



# Training Workshops for Financial Institutions on Energy Efficiency (EE) Financing in India



SEPTEMBER 2017 - MAHARASHTRA



Indian Banks' Association



**IFC** International Finance Corporation  
WORLD BANK GROUP

*Creating Markets, Creating Opportunities*



Programme co-funded by the  
EUROPEAN UNION

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## 1. ABBREVIATIONS

<b>BEE</b>	Bureau of Energy Efficiency
<b>DPR</b>	Detailed Project Report
<b>DSCR</b>	Debt Service Coverage Ratio
<b>EE</b>	Energy Efficiency
<b>EEFP</b>	Energy Efficiency Financing Platform
<b>ESCO</b>	Energy Service Company
<b>ESPC</b>	Energy Savings Performance Contract
<b>EU</b>	European Union
<b>FI</b>	Financial Institution
<b>GHG</b>	Green House Gases
<b>GoI</b>	Government of India
<b>IBA</b>	Indian Banks Association
<b>IFC</b>	International Finance Corporation
<b>IGAR</b>	Investment Grade Audit Report
<b>IPMVP</b>	International Performance Measurement and Verification Protocol
<b>IRR</b>	Internal Rate of Return
<b>M&amp;V</b>	Measurement and Verification
<b>MEDA</b>	Maharashtra Energy Development Authority
<b>MSME</b>	Micro, Small and Medium Enterprises
<b>NBFC</b>	Non-Banking Financial Corporation
<b>NDC</b>	Nationally Determined Contribution
<b>PRGFEE</b>	Partial Risk Guarantee Fund for Energy Efficiency
<b>RE</b>	Renewable Energy
<b>SDA</b>	State Designated Agency
<b>SIDBI</b>	Small Industries Development Bank of India
<b>SME</b>	Small and Medium Enterprises
<b>ToT</b>	Training of Trainers
<b>VCFEE</b>	Venture Capital Fund for Energy Efficiency
<b>WBG</b>	World Bank Group

## 2. OVERVIEW

### Launch of Phase II of Training Workshop for Financial Institutions on Energy Efficiency (EE) Financing

Energy Efficiency (EE) has emerged as one of the major resources, a viable and the most cost effective solution to meet escalating energy demand in India. EE measures have three-fold benefits – they are cost-effective, increase energy security and mitigate greenhouse gas emissions.

In India, the Industries (Large and Small and Medium Enterprises (SMEs)), the Buildings (Commercial and Government) and the Municipalities consume around 50% of the total electricity consumption. There exists substantial energy saving potential in these sectors by adopting EE technologies. The Bureau of Energy Efficiency (BEE) estimates that more than INR 1,60,000 crores investment potential exists in EE implementation out of which INR 56000 crore of investment potential exists with the Industries, Buildings and Municipality sectors alone.

Despite having a substantial investment potential in EE sector, the growth in EE financing has been slow. One of the major barriers to EE implementation is the perceived risk (on EE projects) by Financial Institutions (FIs) due to limited understanding of the sector. In order to create awareness among the FIs on the financing needs for EE implementation, BEE has taken several initiatives. BEE had launched training programs for commercial banks under its Energy Efficiency Financing Platform (EEFP) in June 2015. With the objective to “build greater knowledge and confidence through training programme within the financial sector on Energy Efficiency financing”, in Phase I (June 2015 to June 2017) BEE had successfully completed 4 Training of Trainers (ToT) workshops and also supported Canara Bank and South Indian Bank in organizing workshops on EE financing. More than 100 Bank/ Non-Banking Financial Corporations (NBFC) officials were trained in Phase I.

Taking this initiative further, under the Phase II program, BEE in partnership with State Designated Agencies (SDAs), Indian Banks Association (IBA) and with the technical support from International Finance Corporation (IFC) plans to conduct twenty Training Workshops for FIs on EE Financing by September 2018 spread across India. These direct training workshops are designed to create awareness amongst the loan officers / risk managers / credit managers towards technical/financial appraisal of EE projects.

### 3. TRAINING WORKSHOPS IN MAHARASHTRA

BEE in collaboration with the Maharashtra Energy Development Authority (MEDA) and IBA organized three “Training Workshops for FIs on EE Financing in India” on 18<sup>th</sup>, 19<sup>th</sup> and 27<sup>th</sup> September 2017 in Mumbai, Thane and Pune respectively. IFC extended the technical support to the workshops, as part of IFC’s Eco-Cities program in India, supported by the European Union (EU).



The one-day training workshop provided an overview of the technical and economic characteristics of EE projects, business models, financing needs, and risk management approaches. The workshop was also a platform for the participants to interact with EE experts/ Energy Service Companies (ESCOs) on areas such as market opportunities, business models, technical and financial appraisal of projects and measurement and verification (M&V). The workshop also included quiz and activity sessions. The following modules were covered as part of the workshop –

- Module 1: Introduction to EE Financing and Market Opportunity
- Module 2: Introduction to ESCO and various business models
- Module 3: Financial Appraisal of EE Projects
- Module 4: Technical Appraisal of EE Projects
- Module 5: Introduction to Measurement and Verification (M&V)

The workshops conducted in Maharashtra were attended by 45 participants from 19 different banks, NBFs and Institutes, represented mostly by credit officers, risk officers, and/or project appraisal officers.

BEE will conduct 17 more workshops in different cities in India over the period of next one year.

## 4. MUMBAI – WORKSHOP PROCEEDINGS



### 4.1. INAUGURAL SESSION



The first workshop in Maharashtra was organized in Mumbai on 18<sup>th</sup> September, 2017. The workshop was inaugurated by Mr. P. K. Aggarwal, Senior Advisor of IBA in presence of Ms. Vineeta Kanwal, Joint Director of BEE; Mr. Ashutosh Tandon, Financial Sector Specialist (Finance and Markets Global Practice (GP), the World Bank Group (WBG));

Ms. Monika Chaudhary, Project Officer of MEDA; and Ms. Smita Kudarikar, Manager at MEDA.

Ms. Vineeta Kanwal, Joint Director, BEE welcomed the distinguished guests, speakers and the participants to the training workshop. In her address, she highlighted the need for EE and shared various benefits of EE interventions. She also explained about the initiatives taken by BEE to promote EE financing and mentioned that the workshop's objective was to build capacity and create awareness amongst the FIs on EE financing. She concluded the address by stating that 19 such workshops will be conducted across India by September 2018 and the Mumbai workshop was the launch workshop. She also requested the participants to provide feedback that would help in improving the future workshops.



In the Inaugural address, Mr. P.K. Aggarwal, Senior Advisor, IBA, provided an overview of the training programs and informed that IBA was associated with such programs since 2015. He pointed out that the basic objective of the workshop is to create awareness for FIs on EE financing, energy security, and wider concept of reduction in GHG emissions. He informed that there are several schemes and funds available, which will help FIs on EE financing.

He advised that the project officers can take benefit of these training programs.

Mr. Ashutosh Tandon, Financial Sector Specialist, WBG, in his special address mentioned that addressing climate change concerns is the need of the hour and in the present scenario it is important to understand the funds required to implement EE projects. He shared various initiatives of IFC on EE financing. He also discussed about EE financing aspects in IFC Eco Cities project. He requested suggestions from participants for improving the training content and training structure.



Ms. Smita Kudarikar, MEDA, delivered the vote of thanks.

## 4.2. PRELIMINARY QUIZ

Post the Inaugural Session, the participants were provided with a preliminary quiz questionnaire to understand their awareness levels on EE and its financing aspects. This was followed by the technical session.

## 4.3. TECHNICAL SESSION

### Module 1: Introduction to Energy Efficiency Financing & Market Opportunity

By – Ms. Vineeta Kanwal, Joint Director, BEE



The first technical session was on “Introduction to Energy Efficiency Financing and Market Opportunity presented by Ms. Vineeta Kanwal, Joint Director, BEE. Ms. Kanwal presented an overview on the importance of EE, the Government of India (GoI) commitment to address climate change, the market opportunity available for EE implementation and the initiatives of BEE to promote EE financing. She briefed the participants about the Paris Climate Agreement and India’s commitment under the agreement. She also shared about India’s Nationally Determined Contribution (NDC) to reduce emissions intensity by 33-35% by 2030 from 2005 level. She

further stated that to achieve this target, India would require huge investments. She discussed in detail the various policy initiatives such as Partial Risk Guarantee Fund for Energy Efficiency (PRGFEE), Venture Capital Fund for Energy Efficiency (VCFEE) of BEE to promote EE financing. She pointed out that more than INR 1,50,000 Crore of investment potential exists for EE implementation. The session by Ms. Kanwal was concluded by apprising the participants about Banks perspective on EE projects and also discussing on the barriers for implementing EE project despite the huge market size.

### Module 2: Introduction to ESCOs and various Business Models for Implementation of EE projects

By – Mr. Nitin Jha, Care Ratings Ltd., and Mr. Joseph Prakash, Meghraj Capital Advisors Pvt. Ltd.

The first part of the second session was presented by Mr. Nitin Jha, Care Ratings Ltd., on the “Introduction to ESCOs and various Business Models for Implementation of EE Projects”. Mr. Jha started the session by explaining the characteristics of ESCO and how they differ from energy auditing companies. He explained about various benefits of the ESCO model and also described about various business models and key features of each model. He discussed in detail about Energy Savings Performance Contract (ESPC) and its importance. He highlighted that the ESCOs have been successful in identifying and implementing EE projects in Industries, Buildings and Street Lightings. He also shared the various barriers



associated with ESCO financing.

To help the participants to understand the ESCO features better, several case studies of EE projects successfully implemented by ESCO were presented by Mr. Prakash in the second part of the session. He also shared the details of case studies including successful ESCO projects implemented in Buildings, SME and large Industries.

### **Module 3: Financial Appraisal of EE Projects**

**By – Mr. Sanjeev Kumar, Yes Bank Ltd.**

In this session, Mr. Sanjeev Kumar of Yes Bank Ltd., presented the key elements in financial appraisal like project costs, financial parameters, financial structure, ESPC etc., of EE projects. Mr. Kumar highlighted that the FIs should carry out comprehensive review of various agreements such as ESPC. He discussed in detail the various financial risks and the mitigation measures that can be undertaken. He also shared the different types of loans (technology based and project based) available for EE projects. In addition, he also provided an overview of the loan security conditions of EE projects. He discussed in detail relevant case studies of financial appraisal of EE projects.



### **Module 4: Technical Appraisal of EE Projects**

**By – Mr. Manoj Kumar, SIDBI**

The session on “Technical Appraisal of EE projects” was presented by Mr. Manoj Kumar, SIDBI. He shared the various technical aspects of EE project appraisal. Mr. Kumar focused on technical project appraisal, key considerations in EE projects, list of EE technologies, risk assessment and risk mitigation of EE projects. He highlighted that the technical appraisal of EE projects should include a detailed evaluation of the products and technologies, assessment of energy savings calculation and consideration of risks and uncertainties and project implementation plan. He explained in detail about the technical appraisal of EE projects by providing relevant case studies.



The session was concluded by Mr. Kumar reiterating that it was important to comply with all environmental regulations and meet the legal requirements for the EE projects as well.

#### 4.4. ACTIVITY SESSION

Post the completion of technical and financial appraisal session, an activity session was conducted. The participants were divided into teams and were provided with different EE case studies, in order to understand, analyze and appraise the projects both on technical and financial aspects and select one project for financing. One member from each team then presented to the audience on the selected project and provided reasons for selection.



#### TECHNICAL SESSION (CONTD)

##### Module 5: Introduction to Measurement & Verification (M&V)

By – Mr. Joseph Prakash, Meghraj Capital Advisors Pvt. Ltd.



The last session was on “Introduction to Measurement & Verification” and was presented by Mr. Joseph Prakash, Meghraj Capital Advisors Pvt. Ltd. He focused on M&V of EE projects and related methodologies and protocols. Mr. Prakash appraised the participants regarding the key aspects to be considered in M&V, who conducts the M&V, how much does it cost, various M&V methodologies and the protocols available. The participants were informed by Mr. Prakash that either the Project Host, ESCO or a third party could conduct the M&V and the cost depends on EE technologies, measures to be implemented and the approach and methodology utilized.

He highlighted that the M&V costs are generally between 5 to 10 percent of the project investment and there is a trade-off between accuracy and cost of the M&V. Simple approaches are preferred to reduce costs and minimize potential for disputes in EE projects particularly through the ESCO mode. He also stressed on the need for engaging independent third party verification agency and also presented the international protocols for M&V. Mr. Prakash showed the participants M&V template and stressed on the details to be covered in the document. The session was concluded by Mr. Prakash by presenting a M&V case

study involving a lighting project, where he explained how M&V helps in confirming and validating the anticipated and actual savings from an EE project.

#### 4.5. FINAL QUIZ



All the participants actively participated in the final quiz round. The quiz questionnaires covered the learning on overall session and modules presented during the workshop. The participants performed well in the quiz. The quiz results were announced at the end of the workshop and the top performers were honored with prizes.

The first, second and the third prizes were won by Mr. Balaji Gurumurthy (Yes Bank Ltd.) Mr. Sandeep Mukherjee (RBL Bank Ltd.) and Mr. Satish Dhanapal (ResponAbility India) respectively.

#### 4.6. CONCLUDING SESSION

##### Distribution of Certificates

The workshop concluded with Certificate distribution to all the participants. The participants were also informed about the one day industry visit planned in Pune, wherein EE projects that have been successfully implemented will be showcased.



##### Vote of Thanks

Ms. Vineeta Kanwal, BEE thanked MEDA for providing logistic support for the training program, the participants for sparing their time to be part of the workshop, and speakers for taking the time to share their experiences with the trainees. Ms. Kanwal also thanked IFC for its technical support to the BEE in organizing the training workshops. She also thanked IBA for their continuous support and hoped that these initiatives will build the capacity of banks to provide loans to EE projects and increase EE financing manifold.

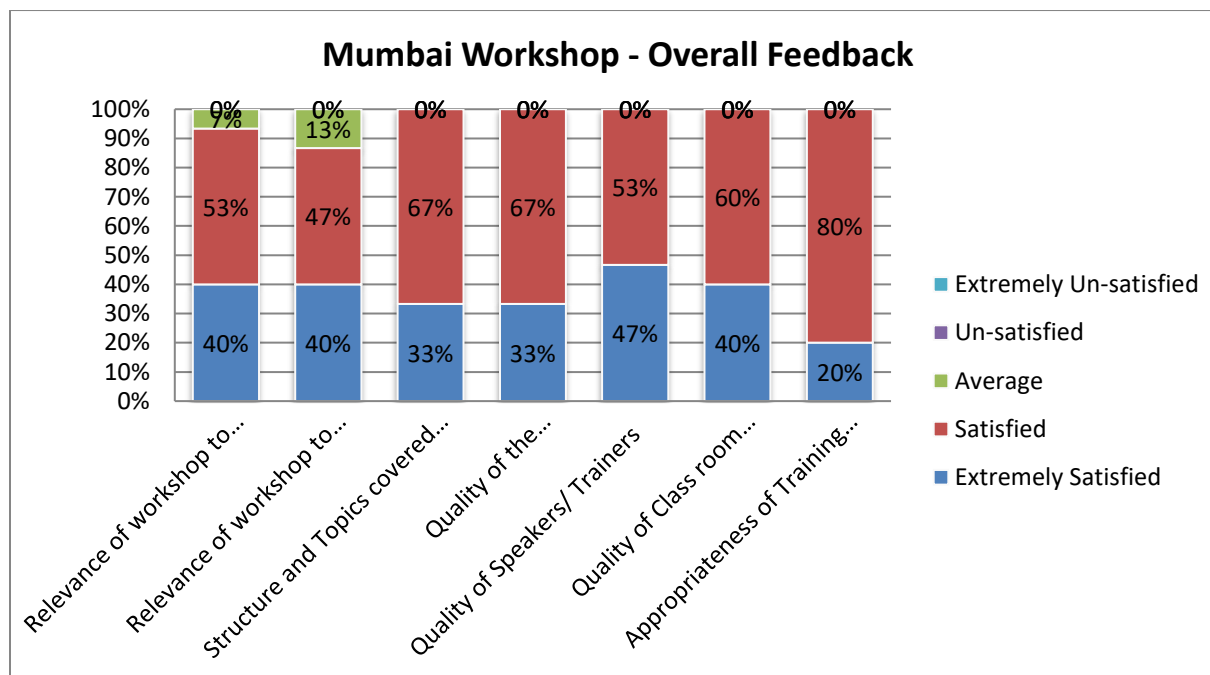
## ANNEX A – MUMBAI WORKSHOP – FEEDBACK EVALUATION

The workshop in Mumbai was attended by 19 participants from 14 different banks/NBFCs, mostly represented by credit officers, risk officers, and/or project appraisal officers.

