

Improving Gender Inclusive Access to Clean and Renewable Energy in Bhutan, Nepal and Sri Lanka

An ADB-Supported Project to Achieve Gender Equality Results in the Energy Sector

ENERGIA
INTERNATIONAL NETWORK ON
GENDER AND SUSTAINABLE ENERGY





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Introduction

Between 2012 and 2015, the Asian Development Bank (ADB) supported a multi-country grant assistance project entitled, “Improving Gender-Inclusive Access to Clean and Renewable Energy in Bhutan, Nepal and Sri Lanka,” funded under the Japan Fund for Poverty Reduction (JFPR) and coded in the ADB database as JFPR 9158. The project was designed to gear three ADB-financed energy projects in the three covered developing member countries (DMCs) towards contributing to women’s empowerment and gender equality in the energy sector. These three energy projects were the: (i) Bhutan: Rural Renewable Energy Development Project (Grant 0228); (ii) Nepal: Electricity Transmission Expansion and Supply Improvement Project (Loan 2808); and (iii) Sri Lanka: Sustainable Power Sector II Project (Loan 2733).

JFPR 9158 was implemented by ENERGIA, the International Network on Gender and Sustainable Energy, in collaboration with the Royal Society for Protection of Nature, Bhutan (RSPN), Centre for Rural Technology Nepal (CRT/N), and Practical Action Sri Lanka. The project results have provided the ADB South Asia Department (SARD) with models for pursuing gender inclusive operations of its supported energy projects and optimizing the energy resources provided by these projects for women’s empowerment and gender equality.

This paper presents an overview of JFPR 9158, including its background, key strategies, results, and lessons.

Background

Energy and poverty in South Asia

Energy is a critical factor in any poverty reduction strategy. Energy services help meet basic human needs for cooked food, comfortable living temperatures, lighting, work-saving appliances, piped water and sewage systems, modern health care, educational and communication opportunities, and swift transportation. Energy is also essential for generating production, income, and employment. Among the ADB South Asia Department (SARD) DMCs, Bhutan and Nepal are at the lower end of the Human Development Index (HDI) scale (i.e., at or below 0.7). They stand to benefit most from increased access to electricity supplies.

Box 1: Why Mainstream Gender in Rural Electrification Programmes?

- To increase positive impacts on women;
- To maximise the overall impacts of a rural electrification programme;
- To contribute to improving women's and men's livelihood opportunities and empowering women; and
- Most importantly, to ensure that women and men benefit equally from rural electrification.

Rural communities that do not have access to electricity or cannot afford it rely on traditional energy sources, such as fuel wood, dung, agricultural waste, charcoal, and kerosene. In rural South Asia, fuel wood is the most important source of primary energy for household needs and many non-household activities rely on it as well. Women generally do the work of collecting, transporting, and processing these traditional energy sources. It consumes a lot of their time and physical energy. The consequences of the progressive depletion of these fuel resources for women and their children in South Asia are serious. They must cover longer distances and spend more time and effort in providing their households with energy sources. Studies have shown that they also suffer disproportionately from the negative health and morbidity impacts that traditional fuel use brings. Women spend much of their time in the smoke polluted air of the home doing household chores and caring for their children at the same time.

Energy, poverty and gender

ADB's Energy for All initiative acknowledges that access to energy and the forms of energy used have gender-differentiated impacts and that modern energy services have the potential to improve gender imbalances and the position of women in poor communities. The growing use of renewable energy presents special opportunities to promote the involvement of women in the energy sector and to enhance their income and livelihood opportunities. Rural electrification can benefit women by reducing their household labor time and improving their health, security, and incomes. While wider

electricity coverage through expanded and strengthened transmission and distribution networks in rural areas is essential, it is important to go beyond the meter, that is, to go beyond counting the new connections installed, and ensure that these connections include poor and disadvantaged communities. In Sri Lanka and Nepal, where some project sites are in conflict-affected areas, these targeted interventions include women-headed households or households headed by women widowed by war.

The needs of the women and men in poor, isolated rural communities in Bhutan, Nepal, and Sri Lanka include greater access to clean and renewable energy sources and technologies and energy-based livelihood opportunities. Access to modern energy sources can enhance women's livelihoods by providing electricity for their microenterprises, which tend to be heat-, labor-, or light-intensive. Gender-inclusive interventions maximize the opportunities for higher incomes and better livelihoods that rural electrification brings to both the women and men of newly electrified rural communities.



