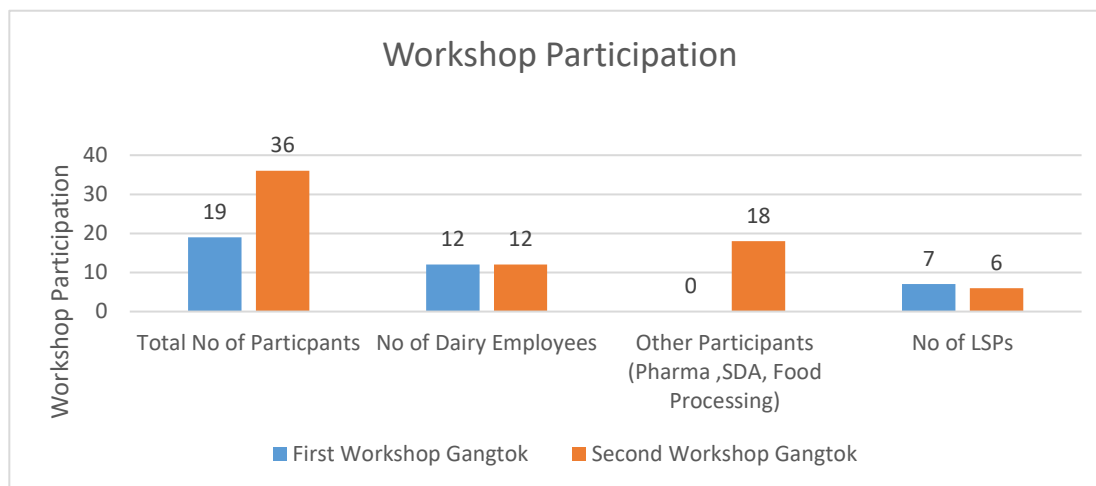


Figure 7: Workshop Participation

Following are some of the key highlights of the workshop:-

- More than 40 stakeholders trained through four workshops which includes 18 participants from 2 dairy units, 10 participants from pharma companies and 2 from food processing companies. Also the workshop had participation of 6 people from SDA.
 - LSP includes local fabricators and technicians associated with dairy units, electrical system service providers.
- 8 technical topics covered during the four training programs in which several new technologies like ammonia over feed system, condensate recovery, kVAr energy compensator, solar wind hybrid etc were introduced to the cluster.
- Facilitated B2B meeting between dairy units and Frick India for the modification of refrigeration system in both the dairy units in Sikkim.
- Training given to sectors other than dairy which include pharma and food processing where people attended the workshop. The feedback about the workshop was excellent and they also requested for more such training programs in the coming months.
- SDA also requested to conduct more such programs in future to promote the concept of EE in Sikkim. They also conveyed that their support will be there in the upcoming workshop for inviting participants from various industrial units in Sikkim.

4. ANNEXURE

4.1 Agenda for training programs



**Capacity Building of Local Service Providers – Sikkim Dairy
Cluster
First Training Workshop**

Date: 11th May 2018 | **Location:** Hotel La Maison, Tadong, Gangtok
Draft Agenda

1030 hrs Registration

1100 hrs – 1130 hrs: Opening Session

1100 hrs	Welcome Remarks	Mr. Ragul K, MD
1110 hrs	Key Note Address	Mr. Vishal Tewari, DGM
1120 hrs	EE Activities in Sikkim Dairy Cluster	CII Godrej GBC
1130 hrs	Health Break	

1140 hrs – 1555 hrs: Technical Presentations

1140 hrs	Importance of EE in MSME	CII Godrej GBC
1240hrs	Best Operating Practices in motors	CII Godrej GBC
1300 hrs	Lunch Break	
1345 hrs	Industrial Refrigeration System	Frick India Ltd
1430 hrs	Boiler and Steam System	CII Godrej GBC
1515 hrs	Practical Session	CII Godrej GBC
1545 hrs	Closing Remarks	CII – Godrej GBC
1555 hrs	Networking Tea	



**Capacity Building of Local Service Providers – Sikkim Dairy
Cluster
Second Training Workshop**

Date: 25th May 2018 | **Location:** Hotel La Maison, Tadong, Gangtok

Draft Agenda

1030 hrs Registration

1100 hrs – 1130 hrs: Opening Session

1100 hrs	Welcome Remarks	Mr Vishal Tewari, DGM
1110 hrs	About LSP Project	UNIDO
1120 hrs	EE Activities in Sikkim Dairy Cluster	CII Godrej GBC
1130 hrs	Health Break	