The summary of the overall feedback of the workshop in Mumbai provided by the participants is given below:

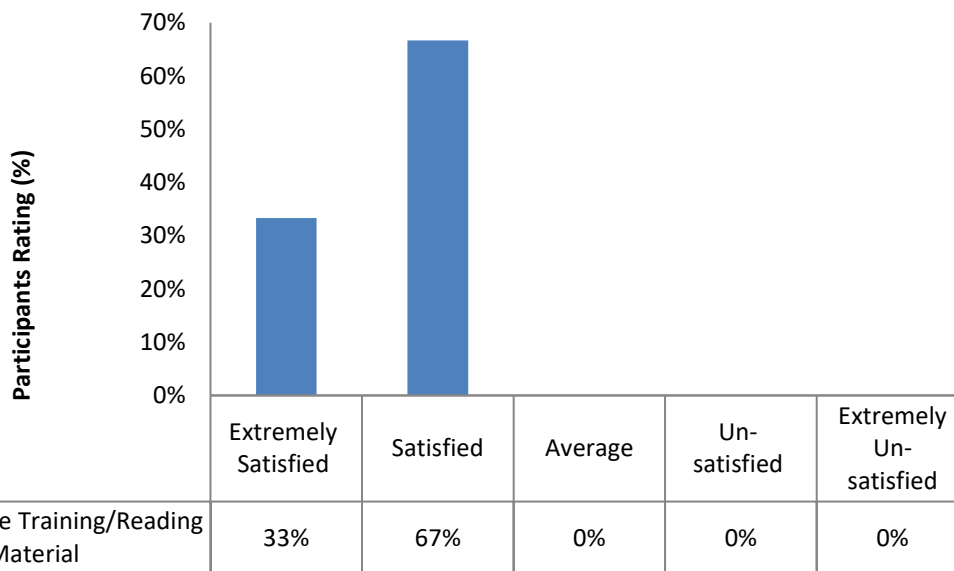
- Almost 100% of the participants rated the program high<sup>1</sup> on “Quality of training and reading materials”
- Almost 100% of the participants rated the program high on “Structure of topics covered in the workshop”
- Almost 100% of the participants rated the program high on “Quality of Speakers/Trainers”
- Almost 100% of the participants rated the program high on “Appropriateness of training material”
- Almost 100% of the participants rated the program high on “Quality of classroom interaction”
- Almost 93% of the participants rated the program high on “Relevance of workshop to the organization”
- Almost 87% of the participants rated the program high on “Relevance of workshop to their work within the organization”

A summary chart of the above parameters are presented below –

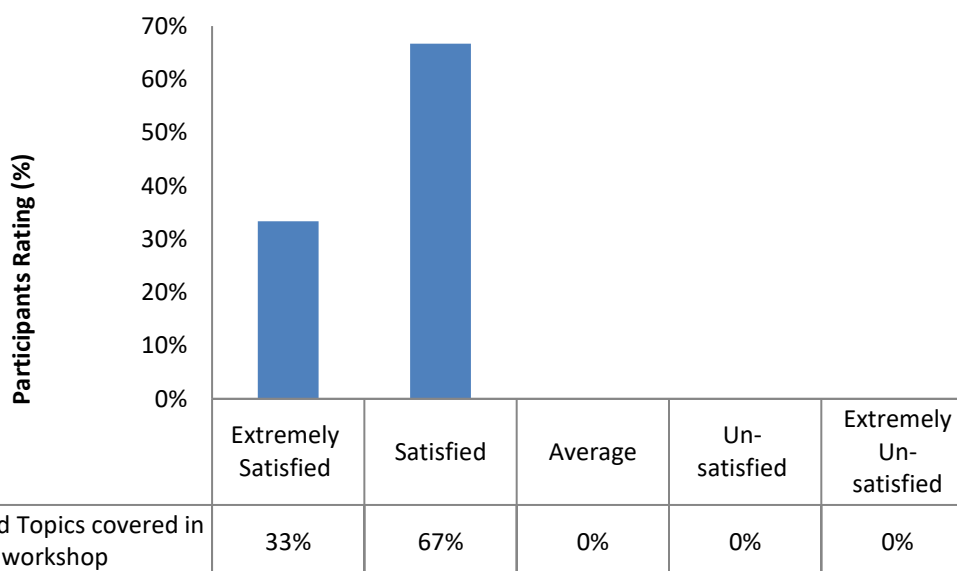


<sup>1</sup> Either “extremely satisfied” or “satisfied”

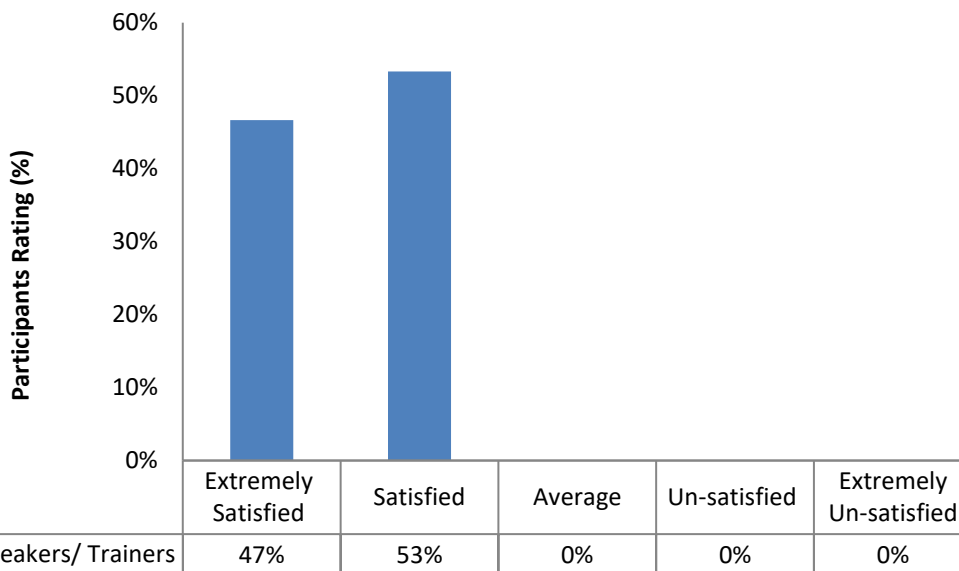
## 1. Quality of the Training/Reading Material



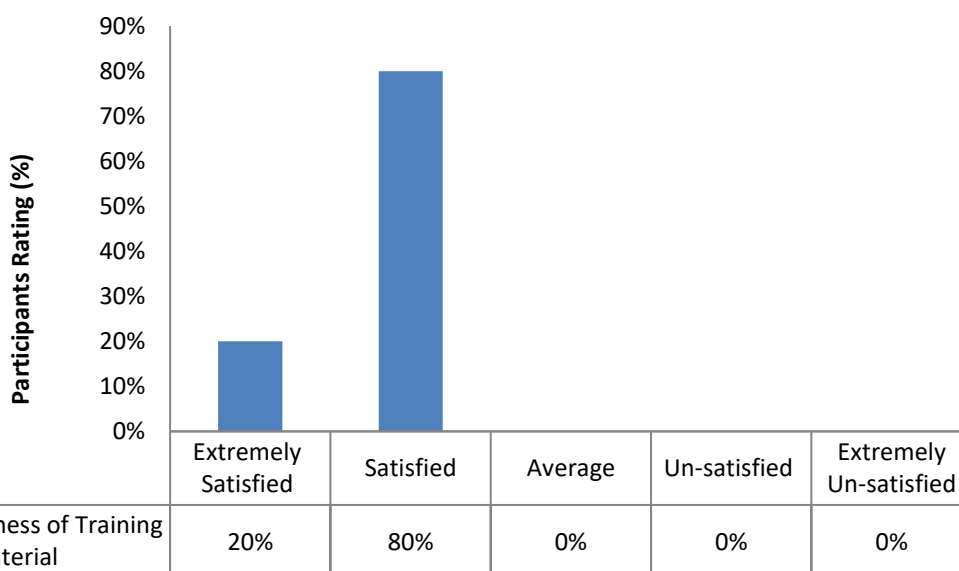
## 2. Structure of topics covered in the workshop



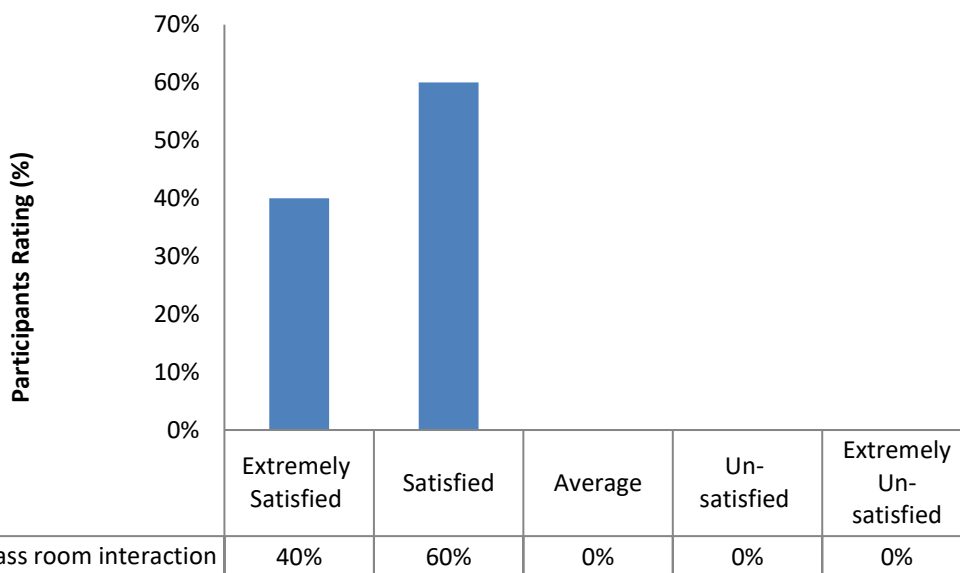
### 3. Quality of Speakers / Trainers



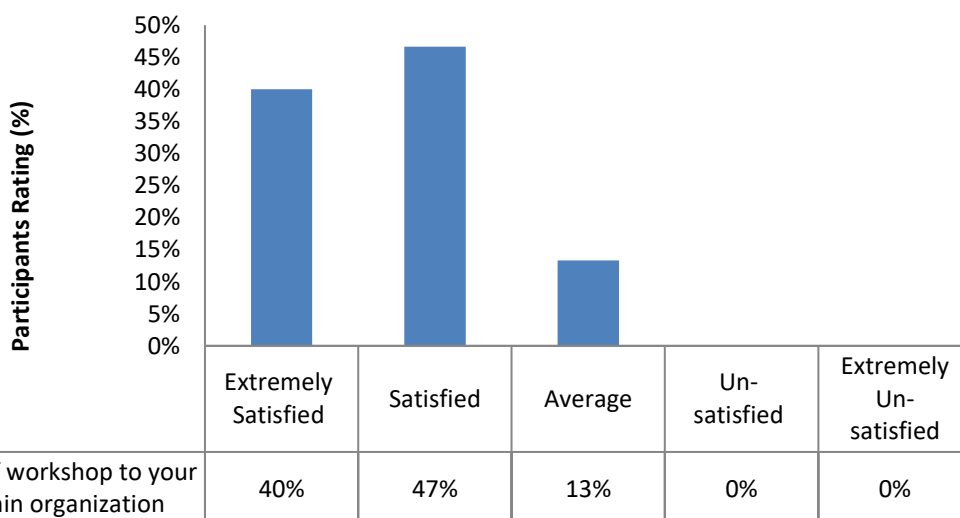
### 4. Appropriateness of training material

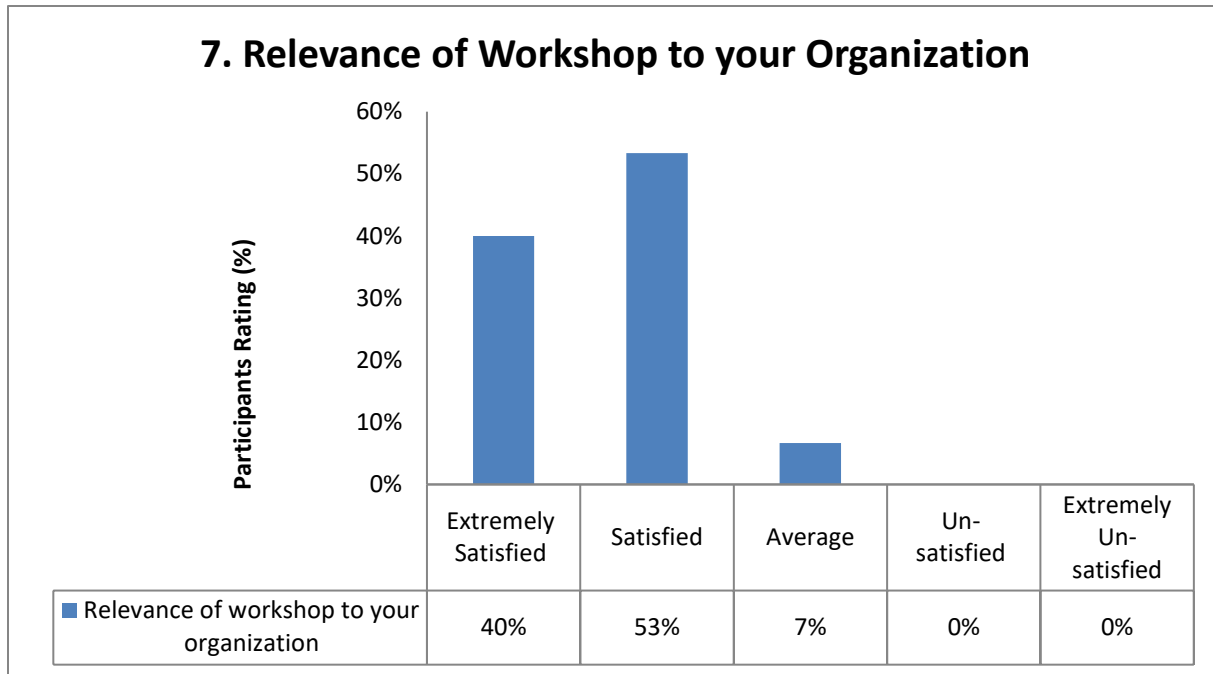


### 5. Quality of classroom interaction



### 6. Relevance of workshop to your work within organization



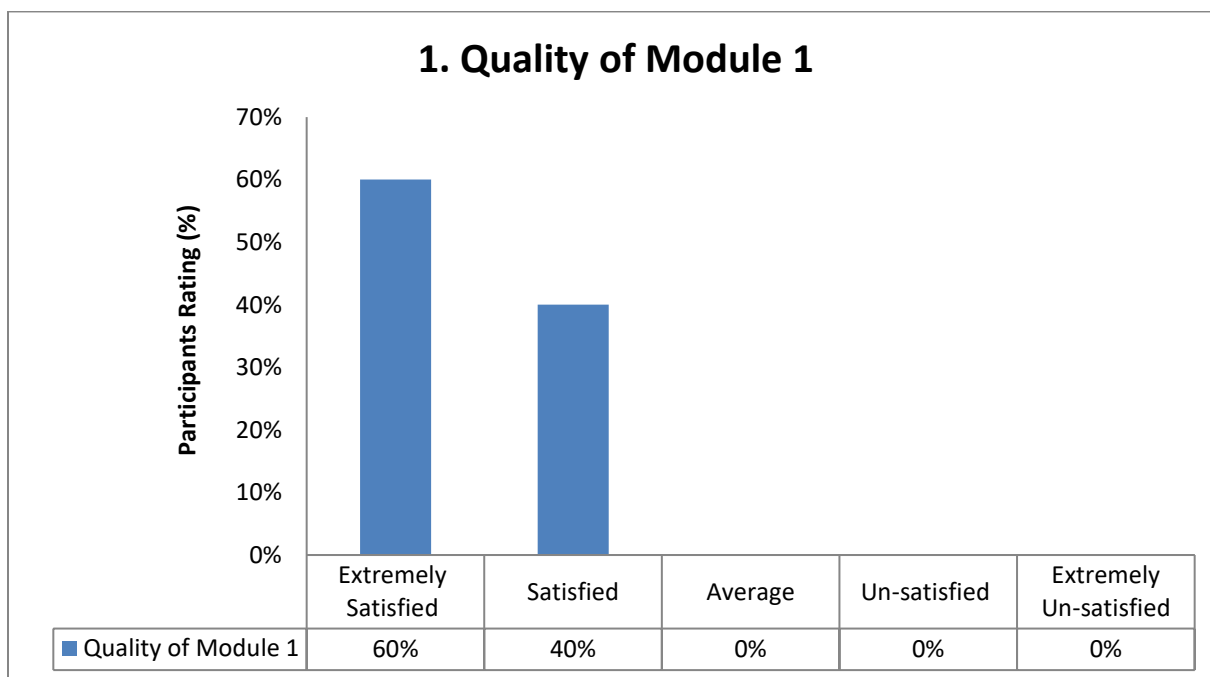
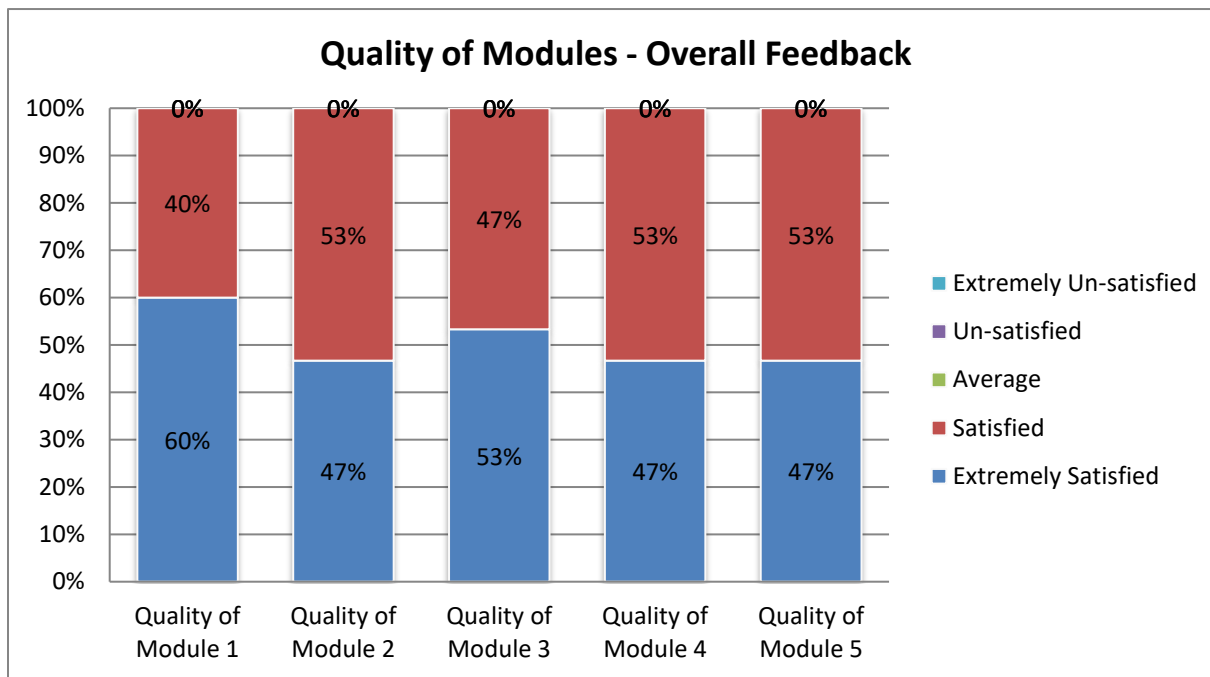


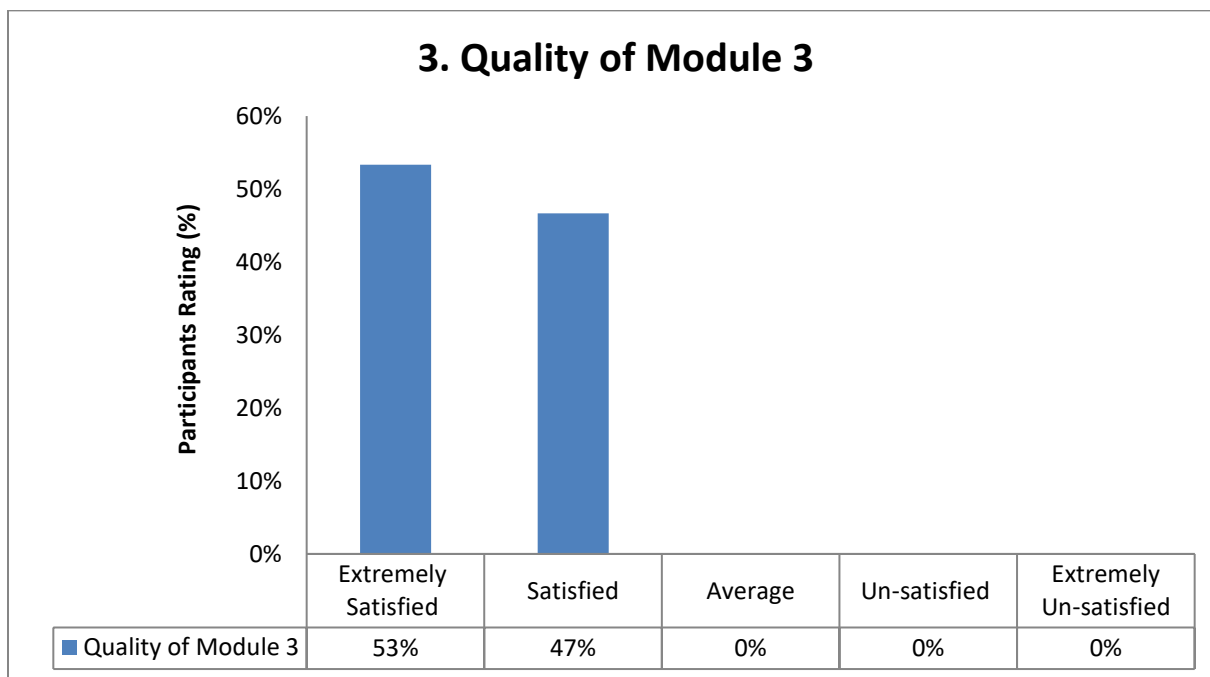
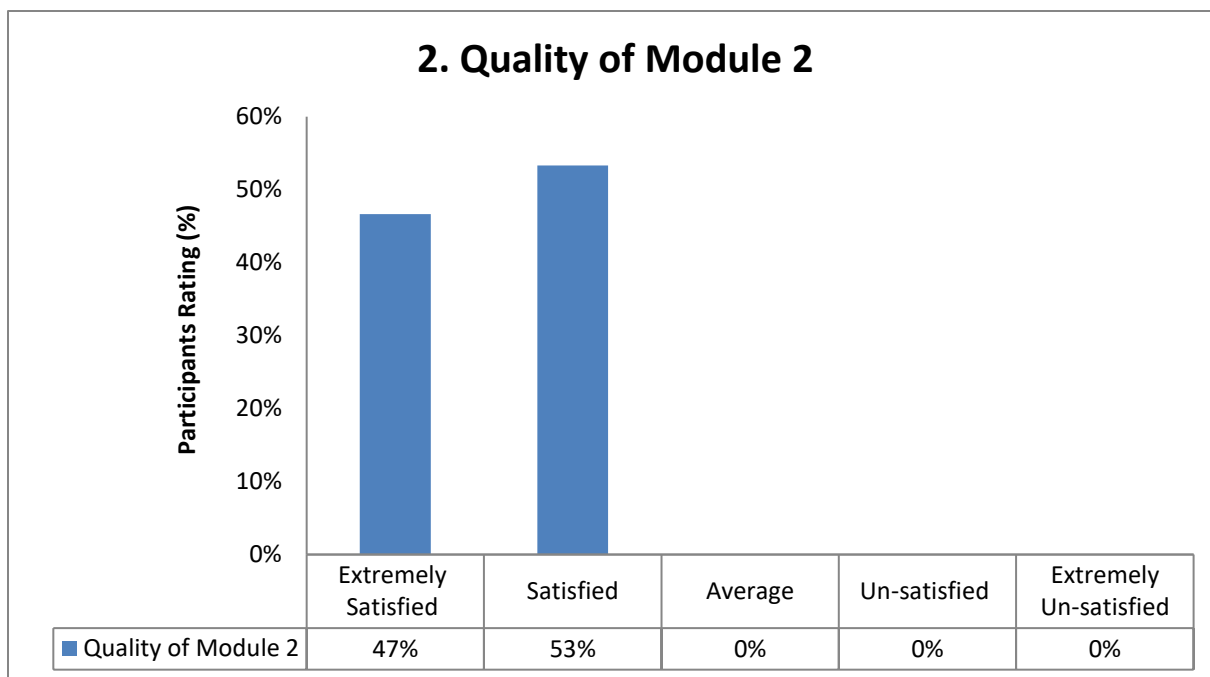
The workshop was imparted through 5 module sessions, covering –