Training programme on sewing machine maintenance and repair in Ampara, Sri Lanka

Box 2: **The Gender, Energy and Poverty Linkage in South Asia: Key Issues**

- High dependence on traditional biomass for energy use pattern has disproportionate negative impacts on women in South Asia.
- In South Asian countries, national development goals and policies highlight 'inclusive' development; the energy sector policies and programme documents however are mostly silent on gender.
- Women do not automatically benefit from energy investments. Unequal access to information and markets, and limited financial capacity hinders women's ability to maximize available energy resources.
- Women spend huge amounts of time and labour in exhausting and unpaid tasks such as water and fuel collection, many of which could be made easier with use of modern energy.
- Women often lack participation in formal system of engagement and consultations, and have low representation in decision making bodies.

Source: ENERGIA

Project Objective and Components

The objective of JFPR 9158 was to increase rural poor women's access to affordable and reliable clean and renewable energy sources and technologies in selected project sites in three developing member countries of ADB in South Asia: Bhutan, Nepal and Sri Lanka.

The project had three components: Component A was a gender review of the energy sector; Component B consisted of direct interventions supporting gender-inclusive access to energy and energy-based livelihoods; and Component C was the designing and use of a project performance management system. As part of Component A, gender reviews of national energy sector policies and programmes in the three DMCs were undertaken. These were supplemented with a gender review of the energy sector of other South Asian countries. The Regional Review assessed the gender inclusiveness of the energy sector at three levels: policy, programmes and organisations. The review largely focused on electricity access, including grid extension and off-grid electrification options, though experiences in other sectors were also assessed, primarily to identify good practices that could be applied to the electricity sector. Box 3 presents the three project components.

Box 3: Project Components

- **Component A:** Gender review of the energy sector policies, documenting good practices in incorporating pro-poor and gender-related aspects of national energy policies, laws and regulations in the three countries
- **Component B:** Direct intervention in project communities to strengthen energy-based livelihoods for rural women, through training on energy, business development and management; handholding support, facilitation of financial and marketing linkages
- **Component C:** Project Performance and Monitoring System (PPMS) to systematically monitor and document the project social and gender-related processes and results

Source: JFPR 9158 project document

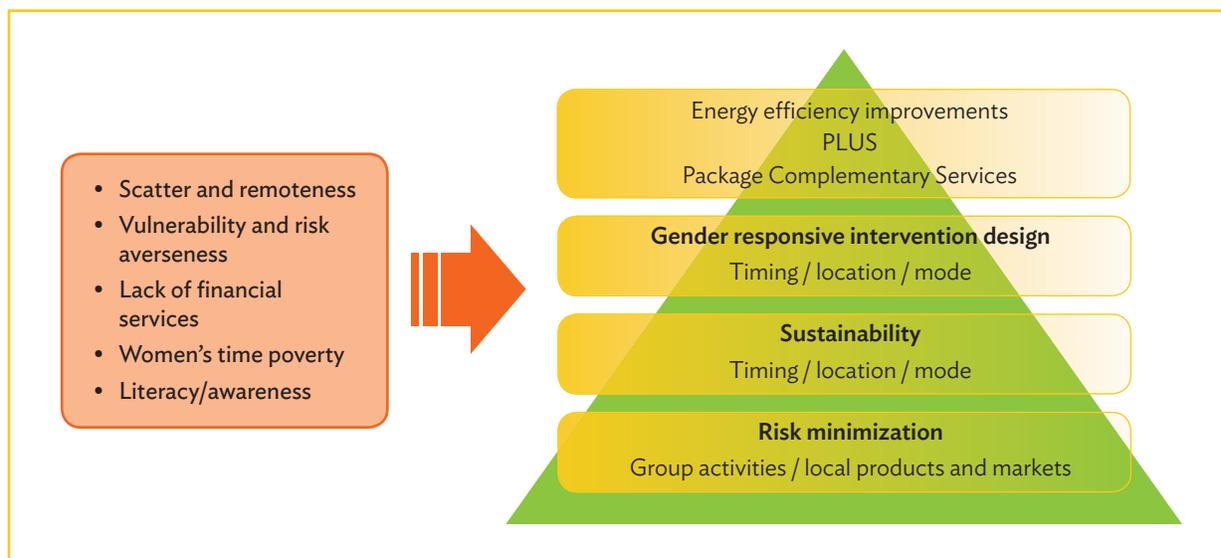


An awareness raising programme on electricity use in a school in Zhemgang, Bhutan

Project Strategies

The project strengthened energy-based enterprises and livelihoods of women through capacity building and a range of other strategies. The formulation of these strategies was guided by a framework illustrated in Figure 1. The left panel of Figure 1 explains the project-identified bottlenecks faced by women entrepreneurs. On the right side are key elements considered in designing the interventions.

