

Program gives a boost to rural economy

Solar succeeds in Nepal

Programs that bring electricity to remote regions of the world often result in immediate and dramatic improvements to the health and welfare of isolated communities. Long-term success, however, requires continued support and funding. One of the best ways to assure this is for rural electrification programs to be economically self-sustaining. That was the lofty goal of a carefully planned effort by the Solar Electric Light Fund (SELF), a Washington D.C. based not-for-profit organization, that brought Siemens Solar home power systems to Pulimarang, a remote mountain village in central Nepal.



Residents of Pulimarang have realized the benefits of solar electricity. In a region where life is good but money is scarce, over three quarters of the households have been able to purchase and pay for Siemens Solar powered systems through programs facilitated by the Solar Electric Light Fund.

Solar lights increase the ability of villagers to earn cash income and lessen the need for some of them to leave the region to support their families. The solar home system program has spread to neighboring villages and its popularity has spawned a technical and support infrastructure (to install, service and maintain the systems) further contributing to the local economy.

After five years of successful operation, the program has clearly achieved its goal. Not only are all of the original Siemens Solar systems still working, their number has nearly doubled. A majority of village households now have solar systems and neighboring villages have begun acquiring them as well.

Behind the success at Pulimarang

SELF understood that a viable program must recognize and use local resources to be of real value to the people. Their effort began by working in association with the Centre for Renewable Energy in Katmandu to select a typical village in a suitable region. The remote Gurkha village of Pulimarang was chosen. Although less than 120km from the capital, it takes more than 12 hours of tough driving in a 4-wheel drive vehicle to get there. Further, its isolation and lack of natural energy resources made photovoltaic power the only feasible way to supply electricity to the region, which was not scheduled receive grid electricity for decades.

Pulimarang is typical of many villages in Nepal. Economically, it is mostly self-sufficient. Families live in well-built homes with fertile land for crops and livestock. However, with little surplus to sell, cash incomes are modest. This poses a genuine problem when it is necessary to buy and import goods. Often some family members would have to leave the region to earn additional income.

Involving the villagers

The program was introduced to the village in a series of meetings. Residents learned about the operation and advantages of solar electricity and the procedures for subsidized purchases of solar home systems. A village management committee was chosen to administer the program and three villagers were selected to receive basic solar training. Solar Electric Company (SEC), a Siemens Solar distributor in Katmandu, provided the training, handled the initial installations and continues to provide back-up support. After the initial meetings, forty-six families decided to acquire systems. Each received a solar home system complete with a Siemens SP36 module, a 70AH battery, charge controller, three 8 watt fluorescent lights and a user's guide.

In a study conducted one year after the first installations to evaluate the systems and their impact on the community, participants voiced



overwhelming support for the program. Speaking to researchers from the Institute of Engineering at Tribhuvan University, Katmandu, and Germany's Fraunhofer Institute for Solar Energy Systems (ISE), villagers extolled the virtues of solar powered fluorescent light over kerosene lamps. They enjoy the brighter light, no fumes, safety, and substantial savings from reduced kerosene consumption. They also cited better education, entertainment and improved earnings as direct benefits of the solar systems. Besides concerns about fires, a number of people found that solar lights kept wild animals away from the house at night.

The market begins to grow

Eighteen more Pulimarang families have since joined the program, using a revolving fund created by repayments from the first 46 systems. Three of four households now own a solar system and the program is spreading. Two neighboring villages, Risti and Mirlung, have already installed 30 systems and applications are pending for 60 more. The success of the Pulimarang model has led the Nepal government to subsidize several hundred systems a year. But the subsidies, administered by the Agricultural Development Bank of Nepal (ADB/N), are not nearly sufficient to satisfy the growing demand.

A network of dealers has emerged to service and support continuing program expansion. SELF sees this as one sign that a sustainable market has formed. The best indication, however, comes from the families who, rather than waiting for subsidies, are willing to pay full market prices to begin enjoying the benefits of solar living immediately.