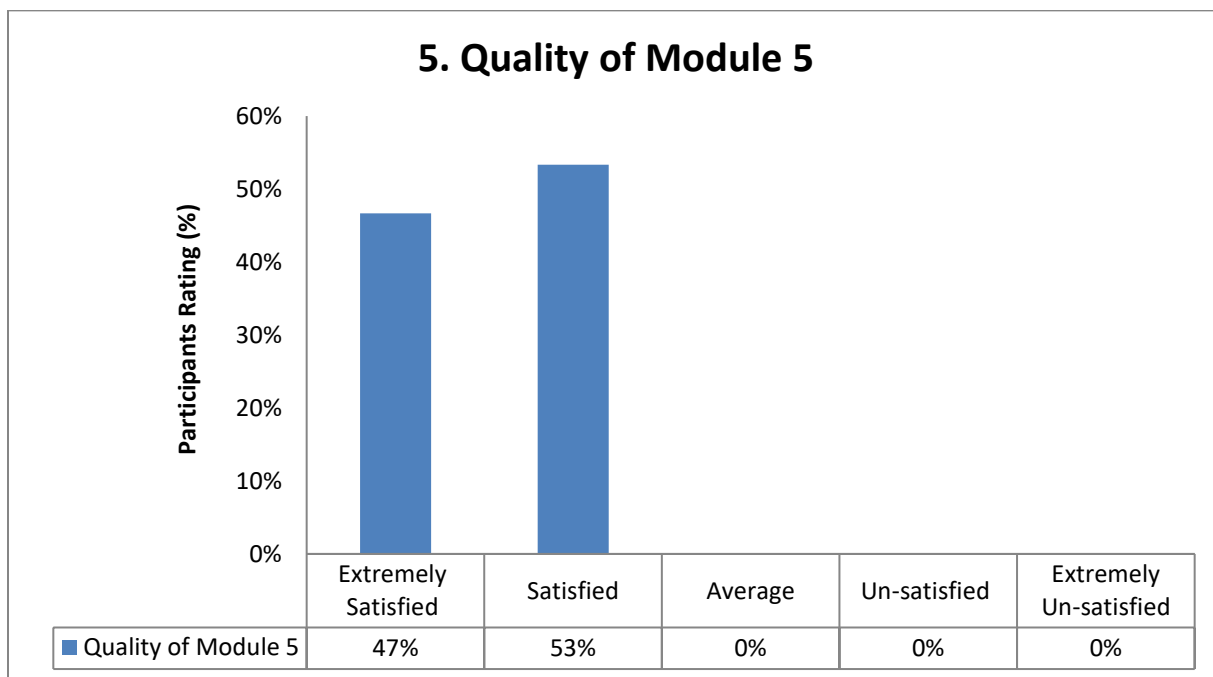
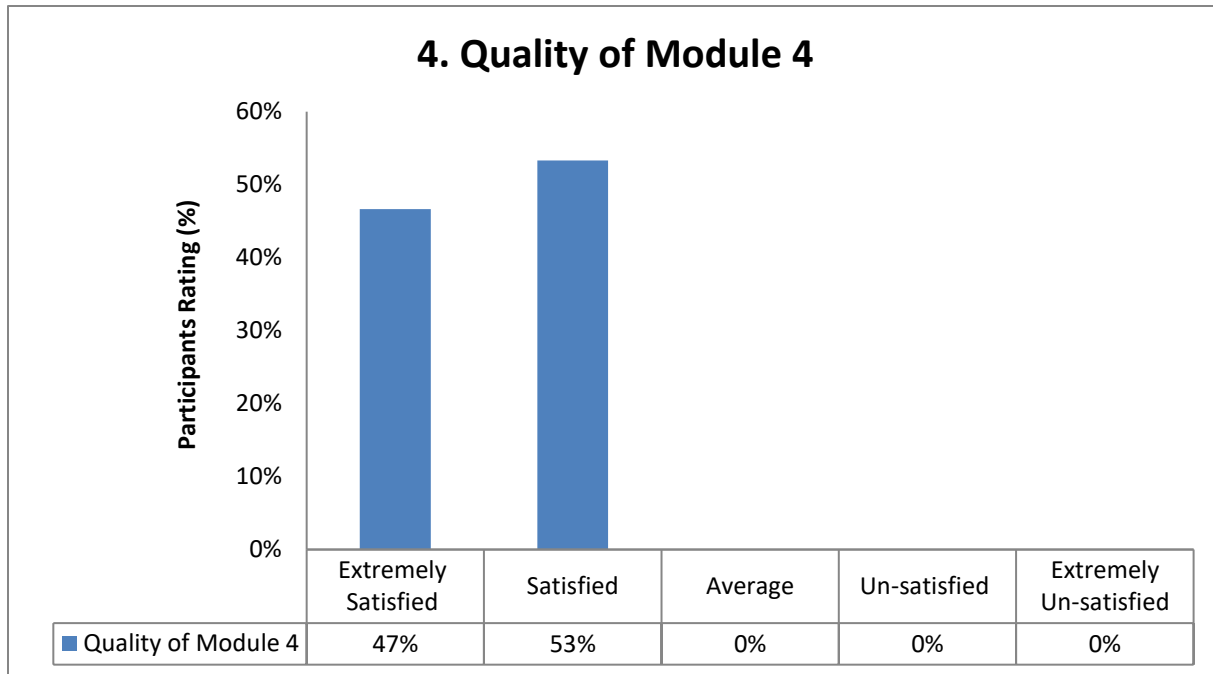
1. Energy Efficiency Financing – Market Opportunity
2. Introduction to ESCO and Business Models
3. Technical Appraisal of Projects
4. Financial Appraisal of Projects and
5. Introduction to Measurement & Verification

Apart from the 5 sessions, the participants were also involved and presented with case studies, activity session and quiz.

The summary chart of the feedback provided by the participants on all the training sessions delivered by the trainers / speakers is given below:







## WHAT THE PARTICIPANTS LIKED THE MOST ABOUT THE WORKSHOP

- The “Introduction Module” – covering the scenario & concerns in India regarding the Energy Efficiency Financing and the market potential available
- Representation of the ESCO and the business models

## WHAT THE PARTICIPANTS SUGGESTED FOR FURTHER IMPROVEMENT IN THE WORKSHOP

- To conduct open forums to understand what is preventing FIs from financing EE projects
- Workshop duration can be increased to have better understanding and involvement of the participants with more case studies

## ANNEX B – MUMBAI WORKSHOP – AGENDA

### **“Training Workshop for Financial Institutions on Energy Efficiency financing”**

#### **Agenda**

**Date and Venue: 18<sup>th</sup> September, 2017, Hotel MayFair Banquets, Worli, Mumbai**

<b>Time</b>	<b>Topic</b>	<b>Speaker</b>
09:30 AM - 10:00 AM	Registration	
<b>INAUGURAL SESSION</b>		
10:00 AM - 10:10 AM	Welcome Remarks	Ms. Vineeta Kanwal, Joint Director, BEE
10:10 AM - 10:15 AM	Inaugural Address	Mr. P. K. Aggarwal, Senior Advisor, IBA
10:15 AM – 10:25 AM	Special Address	Mr. Ashutosh Tandon, Financial Sector Specialist, WBG
10:25 AM - 10:30 AM	Vote of Thanks	Ms. Monika Chaudhari, Project Officer, MEDA
10.30 AM - 10.45 AM	<b>Group Photograph followed by Tea</b>	
10:45 AM - 11:00 AM	Preliminary assessment of trainees on Energy Efficiency	
<b>TECHNICAL SESSION</b>		
11:00 AM - 11:30 AM	Module 1: Introduction to Energy Efficiency (EE) and Market Opportunity	Ms. Vineeta Kanwal, BEE
11.30 AM - 12:00 PM	Module 2: Introduction to ESCO and various business models for implementation of EE projects	Mr. Nitin Jha, CARE Rating Ltd
12.00 PM - 12:30 PM	EE Case Studies – ESCO experience	Mr. Joseph Prakash, Meghraj Capital Advisors Pvt Ltd
12:30 PM - 01:30 PM	<b>Lunch</b>	
01:30 PM - 02:15 PM	Module 3: Financial Appraisal of EE project	Mr. Sanjeev Kumar, Yes Bank Ltd.
02:15 PM - 03:00 PM	Activity session	
03:00 PM - 03:45 PM	Module 4 : Technical Appraisal of EE project	Mr. Manoj Kumar, SIDBI
03:45 PM - 04:30 PM	Module 5: Introduction to M&V	Mr. Joseph Prakash, Meghraj Capital Advisors Pvt Ltd
04:30 PM - 05:15 PM	Quiz	
<b>High Tea</b>		
05:15 PM – 05:25 PM	Distribution of Certificates	
05:25 PM – 05:30 PM	Vote of Thanks	Ms. Vineeta Kanwal, BEE

### ANNEX C – MUMBAI WORKSHOP – LIST OF PARTICIPANTS

Sl. No	Name	Designation	Organization	Email ID	Mobile No
<b>Venue: Mumbai</b>					
01	Vishal Kumar Sahu	Chief Manager	Corporation Bank	vksahu@corpbank.co.in	8828009810
02	Anand Virvadia	Officer - Credit	Krung Thai Bank Public Co. Ltd.	ktbmbin@vsnl.com	022 22873743
03	Nirmalya Malakar	AVP	Axis Bank Ltd.	nirmalya.malakar@axisbank.com	9987614480
04	Sandeep Mukherjee	DVP	RBL Bank Ltd.	sandeep.mukherjee@rblbank.com	9920985441
05	Satish Dhanapal	Energy Specialist	ResponsAbility India Business Advisors	sathish.dhanapal@responsability.com	9176668873
06	Ravi Sukla	Manager, Credit Division	Indian Bank	step2hbti@gmail.com	9790001052
07	Avinash Chandra	Vice President	Yes Bank Ltd	Avinash.chandra@yesbank.in	7738090451
08	Balaji Gurumurthy	Vice President	Yes Bank Ltd	Balaji.Gurumurthy@yesbank.in	9920875183
09	Krishna Yadav	RSM - BBG	IndusInd Bank Ltd	krishna.yadav@indusind.com	9930081905
10	Shekhar Munde	AVP	IndusInd Bank Ltd	shekhar.munde@indusind.com	7045653123
11	Neeraj Shukla	Zonal Head - BBG	IndusInd Bank Ltd	neeraj.shukla@indusind.com	9930861841
12	Kaushal Sharma	Chief Manager	SBI Bank Ltd	kaushal.sharma@sbi.co.in	9820572870
13	Manish Chandra Srivastava	Chief Manager	SBI Bank Ltd	maneesh.shrivastava@sbi.co.in	7738685775
14	N. Hanumantha Rao	Chief Manager	Andhra Bank Ltd	comum@andhrabank.co.in	7981392648
15	A. Chandra Shekar	Senior Manager	Andhra Bank Ltd	bm1128@andhrabank.co.in	8790543604
16	Abhishek Shah	Manager	Intellecap	abhishek.s@intellecap.com	8349315767
17	Hitesh Nanda	Chief Manager	IDFC Bank Ltd	hitesh.nanda@idfcbank.com	9833387110
18	Rajshekar Kalagi	Manager - RBG	IDBI Bank Ltd	rajashekar.kalagi@idbi.co.in	9740888008
19	Saroja S	Senior Manager	Canara Bank	mumsmesulabh@canarabank.com	9820572870



## ANNEX D – MUMBAI WORKSHOP – LIST OF SPEAKERS

Sl. No	Name	Designation	Organization	Email ID	Mobile No
<b>Venue: Mumbai</b>					
01	P. K. Aggarwal	Senior Advisor	Indian Banks Association	sa.dc@iba.org.in	
02	Vineeta Kanwal	Joint Director	BEE	vkanwal@beenet.in	9871729299
03	Ashutosh Tandon	Financial Sector Specialist	WBG/IFC	atandon1@ifc.org	9987245726
04	Joseph Prakash	Associate Director	Meghraj Capital Advisors Pvt. Ltd.	joseph@meghrajindia.com	9810641889
05	Monika Chaudhari	Project Officer	MEDA	eee@mahaurja.com	9730209041
06	Smita Kudarikar	Manager	MEDA	eee@mahaurja.com	7875757179
07	Manoj Kumar M	Expert - Operations	SIDBI	manojkumar@sidbi.in	9582392782
08	Nitin Jha	Senior Manager	CARE Ratings	nitin.jha@careratings.com	9714002003
09	Sanjeev Kumar	Executive Vice President	Yes Bank Limited	sanjeev.kumarb@yesbank.in	9819589797

## 5. THANE – WORKSHOP PROCEEDINGS



### 5.1. WELCOME SESSION

The second workshop in Maharashtra was organized at Thane on 19<sup>th</sup> September, 2017. The welcome address was given by Ms. Mandeep Kaur, BEE in presence of Mr. Ashutosh Tandon, Financial Sector Specialist (Finance and Markets GP, WBG); and Ms. Monika Chaudhary, Project Officer of MEDA.

Ms. Kaur welcomed the



speakers and the participants to the training workshop. In her address, she highlighted the relevance of EE projects worldwide and the current scenario in India and various significant steps taken by BEE till date. She further added that EE financing in India is in a preliminary stage and there is a need to expand it in the near future. She informed that huge potential exists for EE financing, however due to lack of awareness among FIs on EE financing schemes/benefits/guarantees; the EE financing potential is untapped. So these training workshops are organized to accelerate EE financing.

Mr. Ashutosh Tandon, Financial Sector Specialist, WBG, in his address informed that IFC is involved in various EE financing initiatives. He explained in detail how EE financing is part of sustainable energy financing in India. He advised that the project officers can take benefit of these training programs.



Mrs. Veena Angane, Senior Manager, Canara Bank in her special address highlighted that limited understanding and perception bias are the main concerns because of which there is a gap in financing EE projects. She informed that after the ToT workshop, which was held in 2015, there has been a progress in EE financing, although the scale needs to increase to all the zones in India. She mentioned that various modules included in the training workshop will help /FIs to get the clarity in concept and appraise the EE projects in technical as well as financial aspects.

Ms. Monika Chaudhary, MEDA, delivered the vote of thanks.

## 5.2. PRELIMINARY QUIZ

Post the Inaugural session, the participants were provided with a preliminary quiz questionnaire to understand the awareness levels on energy efficiency and its financing aspects. This was followed by the technical session.

## 5.3. TECHNICAL SESSION

### Module 1: Introduction to Energy Efficiency Financing & Market Opportunity

By – Ms. Mandeep Kaur, BEE

Ms. Mandeep Kaur initiated the first module by explaining the implications of climate change and its effects such as increase in global temperature, change in rainfall pattern, frequent floods and drought. She discussed in detail about Paris agreement and India's commitment under Paris agreement. She also shared about India's NDC goal to reduce the emissions intensity by 33-35% (from 2005 level) by 2030. She explained how BEE initiatives and programs are aligned to India's NDC goals. In order to bring more clarity to participants on EE, she explained the key differences between Renewable Energy (RE) and EE.



She also explained the importance of EE and shared the details of EE investment potential in different sector like Industries, Buildings (Residential, Commercial), Agriculture, and Municipalities. She also discussed various policy initiatives like PRGFEE, VCFEE of BEE for promoting EE financing. She explained about BEE program - EEFPP, which provides a platform to interact with financial institutions and project developers for implementation of energy efficiency projects.

She concluded the module by explaining the barriers to EE financing, bankers' perspective on EE, and the need to enhance capacity of FIs by imparting training on financing EE projects in different sectors of the economy.

## Module 2: Introduction to ESCOs and various Business Models for Implementation of EE projects

By – Mr. Nitin Jha, Care Ratings Ltd. and Mr. Joseph Prakash, Meghraj Capital Advisors Pvt. Ltd.



In the first part of the second session, Mr. Nitin Jha from Care Ratings Ltd. provided an overview of ESCO and the current scenario of energy services market in India. He discussed in detail the key characteristics of ESCO and also explained about the methodology adopted for ESCO Grading Assessment. He explained in detail about the EE value chain and the various stakeholders involved (especially ESCO) and their roles and responsibilities. He discussed about various services offered by ESCOs such as installation, commissioning, M&V, design, engineering, and construction etc.

He provided an overview of ESPC and its key features. He explained in detail the different ESCO models such as shared savings, guaranteed savings, deemed savings etc., their key features, implementation method and advantages of various ESCO models.

In the second part of the session, Mr. Prakash discussed about several case studies of EE projects successfully implemented by ESCO in Buildings, SME and large Industries.

## Module 3: Financial Appraisal of EE Projects

By – Mr. Ashish Manik, Yes Bank Ltd.