Figure 1. Enterprise Development: Challenges Faced and Strategy Pillars



Specific strategies employed were the following:

Energyplus' services for women's enterprises

The project identified specific barriers to growth per enterprise, and systematically addressed them. These included interventions in areas of energy efficiency and usage, as well as in product improvement and quality assurance; business development; and advanced skills development, including building the understanding of prevailing laws and regulations and market development trends. Given women's limited mobility, especially in remote locations, this package of services was taken right to the doorstep of the women entrepreneur.

In Bhutan, the identified primary gap in bamboo craft livelihood was the sub-standard quality and poor design of bamboo products resulting into their low prices in the market. Accordingly, the training programme was focused on product quality assurance and new designs, sustainable resource management, income generation, market assessment and use of electric machines to increase the production. Also, the local Bamboo Craft Centre was electrified, which enabled the members to take more orders and work through the evenings when required.

In Nepal, women poultry unit owners who benefited from the improved electricity of their poultry farms were also educated on maintaining hygiene practices in poultry farms; prevention, diagnosis and treatment of common poultry diseases; and improved feeding practices.

Energy improvements as a core theme in enterprise development

All enterprise development programmes, irrespective of their nature and type, gained from energy improvement techniques, many of which are simple and inexpensive. For example, women owning tailoring units in Sri Lanka were trained in the proper use of machine motors, as well as in day-to-day maintenance of their sewing machines, for which the project tied up with Singer, a leading manufacturer of sewing machines. Once familiar with the machines, several women were encouraged to motorize their manual electrical machines and enjoy an increased productivity and incomes. Similarly, a number of women, who were engaged in dairy businesses, improved their productivity and profits by part-mechanisation of the process and use of electric blenders.

Gender-responsive planning

All interventions were informed by the specific constraints and obstacles women face as entrepreneurs. For example, local customs determine to what extent women can do paid work outside their homes. Also, women's mobility is often restricted and may have consequences for their safety/ reputation. These were considered in plan formulation. Specific information, knowledge, skills and capacity needs were also determined through discussions and community dialogues. In response to specific needs of women in different areas, support package was designed for each location.

Box 4: Conditions to Consider in Working with Women Entrepreneurs

- In many cases, women need to obtain permission of their husbands to attend training.
- Young mothers come with babies.
- Women are not as literate and exposed as men, and tend to be quiet in meetings with men. Young mothers come with babies, for which arrangements may need to be made, at or near training venue.
- Women can come to training events only after completing or organising their daily domestic chores.
- Women find it difficult to travel alone, and hence attending training events away from their homes is a challenge.

Ensuring sustainability of interventions

To ensure institutional and social sustainability, interventions need to be built on what is available and what is local. The teams worked with women's groups, business organizations, local youth, local leaders and staff from local government institutions.

