Executive Summary of the UGC Minor Project

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Towards Sustainable Development through CFL usage under Clean Development Mechanism Project: A case study of Domestic Energy Consumption in Rural Ernakulam

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Kerala is the first state in India to recognise the potential in reducing peak electricity demand and completed the BLY scheme initiated by BEE to harness the enormous potential of energy saving bulbs in reducing power load in the most cost-effective and economic manner. The Energy Management Centre (EMC), Kerala, along with Kerala State Electricity Board Limited (KSEBL), distributed 1.27 crore CFLs in the household sector for replacement of incandescent bulbs in 2009.

The present study was an attempt to place on record the joint initiatives taken up by KSEBL through EMC to implement the BLY of distributing CFLs towards reducing greenhouse gases (or CO_2) from power plants connected to the grid. Though it has been claimed by all concerned that the scheme has been a success, there have been many shortcomings. By sourcing CFLs from Philips, KSEBL and EMC could distribute only 13 million of them instead of 15 million across the state during the first two editions of the scheme, which reduced the state's power consumption by 300 MW, or 10 per cent. But the Board has reportedly incurred substantial losses as a large number of CFLs procured for the first two editions of the Labha Prabha energy conservation scheme in 2013 have been stacked at its various section offices for want of takers. Another significant impediment to the BLY scheme was the volatile carbon market. When the scheme was launched, CER price was €12 (around Rs 780) which in 2012 touched an all-time low at around €3. The carbon market crash stopped all the projects registered under BLY because it became difficult to subsidize CFLs. Of the

17 states that had initiated works on BLY, Kerala is the only state to have replaced all its incandescent bulbs with CFLs solely because of government intervention.

The study also tried to shed light on rural domestic electricity consumption in Ernakulam district in Kerala with special focus on the use of energy saving bulbs – CFLs towards reducing electricity consumption. The study, thus analysed the participation of rural households in Ernakulam district during the BLY scheme and its post implementation period and also their perception towards energy saving bulbs. To comprehend the same, a survey was conducted among sixty households in rural areas of Ernakulam district. The selection of samples was randomly done and a structured questionnaire was administered among these sample households to understand their involvement in the CFL programme to reduce electricity consumption and their awareness on energy conservation strategies.

On an average a household has five to six CFLs installed and majority of the households prefer CFLs due to its energy saving attribute. Saving money on their electricity bills was another important attribute for preferring CFLs. One of the main reasons for dissatisfaction with CFLs was reported to be slow turning on of the bulbs. Shorter life span of the bulbs, lack of brightness and disposal issues are the other crucial reasons indicated by the households. Even though 90% of the households in the sample stated that they are aware of the CFL scheme only 82% participated in the scheme. For some households the scheme gave an opportunity to consume CFLs for the first time that too at a lower cost. An effort to comprehend the reasons for participating in the programme revealed the prime reason to be the reduction in electricity bills. The study found that 82% households experienced a reduction in their electricity bills due to their participation in the CFL scheme. The second preferred reason was reported to be their interest in participating in an energy saving campaign and the third was procurement of the CFLs at a lower cost. 26.7% households ranked participation in an energy saving campaign as their second priority and 25% ranked procurement of

CFLs at lower cost as their third priority. 18% households which were not part of the programme reported that their non-participation was due to lack of awareness about the scheme. This points to the inadequacy of the publicity mechanism. 63% households which were part of the scheme reported that the length of the CFL bulbs procured under the scheme lasted for a period of six months to one year.

The study also analysed whether the scheme inculcated a habit of consuming energy saving bulbs and found that 39% households still use the CFLs obtained under the scheme while 59% continued using CFLs even after the life span of those obtained under the scheme. Another objective of the study was to identify the number of households which participated in the scheme and have replaced all the incandescent bulbs with CFLs. 10% households which did not replace the bulbs stated higher price of CFLs as a deterrent in purchasing them. Disposal of the bulbs after use was another significant reason for not replacing it. Finally the study estimated an awareness score for the households and observed that 14% households have low awareness, 68% have moderate awareness and 18% have high awareness.

To sum up, even though domestic consumers are convinced that CFLs and LEDs save energy, they are not convinced that these bulbs save them money. The reasons quoted by researchers are 1) consumers have no idea about the influence of lighting on their energy bills as it is difficult to estimate, 2) if they consider trying to lower the bill, they think about lowering the use of electrical appliances instead of replacing with CFLs or LEDs and 3) consumers cannot verify the savings on their energy bills. Thus it is highly recommended that the government and the DISCOMs must concentrate more on convincing the consumers in this regard by increasing their promotion of efficient lighting via their residential CFL or LED campaigns.