In this session, Mr. Manik of Yes Bank Ltd., explained in detail the key elements of Financial Appraisal of EE projects, which included various aspects of project cost, the financial parameters to be reviewed, the financial structure, sensitivity analysis etc. He also shared the details of simple payback period (range) of various EE projects. He also discussed in detail about the two risk guarantee funds (PRGFEE and PRSF) available for EE projects, the characteristics of these risks guarantee funds and its advantages and how FIs can avail them. He discussed on general framework of EE project appraisal including ESCO appraisal. He then explained about loan security considerations of EE projects. He detailed out various financials risks associated with EE projects and



discussed about the mitigation measures. He also mentioned about the characteristics of two types of loans i.e., Technology Based Loans and Project Based Loans. He shared a case study of EE project implemented by Yes Bank Ltd., and explained in detail how the financial appraisal of the project was carried out and how the financial risks were identified and mitigated.

## Module 4: Technical Appraisal of EE Projects

By – Mr. Manoj Kumar, SIDBI



In this session, Mr. Manoj Kumar of SIDBI elaborated about the potential EE projects in different sectors such as Industries (Large, SMEs), Buildings, Municipalities etc., He also discussed in detail the key characteristics of EE projects. He explained about the key questions to be raised during technical appraisal of EE projects. He shared about the various documents/ information sources like DPR, Investment Grade Audit Report (IGAR), Technology/Equipment specifications, and Operations and Maintenance manuals, which should be referred for carrying out technical appraisal. He further explained about the environmental and legal appraisal process of EE projects.

He discussed in detail about the risk analysis of EE projects which included technical risk, commissioning risk, performance risk and methods to mitigate these risks.

### 5.4. ACTIVITY SESSION

Post the completion of technical and financial appraisal session, an activity session was conducted. The participants were divided into teams and were provided with different EE case studies, in order to understand, analyze and appraise the projects both on technical and financial aspects and select one project for financing. One member from each team then presented to the audience on the selected project and provided reasons for selection.



## TECHNICAL SESSION (CONTD)

### Module 5: Introduction to Measurement & Verification (M&V)

By – Mr. Joseph Prakash, Meghraj Capital Advisors Pvt. Ltd.



In this session, Mr. Joseph explained in detail about M&V including definition, importance and purpose of M&V, various stakeholders involved in M&V their roles and responsibilities, and how it is useful for FIs.

He also discussed about who should conduct M&V and the various cost associated with M&V. He also explained in detail about the four options for carrying out M&V which are deemed/stipulated savings, bill data analysis, metering, and building/process modeling. He explained the key features, advantages and disadvantages of each M&V option. He also provided case studies for each M&V option. He also

explained that while preparing M&V plan, the key elements such as documentation of baseline energy data, identification of post retrofit period conditions, description of energy efficiency measures, specifications of M&V options and analysis procedures, and methodology for making relevant baseline adjustments are to be considered.

## 5.5. FINAL QUIZ

All the participants actively participated in the final quiz round. The quiz questionnaires covered the learning on overall session and modules presented during the workshop. The participants performed well in the quiz. The quiz results were announced at the end of the workshop and the top performers were honored with prizes.

The first prize was won by Mr. Yeshwanth K (Tata Cleantech Capital Ltd.). The second prize was shared between Mr. Vivek Katyayan (State Bank of India) and Ms. Guneet Singh (Tata Cleantech Capital Ltd.). The third prize was won by Mr. Sreedhar Kumar (Andhra Bank Ltd.).



## 5.6. CONCLUDING SESSION

### Distribution of Certificates

The workshop concluded with certificate distribution to all the participants. The participants were also informed about the one day industry visit planned in Pune wherein EE projects were successfully implemented will be showcased.



### Vote of Thanks

Ms. Sakshi Verma, Senior Financial Sector Specialist, WBG thanked MEDA for providing logistic support for the training program, the participants for taking out their time to be part of the workshop, and speakers for sharing their valuable experiences. Ms. Verma also thanked BEE in organizing the training workshops. She thanked IBA for their stupendous support and hoped that these initiatives will build the capacity of FIs to provide loans to EE projects and increase EE financing substantially.

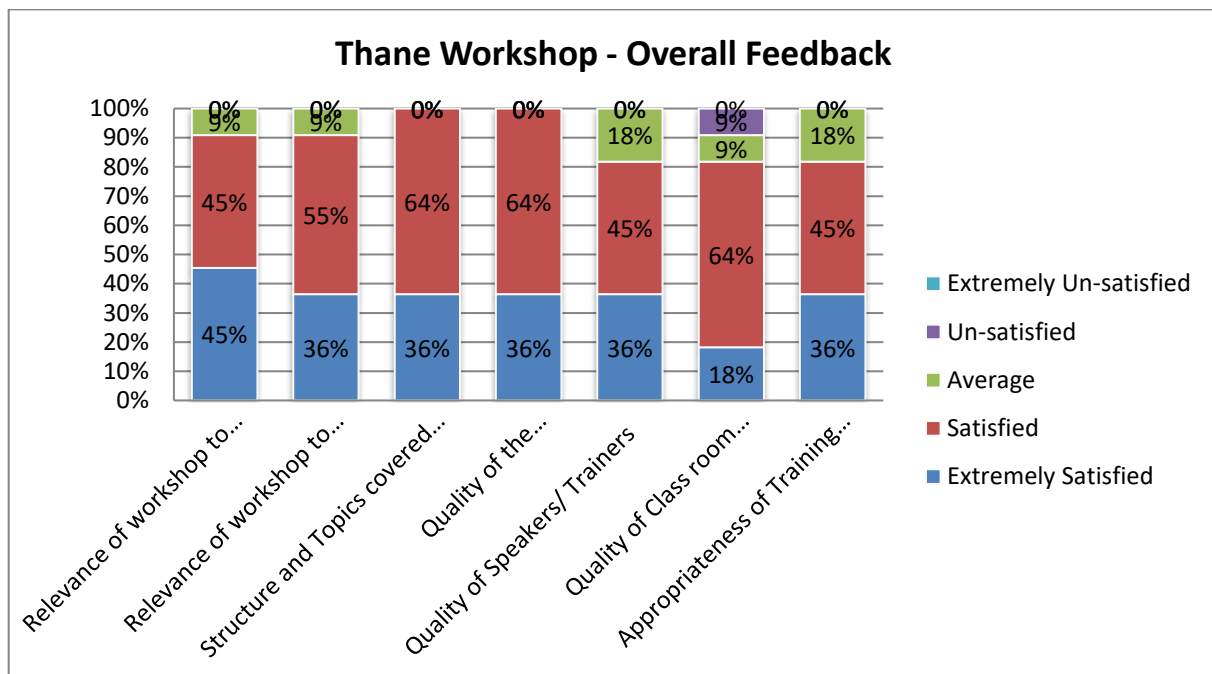
## ANNEX A – THANE WORKSHOP – FEEDBACK EVALUATION

The workshop in Thane was attended by 10 participants from 8 different banks/NBFCs, mostly represented by credit officers, risk officers, and/or project appraisal officers.

The summary of the overall feedback of the workshop in Thane provided by the participants is given below:

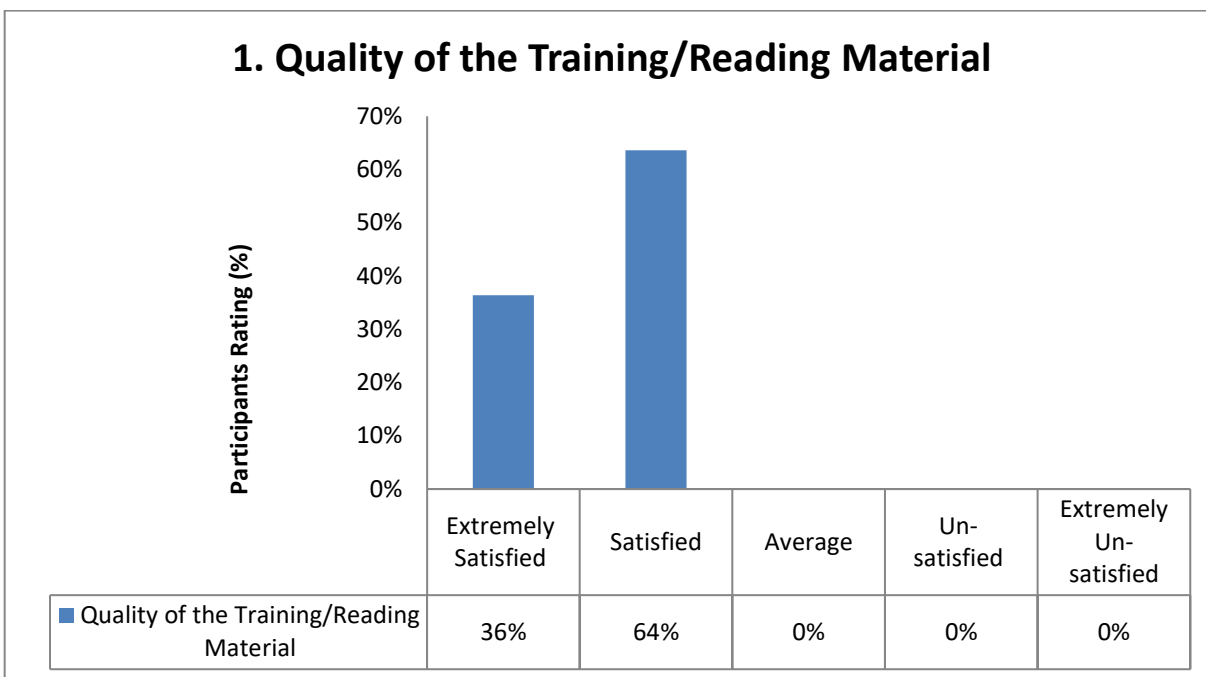
- Almost 100% of the participants rated the program high<sup>2</sup> on “Quality of training and reading materials”
- Almost 100% of the participants rated the program high on “Structure of topics covered in the workshop”
- Almost 91% of the participants rated the program high on “Relevance of workshop to the organization”
- Almost 91% of the participants rated the program high on “Relevance of workshop to their work within the organization”
- Almost 82% of the participants rated the program high on “Quality of Speakers/Trainers”
- Almost 82% of the participants rated the program high on “Appropriateness of training material”
- Almost 82% of the participants rated the program high on “Quality of classroom interaction”

A summary chart of the above parameters are presented below –

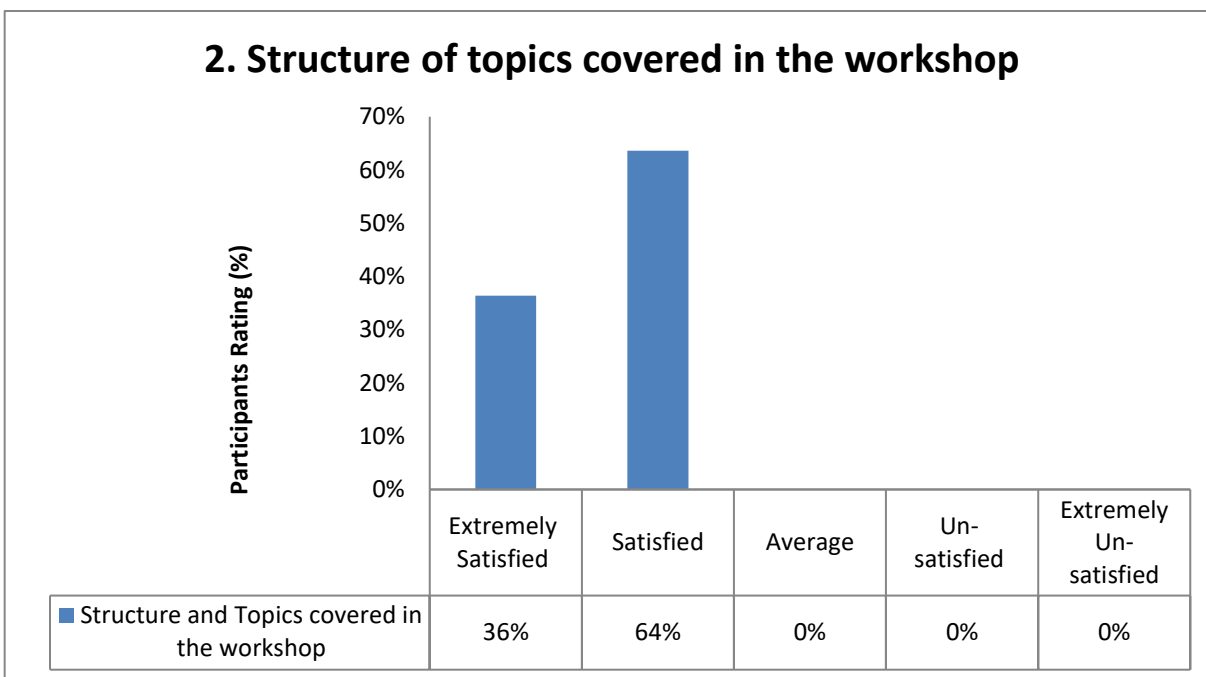


<sup>2</sup> Either “extremely satisfied” or “satisfied”

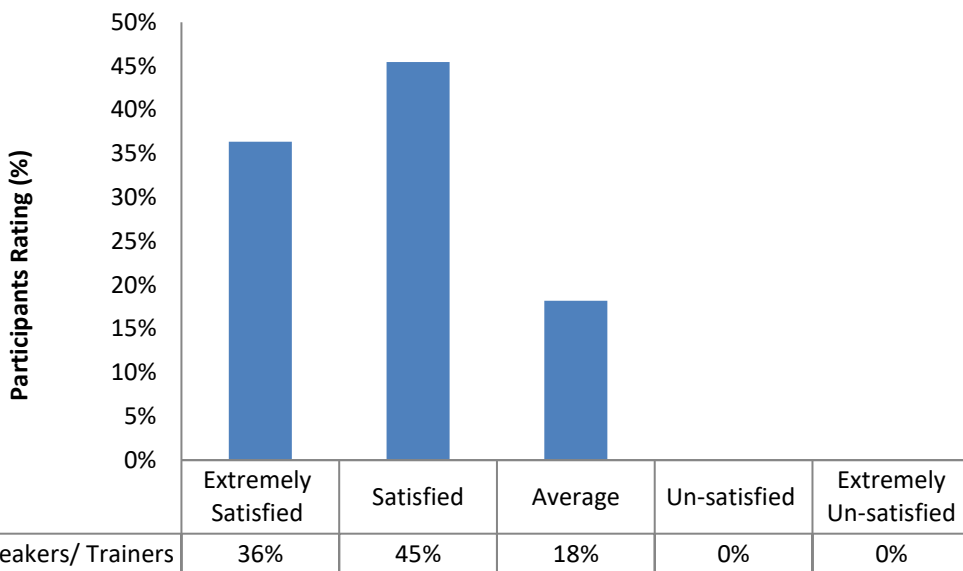
## 1. Quality of the Training/Reading Material



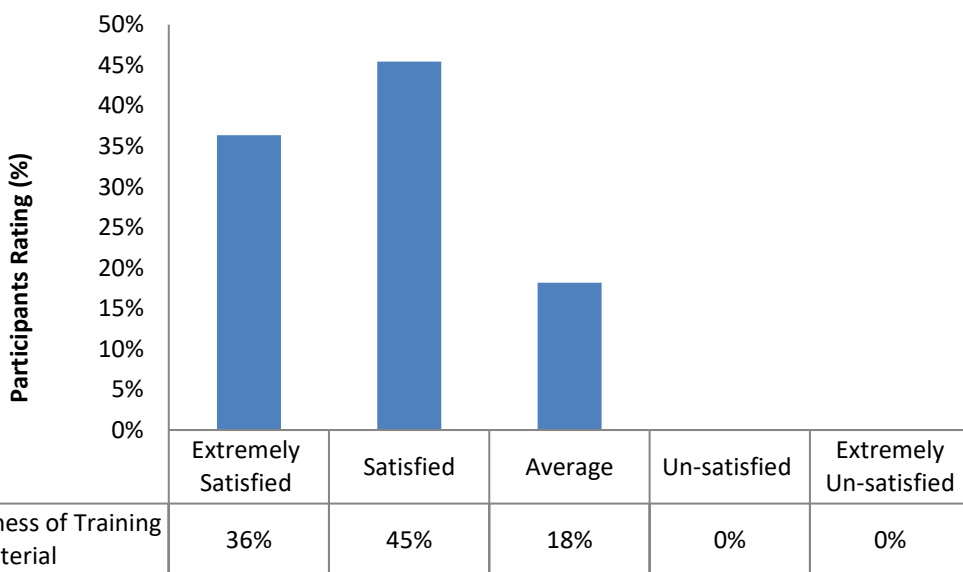
## 2. Structure of topics covered in the workshop



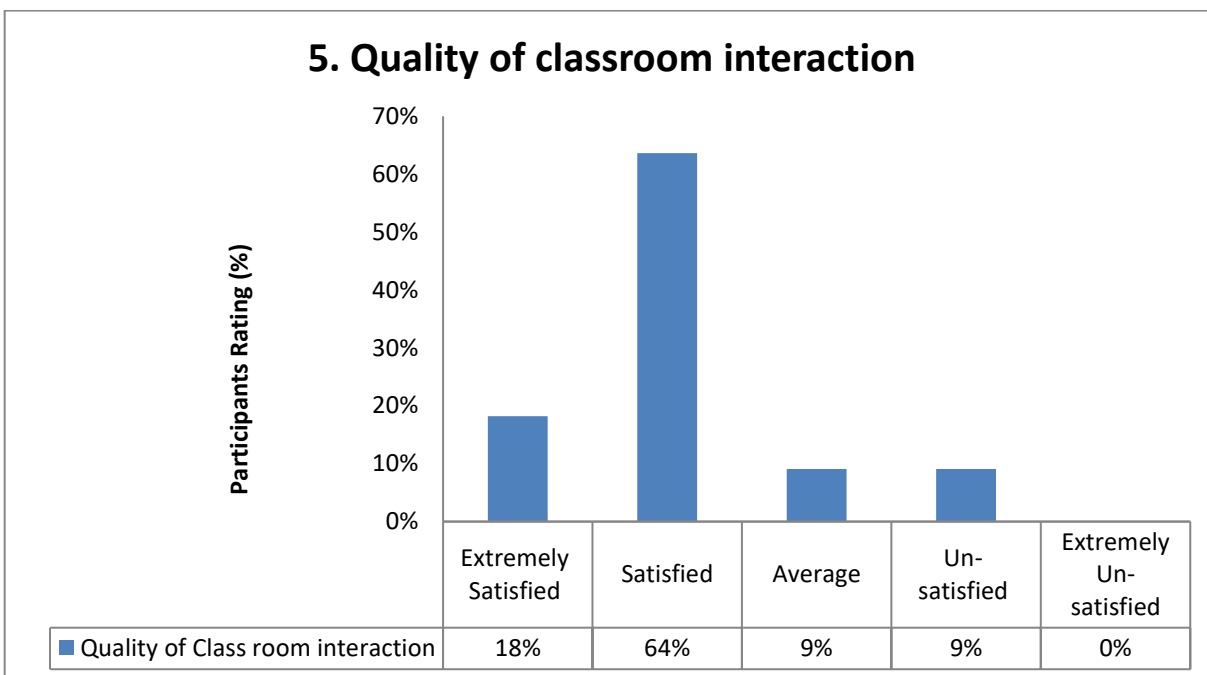
### 3. Quality of Speakers / Trainers



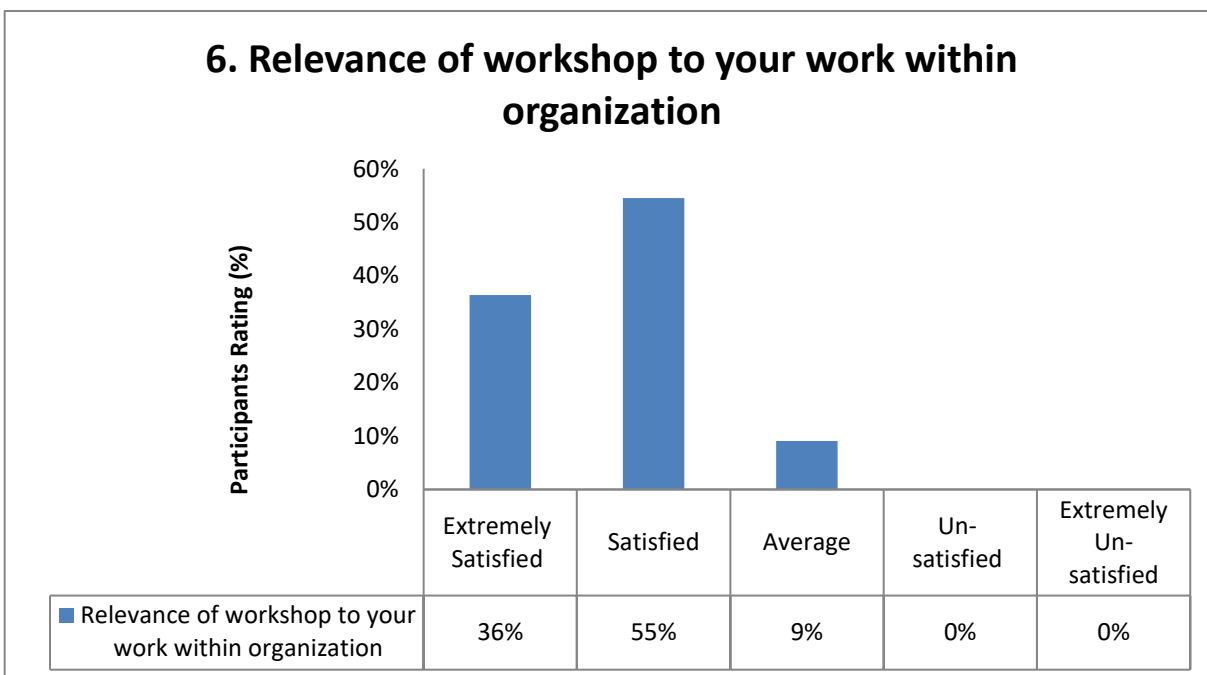
### 4. Appropriateness of training material