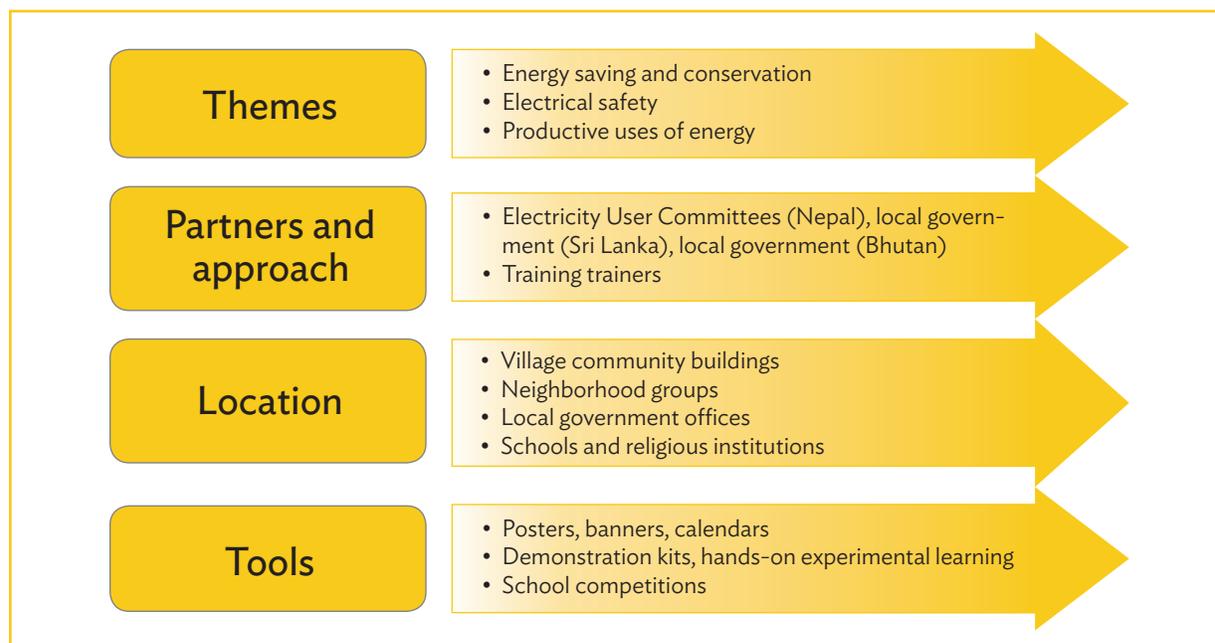
Awareness raising campaigns

Strategies utilized to undertake the awareness campaigns on the productive and efficient use of electricity were the following:

- The target groups of the awareness programmes included women, school children, government offices and establishments, religious institutions in newly electrified communities.
- A cadre of local leaders, youth, women and workers of local community based organisations were trained and engaged in awareness campaigns. Health Centre representatives were engaged for educating on electricity related accidents and first aid.
- The campaigns, which were attended by women in large numbers, were conducted at convenient, neighborhood locations.
- Discussions and presentations at the campaigns used demonstration kits/boards to which different types of bulbs/light emitting devices and holders were mounted. These gave people a hands-on experience with trouble shooting tasks like changing the fuse. People were also taught to calculate power consumption of different devices.
- Other demonstrated items included night lamps, table lamps, lamp shades, and domestic energy efficient rice cookers.
- Awareness materials used included posters and banners for display, animation videos, jokes and practical demonstration with electrical appliances and street plays. Debates and competitions like singing, drawing etc and quiz contests in schools were appreciated.
- Another effective tool was the airing of jokes and jingles on safety and efficient use of electricity in Bhutan Broadcasting Service Radio for a duration of 3 months to coincide with the field level awareness campaign.

These strategies are summed up and illustrated in Figure 2.

Figure 2. Approach for Awareness Creation on Electricity Use



Project Results

The project results are in four areas: (i) energy-based enterprise development in Bhutan, Nepal and Sri Lanka; (ii) strengthening community participation in rural electrification in Nepal; (iii) educating communities on the productive and efficient use of electricity; and (iv) gender review of energy policies and programs in the three countries and other countries of South Asia.

Energy-based enterprise development

The endline surveys in Bhutan and Sri Lanka showed the following initial results of Component B (energy-based livelihood development interventions) of the Project. The survey in Nepal was not implemented because of the earthquake and aftershocks starting April 2015.

- 53% of the trained individuals started their own enterprises after the training (Sri Lanka)
- A (self) reported increase in number of products sold per month by 73% after training, and an income increase of more than 200%, resulting from the improvement of product quality and design (Bamboo crafts, Bhutan)
- A 28% increase in average production sold, and a 59% increase in the monthly average income (Sri Lanka)

Table shows the outcome of the training in bamboo craft enterprises, which women considered as a promising livelihood given the installation of electricity in their communities.

Table: Reported Increase in Income from Bamboo Craft Enterprises

Indicators	Before Training	After Training
Average number of products sold per month	15	26
Average monthly income (NU)	1,868	6,100
Average number of persons engaged	2	2
Average hours spent per day on enterprise	6	8
Number of enterprises those availed loans	0	1

Source: JFPR 9158 Bhutan Endline Survey

Engaging with local institutions in strengthening community rural electrification in Nepal

In Nepal, the Community Rural Electrification Programme (CREP), Electricity Users Cooperatives (EUC), as under community based organisations, play a significant role. They replace electricity in bulk from the grid and retailed it to electricity users within their command area. To apply for support under the programme, a community has to form a legal entity, called the Community Rural Electrification Entity (CREE), which

is registered at the district level. The CREEs offer a range of services including micro-financing loans to their members; facilitating the productive use of electricity; and providing financial support to the poorest members. The cost of operating and maintaining the facilities is charged to the revenue generated from the tariff.