1140 hrs – 1515 hrs: Technical Presentations

1140 hrs	EE in Electrical System	CII Godrej GBC
1240hrs	EE Financing Scheme	SIDBI
1300 hrs	Lunch Break	
1345 hrs	Best Operating Practices in Utilities	CII Godrej GBC
1420 hrs	Importance of Energy Monitoring System	Premise Instruments
1435 hrs	Electrical Safety	CII Godrej GBC
1500 hrs	Renewable Energy Applications	CII Godrej GBC
1515 hrs	Closing Remarks	CII – Godrej GBC
1515 hrs	Networking Tea	

4.2 Attendance sheet for training programs



Confederation of Indian Industry

Capacity Building of Local Service Providers – Sikkim Dairy Cluster

First Training Program

Date: 11th May 2018 | Venue: Hotel Le Maison, Gangtok

List of Participants					
S.NO	Name	Company/Plant	Email Id	Mobile No.	Sign.
1	Ramesh Kr. Chetty	SMU	chettyramesh@gmail.com	9802525435	[Signature]
2	Jamal Kadian	Sikkim Milk Union	jamal.kadian@gmail.com	9083509624	[Signature]
3	Ash Man Limboo	Sitokinmille Union	ashmanlimboo@gmail.com	9733321692	[Signature]
			Adman Subba 1256@gmail.com		[Signature]
4	Sol's Curry	"	gauravkumar50@gmail.com	9593351920	[Signature]
5	Dilip Singh	"		9593351920	[Signature]
6	Rohit Sharma	Premise	premise.sikkim@gmail.com	9935562151	[Signature]
7	Girish Bhattacharai	Premise		9679683376	[Signature]
8	Nagendra Singh	SMU		9932351015	[Signature]
9	Souam Bhatia	Sikkim Milk Union	souam.bhatia@gmail.com	863707755	[Signature]
10	Hemka Beh. Subba	"		9183319838	[Signature]
11	Amit Rai	"	amitrai23@gmail.com	906490882	[Signature]
12	Arinal Rai	"		9734916044	[Signature]
13	Santosh Kumar	"	santoshk@gmail.com	767941854	[Signature]
14	Mahech Chettri	"		9930647971	[Signature]
15	Khem Narayan Khatwa	"		9735927701	[Signature]
16	Vishal Tewari (DGM)		tewarivishal@gmail.com	973483430	[Signature]
17	Til Adh Subba	SMU		8227628795	Til
18	The ND, SMU				
19	Amitava Ghosh	Frick India Ltd	amit@frick.co.in	9331050182	[Signature]



Capacity Building of Local Service Providers – Sikkim Dairy Cluster

Second Training Program

Date: 25th May 2018 | Venue: Hotel Le Maison, Gangtok

List of Participants					
S.NO	Name	Company/Plant	Email Id	Mobile No.	Sign.
1	Kashi Nath Prasad	S. D. Ltd.	_____	9800225130	
2	Pratik Raj Sarjan	S. D. Ltd	_____	9072822336	
3	Jamal Pradhan	Sikkim Milk	ajaypradhan@sikmilk.com	9108350109	
4	Saji Prasad	"	_____	919300462	
5	H.K. Pradhan	"	_____	_____	
6	Subash Limboo	Sikkim Milk	_____	_____	
7	D. K. Sharma	S. D. A. Sikkim	_____	9434186356	
8	Pankaj Lepcha	SDA Sikkim	stasikkim2018@gmail.com	993081004	
9	Alanka Chhetri	"	_____	8368009834	
10	PRAVIN. CO. (AMANG)	"	_____	7301437497	
11	RAMESH CHETTY	SIKKIM MILK	_____	9602525405	
12	SIGRATHA PRAHDAN	SDA, SIKKIM	_____	9235055097	
13	NAWANG C. LEPCHA	SDA, SIKKIM	_____	8389056494	
14	Hemant Singh	Cipla - I	hemant.singh@cipla.com	8170015068	
15	Anuj Kumar	Cipla - II	anuj.kumar@cipla.com	7602077628	
16	Anand Pradhan	Golden Cross Amang	anand.pradhan@cipla.com	9619916155	
17	Mahesh Chetri	Licim Milk	_____	9930647991	
18	Khem Narayan Keirala	Sikkim Milk	_____	9735927701	
19	Tamara Gyari	Sikkim Milk	tamara.gyari97@gmail.com	8158884499	
20	Piyasa Chakraborty	Sikkim Milk	piyasachak@gmail.com	8335913989	
21	Soumita Bag	Sikkim Milk	smta.bag@gmail.com	9903691778	
22	Manos Sankar	Sikkim Milk	macs6237@gmail.com	7278923020	
23	Ishika Ghosh	SIKKIM MILK	ishika.ghosh1@gmail.com	7407309870	
24	Beshab Majumdar	Sikkim Milk	beshabmajumdar@gmail.com	6290328919	
25	Bimal Rai	Sikkim Milk	Bimal C1790@gmail.com	9734916000	