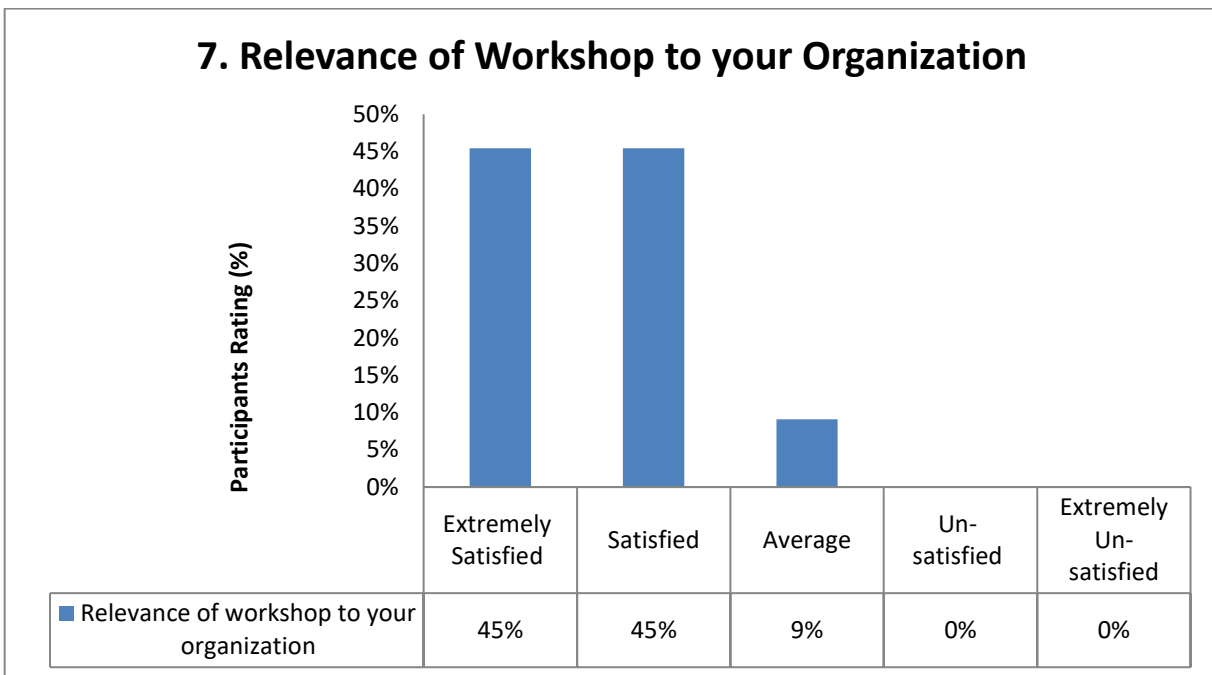
### 5. Quality of classroom interaction



### 6. Relevance of workshop to your work within organization



## 7. Relevance of Workshop to your Organization

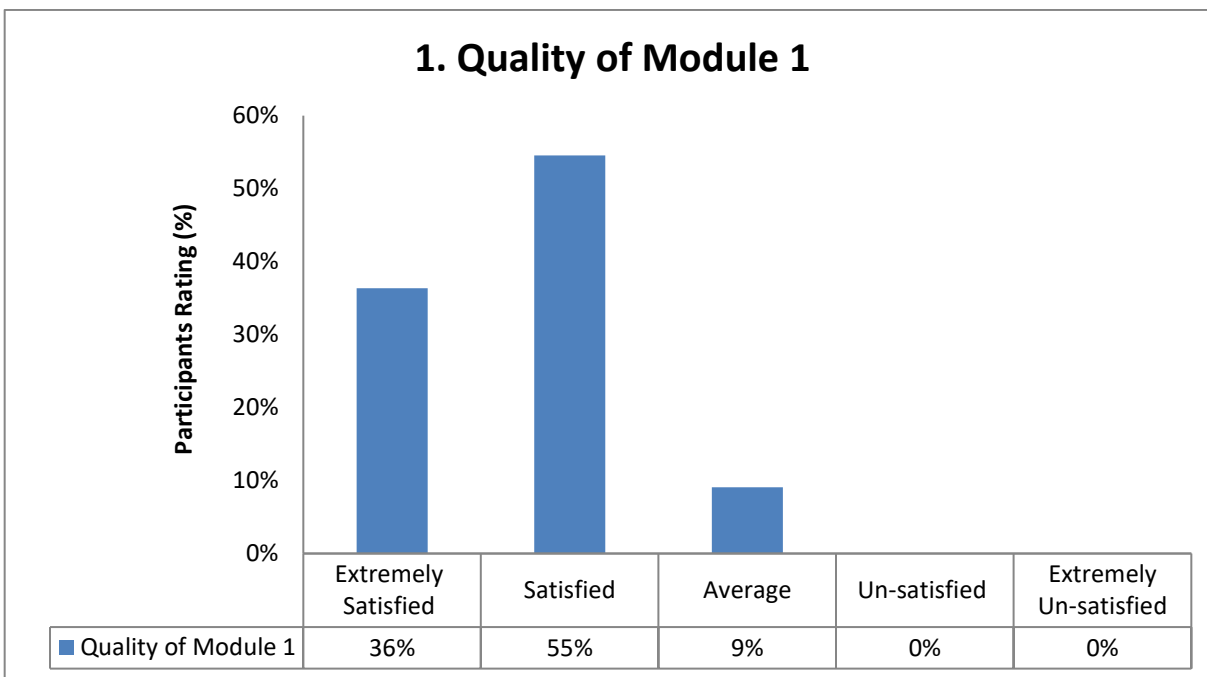
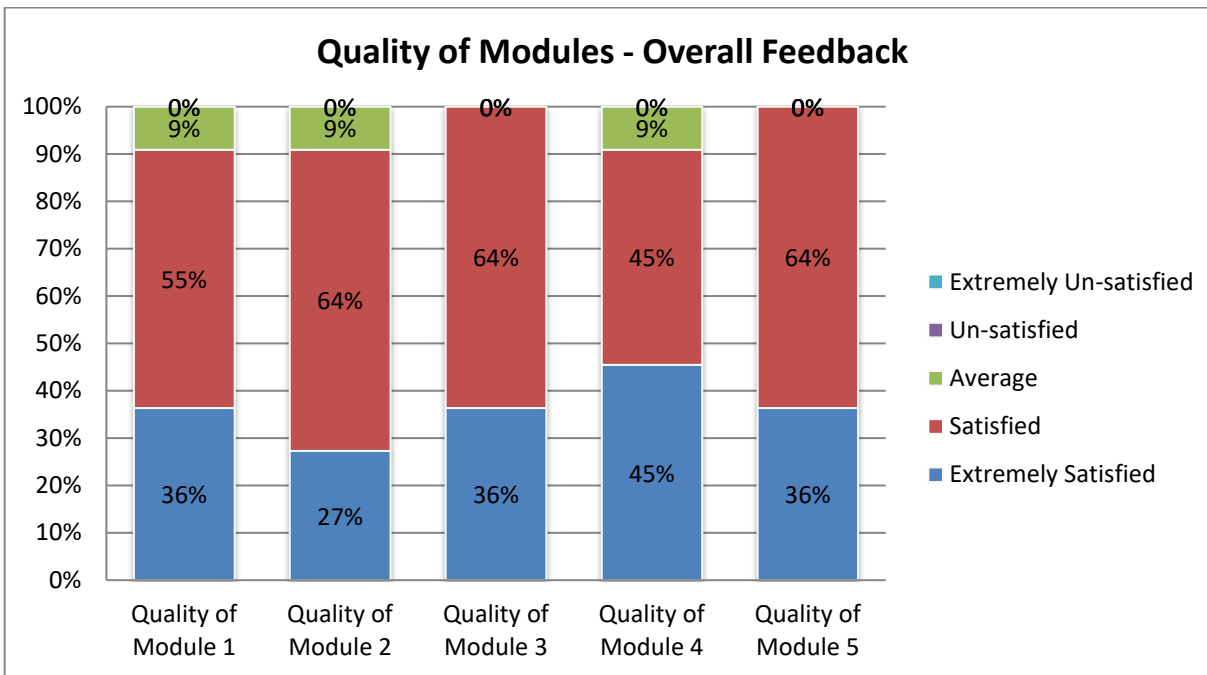


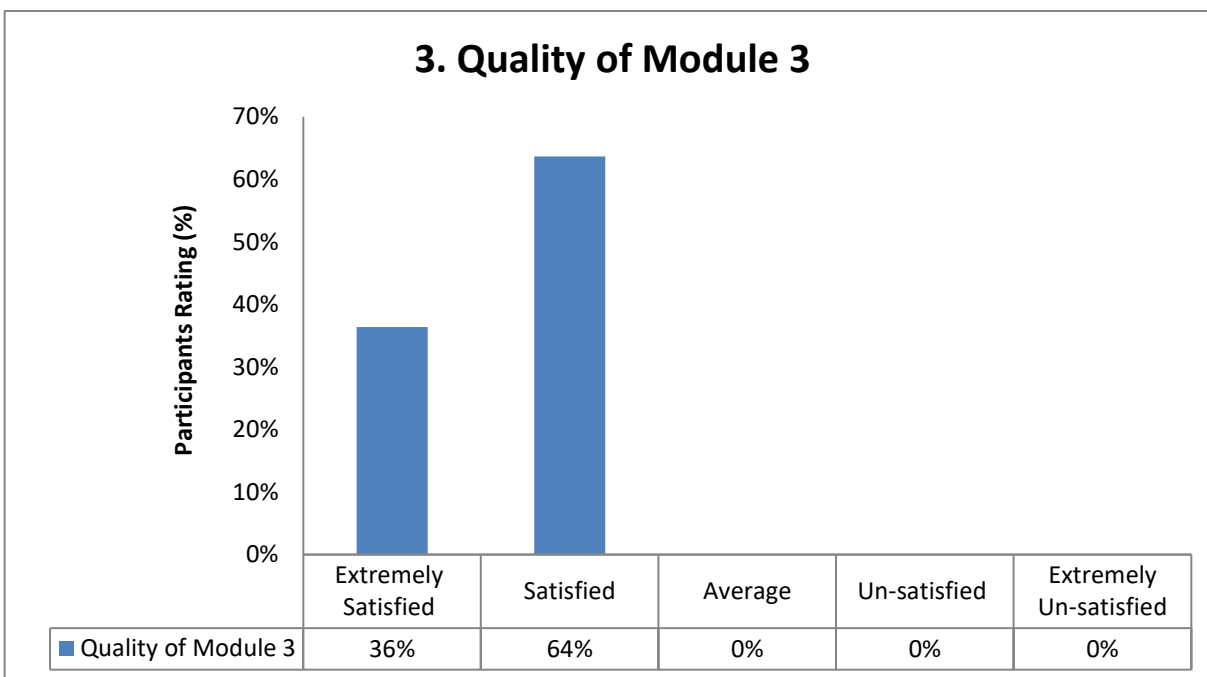
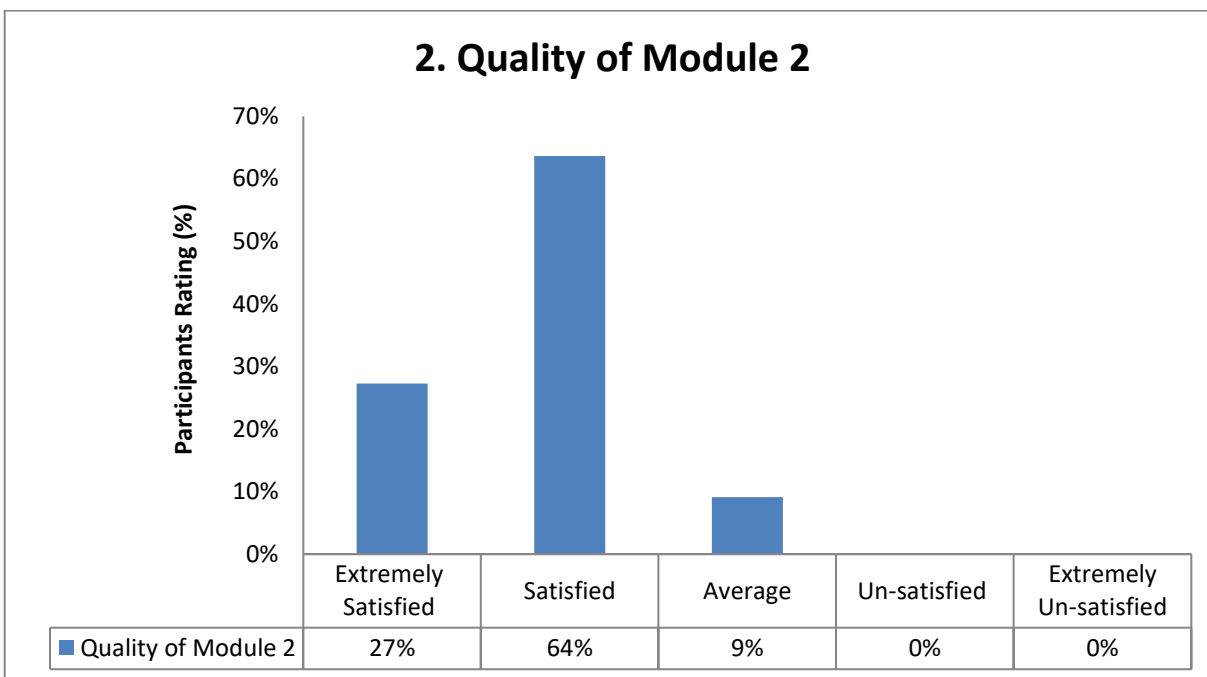
The workshop was imparted through 5 module sessions, covering –

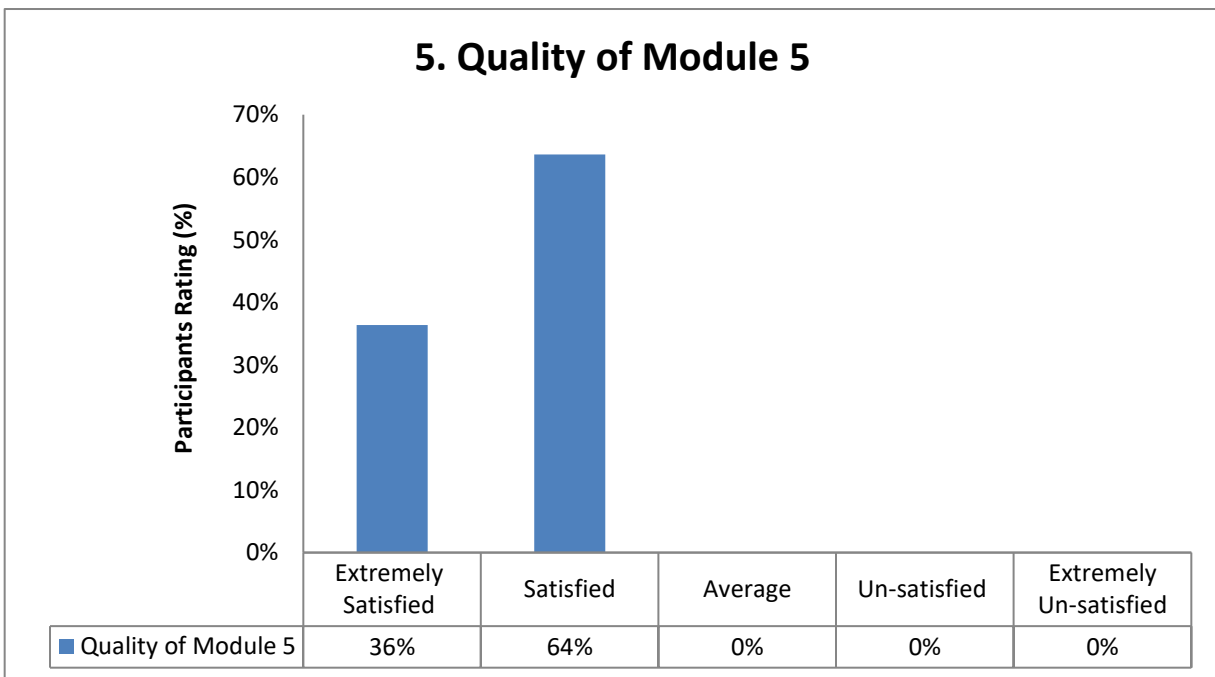
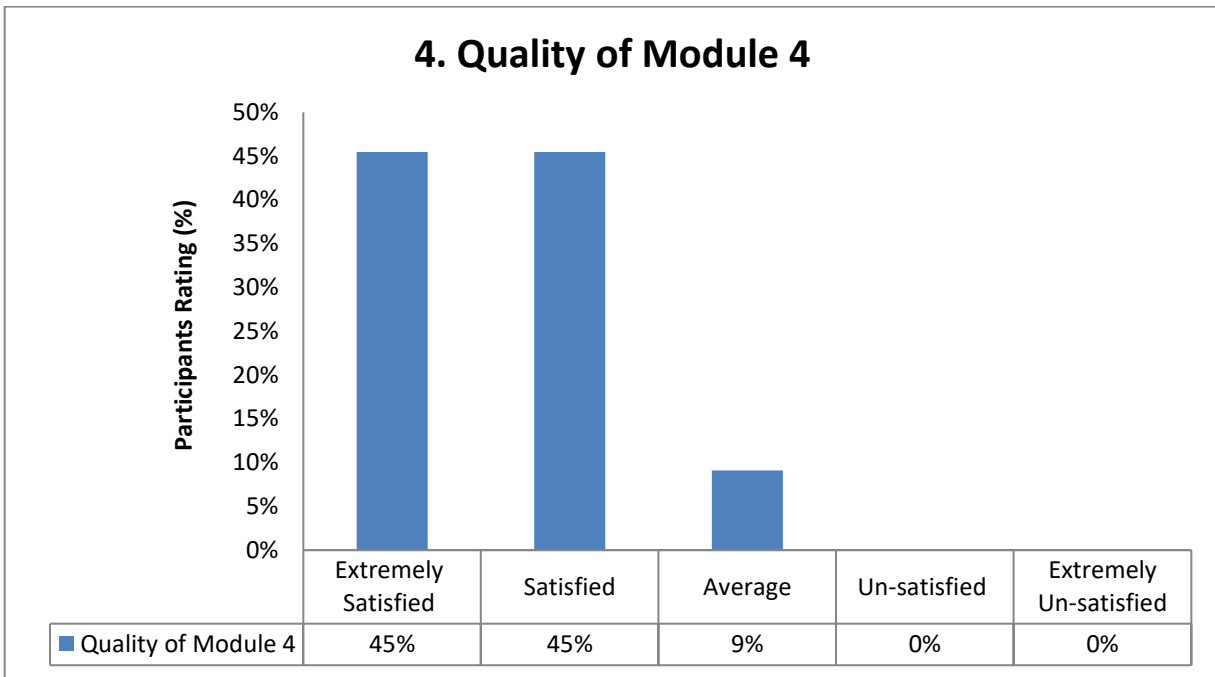
1. Energy Efficiency Financing – Market Opportunity
2. Introduction to ESCO and Business Models
3. Technical Appraisal of Projects
4. Financial Appraisal of Projects and
5. Introduction to Measurement & Verification

Apart from the 5 sessions, the participants were also involved and presented with case studies, activity session and quiz.