In 2013, under the JFPR Grant, Centre for Rural Technology/ Nepal CRT/N in collaboration with ENERGIA, and National Association of Community Electricity Users Nepal NACEUN, conducted management training programmes for staff of ten EUCs in Nepal. The primary objective of EUC management training was to strengthen the technical and organizational capabilities of the EUCs operating within the CREP and thereby increase end user capabilities. After the in-session training programme, follow up support to the EUCs was provided at three levels: (a) at EUC level for sustained institutional back up support, (b) at enterprise level for motivation and need based counselling support, and (c) at business community level for market linkages and business promotion.

One of the EUCs the project worked with was the GhodaGhodi EUC in Kailali district. The process adopted by this EUC and the results achieved are detailed out in the accompanying case study “Community rural electrification in Nepal: Enhancing gender capacities.”

Educating communities on the use of electricity

To complement the electrification efforts of the Electricity Utility in all three countries, campaigns were run to raise awareness on electricity use in newly electrified areas: sensitizing the community men and women on efficient use of electricity, energy use for livelihood enhancement and to disseminate the message of electrical safety.

Changes that resulted from these awareness raising activities were:

Enhanced awareness levels:

- 87% women and 44% men who participated in awareness campaigns demonstrate awareness on electricity use and safety (Sri Lanka).
- In general, women were found to be more active in transfer of such knowledge to children and other members of the family since it was them who were constantly using electricity. In Sri Lanka, the endline survey revealed that the understanding on electricity saving methods was higher among women: 87% women were able to recall more than two electricity saving methods, while 13% didn't respond. Among men, 44% recalled two methods, while 40% were not available to answer and 16% did not respond.
- 75% of men and 87% of women who participated in awareness campaigns demonstrated awareness of safety aspects, while 75% men and 81% women demonstrated awareness of efficiency aspects (Bhutan). In Bhutan, all women are aware that

Box 5: Population Covered Through Awareness Programmes on Electricity Use

- 11,430 (4075 men and 7355 women) in Sri Lanka
- 4891 (2298 men and 2593 women and girls) in Bhutan
- 1926 school children and 11,000 community members in Nepal

Box 6: Energy Efficiency Measures Adopted by Households After Awareness Programmes

- Use of energy saving bulbs (CFL/LED) for saving household electricity consumption
- Use of table fans instead of ceiling fans for cooling air
- Reducing the frequency of ironing to once a week (instead of daily)
- Opening of windows during nights (for cooling)
- Switching off refrigerator during peak hours
- Women also mentioned several other measures such as reducing the use of rice cookers, reducing the number of times the refrigerator is opened, reducing the use of electric items during hours.

lightning can damage their electrical appliances and that they plug out all such appliances during such events. A mother shared “even my 7 year-old son plugs off the electronics during lightning.”

Improvements in energy use:

- Energy conservation and reduced hours of use of electrical appliances: In Sri Lanka, users reported reduction in hours of water heating; rice cookers; incandescent bulbs; and in TV usage.
- Use of efficient electrical appliances: In Sri Lanka, 8% of the users reported increase in the use of table fans (which are more energy efficient than ceiling fans); and a 67% rise in the use of chargers.
- The survey in Sri Lanka showed that 100% of the surveyed households reported applying more than one method. The number of men who responded to the question was 19 while 47 women responded.

JFPR 9158 also provided capacity building support to 1600 people. Specific training courses provided and number of participants for each course are the following:

- Business development: 183 persons (137 women and 46 men), Sri Lanka
- Value addition in tailoring businesses: 272 participants (266 women and 6 men), Sri Lanka
- Assembly of LED bulbs: 190 participants (150 men and 40 women), Sri Lanka
- **Fruit processing technologies:** 70 participants (23 men and 37 women), Sri Lanka
- Farm management and dairy processing: 69 participants (25 men and 44 women), Sri Lanka.
- Value addition and energy use in bamboo and cane crafts: 181 participants (65 men and 116 women), and electrification of the Bjoka Bamboo Craft Centre, Bhutan
- Sustainable harvesting of forest products: Training was provided for 53 participants (25 women and 28 men), Bhutan
- Enhancing the productivity of vegetable growing: 36 farmers (18 women and 18 men), Bhutan
- Advanced tailoring, spice grinding, poultry farming, incense making, bamboo crafts, bakery, vegetable farming, hotel enterprises, spice grinding and poultry farming (116 women), Nepal

Emerging Lessons and Good Practices

Improve policy development and programme processes

Establish gender-sensitive targets and indicators for energy programmes

Integrate gender aspects in energy planning processes, supported by guidelines, tools and financial allocations. Maintain a focus on clear targets, outcomes and monitoring frameworks that consider women and disadvantaged groups.

