

**REPORT OF THE**

**STATE LEVEL TRAINING**

**WORKSHOP**

**March 13-17, 2012, Kolkata**



## 1. INTRODUCTION

CUTS International with support of Shakti Sustainable Energy Foundation (SSEF) has implemented a project titled “*A Diagnostic Study to Build the Capacity/Awareness Among CSOs to Demand for Demand Side Management (DSM) & Renewable Energy (RE) in India – DREC Project*”. Overall objective of the project is *to increase long-term capacity/awareness of consumer groups to demand for DSM and RE initiatives especially in the context of climate change, and also to understand, document and communicate their specific needs to the relevant policy makers*. The DREC project is being implemented in two states of India - West Bengal and Gujarat.

As a starting point, CUTS had undertaken a baseline consumer survey in the above mentioned states. Survey results in West Bengal (total 513 consumers were covered) revealed that there existed a significant gap in the awareness and use of RE and EE products. The survey also pointed out the lack of awareness among consumers and Civil Society Organisation (CSOs) regarding the regulatory regime in the electricity sector.

The survey was useful in determining the training needs of CSOs at various levels. After having identified these needs, CUTS organised a five day training workshop in Kolkata, with the objective to build capacity of the CSOs on issues pertaining to Renewable Energy (RE), Energy Efficiency (EE) and overall regulatory structure for the electricity sector.

This report is a brief summary of the training programme – topics covered, summary of each of the sessions, major highlights and lowlights, feedback received from the participants, and experiences gained from an exploratory visit etc. To understand the change in the level of awareness of the participants, two questionnaires were designed. The *pre-workshop questionnaire* was aimed at assessing the level of understanding on various issues before the training workshop and the *post-workshop questionnaire* was used to assess the change in their level of understanding after the training workshop. This report also presents a comparison of the pre and post workshop findings.

## 2. OBJECTIVE OF THE TRAINING WORKSHOP

To build capacity and impart advocacy tools to CSOs on issues pertaining to RE and EE.

## 3. SCOPE OF THE TRAINING WORKSHOP

The training workshop broadly covered the following issues:

- What is Climate Change and why RE and EE is important to combat climate change?
- What is Demand Side Management and what are the DSM initiatives undertaken in West Bengal?
- What is Energy Efficiency and how it is linked with DSM?
- Scenario of Renewable Energy in West Bengal
- Overview of the available RE Technology/Equipments
- Overview of Regulatory Structure for the Electricity Sector in West Bengal and scope for consumer participation
- Tools of Policy Advocacy
- Components of Electricity Tariff, Role of Consumers in Tariff Determination and response to Tariff Petition

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<sup>1</sup> Website: <http://www.cuts-ccier.org/DREC/>

## 4. FORMAT OF THE TRAINING WORKSHOP

The sessions in the training programme by and large consisted of a power point presentation by the resource persons followed by simulation exercises, wherever applicable. Following the brief presentation, ample time was allocated for floor discussions to engage with the participants. The workshop ended with participants delivering power point presentations on their learning from the workshop. One of the groups even performed a role play on promoting energy efficiency among different stakeholder categories, viz. households, government offices etc.

## 5. BRIEF SUMMARY OF THE RESPECTIVE SESSIONS

### 5.1. INAUGURAL SESSION

**Keya Ghosh**, Centre Head, CUTS Calcutta Resource Centre, welcomed all the participants in the workshop and outlined the objectives and broad contours of the workshop. She briefly highlighted the major objectives of the DREC project and mentioned that the training workshop was aimed at building capacity of CSOs on various issues pertaining to DSM/EE and RE so that they could go back to their communities and share their learning with other stakeholders. She also touched upon the various topics that were covered in the training workshop and why and how those issues were relevant to the DREC project. **S P Gon Chaudhuri**, Adviser, RE, Government of West Bengal, appreciated CUTS' efforts to generate awareness about RE and EE among CSOs and consumers. Electricity demand in West Bengal was not as high as compared to select Indian states like Karnataka, Gujarat, Tamil Nadu, Rajasthan etc. since the pace of growth was; but given the current pace of rural electrification, demand for electricity was going to increase in the coming years. In this context, he emphasised on the role of EE and RE in ensuring energy security as well as environmental sustainability. Rising prices of fossil fuels coupled with technological innovations in RE, grid parity between electricity from non-conventional and conventional sources is only a matter of time. The per capita consumption of kerosene in Sunderbans was very high, especially in the unelectrified areas. There were small entrepreneurs who supplied electricity (generated through diesel generators) to commercial clusters. He suggested that CSOs could play an important role in engaging and sensitizing the entrepreneurs in adopting/shifting to sustainable means i.e. using RE sources to generate electricity instead of diesel generators. For the large scale adoption of off-grid generation programme (also known as Decentralised Distributed Generation) in such remote areas, CSOs would have a significant role in ensuring long term sustainability of such projects.

**Arnab Ganguly**, Project Officer, DREC project, CUTS International, presented findings from the baseline survey in West Bengal. The survey findings indicated that there was a significant lack of awareness regarding EE and RE technologies amongst consumers. Awareness about BEE star labels was found to be very low. It was interesting to note that even when consumers were aware of the existence of RE sources, poor quality/absence of after sales service and high initial investment act as major barriers towards large scale adoption of RE. **Thus, one can assume that there was no correlation between awareness and practice.** Agriculture sector was also a major concern area as most of the farmers were dependent on fossil fuel for irrigation pump sets. Also, there was lack of awareness and experience among CSOs on various regulatory issues in the electricity sector.

**Duke Ghosh (PhD)**, Lead Researcher, Global Change Research, Jadavpur University, demystified what is climate change and how it was affecting the present day world. Climate change occurred due to both natural causes as well as anthropogenic human activities that lead to emission of Green House Gases (GHG). From 1970 to 2004 GHG emissions increased by 70 percent. **Since 1750**, atmospheric concentrations of CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O have significantly increased due to use of fossil fuel. Energy sector followed by industry and agriculture was the major contributor to GHG emission. The way GHG emission was increasing, it would lead to a significant rise in average temperature thereby adversely affecting food security, water availability and ecological sustainability. In India there have been signs of increasing average temperature and regional variations in rainfall. Climate change would also affect health and overall economy of the country. He further stressed on the dire need to cut down carbon emission by *firstly*, increasing the share of RE sources in the country's total energy mix; and *secondly*, by using energy efficient technologies. Before concluding, he shared some of the adaptation and mitigation strategies to combat climate change.

### Floor Discussion

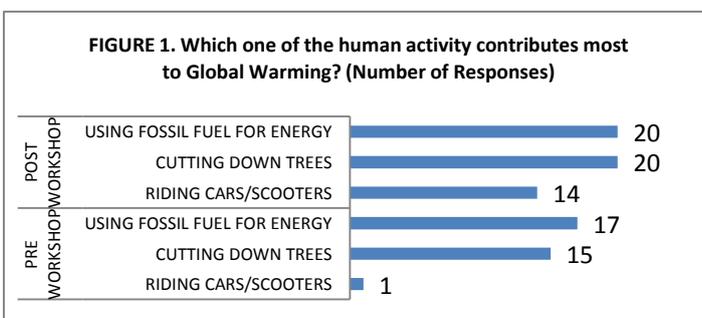
*Shyamal Prasad Jana, Alinan Ramkrishna Vivekananda Yuva Sangha*, mentioned that while the DREC project was looking at reducing carbon emission by rationalising electricity generation, it was also important to look at the transport sector and promote use of greener fuels.

*Debasis Panda, Kajla Jana Kalyan Samity*, emphasised on the needed to arrest deforestation and mentioned that appropriate government policies need to be adapted to this end.

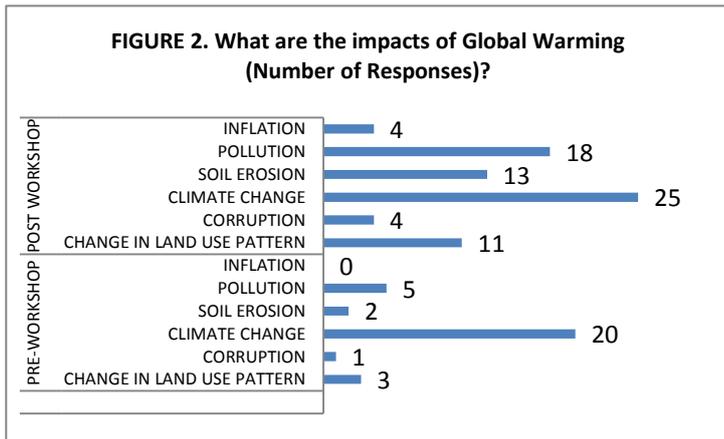
*Sukumar Bera, Debnibas Sindhubala Narikalayan Samity*, enquired whether increase in cyclonic activities in Sunderbans could be attributed to global warming.

Replying to the reactions and questions from the participants, Ghosh mentioned that global warming was one of the reasons why cyclonic activities had increased in Sunderbans. He further elucidated that rise in the mean sea level was a severe threat to islands in Lakshwadeep, Andaman and in Sunderbans. Governments, all over the world were working together for chalking out strategies to combat the evils of global warming. He emphasised on the role of CSOs to generate awareness among various stakeholders on the adverse effects of climate change and bring about a change in people's attitude and behaviour towards sustainable environment.

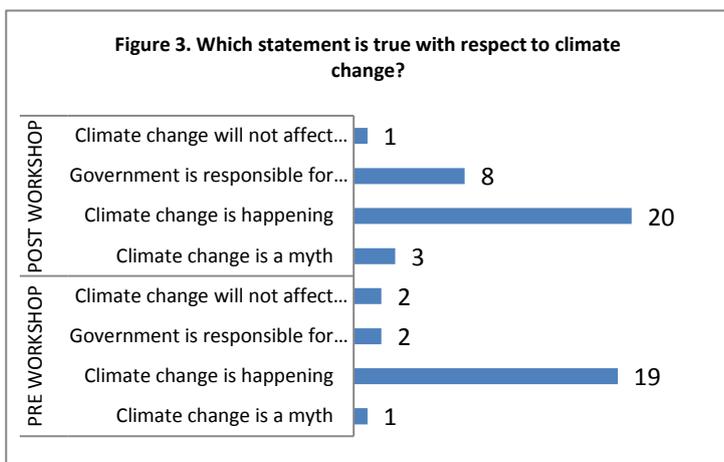
### I) An assessment of the participants **understanding of issues pertaining to Climate Change** – Pre and Post Training Workshop



There was an increase in number of participants who opined that the use of fossil fuel and cutting down of trees were some of the main contributors towards global warming (Figure 1). Also, while only one participant had pointed out cars and scooters to be a major contributor to climate change, post the training workshop the number had increased to 14.



There has been an improvement in the understanding on global warming among the participants (Figure 2). In the post workshop scenario, 25 participants pointed out climate change as one of the important impacts of global warming. Further, 11 participants had pointed out change in land use pattern and 13 had pointed out soil erosion to be results of global warming. However, four participants had pointed out corruption to be an impact due to climate change which was not correct.



Majority of the participants in pre- and post-training workshop were of the view that climate change was happening (Figure 3). Yet, in the post workshop scenario there has been an increase in the perception that government was also responsible for climate change which is partly correct (given limited success in promoting RE). There were three responses that opined that climate change was a myth, while one respondent pointed out that climate change will not affect human beings. Such wrong perceptions needed to be clarified

through interactions during the consumer interface meetings.