The summary chart of the feedback provided by the participants on all the training sessions delivered by the trainers / speakers is given below:







## WHAT THE PARTICIPANTS LIKED THE MOST ABOUT THE WORKSHOP

- Technical knowledge of the speaker/trainers imparting the sessions on Financial and Technical appraisal of the projects

## WHAT THE PARTICIPANTS SUGGESTED FOR FURTHER IMPROVEMENT IN THE WORKSHOP

- To include feedback / comments / video message of the project hosts who have implemented the EE project with financing from FIs
- Discussion on contracts and financial protection to the banks to be addressed

## ANNEX B – THANE WORKSHOP – AGENDA

### “Training Workshop for Financial Institutions on Energy Efficiency financing”

#### Agenda

Date and Venue: 19<sup>th</sup> September, 2017, Hotel Tip Top Plaza, Thane (W)

Time	Topic	Speaker
09:30 AM - 10:00 AM	Registration	
<b>WELCOME SESSION</b>		
10:00 AM - 10:10 AM	Welcome Remarks	Ms. Vineeta Kanwal, Joint Director, BEE
10:10 AM - 10:20 AM	Special Address	Mr. Ashutosh Tandon, Financial Sector Specialist, WBG
10:20 AM – 10:25 AM	Special Address	Ms. Veena Angane, Senior Manager, Canara Bank
10:25 AM - 10:30 AM	Vote of Thanks	Ms. Monika Chaudhari, Project Officer, MEDA
10.30 AM - 10.45 AM	<b>Group Photograph followed by Tea</b>	
10:45 AM - 11:00 AM	Preliminary assessment of trainees on Energy Efficiency	
<b>TECHNICAL SESSION</b>		
11:00 AM - 11:30 AM	Module 1: Introduction to Energy Efficiency (EE) and Market Opportunity	Ms. Mandeep Kaur, BEE
11.30 AM - 12:00 PM	Module 2: Introduction to ESCO and various business models for implementation of EE projects	Mr. Nitin Jha, CARE Rating Ltd
12.00 PM - 12:30 PM	EE Case Studies – ESCO experience	Mr. Joseph Prakash, Meghraj Capital Advisors Pvt. Ltd.
12:30 PM - 01:30 PM	<b>Lunch</b>	
01:30 PM - 02:15 PM	Module 3: Financial Appraisal of EE project	Mr. Ashish Manik, Yes Bank Ltd.
02:15 PM - 03:00 PM	Activity session	
03:00 PM - 03:45 PM	Module 4 : Technical Appraisal of EE project	Mr. Manoj Kumar, SIDBI
03:45 PM - 04:30 PM	Module 5: Introduction to M&V	Mr. Joseph Prakash, Meghraj Capital Advisors Pvt. Ltd.
04:30 PM - 05:15 PM	Quiz	
<b>High Tea</b>		
05:15 PM – 05:25 PM	Distribution of Certificates	
05:25 PM – 05:30 PM	Vote of Thanks	Ms. Sakshi Verma, IFC

### ANNEX C – THANE WORKSHOP – LIST OF PARTICIPANTS

Sl. No	Name	Designation	Organization	Email ID	Mobile No
<b>Venue: Mumbai</b>					
01	Ms. Guneet Singh	Head - Strategy	Tata Cleantech Capital Ltd	Guneet.Singh@tatacapital.com	9820661680
02	Mr. Yeshwanth K	Senior Manager-Credit	Tata Cleantech Capital Ltd	yeshwanth.k@tatacapital.com	9599314106
03	Ms. Kriti Kuksal	Manager	Yes Bank Ltd	Kriti.Kuksal@yesbank.in	9619973129
04	Mr. Rishab Pandey	Senior Manager	RBL Bank Ltd.	rishabh.pandey@rblbank.com	9930872125
05	Mrs. Medha Gurav	Senior Manager	Canara Bank Ltd	cb3943@canarabank.com	9869345320
06	Mr. A. Sreedhar Kumar	MM III, Senior Manager	Andhra Bank Ltd	zomum@andhrabank.co.in	7416193733
07	Mr. D. Sanyasi Rao	Assistant Manager	Andhra Bank Ltd	bm0571@andhrabank.co.in	
08	Mr. Manish Chandra Sinha	Chief Manager	Corporation Bank	camanishsinha@gmail.com	8587970185
09	Mr. Vivek Katyayan	Manager	SBI Bank Ltd	v.katyayan@sbi.co.in	8600028607
10	Suresh K. Sherawat	Senior Manager	Bank of Baroda	suresh.sherawat@bankofbaroda.com	9828500234

### ANNEX D – THANE WORKSHOP – LIST OF SPEAKERS

Sl. No	Name	Designation	Organization	Email ID	Mobile No
<b>Venue: Mumbai</b>					
01	Mandeep Kaur	Project Engineer	BEE	mkaur@beenet.in	7289061560
02	Ashutosh Tandon	Financial Sector Specialist	WBG/IFC	atandon1@ifc.org	9987245726
03	Joseph Prakash	Associate Director	Meghraj Capital Advisors Pvt. Ltd.	joseph@meghrajindia.com	9810641889
04	Monika Chaudhari	Project Officer	MEDA	eee@mahaurja.com	9730209041
05	Manoj Kumar M	Expert – Operations	SIDBI	manojkumar@sidbi.in	9582392782
06	Nitin Jha	Senior Manager	CARE Ratings	nitin.jha@careratings.com	9714002003
07	Ashish Manik	Vice President	Yes Bank Limited	Ashish.manik@yesbank.in	9898576499

## 6. PUNE – WORKSHOP PROCEEDINGS



### 6.1. WELCOME SESSION



The third workshop in Maharashtra was organized in Pune on 27<sup>th</sup> September, 2017. The welcome address was given by Mr. Ashok Kumar, Director, BEE, where he greeted the speakers and the participants to the training workshop.

In his address, Mr. Kumar highlighted the need and significance of the EE and the financing required to implement the EE projects for Micro, Small and Medium Enterprises (MSMEs). He informed that many FIs have

started providing financial assistance for EE projects and there is a need to create more awareness amongst other FIs. He also shared that EE has 1.5 lakhs crores investment potential, and requested all the stakeholders to come forward and take the advantage and help in adoption of EE interventions.

Ms. Monika Chaudhary, MEDA, delivered the vote of thanks.

## 6.2. PRELIMINARY QUIZ

Post the Inaugural Session, the participants were provided with a preliminary quiz to understand their awareness levels for EE and its financing aspects. This was followed by the technical sessions.

## 6.3. TECHNICAL SESSION

### Module 1: Introduction to Energy Efficiency Financing & Market Opportunity

By – Mr. Ashok Kumar, BEE

Mr. Ashok Kumar of BEE commenced his presentation by explaining about climate change and its effects. Mr. Kumar discussed about various efforts taken globally for mitigating climate change. He discussed about the key aspects of Paris Agreement and India's NDC under Paris Agreement. He also shared about India's key NDC goal to reduce the emissions intensity by 33-35% (from 2005 level) by 2030. He explained in detail about various BEE initiatives and their alignment to India's NDC targets. He discussed about the technical aspects of EE and its advantages.

He explained about the importance of EE projects and shared that total investment potential of more than INR 1,50,000 Crores exist for EE projects in various sectors such as Residential Buildings, Commercial Buildings, Industries, Agriculture and Municipalities. He also discussed about various BEE programs/initiatives such as PRGFEE, VCFEE for promoting EE financing.

He also discussed about various elements of BEE's EEEP and shared the initiatives taken under EEEP such as training and capacity building of FIs, preparing reports and publications related to EE financing. He also explained about various barriers (with respect to banker's perspective) associated with EE financing and the need to enhance capacity of FIs on EE financing.



### Module 2: Introduction to ESCOs and ESCO Case Studies

By – Mr. Balgovind Agnihotri, CRISIL and Mr. Pranay Tagare, Yantra Harvest

The first part of the session covering introduction to ESCOs and various business models was taken by Mr. Balgovind Agnihotri of CRISIL Ratings. He provided an overview of ESCOs and the key characteristics of ESCOs. He explained about the energy services market in India and provided details of the methodology adopted for ESCO grading assessment. He described the value chain of EE projects and identified the various stakeholders involved and their roles and responsibility in the value chain. He shared various service



offerings of ESCOs and discussed in detail about the key features of ESPCs. He discussed about the various ESCO models such as shared savings, guaranteed savings, deemed savings etc. and explained in detail the key technical features, advantages and limitations of each ESCO model. He discussed about various case studies associated with each ESCO model.

The second part of the session on ESCO case studies was presented by Mr. Pranay Tagare of Yantra Harvest. He discussed about the advantages of ESCO model and described about the various service offerings under ESCO model. He explained in detail the technical and financial details of the four successful case studies (related to EE projects in industries) implemented through ESCO model. He discussed about the implementation model adopted in the case studies and associated challenges and issues. He explained in detail about various opportunities and challenges associated with ESCO financing.



### Module 3: Financial Appraisal of EE Projects

By – Mr. Joseph Prakash, Meghraj Capital Advisors Private Limited

In this session, Mr. Joseph Prakash of Meghraj Capital Advisors Private Limited explained about the key characteristics of EE projects. He also elaborated about different EE approaches like retrofit, replacement and discussed about the advantages of EE projects. He also discussed in detail the key elements in financial appraisal of EE projects like project cost (including capital cost, development cost, Operational & Maintenance Cost, etc.), financial parameters (like Debt-Equity ratio, Cash Flow, Debt Service Coverage Ratio (DSCR), Internal Rate of Return (IRR)), financial structure, ESPC and sensitivity analysis of critical parameters of financial model.



He compared the two risk guarantee funds (PRGFEE and PRSF) available for EE projects and discussed the advantages and processes to avail them. He elaborated the general framework of project appraisal for EE projects. He explained in detail about the loan security considerations of EE projects such as the collaterals, balance sheet financing etc. He also discussed about various aspects of ESCO appraisal process. He shared about different financial risks associated with EE projects and mitigation measures to be taken. He discussed in detail a case study of EE project and explained the financial appraisal process.

## Module 4: Technical Appraisal of EE Projects

By – Mr. Joseph Prakash, Meghraj Capital Advisors Private Limited



In this session, Mr. Joseph Prakash of Meghraj Capital Advisors Private Limited discussed about possible EE measures and technologies in various sectors like Buildings, Large Industries, SMEs, Municipalities, etc. He explained comprehensively about the key considerations of technical appraisal. He also discussed about the key documents such as Detailed Project Report (DPR), Investment Grade Audit Report, etc. to be reviewed as a part of technical appraisal. He explained about the environmental and legal appraisal process of EE projects and discussed in detail about various risks such as technical risk, commissioning risk, performance risk, etc. associated with EE projects. He also discussed about different strategies to be adopted for mitigating these risks. He shared a few case studies of technical appraisal.

### 6.4. ACTIVITY SESSION



Post the completion of technical and financial appraisal session, an activity session was conducted. The participants were divided into teams and were provided with different EE case studies, in order to understand, analyze and appraise the projects both on technical and financial aspects and select one project for financing. One member from each team then presented to the audience on the selected project and provided

reasons for selection.

### TECHNICAL SESSION (CONTD)

## Module 5: Introduction to Measurement & Verification (M&V)

By – Mr. Srinidhi Rao, Frost & Sullivan

The last session was presented by Mr. Srinidhi Rao, Frost & Sullivan in which he explained in detail about the various components of M&V. He discussed about the importance and purpose of M&V and its cost. He also discussed in detail about the



various options for carrying out M&V such as Deemed Savings, Bill Data Analysis, Metering, Building or Process Modelling. With help of case study, he explained in detail the key characteristics, advantages and disadvantages of each M&V option. He also shared about different international protocols such as International Performance Measurement and Verification Protocol (IPMVP) available for carrying out M&V. He explained about the key elements of M&V plan such as details of energy efficiency measures, documentation of baseline energy data, identification of post retrofit conditions, specifications of M&V options and analysis procedures, algorithm and assumptions, documentation and data captured to verify data savings and methodology for making relevant baseline adjustments. He also explained about M&V information document with the help of a case study.

## 6.5. FINAL QUIZ



All the participants actively participated in the final quiz round. The quiz questionnaires covered the learning on overall session and modules presented during the workshop. The participants performed well in the quiz. The quiz results were announced at the end of the workshop and the top performers were honored with prizes.

The first prize was won by Dr. M. Manikaraj (NIBM, Pune). The second prize was shared between Mr. Kanchan Kumar (Corporation Bank Ltd.) and Mr. Nilesh Bartakke (Yes Bank Ltd.). The third prize was won by Ms. Anisha Jaywant Oka (Bank of Baroda).

## 6.6. CONCLUDING SESSION

### Distribution of Certificates

The workshop concluded with certificate distribution to all the participants. The participants were also informed about the one day industry visit planned in Pune wherein EE projects were successfully implemented.



## Vote of Thanks

Mr. Ashok Kumar, Director, BEE thanked MEDA for providing the necessary support for the training program, the participants for sparing their time to be part of the workshop, and speakers for sharing their experiences. Mr. Kumar also thanked IFC for its technical support to the BEE in organizing the training workshops. He also thanked IBA for their continuous support and hoped that these initiatives will build the capacity of banks to provide loans to EE projects and increase EE financing considerably.

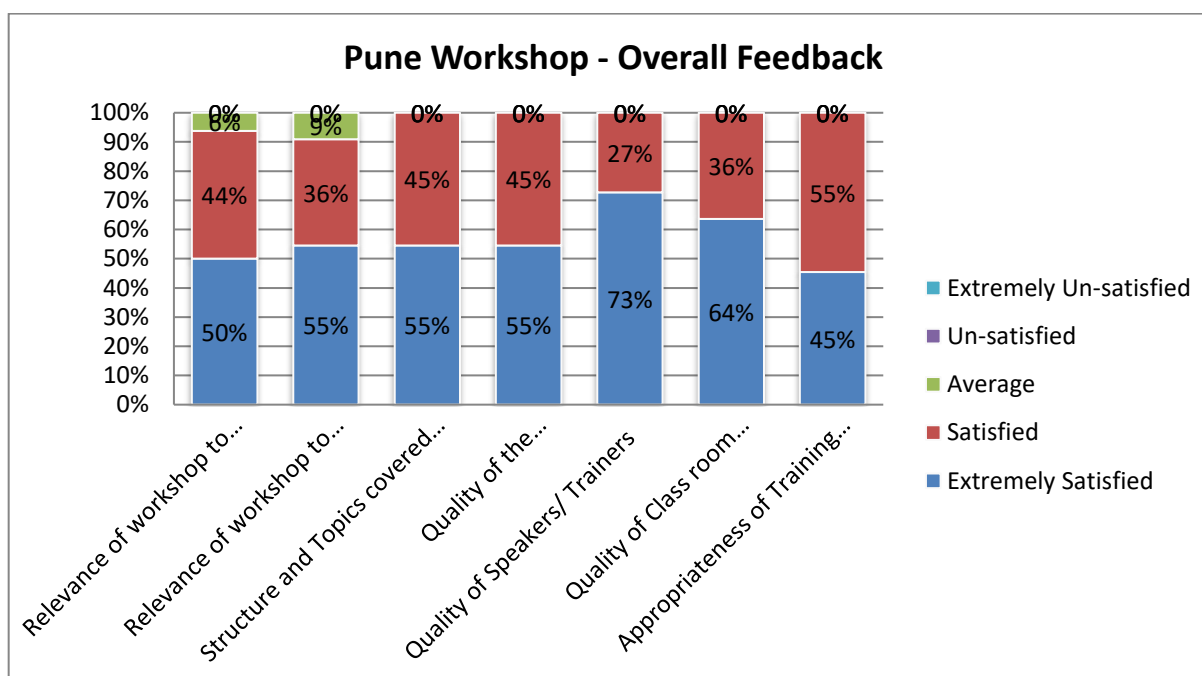
## ANNEX A – PUNE WORKSHOP – FEEDBACK EVALUATION

The workshop in Pune was attended by 16 participants from 10 different banks/NBFCs, mostly represented by credit officers, risk officers, and/or project appraisal officers.