Integrate gender in on-going processes

Ensure women's inputs in surveys, evaluations and sector reviews

Build on national and provincial decentralized governance systems

Provide mechanisms to engage women at the grassroots level in decentralized planning processes and government systems, such as designing, implementing and monitoring local energy initiatives.

Build local capacity to engender energy programming

Strengthen institutional capacities at the national and provincial levels to integrate gender into energy planning processes by providing technical advice and gender expertise to relevant institutions.

Enable benefits from energy interventions

Promote productive use of energy for women

Enable women to enhance their incomes and livelihoods, both for traditional income-generating activities and new types of entrepreneurial activities, through energy interventions (Box 7).

Box 7: Gains of Promoting Productive Uses of Energy Among Women

- A large number of women are engaged in small and medium-sized enterprises; those that are home based and informal are likely to gain the most from productive use of energy.
- Research has shown that when women earn an income, they reinvest up to 90% of it into their families and communities, especially in the education of their children, including girls, offering huge developmental gains.
- For the Utility, higher profitability of electricity consuming enterprises means better returns in terms of payment of electric tariffs and reduced defaults.

Provide women with energy-related information and training

Train women on technical and business development aspects of energy projects, and ensure that they have access to information on available energy options and provisions. Employ alternative communication channels, especially in remote areas.

Ensure participation of women in energy planning and decision making

Stipulate targets for representation of existing women's associations and women's NGOs in energy policy planning through public consultations, and provide leadership and confidence-building trainings to ensure their effective participation.

Value addition in rural electrification efforts

Consider these questions to ensure that women are targeted

Who is the primary user of rural electrification? Who is the primary point of contact for promotion? Who controls investment and power point location decisions? Who receives promotional information and user training? Do female-owned households and enterprises have equal access to electrification (as male-owned counterparts)? Are women employed by local contractors and in electricity sector institutions?

Ensure that electrification expansion is accompanied with a rigorous user education programme

- Local community-based organizations, for example the EUCs (in Nepal) that are already engaged in electrification, must have a central role in this function.
- User education programmes must be taken to the last consumer and be conducted not centrally, but at decentralized, easy-to-reach locations including neighbourhoods and hamlets.
- It is useful to engage women as key “motivators” in the delivery of energy conservation and efficiency in households and communities.
- Women must be specifically targeted in user education programmes, ensuring that the content, presentation, selection of appropriate awareness advocates, timing and mode of delivery are conducive to women. Pictorial and hands-on mediums that minimize text-based content are appropriate. In communication material, it is necessary to avoid gender stereotypes (for example, showing only men handling electricity repairs, and women performing domestic chores).



Resource persons carrying out awareness programmes on electricity use in Bhutan

Demonstration kits that enable women to get hands on experience and perform simple tasks like changing the fuse are effective.

- Reaching children through local schools is an effective strategy for educating the future generation. School programmes are effective when made interesting through quizzes, debates, drawing competitions and hands-on activities etc. Getting a buy-in for the school staff is critical.
- An important element of user education is helping people understand how monthly bills are calculated and identify specific items where savings can be made easily, and to demonstrate actual savings through comparison of electric bills (if possible, before and after awareness).

Energy-based enterprise development for women

- Partner with local NGOs and CBOs to implement livelihood programmes which include training for women in use of labour-saving energy technologies; access to credit; business management; marketing strategies and other business development services.
- Introduce energy efficiency improvements¹ as a core theme in enterprise development. All enterprise development programmes, irrespective of the nature and type of enterprise, stand to gain from energy efficiency techniques.
- Incorporate ‘energy plus’ services for productive uses of energy/ enterprise development. Energy-plus services may be defined as interventions on energy use that are accompanied by other inputs ranging from product quality assurance, finance and marketing linkages and business development support. Because of women’s limited mobility, especially in remote locations, there is a need to bring the package of services right to the doorsteps of the women-entrepreneurs.
- Training programmes, when conducted for women, must take into cognizance the specific constraints they face.
- Measures that increase women’s agency and reduce their dependence on others can go a long way in sustainability of interventions. An important element of this is to help women ‘understand the technologies they work with’ and inform them on basic maintenance and troubleshooting of the equipment they use.

¹ Energy efficiency can be defined as “using less energy to provide the same service”. (<http://eetd.lbl.gov/ee/ee-1.html>)