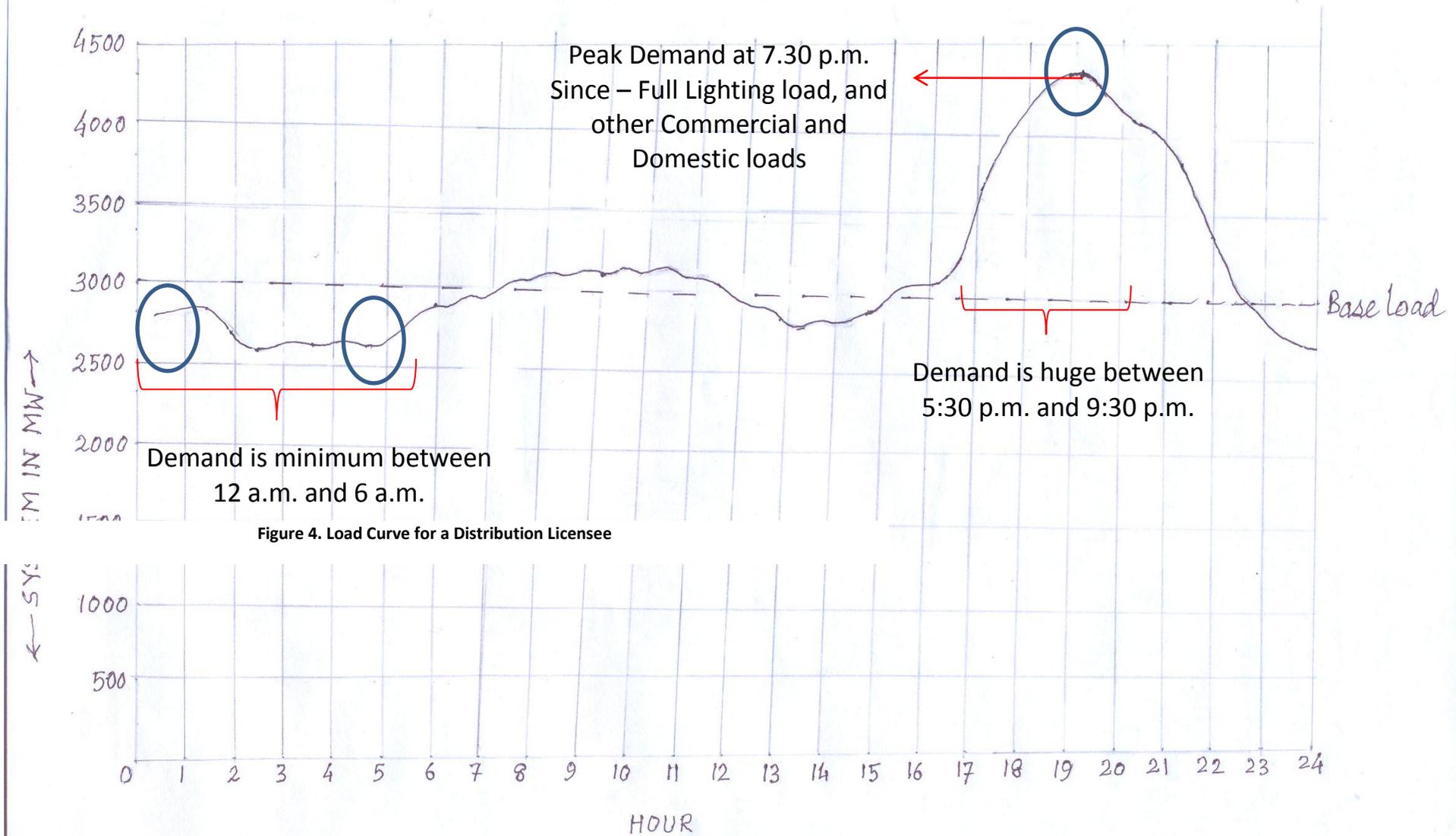
## 5.2. SESSION - I

### 5.2.1. Demand Side Management: Need, Concept and Scenario in West Bengal

*Saroj Sarkar, Engineer (Retd.), West Bengal State Electricity Distribution Company Ltd. (WBSEDCL)*

Saroj Sarkar started by pointing out the dichotomy that existed between economic growth and environmental sustainability. If India was to grow at an average annual rate of nine percent then there would be a specific need for electrical energy. In this context he emphasised the need for demand side management to motivate consumers to use electricity judiciously. This, in turn, would be effective in avoiding additional investments in capacity additions to the existing thermal stations or developing new thermal power plants. Saving one unit of electricity at consumer's end avoid nearly 2.5 times of capacity addition. 1 MW capacity addition of thermal power requires Rs 6 crores for installation and another Rs 3 crores for transmission and distribution (T&D). DSM is a set of initiatives to be undertaken by the utility service provider where consumers also play a crucial role. He elaborated on the issue of DSM by showing an actual load curve of a utility service provider (Figure 4).

With reference to Figure 4, the peak demand persists for only 5-6 hours in the evening but to meet the extra demand utility has to arrange for additional installed capacity or purchase power at a higher rate. In both cases the cost of electricity increases. To avoid this utility always encourage consumers to use less energy during peak hours (peak clipping) and shift energy use to off peak hours (Valley Filling). Some of the DSM initiatives undertaken by West Bengal Electricity Distribution Company Limited (WBSEDCL) is time-of-the-day (ToD) meters for Industrial and Agricultural consumers, Energy Audit undertaken in government buildings and corrective measures being undertaken, *Bachat Lamp Yojna* etc.



**Usual Load Curve of a Utility for a 24 Hour period**

## Floor Discussion

*Suchandra Ganguly, Civilian Welfare Foundation*, enquired whether distribution licencees were installing ToD meters at the household consumers' end.

*Sanjay Mondal, Mogra Women Development Centre*, mentioned that there was a need to bring about a behavioral change among the consumers since they are more used to using heavy electrical appliance viz. pumpsets, geysers etc. during normal or peak hours rather than in the off-peak hours.

Sarkar mentioned that ToD meters were not available for domestic consumers. He agreed with Mondal in saying that behaviour change or practice change was the critical success factor when it comes to the question of energy efficiency. CSOs could play an important role in this respect by reaching out to the consumers and promote such practices among them.

### 5.2.2. Energy Efficiency: Linkages with DSM, Methods, Technologies, Role of CSOs in West Bengal

*Dilip Samajpati, Consultant, CESC*

**Dilip Samajpati**, at the start of his presentation provided a brief idea, and initiatives undertaken by CESC for promoting DSM. He mentioned that one of the ways for better load management during peak hours was to control use of heavy appliances like air conditioners, geyser, pump sets etc. CSOs could play a proactive role in sensitising consumers to avoid using heavy electrical appliances during peak hours. In addition to ToD metering there were several other incentives for DSM in the tariff regulation viz. power factor rebate/surcharge, load factor rebate/surcharge etc. In the near future CESC would undertake load research for identifying appropriate DSM initiatives. He also underlined the need for undertaking energy audits in the commercial and industrial facilities and prevention of power theft.

On the aspect of energy efficient (EE) technologies he delivered a brief overview of Bureau of Energy Efficiency (BEE) and its functions. He also explained the concept of star label and how star labelled products helped consumers to save energy and receive monetary benefits. He also explained how LEDs consumed even less electricity than CFL.

After discussing the benefits of using star labelled products, he shared that inefficient use of EE technologies led to inefficiency and hence suggested the following measures to prevent inefficient use:

- Switching off electrical appliances when not in use
- Using of electronic chokes with tube lights and electronic regulators with ceiling fans
- Avoiding leaving TV, Computer etc. on stand-by mode
- Cleaning lamps, bulbs and their reflectors regularly
- Cleaning air filters of air-conditioners regularly to increase the overall efficiency of the compressor

In conclusion, he mentioned that it was important to spread these messages among the masses so as to ensure energy security for the future.

## Floor Discussion

*Kanak Karmakar, Sreema Mahila Samity*, mentioned that though most of the consumers in rural and urban areas were using CFL but owing to increase in electricity tariff, consumers could not get the benefits owing to increase in electricity tariff. In this context she enquired how to convince the consumers to use energy efficient technologies.

*Mustak Ali Mondal, Aggragati*, reacting to the question raised by Karmakar, mentioned that every electricity bill contained information on the units of electricity consumed during the billing cycle. It was important to look at the units consumed rather than the amount paid as electricity bill.

*Jakir Hossain Mollick, Chapra SEWA*, asked whether all the electrical appliances carried star label.

*Subbra Chowdhury, Mukti*, shared that in many of the retail outlets consumers are often discouraged to purchase five star labelled equipments. She mentioned that some sales representatives said that purchasing five star rated equipments are beneficial only if they ran for more than eight hours in a day. She enquired whether such information is correct.

Responding to Chowdhury's question, Samajpati mentioned that five star labeled equipment's are always energy efficient and is not dependent on the number of hours the equipment is used. There was a need to build capacity of consumers to stop them from falling prey to such malpractices. Though star labelling will be made mandatory for all electrical equipment's in the coming years but till date it was mandatory only for select equipment's viz. frost-free refrigerators, tube lights, air conditioners etc.

## A) Group Activity on Energy Efficiency

First of all the participants were divided into five groups. A case study was given and each of the groups was asked to determine the amount of cost saving that could be done by using energy-efficient equipment's. The case study provided comparison of cost of electricity consumption between two neighbours - Ram (not using any energy efficient equipment's) and Rahim (who was using energy efficient equipment's). Key objective of the case study was to calculate the payback period for energy efficient equipment's.

The exercise helped the participants to:

- calculate units consumed by the electrical equipment's (monthly/yearly)
- calculate payback period for star labelled products

The participants took part in the exercise and were very excited to see that Rahim was actually benefiting in the long run due to use of energy efficient technologies.

## II) An assessment of the participants **understanding of issues pertaining to DSM and Energy Efficiency** – Pre and Post Training Workshop

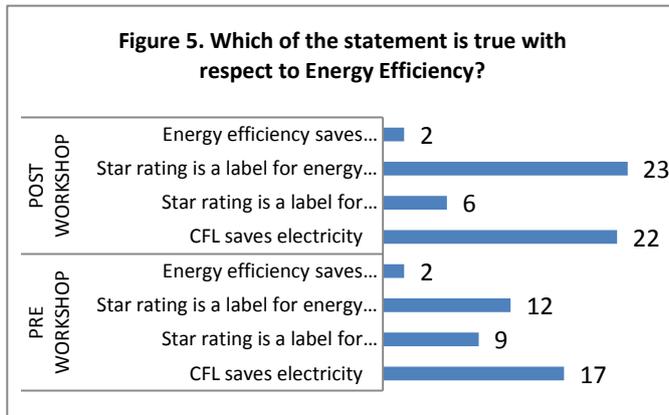


Figure 5 shows that there was a significant improvement in understanding of issues related to energy efficiency and star labelling among the participants. However, there were two responses that opined energy efficiency saved government expenditure but did not benefit the common man. Further, six respondents mentioned that star rating is a label for RE technologies. This reflects the lack of awareness among consumers which would be addressed

during the CIMs.

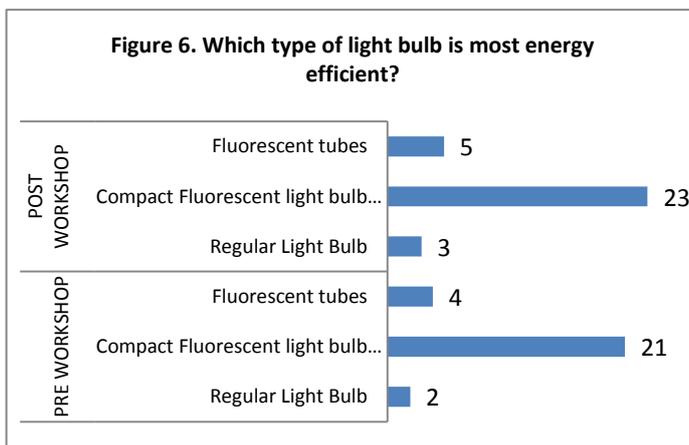


Figure 6 reflected an increase in number of responses for CFLs and florescent tubes as energy efficient equipment in the post-training workshop. Three participants had considered regular light bulbs to be energy efficient which was not correct and thus there was need to demystify the difference between regular bulbs and CFLs in a more simplified manner.

### 5.3. SESSION II

#### 5.3.1. Scenario of Renewable Energy in West Bengal

*Sushanta Biswas, Assistant Director, West Bengal Renewable Energy Development Agency (WBREDA)*

Sushanta Biswas shared with participants that WBREDA is the state level agency established in 1993 under Ministry of Non-Renewable Energy (MNRE). The need of the hour was to gradually move away from conventional sources of electricity and focus more on promoting RE. West Bengal has immense potential for promoting solar energy. Given the present trend in prices for electricity from RE and conventional sources, grid parity is expected to be achieved by 2020. He mentioned some of the initiatives undertaken by WBREDA for promoting RE especially in the remote villages of Sunderbans. He admitted that after grid reached these pockets there would be a natural shift towards the conventional grid. WBREDA is planning to undertake certain modifications and improvements

in the existing off-grid generation plants so that some of these plants could sell electricity to the conventional grid. In the case of urban areas, initiatives were being explored to generate electricity from municipal solid waste. Soon WBREDA would undertake a project for setting up a mini solar generation station in government buildings and selected schools on a net metering basis. He appreciated CUTS initiative for pointing out the issue of improving post-sales service of RE technologies and mentioned that WBREDA had taken action on this by sharing a list of service providers and manufacturers to the purchasers of RE technologies. In case a consumer did not get the required service she/he could contact the office of WBREDA for assistance.