The summary of the overall feedback of the workshop in Mumbai provided by the participants is given below:

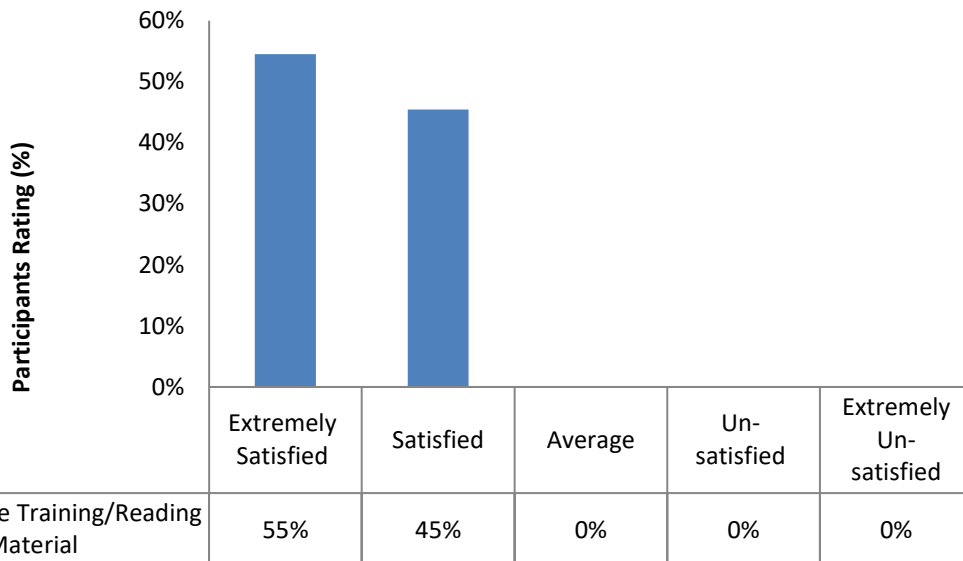
- Almost 100% of the participants rated the program high<sup>3</sup> on “Quality of training and reading materials”
- Almost 100% of the participants rated the program high on “Structure of topics covered in the workshop”
- Almost 100% of the participants rated the program high on “Quality of Speakers/Trainers”
- Almost 100% of the participants rated the program high on “Appropriateness of training material”
- Almost 100% of the participants rated the program high on “Quality of classroom interaction”
- Almost 94% of the participants rated the program high on “Relevance of workshop to the organization”
- Almost 91% of the participants rated the program high on “Relevance of workshop to their work within the organization”

A summary chart of the above parameters are presented below –

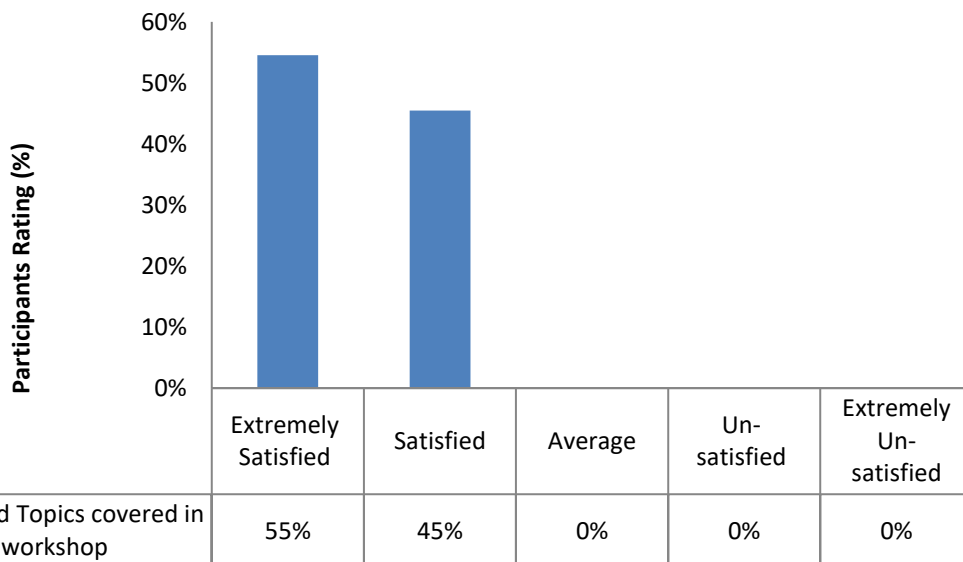


<sup>3</sup> Either “extremely satisfied” or “satisfied”

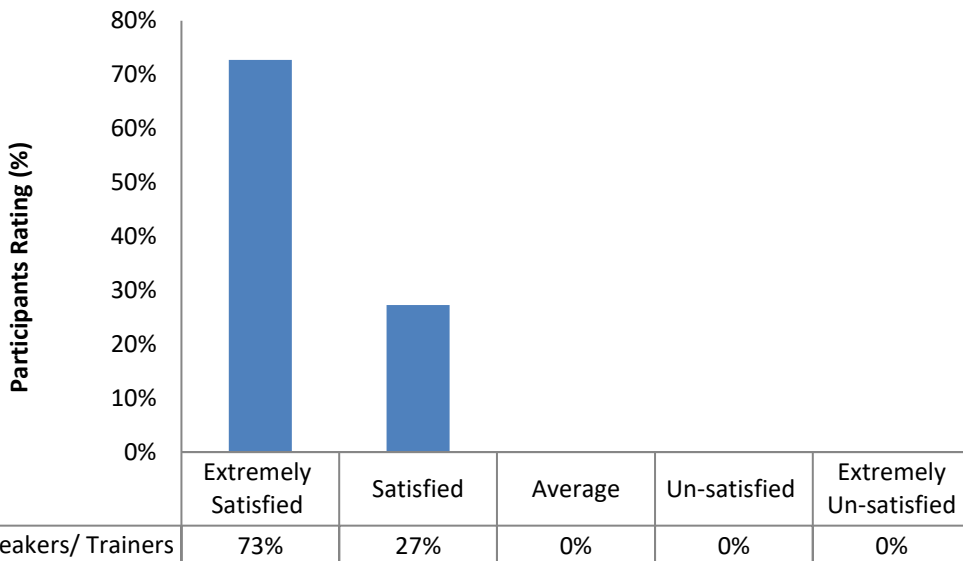
## 1. Quality of the Training/Reading Material



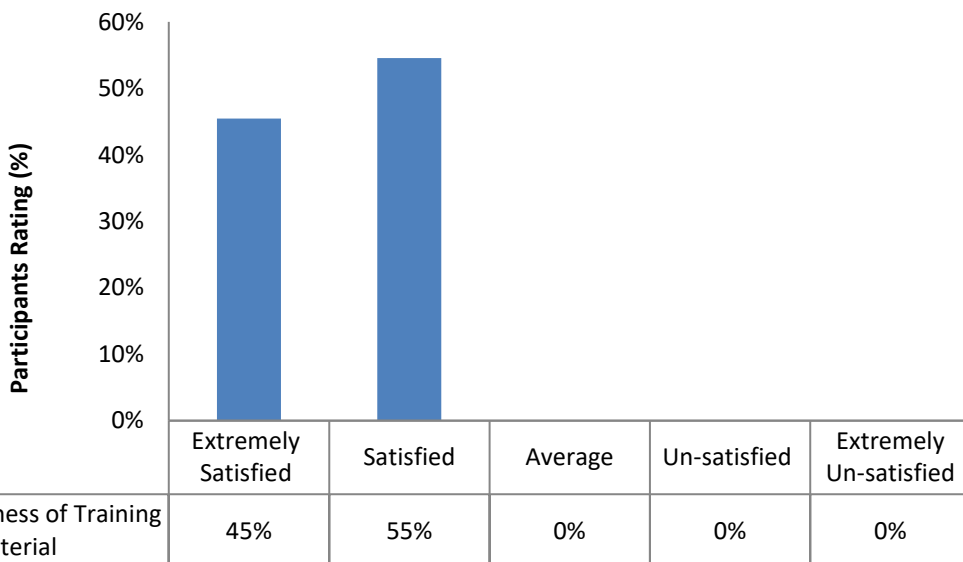
## 2. Structure of topics covered in the workshop



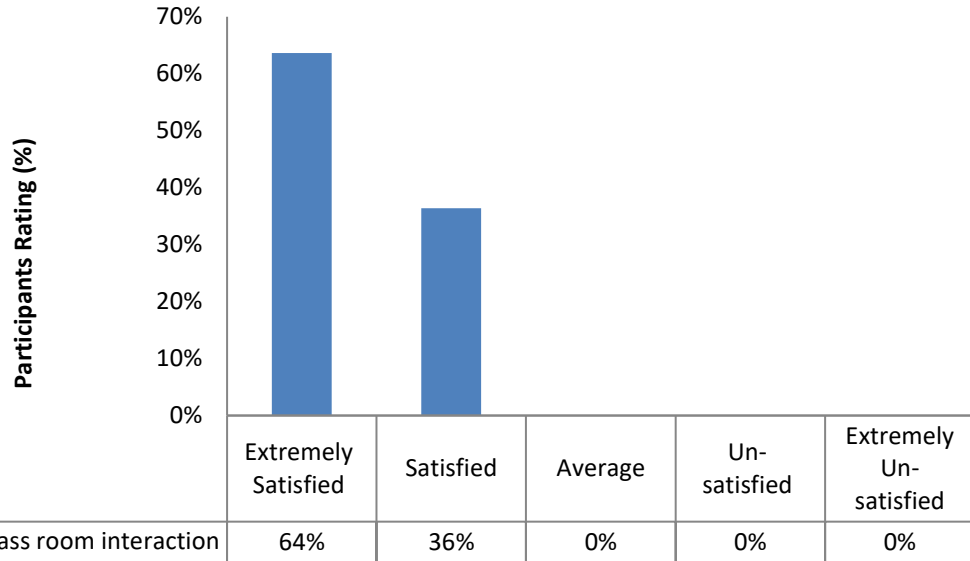
### 3. Quality of Speakers / Trainers



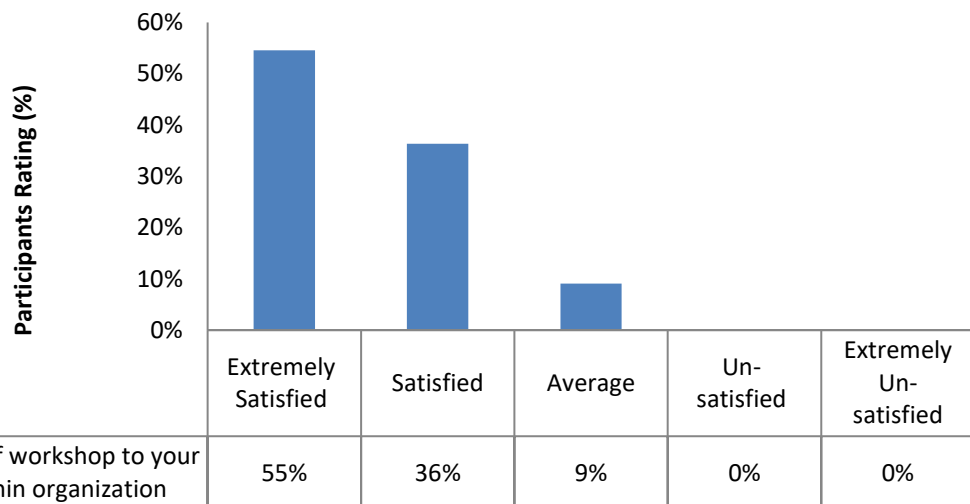
### 4. Appropriateness of training material

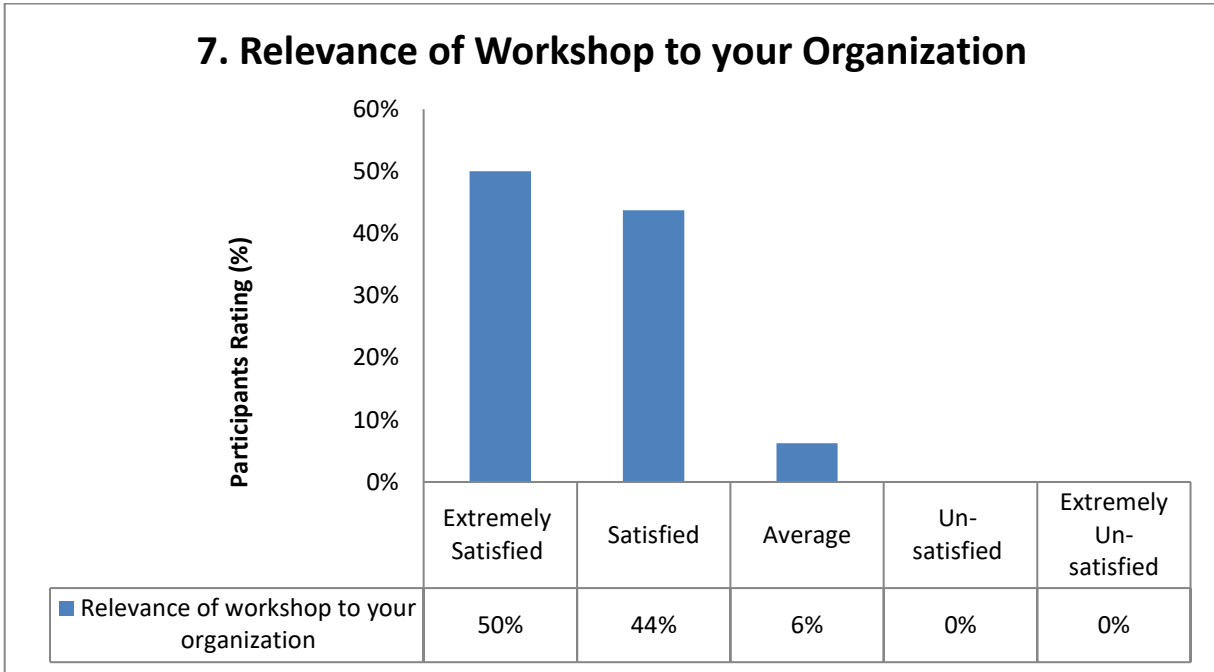


## 5. Quality of classroom interaction



## 6. Relevance of workshop to your work within organization



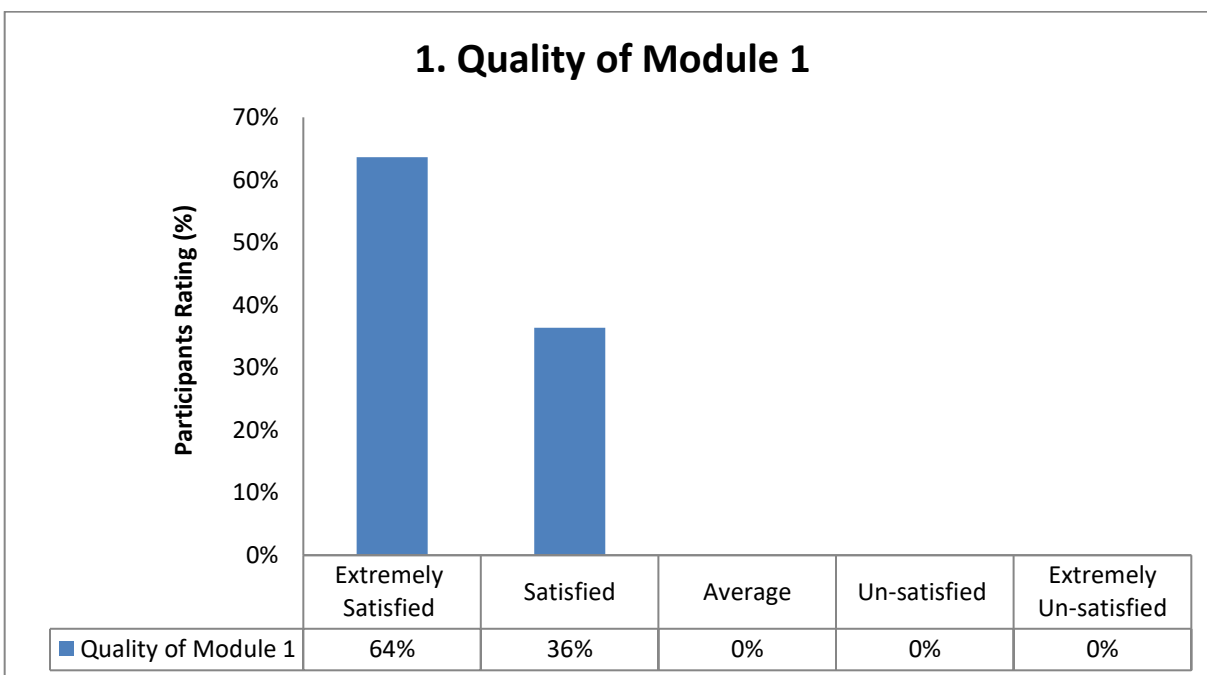
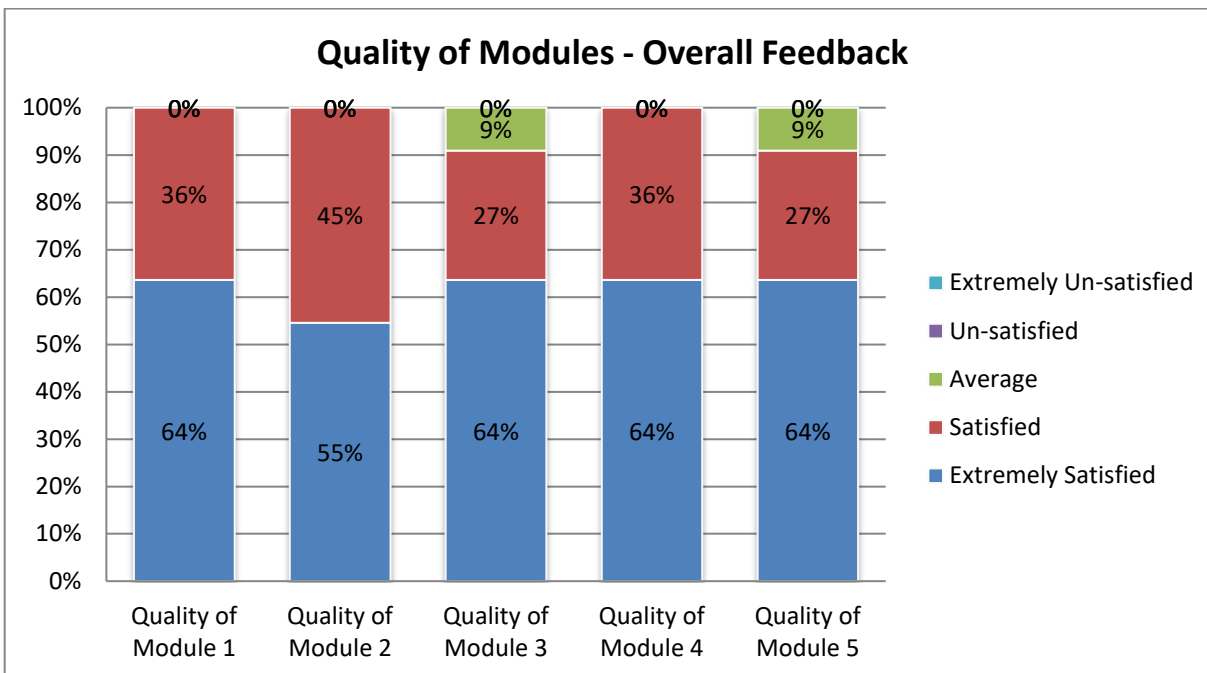