### **Floor Discussion**

*Kamal Das, Kajla Jana Kalyan Samity*, mentioned that off-grid projects based on hybrid technologies (viz. biomass diesel hybrid, wind diesel hybrid) involved use of fossil fuel. He raised the question whether such projects should be highlighted as an environment friendly initiative.

*Arnab Ganguly, CUTS CRC*, mentioned the case of Gosaba and asked that what would happen to the biomass gasifier plant once grid reaches there. He also highlighted the need for introducing compulsory metering in the off-grid projects and elucidated the case of Moushuni island (in Sunderbans) where consumers misused electricity simply because they had to pay only a fixed charge (Rs 75 for a three point connection) per month for using electricity.

*Dipak Khutia, Baikunthapur Tarun Sangha*, mentioned that though biomass could be an important source for RE, it involved cutting down trees. In this context, he raised the question whether the government should take up biomass projects and instead focus on other available options.

*Bishwajit Shaw, Dakshin Ramchandrapur Vivekananda Seva Kendra*, emphasised on the need to strengthen the after-sales service mechanism for RE technologies.

Responding to the questions raised by the participants Biswas said that when off-grid projects were implemented in Sunderbans the idea was to provide electricity till the time grid reached those places. He also mentioned that there had been a significant increase in the cost of electricity generation owing to the rise in price of fossil fuel. Thus, at present, it would not be economically feasible for the biomass gasifier plant to generate electricity and sell it to the grid. Biswas clarified that WBREDA strictly followed the principal of planting a new sapling against felling of each adult tree. He reassured that WBREDA was seriously looking into ways to strengthen the after sales service for RE technologies.

### **5.3.2. Case study on Renewable Energy initiatives at Community level**

- **Coordinated Project on Rural Energy, Debipur**

*Samya Chattopadhyay, Vivekananda Institute of Biotechnology (VIB), Nimpith*

A documentary film was first shown to explain RE initiative undertaken by VIB in the Debipur village of Sunderbans area. As part of the project a 10 KW biomass gasifier plant was installed for supplying electricity for limited number of hours especially for commercial activities. Solar based LED home lighting systems were also distributed among villagers and some bio gas plants

for cooking purpose were also installed in select households. Two major project achievements are *firstly*, replacement of diesel/kerosene and *secondly*, creation of local entrepreneurship for providing energy services.

- **Case of Energy Efficient Chullah**

*Shyamal Prasad Jana, Secretary, Alinan Ramkrishna Vivekananda Yuva Sangha (ARVYS)*

Shyamal Prasad Jana, shared his experience with energy efficient *chullah* named 'SANTI SEBA' designed by him in the year 2000-01 by using brick, sand, and cement with a special mortar of clay, lime, sand and cow dung. After initial efforts, the organisation received certification from the School of Energy Study, Jadavpur University. As on date, they have installed at least 20,000 such *chullahs* in several districts in West Bengal. Since, the *chullahs* required less of firewood, it helped the families to ensure some savings and also ensured the process of cooking caused less pollution.

### Floor Discussion

*Dipak Chakraborty, Chanchal Jana Kalyan Samity*, appreciated the initiatives undertaken by ARVYS and VIB and mentioned that in many of the cases indoor air pollution was a cause for tuberculosis. To end that initiatives needed to be widely disseminated.

*Biswajit Shaw, Dakshin Ramchandrapur Vivekananda Seva Kendra*, mentioned that communities in the rural areas adopted new technologies only if there was a subsidy. He emphasised on the need to bring about a change in that mindset through appropriate dissemination strategies.

*Keya Ghosh, CUTS CRC*, told that during the CIMs it was important to emphasise on the monetary benefits accruing to the consumers from the use of RE and EE technologies.

## 5.4. SESSION - III

### Overview of RE Technology/Equipment's

*Piyush Jaju, ONergy*

Piyush Jaju began his presentation with an overview of the various conventional and non-conventional sources of energy. Further, he explained the need for solar energy as it was a form of clean energy and reduced carbon emission. With the help of a table he illustrated the various solar technologies available for the consumers, their price, payback period etc. He informed that there is a conscious effort being put in from the manufacturers and distributors for improving the status of after sales service for solar technologies. However, this is contrary to the findings of the baseline survey. During the survey, majority of the off-grid consumers pointed out that the service centres are far away from their villages. As a result if any of the parts became defunct then repairing took almost 2-3 months. He also informed about the financial schemes available for purchasing solar technologies.

## **Floor Discussion**

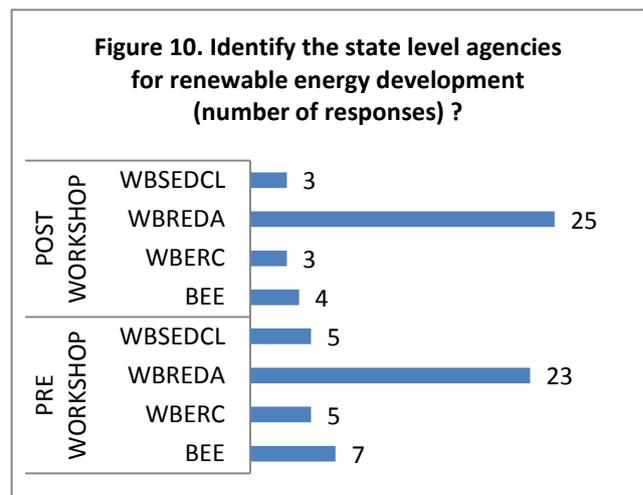
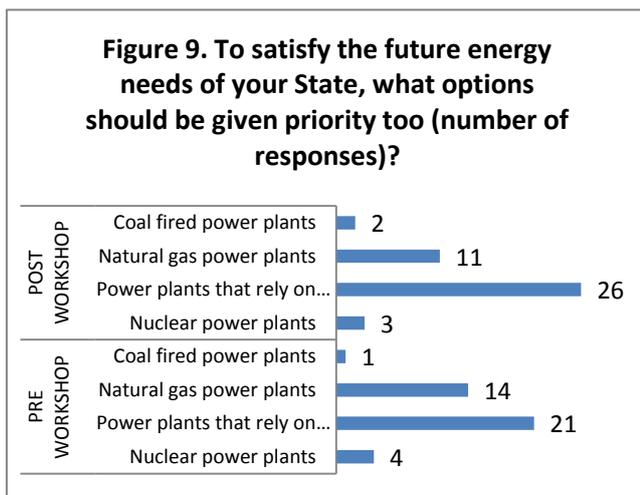
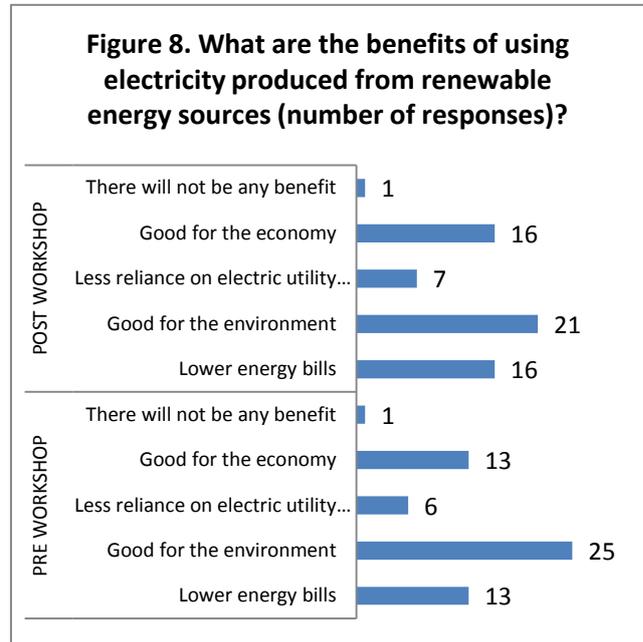
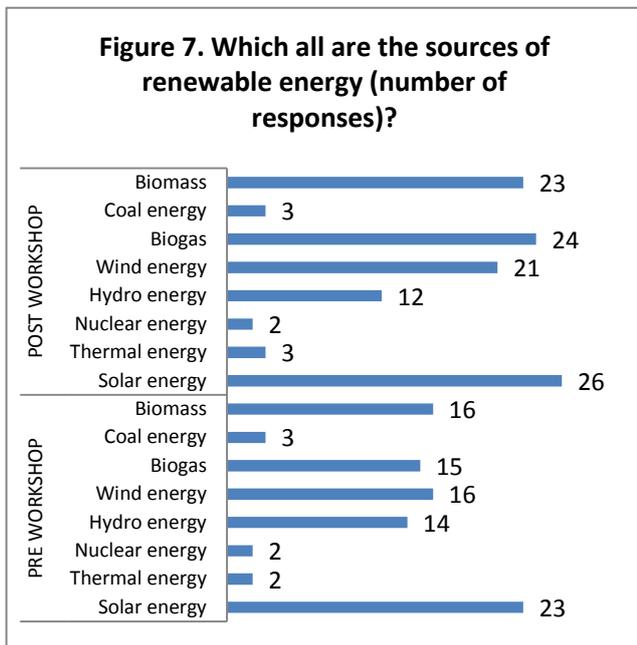
*Kalyan Sarkar, Ramkrishna Lok Seva Kendra*, mentioned that a couple of years back their organisation distributed 30 solar home lighting systems among select households. At present while some systems were still running properly, majority got defunct and those could not be repaired. He asked Jaju why such things happened and what should one do under such circumstances.

*Shyamal Prasad Jana, Alinan Ramkrishna Vivekananda Yuva Sangha (ARVYS)*, enquired about the price and availability of solar cookers.

*Prithviraj Nath, CUTS CRC*, mentioned that the baseline survey under the DREC project indicated that one of the main reasons why consumers wished to move away from solar technologies was because they could not run heavy electrical appliance. He enquired whether solar technologies were available that could support heavy electrical appliances and if any financing facility was available for solar based technologies.

Responding to the queries Jaju informed that longevity of the solar panels depended alot on the way they were maintained at the consumers end. It is important to check and maintain the batteries, the chargers and the solar panels at regular intervals. He also underlined the need to get in touch with the manufacturers for after sales service. Jaju mentioned that solar cookers are available for community use. Also, solar technologies were available that could support heavy electrical appliances. He said that presently the thumb rule cost for solar technologies was Rs 250/watt. Thus for a load of say 200 watt the cost would be around Rs50,000. Owing to such high costs people were reluctant to use solar technologies. Currently any soft loan on solar technologies is not available. However, solar is expected to be earmarked as a priority lending sector which would lower the cost to a great extent.

**III) An assessment of the participants understanding of issues pertaining to Renewable Energy – Pre and Post Training Workshop**



There has been an improvement in the understanding on the various RE sources and a marked increase in the number of participants voting for biomass, wind and biogas apart from solar energy (Figure 7). Still, there were three participants who had wrongly selected coal as a source of RE. Participants seemed to be already aware that use of RE results in less damage to the environment and hence not much change in perception was observed pre or post the training workshop. Though there had been an increase in the number of responses mentioning that use or RE was also good for the economy and would also lead to lower energy bills (Figure 8). Thus, one can conclude that overall the consumers were aware of the benefits of using RE, but unfortunately this did not translate into practice. Impressively there was an increase in the number of responses in favour of developing power plants that rely on RE sources to satisfy future energy needs of West Bengal (Figure 9). Participants were quite aware that WBREDA was the state level agency for promoting RE (Figure 10). Before the training workshop five participants had considered West Bengal State Electricity

Distribution Company Limited (WBSEDCL) and WBERC as agencies for promoting RE, but after the training the number of such responses was reduced.

## 5.5. SESSION - IV

### Overview of Regulatory Structure for the Electricity Sector in West Bengal and scope for Consumer participation

*C.R.Bhowmik, Adviser, West Bengal Electricity Regulatory Commission (WBERC)*

C.R.Bhowmik gave an overview of the electricity sector in West Bengal with specific focus regarding the role of WBERC as a regulator in the electricity sector, and the role of CSOs in the regulatory process. He further elucidated that regulations are important for development of the electricity sector and how such regulations can benefit consumers. However what is important is to communicate and create awareness regarding regulations to the consumers. Thus, there is a need to engage CSOs in the dissemination process.

He discussed the major provisions of Regulation 33 (i.e. Conduct of Business Regulation) and Regulation 27 (Grievance Redressal Mechanism). Consumers and consumer organisations can actively participate in the regulatory process by reacting to tariff petitions and/or through submission of written comments on draft regulations. In case there are specific issues that need to be brought to the attention of WBERC then such matters could be sent to WBERC in the format specified under regulation 33.

WBERC provides necessary incentives for promotion of DSM and RE in the state. He made special mention to Renewable Purchase Obligations (RPO) issued by WBERC. WBERC had issued orders to the distribution licensees to undertake load research as a stepping stone before adoption of large scale DSM activities in the state. In conclusion, he mentioned that while WBERC was mandated to consult diverse stakeholder groups to maintain transparency and accountability in the decision making system but at the same time there was need for consumers and consumer organisations to come forward and express their views and suggestions.

### Floor Discussion

*Prithviraj Nath, CUTS CRC* raised a question as to why West Bengal was far behind Gujarat and Rajasthan in terms of development of solar based electricity generation projects.

*Shayam Prasad Jana, Alinan Ramkrishna Vivekananda Yuva Sangha*, mentioned that replacement of conventional meters with new ones (electric meters) was leading to higher electricity bills.

*Sanjay Mondal, Mogra Women Development Centre*, mentioned that there were people who had applied for new connection but their applications were still pending for over a month. They were not under the purview of the grievance redressal officer (GRO) and hence, not getting their grievances redressed. To this end, he asked Bhowmik to provide his suggestion on what could be done to deal with such problems.

Responding to the questions, Bhowmik mentioned, lack of availability of land and lesser solar insulation to be two of the root causes behind the slow progress of solar projects in West Bengal. Bhowmik further elucidated that since the new meters were more efficient than the conventional meters so they could record even miniscule amount of electricity consumption. He mentioned that a

person who had applied for new connection but not received it within the time limit specified in the regulation, she/he could directly write to the Ombudsman who will then look into the matter.

## B) Group Activity – Drafting and Filling of Complaint

R. Prasant, CUTS CRC discussed the grievance redressal mechanism for electricity consumers as laid down in Regulation 27. He mentioned that as the first step an aggrieved consumer should approach the local station manager and submit a written complaint. In case the grievance is not redressed within the time specified in the regulation then the consumer should complain before the Grievance Redressal Officer (GRO) at the distribution circle offices. In case the officer fails to address consumer’s complaint within the specified time in the regulation, then only a consumer could approach the Ombudsman with his/her complaint. Having outlined the format of the complaint letter, he emphasised that the applicant must be specific about the problem, the relief he/she is seeking from distribution licensee, and must sign the complaint herself/himself. While applying for grievance redressal to the Ombudsman the applicant must enclose a copy of the complaint submitted to the GRO.

As a part of the group activity, participants were divided into five groups and each group was given a specific grievance related to electricity services. Then each group was asked to draft a complaint letter which was discussed and reviewed with the participants. Important points to better draft the complaint were shared with the participants. After collecting the complaint letters a quick review of the same was done and mistakes were pointed out to the participants. While reviewing the following points were taken into consideration:

- To whom the complaint was addressed?
- How brief and specific was the problem?
- What were the documents that were enclosed along with the complaint?

## IV) An assessment of the participants understanding about the regulatory structure – Pre and Post Training Workshop

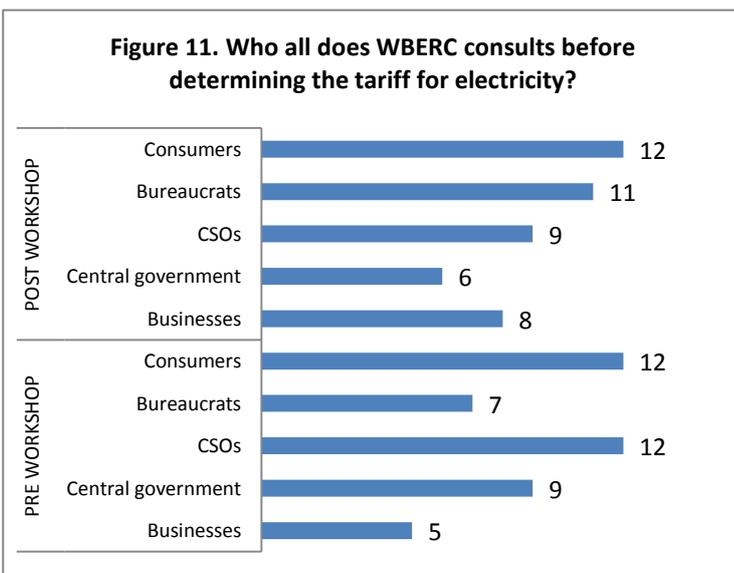


Figure 11 reveals that there is a lack of clarity among the participants regarding regulatory structure. Majority of participants had rightly pointed out that WBERC consults consumers, CSOs, and business houses and relevant departments (represented by bureaucrats), however the idea of consulting the central government was not correct. Overall it can be assessed that as this was the first training programme attended by most of the participants, the response was quiet encouraging. However, further capacity

building and demystification is required on this issue.

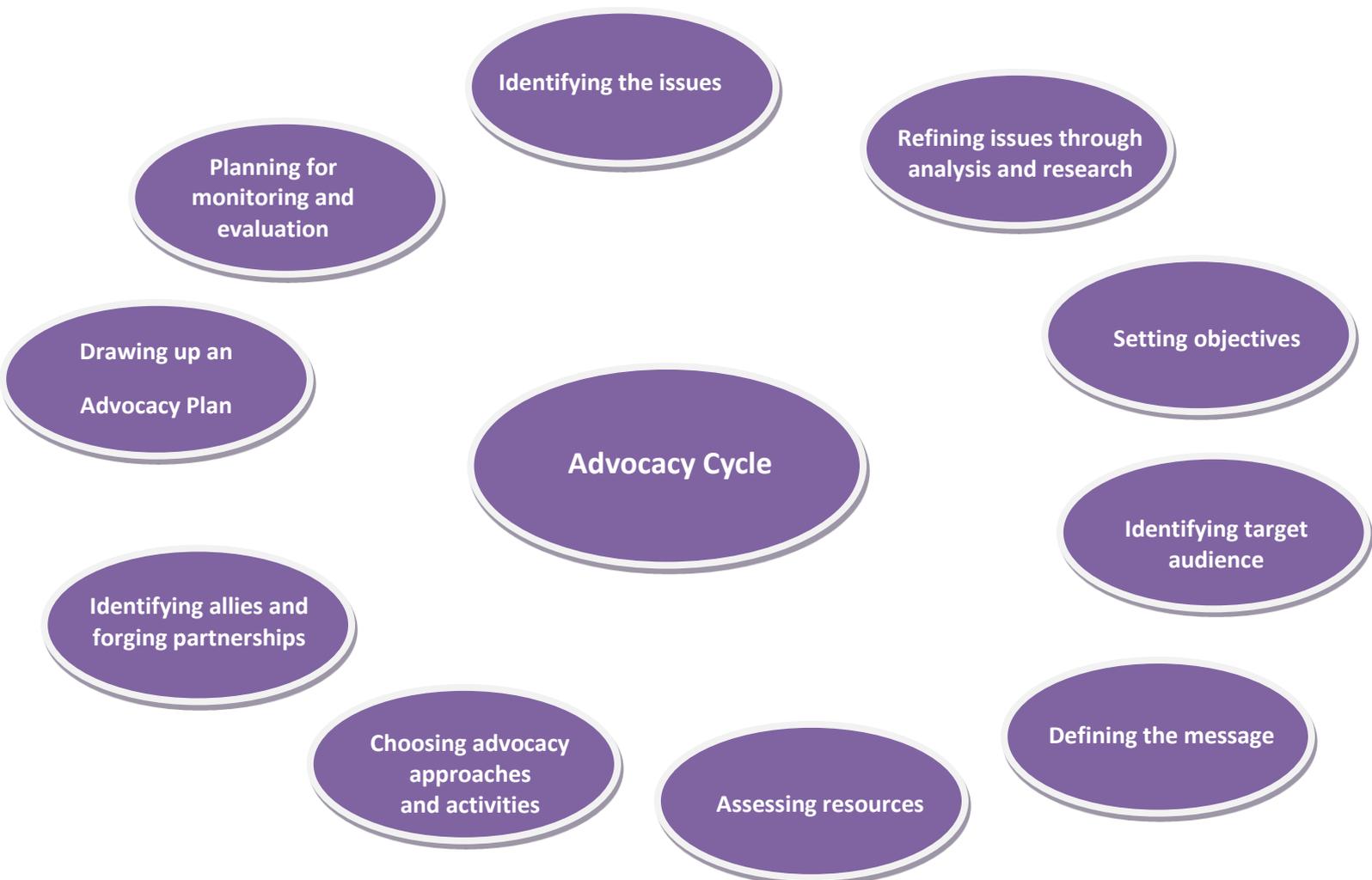
## 5.6. SESSION - V

### Policy Advocacy

*Prithviraj Nath, Deputy Centre Coordinator, CUTS Calcutta Resource Centre*

Prithviraj Nath shared that advocacy was to take up any specified issue with a right person in a right manner to achieve desired results. Advocacy was needed for influencing the power relationship in favour of the marginalised, poor and ordinary people; for bridging the gap between institutional and substantive democracy; and to flag State's obligation to protect and promote the rights of its citizens. He explained the advocacy planning cycle (Figure 12) which was the key component in any advocacy exercise. Successful advocacy requires appropriate advocacy strategy that includes identification of issue, objectives, identification of audience, means of delivering the advocacy messages etc. There is a need to frame right advocacy messages and also the messenger, through whom such messages should be delivered to the target stakeholders. He underlined the need for building network with organisations working on similar issues to reach out to a larger group of stakeholders and strengthening the impact through concerted efforts. After discussing the advocacy cycle, he shared a few tips for three different types of advocacy viz. Judicial, Bureaucratic and Legislative. In conclusion, he emphasised on the need to monitor the advocacy initiative and also evaluate every activity to identify the success factors or roadblocks to effective advocacy.

Figure 12: The Advocacy Planning Cycle



### C) Group Activity – Drafting of Press Release/News Article

Milan Dutta, Senior Journalist, Ananda Bazar Patrika

Milan Dutta, began by pointing out that there were two broad categories of media houses big groups having presence in both state and district levels; and small groups who have only local presence viz. at the district and block levels. On the issue of media advocacy, he stressed on the need for drafting press releases. Ideally a press release should not be more than 800-900 words. In case of any survey findings etc. the news should only mention the important points from the survey. He stressed on the need for making the news simple so that it is easily understood by the reporter. He mentioned that a press release needs to be sent to the concerned person covering that particular topic and also emphasised the need for using the internet for posting relevant news.

In the group activity participants were divided into two groups and each group was asked to draft a press release on issues which they think were relevant. At the end, each of the press releases was reviewed by Dutta who then provided his suggestions to improve them further.

### V) An assessment of the participants understanding about policy advocacy – Pre and Post Training Workshop

**Figure 13. In terms of advocacy which all are CSO's responsibility?**

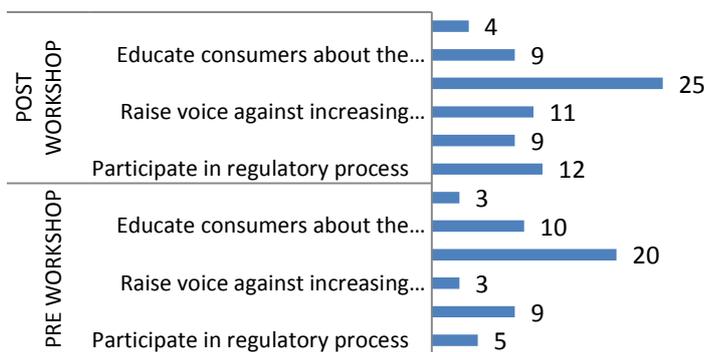


Figure 13 shows encouraging results. It shows a significant improvement among the CSOs on understanding their roles and responsibilities. For example, while only five participants pointed out participation of CSOs in the regulatory process as part of CSO responsibility before the training workshop, 12 of them choose this option as an important responsibility for the CSOs after the training workshop.