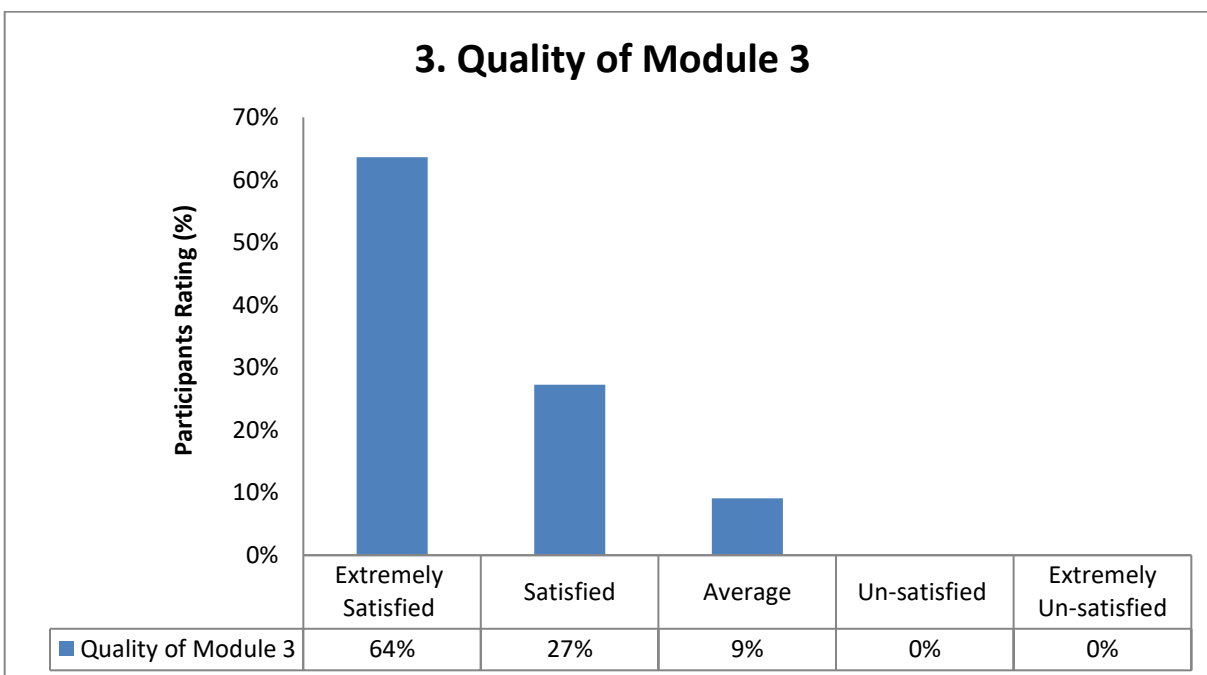
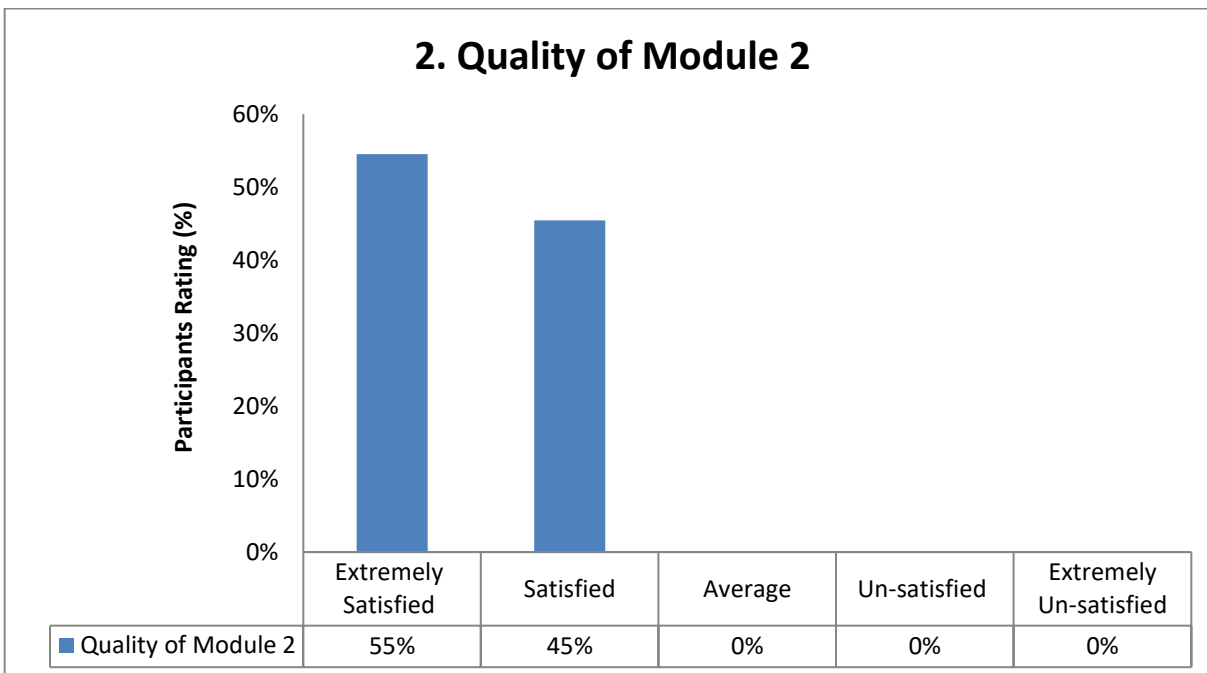
The workshop was imparted through 5 module sessions, covering –

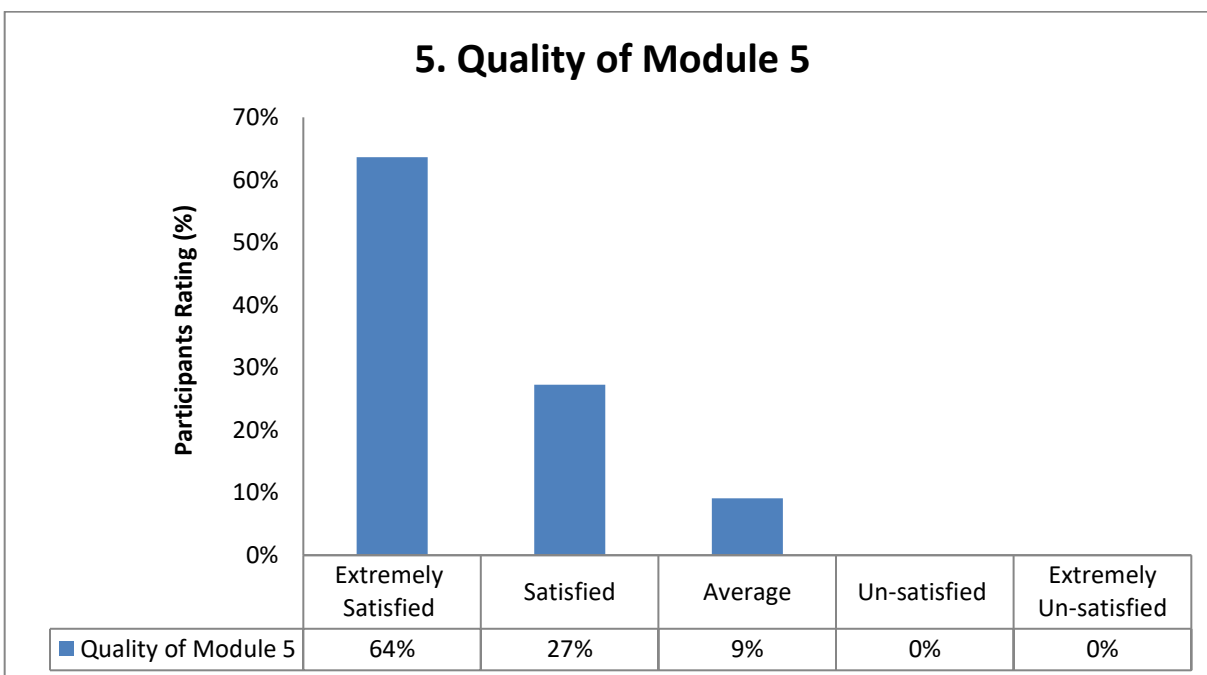
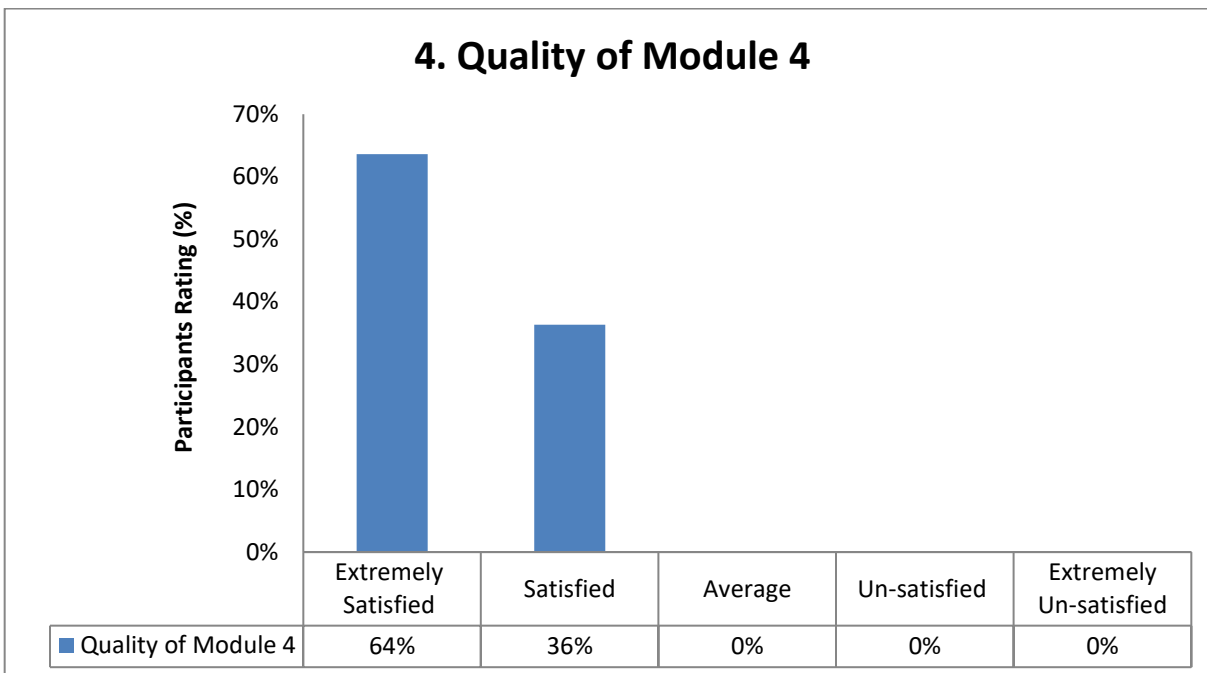
1. Energy Efficiency Financing – Market Opportunity
2. Introduction to ESCO and Business Models
3. Technical Appraisal of Projects
4. Financial Appraisal of Projects and
5. Introduction to Measurement & Verification

Apart from the 5 sessions, the participants were also involved and presented with case studies, activity session and quiz.

The summary chart of the feedback provided by the participants on all the training sessions delivered by the trainers / speakers is given below:







## WHAT THE PARTICIPANTS LIKED THE MOST ABOUT THE WORKSHOP

- The case studies presented helped in better understanding of the success/failure of implementation of EE projects and various business models
- The classroom activity, quiz and speakers/trainers interaction with the participants

## WHAT THE PARTICIPANTS SUGGESTED FOR FURTHER IMPROVEMENT IN THE WORKSHOP

- Discussion on contracts and financial protection to the banks to be addressed
- More case studies wherein FIs have financed EE projects can be included

## ANNEX B – PUNE WORKSHOP – AGENDA

### “Training Workshop for Financial Institutions on Energy Efficiency financing”

#### Agenda

Date and Venue: 27<sup>th</sup> September, 2017, Hotel Four Points, Pune

Time	Topic	Speaker
09:30 AM - 10:00 AM	Registration	
<b>WELCOME SESSION</b>		
10:00 AM - 10:15 AM	Welcome Remarks	Mr. Ashok Kumar, Director, BEE
10:15 AM - 10:25 AM	Vote of Thanks	Ms. Monika Chaudhari, Project Officer, MEDA
10:30 AM - 10:45 AM	<b>Group Photograph followed by Tea</b>	
10:45 AM - 11:00 AM	Preliminary assessment of trainees on Energy Efficiency	
<b>TECHNICAL SESSION</b>		
11:00 AM - 11:30 AM	Module 1: Introduction to Energy Efficiency (EE) and Market Opportunity	Mr. Ashok Kumar, BEE
11:30 AM - 12:00 PM	Module 2: Introduction to ESCO and various business models for implementation of EE projects	Mr. Balgovind Agnihotri, CRISIL Ratings
12:00 PM - 12:30 PM	EE Case Studies – ESCO experience	Mr. Pranay Tagare, Yantra Harvest
12:30 PM - 01:30 PM	<b>Lunch</b>	
01:30 PM - 02:15 PM	Module 3: Financial Appraisal of EE project	Mr. Joseph Prakash, Meghraj Capital Advisors Pvt. Ltd.
02:15 PM - 03:00 PM	Activity session	
03:00 PM - 03:45 PM	Module 4 : Technical Appraisal of EE project	Mr. Joseph Prakash, Meghraj Capital Advisors Pvt. Ltd.
03:45 PM - 04:30 PM	Module 5: Introduction to M&V	Mr. Srinidhi Rao, Frost & Sullivan
04:30 PM - 05:15 PM	Quiz	
<b>High Tea</b>		
05:15 PM – 05:25 PM	Distribution of Certificates	
05:25 PM – 05:30 PM	Vote of Thanks	Mr. Ashok Kumar, BEE

### ANNEX C – PUNE WORKSHOP – LIST OF PARTICIPANTS

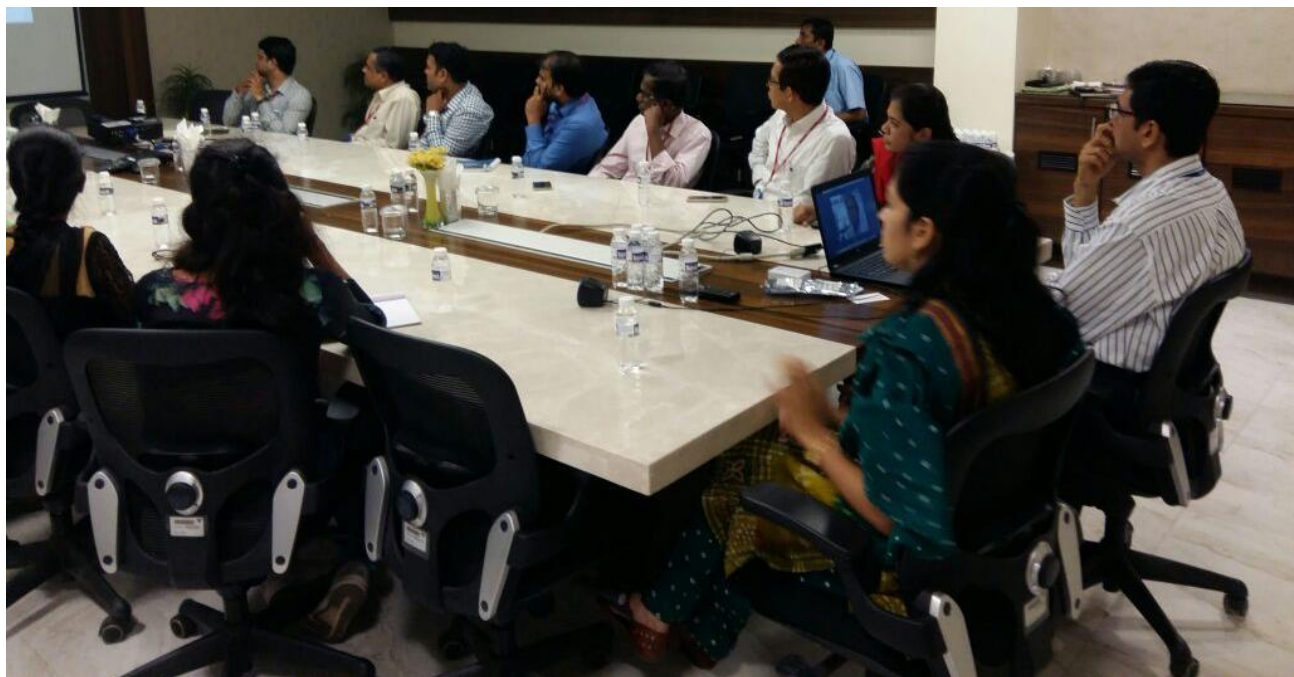
Sl. No	Name	Designation	Organization	Email ID	Mobile No
<b>Venue: Mumbai</b>					
01	Mr. Kanchankumar N Makhija	Chief Manager - Credit	Corporation Bank	cb8801cre@corpbank.co.in	8460411448
02	Mr. Mukesh Kumar	ZH-BBG-VP2	IndusInd Bank Ltd	mukेशr.kumar@indusind.com	8600402700
03	Mr. Sujit Biniwale	AVP	IndusInd Bank Ltd	sujit.biniwale@indusind.com	8600146486
04	Mr. D. Thulasiram	Assistant Manager	Andhra Bank Ltd	durgatulasiram@gmail.com	9704280420
05	Mr. Brijesh Singh	Chief Manager	IDFC Bank Ltd	brijesh.singh@idfcbank.com	7798917070
06	Mr. Nilesh Bartakke	Senior Manager	Yes Bank Ltd	Nilesh.bartakke@yesbank.in	7875440380
07	Ms. Prakashini Deshpande	Relationship Leader	Yes Bank Ltd	Prakashini.deshpande@yesbank.in	9833800902
08	Mr. Madan Arvind	Deputy Manager	State Bank of India - Zone I	MADAN.ARAVIND@SBI.CO.IN	9923207844
09	Mr Bhikchand Nemichand Bora	AGM	State Bank of India - Zone I	BHIKCHAND.BORA@SBI.CO.IN	8879305088
10	Dr. M. Manickaraj	Associate Professor	NIBM Pune	manick@nibmindia.org	9518762153
11	Mr. ABHISHEK ANAND	Manager	State Bank of India - Zone II	abhishek.anand@sbi.co.in	7875559192
12	Mr. VIKAS LAWATE	Assistant Manager	State Bank of India - Zone II	vikas.lavate@sbi.co.in	8888816987
13	Mr. Gaurav Choudhary	Manager	Bank of Baroda	HRM.MGZ@bankofbaroda.com	9449052331
14	Ms. ANISHA JAYWANT OKA	Manager	Bank of Baroda	anisha1510@gmail.com	9890386058
15	Mr. Ranjeet Jha	Senior Manager	Bank of Maharashtra	ranjeet.jha@mahabank.co.in	9540556070
16	Mr. Jayant Choupane	Managing Director	Jaytech Electricals Pvt. Ltd.	jaytechelectricals@gmail.com	9922208999



## ANNEX D – PUNE WORKSHOP – LIST OF SPEAKERS

Sl. No	Name	Designation	Organization	Email ID	Mobile No
<b>Venue: Mumbai</b>					
01	Ashok Kumar	Director	BEE	kumara@beenet.in	9717356640
02	Monika Chaudhari	Project Officer	MEDA	eee@mahaurja.com	9730209041
03	Joseph Prakash	Associate Director	Meghraj Capital Advisors Pvt. Ltd.	joseph@meghrajindia.com	9810641889
04	Srinidhi S. Rao	Program Manager	Frost & Sullivan	SrinidhiR@frost.com	7506042992
05	Balgovind Agnihotri	Associate Manager	CRISIL Rating	Balgovind.agnihotri@crsil.com	9769609078
06	Pranay Tagare	GM Sales	Yantra Harvest	pranaytagare@yantraharvest.com	9604764696

## 7. INDUSTRY VISIT – VISHAY COMPONENTS INDIA PVT. LTD.



BEE in collaboration with MEDA organized a one day Industry visit to the participants on 28<sup>th</sup> September 2017 in Pune. The visit was planned at Vishay Components India Private Limited where EE projects were identified and successfully implemented at the facility. The visit was organized with an objective to appraise the FIs on the EE projects implemented, the financing mode adopted and to understand the financial and technical aspects to be considered during the implementation.

During the visit, the participants were first provided an overview of the plant by Mr. Shrinivas Patil, Manager – Plant Services & IEHS, Vishay Components India Pvt. Ltd.

Mr. Patil explained the participants on how the EE opportunities were identified through the energy audits conducted in the plant. He also informed about the various EE projects that were implemented by carrying out process modifications and retrofits/ replacements. Mr. Patil also discussed in detail on the costs involved for implementing these projects, payback period, the financing sources etc., It was highlighted during the discussion that for most of the EE projects the pay-back period range was between 6 – 18 months.





Post the presentation, the participants were taken to plant visit accompanied by Mr. Prasad Patil, Sr. Plant Engineer and Dr. Rashmi Mardikar, Environmental Coordinator.