**Figure 14. What all tools are available with CSOs for policy advocacy?**

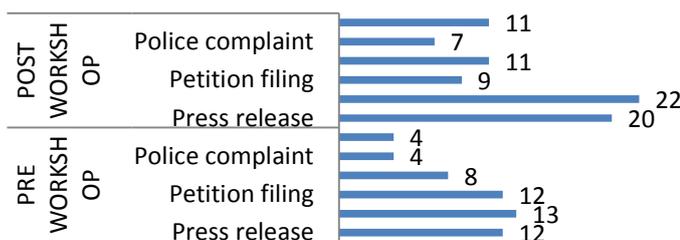


Figure 14 shows that circulating press releases and filing RTI application were considered to be important tools for policy advocacy. Further, participants had also considered use of street plays crucial for delivering key messages and building awareness among the common people.

## 5.7. SESSION - VI

### **Components of Electricity Tariff, Role of Consumers in Tariff Determination and how to react to Tariff Petition**

*Prititosh Ray, Empanelled National Level Monitor, Ministry of New and Renewable Energy (MNRE), Government of India and Member, Governing Body, WBREDA*

Prititosh Ray provided an overview of steps involved in generation, transmission and distribution of electricity to consumers and explained the following components of electricity tariff:

- Fixed Cost
  - Return on equity capital
  - Taxes and Duties
  - Depreciation
  - Interest on loan component of capital
  - Interest on working Capital
  - Operation & maintenance expenses
  - Employment Cost
  - Insurance Premium Payable
  - Costs arising out of Foreign Exchange Rate Variation (FERV)
  - Bad Debts
  
- Variable Cost
  - Cost of coal / diesel used as input in the generation process
  - Station heat rate
  - Specific oil consumption
  - Auxiliary consumption

He also mentioned that to improve operational efficiency of the licensees WBERC has specified certain benchmark values which the licensees were bound to maintain. He also touched upon some of the controllable and uncontrollable factors that were crucial for determination of electricity tariff.

Further he mentioned that once a licensee files a tariff petition the same is uploaded on WBERC's website for comments and consumers/consumer organisations should be proactive in responding to such petitions. While reacting to tariff petitions consumers should thoroughly go through the gist of the petition, identify the factors that are responsible for the change in tariff, and then provide their response. The comments on tariff petition should be very specific otherwise it will not be considered by WBERC. He concluded by showing how to calculate cost of electricity generated from biomass source.

## Floor Discussion

*Bishwajit Shaw, Dakshin Ramchandrapur Vivekananda Seva Kendra*, if there was a way to indicate in the electricity bills the quantum of electricity lost due to power theft. This, he suggested, could be a good way to make consumers aware about power theft.

*Keya Ghosh, CUTS CRC*, mentioned that there was a need to separate technical loss from commercial loss so that the consumers could understand what part of the electricity was lost owing to poor infrastructure of the licensee and what part of the electricity was lost due to power theft.

Ray told the participants that separating out technical loss from commercial loss was a very long and complicated process. He mentioned that the kind of technical loss in Garia would be different from that in Cooch Behar. Such differentiation would entail rigorous energy audit which may not be feasible. Thus, he mentioned WBERC had mentioned benchmark values for each the ATC loss beyond which the licensee will have to bear the expenses.

## D) Group Activity – Determining Electricity Generation Tariff

*Pritosh Ray, Empanelled National Level Monitor, Ministry of New and Renewable Energy (MNRE), Government of India and Member, Governing Body, WBREDA*

As a part of the group exercise a mathematical problem was given to the groups and they were asked to calculate the cost of fuel; and the average revenue requirement (ARR). After calculating the ARR, Ray told them that any increase or decrease in the benchmark rates will cause a subsequent change in the ARR and hence there is a need to keep benchmark values *vis-à-vis* the actual values in mind, while reacting to tariff petition.

## 5.8. SESSION - VII

### Group Activity – Preparation of Presentations for the Seminar and mock presentation

*CUTS Calcutta Resource Centre*

As a run up to the seminar and panel discussion on the last day the participants were segregated into three groups. Then the groups were asked to suggest the kind of activity they will be undertaking on Day 5. Group A told that they will be making a presentation that aims at advocating with schools for using RE technologies. Group B told that they will be performing a skit aiming at disseminating the knowledge on EE technologies gained from the training workshop. Group C told that they will be presenting an advocacy plan on how to reduce power theft for better demand side management.

Each of the group was given an hour's time to prepare first draft of the activity plan and a mock session was organised. Each of the activities was reviewed by CUTS representatives and relevant changes were suggested to make them more effective and appropriate.

## 6. OVERVIEW OF THE FIELD VISIT

An exposure visit was conducted at Arka community college in Kolkata to provide participants an opportunity to see various RE technologies and interact with the staffs at Arka and acquire knowledge on how to do basic maintenance of RE technologies.

The participants visited the Arka community college which is presently conducting a course on renewable energy. The college has installed solar panel, solar street lights, LED lights etc. which provided a good exposure to the participants. The participants were divided into two groups and a documentary film was shown to each of the groups on certain RE initiatives undertaken in Sunderbans employing different RE technologies. After that each of the groups were given a demonstration of how the solar panels, biomass gasifier and biogas plants are operated. The basics of maintaining a solar panel was also discussed. All the participants were provided opportunities to clarify all their doubts. Dr. S.P.Gon Chaudhuri delivered the closing remarks and mentioned that in the near future there will be huge demand for technicians of RE technologies. In distant areas of Sunderbans there is a need to provide training to the local people to improve the quality of after sales service. He requested CUTS to organise short term training programmes in those areas of Sunderbans which are dependent on solar technologies. In conclusion he mentioned that to popularize RE there is a need for creating green entrepreneurs and the Ministry of Small and Medium Enterprise (MSME) could be instrumental in this respect.

## 7. SEMINAR AND PANEL DISCUSSION

3 Group Presentation by Participants

- **Renewable Energy: What needs to be advocated and How?**
- **Convince your Neighbour: Role Play on Energy Efficiency**
- **Policy Advocacy: Reducing Power Theft for better Demand Side Management**

Panelist

- **Siddhartha Mitra**, Professor, Department of Economics, Jadavpur University
- **Dilip Samajpati**, Adviser, CESC
- **Keya Ghosh**, Centre Head, Calcutta Resource Centre

Presentation 1: **Renewable Energy: What needs to be advocated and How?**

Suchandra Ganguly and Shyamal Prasad Jana from Group A delivered a presentation on advocating with schools for RE technologies. They highlighted the need for advocating with teachers and members of the school's management committee, as they are the key decision makers in a school. There are subsidy schemes from WBREDA under which schools can install solar panels. Further the schools can also use biogas and improved *chullahs* for cooking purpose (mid-day meal scheme). They also stressed on the need for advocating with NCERT to introduce course curriculum on renewable energy. The school could also undertake activities, such as organising drawing competition, skit play etc. to build awareness about RE among its students.

### Presentation 2: **Convince your Neighbour: Role Play on Energy Efficiency**

The group was assigned to present a role play on energy efficiency. The key messages that were delivered through the role play are as follows:

- CFLs and LEDs are better than incandescent bulbs since the former uses less electricity and provides same level of illumination
- There is a need for using star labelled electrical appliances since those are energy efficient. Example of the group activity on EE was also cited in brief
- Only BEE labelled agriculture pump sets should be used
- In every government offices (the *gram panchayat* was taken as an example) unnecessary wastage of electricity should be stopped and that CSOs have an important role to play

### Presentation 3: **Policy Advocacy: Reducing Power Theft for better Demand Side Management**

Kamal Das and Bikas Saha volunteered to deliver the presentation. They mentioned that power theft is a big concern not only for the state but also for the legitimate consumers who were regularly paying their electricity bills. Power theft was adversely affecting the quality of electricity service during the peak hours; therefore there was a need for generating awareness among consumers on the adverse effects of power theft. There was the need to advocate with various stakeholders especially the local administration and the utility service provider. They proposed to start with a small survey in the village to identify the rationale behind power theft. Findings from the survey would be used for identifying stakeholder-specific advocacy points. For undertaking effective advocacy, they suggested using the following tools:

- Submission of press release capturing the key findings from the primary survey
- One-to-one meeting with the local administration
- Series of multi-stakeholder advocacy meetings and awareness generation

In addition they had mentioned performing skits and street plays to generate awareness among consumers on the adverse effects of power theft.

### **Panel Discussion**

**Siddhartha Mitra** stressed on the need to keep the advocacy messages simple and specific. In this respect he emphasised on the need to identify three things – *firstly*, why advocacy was required; *secondly*, who are the stakeholders; and *lastly*, how to mobilise them. He also pointed out the need for citing good practices. He further elucidated that while it was important to use EE technologies it was equally important to use it efficiently and such messages also need to be conveyed to consumers.

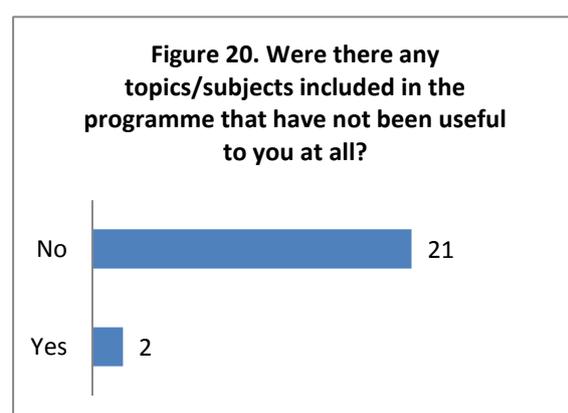
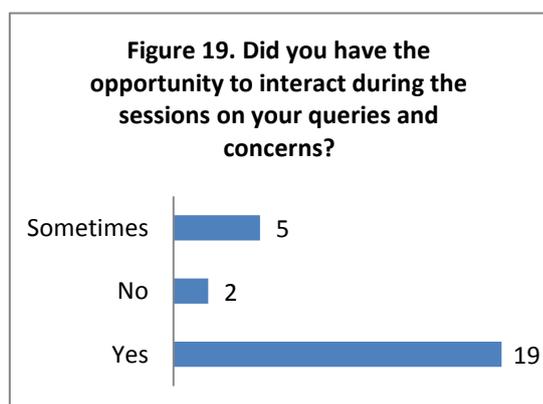
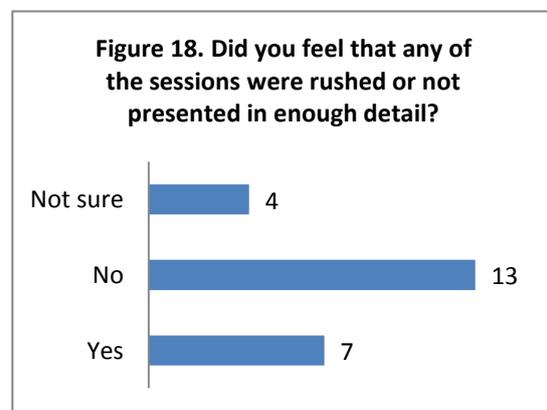
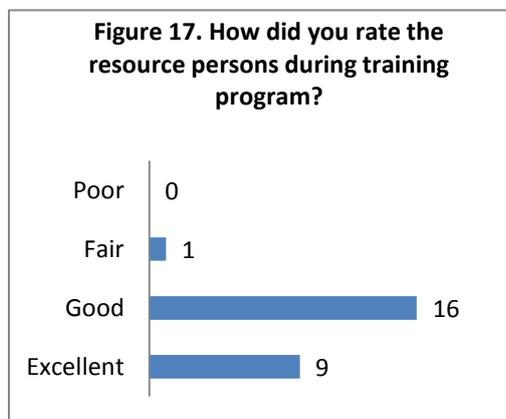
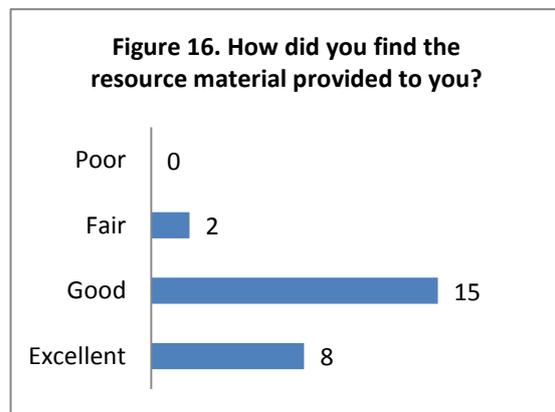
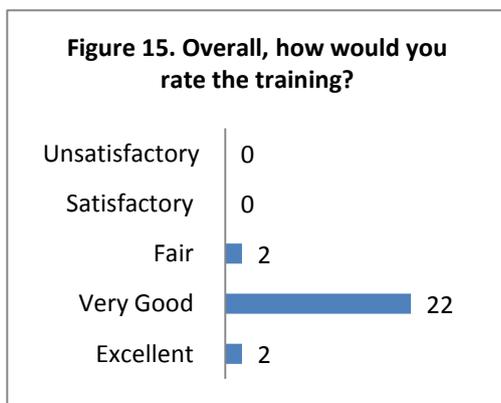
**Dilip Samajpati** mentioned that the presentation had used some technical jargons that need to be simplified while communicating with grassroots. He also suggested involving local opinion leaders in the awareness and advocacy campaigns. To prevent power theft the issue of accidents need to be highlighted. On the issue of RE, he shared with the participants that the aspect of cost saving needs to be emphasised while advocating with relevant stakeholders.

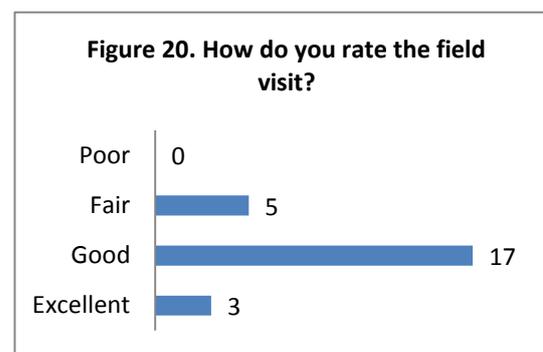
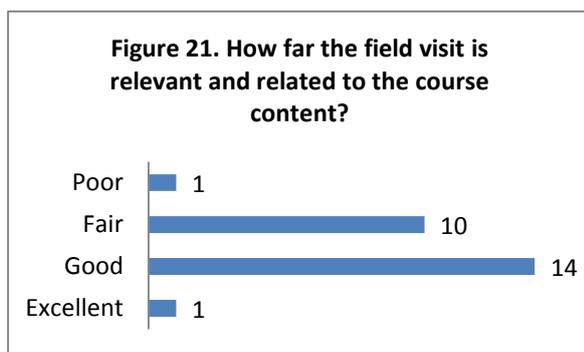
**Keya Ghosh** said that though the presentations had clearly outlined the strategies for mobilising consumers, the issue of advocacy with policy makers required greater emphasis and action points had to be more specific.

## 8. CLOSING SESSION

**Keya Ghosh** did a quick recap of the issues that were discussed in the training workshop and also mentioned why they were relevant for the DREC project. In the end she thanked all the participants and the resource persons who were part of the training programme and requested all the participants to send across their future plan of action for greater uptake of RE and EE.

## 9. ANALYSIS OF PARTICIPANT'S FEEDBACK





### BOX 1. SUMMARY OF THE FEEDBACK

#### *Highlights*

- Good quality resource person
- Good quality resource material
- Relevance of the topics discussed during the training programme
- Interaction between the participants and the resource person
- Field visit and demonstration of some RE technologies
- Role play and group presentations

#### *Lowlights*

- Participants wished if more time could be allotted to some of the sessions which would have helped in better quality of floor discussion
- Some of the resource materials were in English

## 10. WAY FORWARD

The immediate activity that followed this training was further dissemination and capacity building by the CSO representatives who were trained in the territorial training workshop. The aim was to do away with the knowledge gaps, misconceptions and grey areas that existed amongst the grassroots consumers on RE & EE. District partners of CUTS CRC would be organising Consumer Interface Meetings (CIMs) in their respective territories where learnings from the workshop would be further disseminated among grassroots consumers. To this end, CRC would design a training kit in Bengali that will be distributed among consumers during the CIMs. Other CSOs expressed their intent to disseminate their learnings through various meetings they organised under different projects and take up the issue under the broad spectrum of their ongoing initiatives.

## ANNEXURES

### ANNEXURE – I

#### AGENDA

#### DEMAND SIDE MANAGEMENT (DSM) & RENEWABLE ENERGY (RE) IN INDIA: CAPACITY BUILDING OF CSOS (DREC PROJECT)

State Level Training Workshop for Civil Society Organisations in West Bengal

**Date:** 13<sup>th</sup>-17<sup>th</sup> March, 2012, Kolkata

**Venue:** HARVEY's, 229, Rajdanga Main Road, Nabapally, Kasba, Kolkata-700107

#### Day One

09:30 – 10:00 Registration

10:00 – 10:30 **Opening Session**

*S. P. Gon Chaudhuri, Advisor, RE, Government of West Bengal,*

*Keya Ghosh, Centre Head, CUTS Calcutta Resource Centre*

Presentation on 'Overview of DREC Project--- Methodology and Findings'

*Arnab Ganguly, CUTS International*

10.30 – 11.00 **Climate Change: Causes and Effects**

*Duke Ghosh (PhD), WOTRO-NWO Fellow, Global Change Programme, Jadavpur University*

11:00 – 11:30 Tea Break & Filling pre-workshop questionnaire by trainees

#### Session I

11:30 - 12:15 **Demand Side Management: Need, Concept and Scenario in West Bengal**

*Saroj Sarkar, Engineer (Retd.), West Bengal State Electricity Distribution Company Ltd. (WBSEDCL)*

12:15- 13:00 **Energy Efficiency: Linkages with DSM, Methods, Technologies, Role of CSOs in West Bengal**

*Dilip Samajpati, Consultant, CESC*

13:00 – 13:45 Group Activity on **Energy Efficiency**

*CUTS Calcutta Resource Centre*

13:45 – 14:30 Lunch

### Session II

14:30 – 15:30 **Scenario of Renewable Energy in West Bengal**

*Sushanta Biswas, Assistant Director, West Bengal Renewable Energy Development Agency (WBREDA)*

15:30 – 15:45 Tea Break

15:45 – 17:00 **Case study on Renewable Energy initiatives at Community level**

- Coordinated Project on Rural Energy, Debipur by *Samya Chattopadhyay, Vivekananda Institute of Biotechnology (VIB), Nimpith*
- Case of Energy Efficient Chullah by *Shyamal Prasad Jana, Secretary, Alinan Ramkrishna Vivekananda Yuva Sangha*

17:00 – 17:30 **Closing Session—Group Discussion**

### Day Two

09:00 – 09:30 Recap of the previous day

### Session III

09:30 – 11:15 **Overview of RE Technology/Equipment's**

*On equipments that run on Solar Energy, Piyush Jaju, ONergy*

11:15 – 11:30 Tea Break

### Session IV

11:30 – 12:30 **Overview of Regulatory Structure for the Electricity Sector in West Bengal and scope for Consumer participation**

*C.R.Bhowmik, Adviser, West Bengal Electricity Regulatory Commission*

12:30 – 13:30 **Group Activity** – Drafting and Filling of Complaint

*CUTS Calcutta Resource Centre*

13:30 – 14:30 Lunch

## Session V

14:30 – 15:30 **Policy Advocacy**

*Prithviraj Nath, Deputy Centre Coordinator, CUTS Calcutta Resource Centre*

15:30 – 16:30 **Group Activity – Drafting of Press Release/News Article**

*Milan Dutta, Senior Journalist, Ananda Bazar Patrika*

16:30 – 17:00 Closing Session—Group Discussion

## Day Three

09:00 – 09:30 Recap of the previous day

## Session VI

09:30 – 12:30 **Components of Electricity Tariff, Role of Consumers in Tariff Determination and how to react to Tariff Petition**

*Prititosh Ray, Empanelled National Level Monitor, Ministry of New and Renewable Energy (MNRE), Government of India and Member, Governing Body, WBREDA*

12:30 – 13:30 **Group Activity – Reacting to a Tariff Petition**

*Prititosh Ray, Empanelled National Level Monitor, Ministry of New and Renewable Energy (MNRE), Government of India and Member, Governing Body, WBREDA*

13:30 – 14:30 Lunch

## Session VII

14:30 - 16:30 **Group Activity – Preparation of Presentations for the Seminar and mock presentation**

*CUTS Calcutta Resource Centre*

17:00 – 17:30 Closing Session

## Day Four

Field visit to *Arka* Community College (Renewable Energy Institute) Madurdaha, Kolkata

## Day Five

09:30 – 10:00 Filling of post-workshop questionnaire by trainees

10:00 – 12:15 **3 Group Presentations by participants on the following themes:**

- **Renewable Energy: What needs to be advocated to schools and How?**  
by Group A
- **Convince your neighbour: Role Play on Energy Efficiency** by Group B
- **Policy Advocacy: Reducing Power Theft for better Demand Side Management”** by Group C

12:15 – 13:00 Panel Discussion on the presentations

**Siddhartha Mitra**, Professor, Department of Economics, Jadavpur University

**Dilip Samajpati**, Adviser, CESC

**Keya Ghosh**, Centre Head, Calcutta Resource Centre

13:00 – 13:30 Closing and Certificate Distribution

13:30 onwards          Lunch

## ANNEXURE – II

### DREC PROJECT- State Level training Workshop

#### Registration Details

Date: 13<sup>th</sup> -17<sup>th</sup> March, 2012, Kolkata

Name and Details of CSOs				
S L No	District	Name	Organisation & Designation	Address, Contact Details
1.	Nadia	Bikash Saha	Block Coordinator Sreema Mahila Samity	Vill – Sankarpur P.O + P.S. Dhantala Dist. Nadia, West Bengal Mob: +91 9732951295
2.	Nadia	Kanok Karmokar	Family Counselor Sreema Mahila Samity	Vill + P. O. Duttafulia Dist. Nadia, West Bengal Mob: +91 9733635361
3.	Nadia	Jakir Hoshen Molla	Coordinator Chapra SEWA	P.O. Bangalji, Chapra Dist. Nadia, West Bengal Mob: +91 9732642452
4.	Nadia	Sanjoy Mondal	Chapra SEWA	P.O. Bangalji, Chapra Dist. Nadia, West Bengal Mob: +91 8926762385
5.	Cooch Behar	Biswajit Shaw	Dakshin Ramchandrapur Vivekananda Seva Kendra	K. D. Road, Cooch Behar, West Bengal Mob: +91 9831245635
6.	Cooch Behar	Parimal Saha	Dakshin Ramchandrapur Vivekananda Seva Kendra	K. D. Road, Cooch Behar, West Bengal Mob: +91 9832539302
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8.	Cooch Behar	Azgar Ali Sarkar	Haldibari Welfare Organisation	Vill – Chhoto Haldibari P.O. Haldibari Dist. Cooch Behar, West Bengal Mob: +91 9932544815
9.	South 24 Pargana	Subhra Chowdhury	MUKTI	P. O. GIP Colony P. S. Jagacha Santragachi Station Road Dist. Howrah, West Bengal Mob: +91 9830341058

10.	South 24 Pargana	Joigopal Bairigi	Office Assistant Mukti	HA- 330, Salt Lake Kolkata – 700097, West Bengal Mob: +91 9903892271
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12.	South 24 Pargana	Samorendra Nath Baidya	Baikunthapur Tarun Sangha	Vill+ P. O. Baikunthapur P. S. Kultali (Costal) Sict. South 24 PGS, West Bengal Mob: +91 9002294667
13.	South 24 Pargana	Senhomoy Mondal	Programme Staff, Ramkrishna Loke Seva Kendra	Vill - Kachmkhali, P. O. Gosaba Dist. South 24 Pargana, West Bengal Mob: +91 9836325464
14.	South 24 Pargana	Kalyan Sarkar	Staff, Ramkrishna Loke Seva Kendra	Vill - Kachmkhali, P. O. Gosaba Dist. South 24 Pargana, West Bengal Mob: +91 9874558706
15.	South 24 Pargana	Sukumar Bera	Debnibash Sindhubala Nari Kalyan Samity	Vill + P.O. Patibunia P.S. Namkhana Dist. South 24 Pargana, West Bengal Mob: +91 9547540318
16.	East Midnapore	Kamalesh Das	Coordinator, Kajla Jano Kalyan Samity	Vill – Saoada, P. O. Contai Dist. Purbo Midnapur, West Bengal Mob: +91 9733527677
17.	East Midnapore	Debasish Panda	Coordinator, Kajla Jano Kalyan Samity	Vill – Saoada, P. O. Contai Dist. Purbo Midnapur, West Bengal Mob: +91 7872750178
18.	East Midnapore	Debabrata Samanta	Alinan Ramakrishna Vivekananda Youth Sangha	Vill + P. O. Alinan Dist. Purbo Medinipur, West Bengal
19.	East Midnapore	Shyamal Prasad Jana	Alinan Ramakrishna Vivekananda Youth Sangha	Vill + P. O. Alinan Dist. Purbo Medinipur, West Bengal Mob: +91 9733525880
20.	Kolkata	Suchandra Ganguly	Secretary, Civilian Welfare Foundation	F87/104, Jyotish Roy Road New Alipore Kolkata – 700053

21.	Malda	Dipak Chakraborty	Secretary, Chanchal Jana Kalyan Samity	P. O. Chanchal, Dist Malda West Bengal Mob: +91 9932411650
22.	Purulia	Manoj Kr. Das	Purulia District Agragami and Mahila O Sishu Mangal Samity	Vill + P.O. Jargo Dist. Purulia West Bengal Mob: +91 9800370270
23.	North Dinajpur	Mrittunjoy Banerjee	Project Coordinator St. John Ambulance Association	Vill + P.O. Debinagar, Raiganj, Dist. Uttar Dinajpur, West BEngal Mob: +91 9475955659
24.	West Midnapore	Sanjib Bhanja	Chak Kumar Association for Social Service	Vill – Paharpur P.O. Sansad Gobildopur P. S. Narayangarh, Dist. Paschim Medinipur West Bengal Mob: +91 9697181625
25.	Hooghly	Sanjoy Mondal	Chief Founder, Mogra Women Development Centre	Station Road, P. O. Mogra Dist. Hooghly Mob: +91 9339742682
26.	Howrah	Muktar Ali Mondal	Project Coordinator, Agragati	Vill – Kalikata P.S. Rashpur Dist. Howrah Mob: +91 9732641477

**Name and Details of Resource Persons and external observer**

S L. No	Name	Organisation & Designation	Address, Contact Details
1	Dilip Samajpati	Consultant, CESC Ltd	E-TV Building, Chowringhee Square Kolkata – 700072, West Bengal Mob: +91 9831283418 Email: dilip.samajpati@rp-sg.in
2	Sushanta Biswas	Assistant Director, West Bengal Renewable Energy Development Agency (WBREDA)	Bikalpo Shakti Bhawan Sector – V Salt Lake, Kolkata – 700091 West Bengal Phone: 2357 5038 / 2357 5348 / 2357 6568 Email: sb.wbreda@gmail.com
3	Dilip Kr Hazra	West Bengal Renewable Energy Development Agency (WBREDA)	Bikalpo Shakti Bhawan Sector – V Salt Lake, Kolkata – 700091 West Bengal Mob: +91 9433408505

4	Duke Ghosh (PhD)	WOTRO-NWO Fellow, Global Change Programme, Jadavpur University	69/10 B. B. Sengupta Road Kolkata – 700034 Mob: +91 9830601031 Email: duke.ghosh@globalchangeresearch.in
5	Samya Chattopadhy ay	Film Maker/ Project Documentation Consultant, Vivekananda Institute of Biotechnology	AE 40/2, Salt Lake Kolkata – 700064 West Bengal Mobile: +919830011701 Email: samchat.238@gmail.com
6	Amal Mukherjee	Vivekananda Institute of Biotechnology	P. O. Nimpith Ashram, Sundarbans, 24 Pgs. (South) West Bengal, Pin - 743 338 Phone: 03218 226 003 Email: vibsran@rediffmail.com
7	Piyush Jaju	Director Finance, Onergy	1A, DL Khan Road, Kolkata - 700027 Mob: +91 9831515911 Email: piyush@onergy.in
8.	C. R. Bhowmik	Adviser (Engineering) West Bengal Electricity Regulation Commission	Poura Bhavan (3 rd Floor) Block-FD , 415-A, Bidhannagar Kolkata – 700106 West Bengal Phone: (033) 23218984 Email: b.chitta@gmail.com
9	Milan Datta	Senior Journalist, Ananda Bazar Patrika	Ananda Bazar Patrika 6 Prafulla Sarkar Street Kolkata – 700001, West Bengal Mob: +919433444721
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## ANNEXURE – III: Detail of Group Activities

### A) Group Activity on Energy Efficiency –

Ram and Rahim are neighbours. They both have identical houses and electrical usages. Even after having so much similarity, it was found that Ram's electricity bill was way higher than that of Rahim's. This led Ram to introspect what Rahim did to save his electricity consumption.

On introspection it was found that Ram and Rahim had the same electronic equipment's but the only difference being in star rating of the products.

Ram used electrical equipment's without star rating and Rahim used 5 star products at his house. Ram was curious to know the advantages of using star rated products.

On proper research he found the following information:

Sl. No.	No. of E.E	Electrical Equipment's	Hours/ Day	Consumption of electricity (in watts) for both	
				Ram	Rahim
1	3	Incandescent bulb	8 Hours	40Watts	-
2	3	CFL bulb	8 Hours	-	11 Watts
3	2	Normal Fans	6 Hours	80Watts	-
4	2	5 Star labeled Fan	6 Hours	-	50 Watts
5	1	Television (TV)	4 Hours	100 Watts	-
6	1	5 Star labeled TV	4 Hours	-	50 Watts
7	1	Frost Free Fridge	24 Hours	125 Watts	-
8	1	5 Star labeled Frost Free Fridge	24 Hours	-	46 Watts
9	1	1.5 Ton AC	2 Hours	2368 Watts	-
10	1	5 star labeled 1.5 Ton AC	2 Hours	-	1677 Watts

The costs of these equipment's were also provided. The details are given below:

Electricity Equipment	No. of equipment's	Cost in Rs. For Ram	Cost in Rs Rahim
Incandescent Bulb/ CFL bulb	3	20/-	130/-
Fan	2	750/-	1450/-
Fridge	1	7500/-	12000/-
1.5 ton A.C	1	15000/-	20000/-
Television	1	5500/-	13000/-

The participants were asked to find out the following:

- a) Total consumption per month by Ram and Rahim
- b) Units saved per month and then per year by Rahim
- c) Total savings made by Rahim per year considering the fact that per unit cost of electricity is Rs 5/-
- d) Total investment by Ram and Rahim
- e) Rahim's payback period

With the above information the participants were asked to fill in the blanks

Rahim recovers his extra investment in \_\_\_\_\_ years, and continues to save Rs \_\_\_\_\_ every year, but Ram has to go on paying Rs \_\_\_\_\_ more every year because he has not used Star Labeled equipments.

### **B) Group Activity – Drafting and Filling of Complaint**

The following problems were given to the participants and they were asked to draft a complaint letter to the relevant authorities:

1. STOP METER: The meter has not been working for the past one year. Complained several times to the toll free number but no action has been taken yet. The meter number is KH 068975. What should you do as a consumer?
2. High Bill: The per quarter electricity consumption of Mr. Satyuki is 200-220 units. Suddenly the electricity bill for the quarter of April-June the units consumed was 382 Units. What can Mr. Satyuki do as a consumer?
3. Wrong Name in the Bill: Actual Name- PRASANT RAMAKRISHAN, Name in the bill- PRASANTA RAMKRISHNAN. He wants to rectify the name. What can he do?
4. New connection related: Applied for new connection two years back connection still pending. The consumer approached the Station Manager and the RGRO but in vain. Whom should he approach and what all documents should he submit as proof.
5. Voltage Fluctuation: Excessive load is the cause. Previously 50 consumers were there but presently the tally has gone up to 80 consumers but there has been no change in the load capacity of the transformer. Informed Station Manager but no action yet.

### C) Group Activity – Drafting of Press Release/News Article

Two groups presented the following two press releases:

1. CUTS had organised a training workshop for CSOs based on the findings from a study
2. Writers Building will be using Solar Energy

### D) Group Activity – Calculating cost of Electricity

**Problem 1: Calculate the Fuel Cost from the values given below (marked in red) -**

1. Electricity proposed to be generated in the power station during the year in Million Units (MV) = 1803 MV
2. Auxiliary Consumption (say 10% of proposed Energy generation in MU) -
3. Ex-Bus Generation to be delivered = (1-2) MU
4. Station Heat Rate of Power Station in Kilo calories/ KWh = 2940 Kilo calories/ KWh
5. Total Heat Required for generation = 1 X 4 in Million Kilo Calories.
6. G.C.V of Oil in Kilo Calories/Liter = 9584 Kilo Calories/Liter
7. Specific oil consumption in ml/KWh = 2.5 ml/KWh
8. Total Oil Consumed = 1 X 7 in KL (Kilo liters)
9. Average Price of oil in Rs/KL = Rs 31,978
10. Cost of Oil = 8 X 9 in Rs.
11. Heat generation from oil = 6 X 8 ÷ 1000 in million kilo calories.
12. Heat generation from coal = 5 -11 in million kilo calories.
13. Heat value of coal in Kilo Calories / Kg = 4301 Kilo Calories / Kg
14. Coal required = 12 X 1000 ÷ 13 in M.Tonnes.
15. Weighted average price of coal in Rs / MT. = Rs 1858 / MT.
16. Cost of Coal = 14 X 15 in Rs.
17. Total Cost of Fuel = 10 + 16 in Rs.

**Problem 2: Calculate Net ARR & Average Cost of Generation –**

1. Fuel Cost. – Rs241 lakh
2. Coal & Ash Handling charges = Rs. 619 lakh
3. Employees' Cost including Cost of contracted manpower = Rs(2418 lakh + 591 lakh) = Rs 3009 lakhs
4. Administrative & General Expenses = 247 lakhs
5. Rents, Lean Rentals etc. = 83 lakhs
6. Legal and professional Charges
7. Audit Fees = Rs7 lakhs
8. Repair Maintenance including consumables = Rs 2480 lakhs
9. Insurances = Rs 62 lakhs
10. Depreciation = Rs 234 lakhs
11. Interest on loan capital = Rs 278 lakhs
12. Interest on working Capital = Rs 625 lakhs
13. F.E.R.V
14. Bad Debt – Does not occur for a generating station
15. Water charges = Rs 192 lakhs

16. Return on Equity = Rs 949 lakhs

17. Gross Aggregate Revenue Requirement = Sum(1 to 16)

Less<sup>3</sup>: i) Miscellaneous Income from other sources

ii) Other deduction

19. Net ARR to be recovered through tariff = 17 – 18 in Rs.

20. Average Tariff for Purchase = 19 ÷ Ex-Bus Energy sal in Rs./Kwh

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<sup>3</sup> Not given in this problem

## ANNEXURE – IV: Group Presentations

### A) Renewable Energy: What needs to be advocated to schools and How ?

#### Slide 1:

#### Renewable Energy: What needs to be advocated to schools and How?

#### **Group 1**

SHYAMAL PRASAD JANA

DEBASIS PANDA

KALYAN SARKAR

DIPAK KHUTIA

SUKUMAR BERA

SUCHANDRA GANGULY

SANJIB BHANJA

SHUBHRA CHOWDHURY

#### Slide 2:

#### What is Renewable Energy ?

Renewable energy is the energy which comes from natural resources such as sunlight, wind, rain, tides geothermal heat, which are naturally replenished. About 16% of global final energy consumption comes from renewable sources, with 10% coming from traditional biomass, which is mainly used for heating, and 3.4% from hydroelectricity.

**Slide 3:**

**Why are we thinking about renewable energy?**

- High environment pollution
- Threats of Climate change-prolonged summer, irregularity of monsoon , decreasing in food production, health hazards, change in biodiversity etc.
- Natural calamities like tsunami, earthquake
- Depletion of conventional energy like fossil fuel like coal, petroleum etc. and rise in their prices

**Slide 4:**

**Why are we thinking about renewable energy?**

- High environment pollution
- Threats of Climate change-prolonged summer, irregularity of monsoon , decreasing in food production, health hazards, change in biodiversity etc.
- Natural calamities like tsunami, earthquake
- Depletion of conventional energy like fossil fuel like coal, petroleum etc. and rise in their prices

**Slide 5:**

**Initiatives need to be undertaken by Teacher and the School Committee**

- Introduction of renewable energy like solar energy, biogas sources in domestic and institutional use as more as practicable.
- School can conduct the cooking of mid-day meals in biogas and improved chullah or solar energy and this energy can even be used in laboratory.
- Introduction of renewable energy knowledge and use in school curriculum and syllabus.
- District inspectors can be convinced to give this proposal to N.C.E.R.T for implementation

**Slide 6:**

**Initiatives need to be undertaken by Teacher and the School Committee (contd.)**

- Arrangement of seminar, debate, sit-and-draw competition, renewable energy exhibition and model display to increase awareness and interest among students and daily consumes.
- Students and teachers are needed to be exposed to renewable energy manufacturing plants, demonstrated area and renewable energy generating stations in a regular interval.
- Arrangement of skit, street play by students to increase interest among all classes of people. Campaigns can be conducted by students to introduce solar energy in vegetable markets, shopping malls.

**Slide 7:**

**Initiatives need to be undertaken by Teacher and the School Committee (contd.)**

- School should take initiative to electrify the school buildings in solar energy
- Schools should include renewable energy also in the form of vocational training

## **B) Policy Advocacy: Reducing Power Theft for better Demand Side Management**

### **Slide 1:**

#### **Policy Advocacy: Reducing Power Theft for better Demand Side Management**

#### **Group 3**

SANJAY MONDAL

MUSTAK ALI MONDAL

JAKIR H. MOLLICK

BISWAJIT SHAW

SAMARENDRA NATH BAIDYA

BIKASH SAHA

KAMAL DAS

### **Slide 2:**

#### **Negative effects of Power Theft**

- Increasing electricity tariff
- Due to low voltage and power cut in the evening (Peak Hours), many instruments used in the distribution network/line are damaged ,
- Household electronics gadgets and agriculture pump sets are also damaged

Excessive use of Fossil fuel like Coal and Diesel

### **Slide 3:**

#### **To reduce power theft :**

- Capacity building of stakeholders
- Advocacy with relevant stakeholders

**Slide 4:**

**Steps for undertaking Advocacy initiative:**

- Secondary literature review
- Primary data collection
- Analysis and identification of advocacy issues
- Advocating with target stakeholder

**Slide 5:**

**Target Stakeholders:**

- Station Manager
- RGRO
- PRI Functionary
- BDO
- MLA
- Local Police Station
- Media
- Community People

**Slide 6:**

**Action Plan**

- Primary data collection
- Joint meeting with stake holder and media
- Awareness through street play
- Public rally with involvement of SHGs, ICDS, ASHAs workers and Students

**Slide 7:**

**Findings from the primary survey**

- Many consumers hadn't got connection in due time and so they started electricity using illegal means
- Few people think Electricity is their birth right and they don't have to pay for it
- Some influential stakeholders are supporting such malpractices

**Slide 8:**

**Key Advocacy Message**

- Prevent theft for better quality of electricity and improvement of power sector

**Slide 9:**

**Allies and Partnership**

- Policy Supportive CSO/Club
- Farmers Club
- Micro Entrepreneur

**Slide 10:**

**Monitoring and Evaluation**

- Individual communication with stake holder
- Follow up meeting with target groups
- Feedback assessment among community members
- Tally the data pre and post assessment
- Evaluation of the progress of work vis-a-vis objectives
- Documentation

**ANNEXURE – V: Photographs for the Workshop and Field Visit**



## ANNEXURE – VI: Pre and Post Workshop Questionnaire

DREC Project			
State Level Training Workshop, West Bengal (13-17 <sup>th</sup> March, 2012)			
Pre-Workshop Questionnaire			
Name of the Trainee			
Name & Address of the Organisation			
Designation			
Contact Numbers/Email Id			
Educational Qualification:			
S.No	Questions	Options	Comments
1.	Which one of human activities contributes the most to global warming?	1. Ridding cars/scooters 2. Cutting down trees 3. Using fossil fuels for energy	Choose anyone of the options
2.	What are the impacts of global warming?	1. Change in land use pattern 2. Corruption 3. Climate change 4. Soil erosion 5. Pollution 6. Inflation	Choose anyone of the options.
3.	Which statement is true with respect to climate change?	1. Climate change is a myth 2. Climate change is happening 3. Government is responsible for climate change 4. Climate change will not affect human beings	Choose anyone of the options.
4.	Which all are the sources of renewable energy?	1. Solar energy 2. Thermal energy	(Mark all that apply)

		<ol style="list-style-type: none"> <li>3. Nuclear energy</li> <li>4. Hydro energy</li> <li>5. Wind energy</li> <li>6. Biogas</li> <li>7. Coal energy</li> <li>8. Biomass</li> </ol>	
5.	What are the benefits of using electricity produced from renewable energy sources?	<ol style="list-style-type: none"> <li>1. Lower energy bills.</li> <li>2. Good for the environment.</li> <li>3. Less reliance on electric utility companies.</li> <li>4. Good for the economy.</li> <li>5. There will not be any benefit.</li> </ol>	(Mark all that apply)
6.	To satisfy the future energy needs of your State, what options should be given priority too?	<ol style="list-style-type: none"> <li>1. Nuclear power plants</li> <li>2. Power plants that rely on renewable energy resources</li> <li>3. Natural gas power plants</li> <li>4. Coal fired power plants</li> </ol>	(Mark all that apply)
7.	Identify the state level agencies for renewable energy development?	<ol style="list-style-type: none"> <li>1. Bureau of Energy Efficiency (BEE)</li> <li>2. West Bengal Electricity regulatory commission (WBERC)</li> <li>3. West Bengal Renewable Energy Development agency (WBREDA)</li> <li>4. West Bengal State Electricity Distribution Company Ltd. (WBSEDCL)</li> </ol>	(Mark all that apply)
8.	Frequent power cuts & voltage fluctuations occur due to?	<ol style="list-style-type: none"> <li>1. Excess use of energy by industries</li> <li>2. Less production of energy by power producers.</li> <li>3. Inadequate infrastructure of electricity distribution company</li> <li>4. Government schemes to supply electricity is inadequate</li> <li>5. Diminishing energy sources</li> </ol>	(Mark all that apply)
9.	Which of the statement is true with respect to	<ol style="list-style-type: none"> <li>1. CFL saves electricity</li> <li>2. Star rating is a label for</li> </ol>	(Mark all that apply)

	energy efficiency	renewable energy equipment 3. Star rating is a label for energy efficient equipment 4. Energy efficiency saves government expenditure but doesn't benefit common people	
10.	Which type of light bulb is most energy efficient?	1. Regular Light Bulb 2. Compact Fluorescent light bulb (CFL) 3. Fluorescent tubes	Choose anyone of the options
11.	"Energy efficiency should take priority over promotion of renewable energy." Do you agree/disagree with this statement? Kindly elucidate.	1. Agree 2. Disagree Reason(s) -	Choose anyone of the options
12.	Which all are the parts of CSOs responsibility?	1. Participate in regulatory process 2. Raise consumers concerns before the appropriate authority 3. Raise voice against increasing cost of electricity 4. Generate awareness amongst the consumers for energy efficiency and renewable energy 5. Educate consumers about the available financial schemes 6. All of the above	(Mark all that apply)
13.	Whom all does WBERC consults before determining the tariff for electricity?	1. Businesses 2. Central government 3. CSOs 4. Bureaucrats 5. Consumers	(Mark all that apply)
14.	What all tools are available with CSOs for policy advocacy?	1. Press release 2. Street play 3. Petition filing	(Mark all that apply)

		4. RTI application 5. Police complaint 6. Letter to Chief Minister	
15.	What are your expectations from the workshop ?		

**DREC Project****State Level Training Workshop, West Bengal (13-17<sup>th</sup> March, 2012)****Post-Workshop Questionnaire**

Name of the Trainee			
Name & Address of the Organisation			
Designation			
Contact Numbers/Email Id			
Educational Qualification:			
S.No	Questions	Options	Comments
01	Which one of human activities contributes the most to global warming?	4. Ridding cars/scooters 5. Cutting down trees 6. Using fossil fuels for energy	(Mark all that apply)
02	What are the impacts of global warming?	7. Change in land use pattern 8. Corruption 9. Climate change 10. Soil erosion 11. Pollution 12. Inflation	(Mark all that apply)
03	Which statement is true with respect to climate change?	5. Climate change is a myth 6. Climate change is happening 7. Government is responsible for climate change 8. Climate change will not affect human beings	(Mark all that apply)
04	Which all are the sources of renewable energy?	9. Solar energy 10. Thermal energy 11. Nuclear energy	(Mark all that apply)

		<ul style="list-style-type: none"> <li>12. Hydro energy</li> <li>13. Wind energy</li> <li>14. Biogas</li> <li>15. Coal energy</li> <li>16. Biomass</li> </ul>	
05	What are the benefits of using electricity produced from renewable energy sources?	<ul style="list-style-type: none"> <li>1. Lower energy bills.</li> <li>2. Good for the environment.</li> <li>3. Less reliance on electric utility companies.</li> <li>4. Good for the economy.</li> <li>5. There will not be any benefit.</li> </ul>	(Mark all that apply)
06	To satisfy the future energy needs of your State, what options should be given priority too?	<ul style="list-style-type: none"> <li>1. Nuclear power plants</li> <li>2. Power plants that rely on renewable energy resources</li> <li>3. Natural gas power plants</li> <li>4. Coal fired power plants</li> </ul>	(Mark all that apply)
07	Identify the state level agencies for renewable energy development?	<ul style="list-style-type: none"> <li>5. Bureau of Energy Efficiency (BEE)</li> <li>6. West Bengal Electricity regulatory commission (WBERC)</li> <li>7. West Bengal Renewable Energy Development agency (WBREDA)</li> <li>8. West Bengal State Electricity Distribution Company Ltd. (WBSEDCL)</li> </ul>	(Mark all that apply)
08	Frequent power cuts & voltage fluctuations occur due to?	<ul style="list-style-type: none"> <li>6. Excess use of energy by industries</li> <li>7. Less production of energy by power producers.</li> <li>8. Inadequate infrastructure of electricity distribution company</li> <li>9. Government schemes to supply electricity is inadequate</li> <li>10. Diminishing energy sources</li> </ul>	(Mark all that apply)
09	Which of the statement is true with respect to energy efficiency	<ul style="list-style-type: none"> <li>5. CFL saves electricity</li> <li>6. Star rating is a label for renewable energy equipment</li> <li>7. Star rating is a label for energy efficient equipment</li> </ul>	(Mark all that apply)

		8. Energy efficiency saves government expenditure but doesn't benefit common people	
10	Which type of light bulb is most energy efficient?	4. Regular Light Bulb 5. Compact Fluorescent light bulb (CFL) 6. Fluorescent tubes	(Mark all that apply)
11	"Energy efficiency should take priority over promotion of renewable energy." Do you agree/disagree with this statement? Kindly elucidate.		
12	Which all are the parts of CSOs responsibility?	7. Participate in regulatory process 8. Raise consumers concerns before the appropriate authority 9. Raise voice against increasing cost of electricity 10. Generate awareness amongst the consumers for energy efficiency and renewable energy 11. Educate consumers about the available financial schemes 12. All of the above	(Mark all that apply)
13	Whom all does WBERC consults before determining the tariff for electricity?	6. Businesses 7. Central government 8. CSOs 9. Bureaucrats 10. Consumers	(Mark all that apply)
14	What all tools are available with CSOs for policy advocacy?	7. Press release 8. Street play 9. Petition filing 10. RTI application 11. Police complaint 12. Letter to Chief Minister	(Mark all that apply)

## ANNEXURE – VII: Feedback Form

### FEEDBACK FORM

**\*This feedback form shall administer anonymously, therefore please do not mention your or your organisations name anywhere in this form.**

S. no.	Questions	Responses	Remarks
1.	Overall, how would you rate the training?	1. Excellent 2. Very Good 3. Fair 4. Satisfactory 5. Unsatisfactory	
2.	How did you find the resource material provided to you?	1. Excellent 2. Good 3. Fair 4. Poor	
3.	How did you rate the resource persons during training program?	1. Excellent 2. Good 3. Fair 4. Poor	
4.	Did you feel that any of the sessions were rushed or not presented in enough detail?	1. Yes 2. No 3. Not sure	
5.	Did you have opportunity to interact during the sessions on your queries and concerns?	1. Yes 2. No 3. Sometimes	
6.	Were there any topics/subjects included in the programme that have not been useful to you at all?	1. Yes 2. No	If yes, please elucidate
7.	How do you rate the field visit?	1. Excellent 2. Good 3. Fair 4. Poor	
8.	How far the field visit is relevant and related to the course content?	1. Excellent 2. Good 3. Fair 4. Poor	

9.	What part of the training programme did you consider most valuable? Why?	
10.	Have your expectations from the workshop been fulfilled? Please elaborate	
11.	What improvements would you suggest to make future training workshops more interesting and enriching?	
12.	Do you think that the capacity that you gained from this workshop is sufficient to start working on energy issues, particularly regarding DSM & RE?	
13.	Are you interested to participate in similar workshops in future?	