GGBP Case Study Series

Microfinance for the Solar Home Systems Program in Bangladesh

Related Chapter: Mobilizing investment

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Sector(s): Energy

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The Bangladesh solar home systems program, pioneered by non-governmental organizations such as Grameen Shakti and supported by the government's Infrastructure Development Company Ltd., has developed a dealer network providing a marketing, microcredit, and after sales service to enable rural households to buy renewable energy systems for lighting and mobile phone charging.

Context

Despite rapid economic growth in Bangladesh, about 43 percent of the country still lives below the international poverty line (UNDP n.d.). Sixty percent of the population (mainly in rural areas) has no access to electricity from the national grid as of 2012 (World Bank n.d.).

The government has a national vision of universal access to electricity by 2020, but grid expansion is not an option in the foreseeable future in many rural areas, because of pressures on the budget, the shortage in the gas supply for electricity generation, and the difficulty of the terrain.

Solar home systems (SHS) can be used to generate electricity for lighting and small appliances, bringing immediate benefits to householders and small businesses (such as tea shops and stores) and reducing the pressure on the government budget for grid expansion. They pay back in energy saving terms within 7–8 years (i.e. taking into account the energy used to manufacture the system), and provide opportunities for local enterprise development

in component manufacture, sales and service (Hoque and Das, 2013).

While the costs of the components of the SHS are coming down owing to the global price trends for photovoltaic(PV) panels, they remain a dauntingly high up-front investment for poor rural households. For a market for SHS to be established, households would need access to credit, and there would need to be a network of vendors and maintenance engineers who could develop the confidence of consumers on a highly priced and relatively unknown product (Kumar and Zubair, 2013).

Approach

Building on the demonstrations of the solar home microcredit business by non-profit pioneers such as Grameen Shakti, the government set up a national program to provide dealer credit to households to purchase SHS. The program is managed by the Infrastructure Development Company Ltd. (IDCOL).

The program sets standards for equipment and provides loans, training, and support to 47 partner organizations (POs) such as BRAC, a non-governmental organization based in Bangladesh, Grameen Shakti and other private sector companies, which act as equipment dealers and provide microcredit loans to individual poor households.

The program is funded through long-term zero-interest loans from the World Bank and other international donors to IDCOL. IDCOL provided loans to the POs at shorter terms and higher rates to the POs.

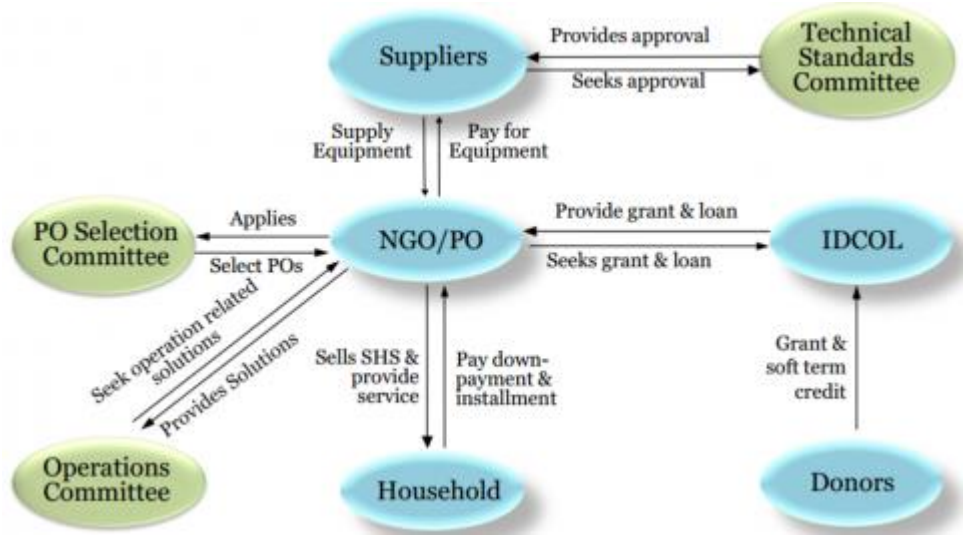
This results in final loans to households with an 8–15 percent flat interest rate over one to five years. No collateral is required, and the repayment terms are designed so that monthly instalment payments are competitive with equivalent kerosene costs. At each step the margin on the interest rate acts as a subsidy to the cost of promoting and administering the program, such as training householders on routine maintenance and repairs (Ratnayake, 2005).

A system of standards and product warranties governs equipment risk; equipment suppliers to the program are required to provide a warranty to the POs (ranging from 20 years for the solar module to three years for the charge controller and circuit). If these components stop performing customers can stop their payments until the problem is resolved. POs compete to offer attractive credit packages which mitigate other risks. For example, Grameen Shakti offers additional warranties for a fee and will buy back the system if grid connection becomes available (Kumar and Zubair, 2013.

POs set up local centers to repair solar accessories and train technicians (often women) to provide after sales service, generating local employment. Grameen Shakti, for example, has set up 46 Grameen Technology Centers for local manufacture of SHS accessories.

Figure 1 below demonstrates the operational and financial mechanism of SHS in Bangladesh.

Figure 1. Operational and financial mechanisms of a solar home system



Source: Haque (2012)

Outcomes

The program has succeeded in achieving rapidly growing penetration rates even though those participating in the program pay almost the full cost of their SHS using a microcredit loan facility and are charged high interest rates.

As at January 2013 over 1 million systems had been installed under the program. POs report an average loan collection rate of 96 percent and are servicing their debt to IDCOL. The systems have enabled improvements in the rural economy, such as allowing snack shops to stay open late and allowing telephone facility booths to cater for more customers, therefore increasing income.

Except for the PV module, other components are produced domestically, with rural employment for technicians and in the production of charge controllers and solar lamps. However, the SHS do not allow for more energy-intensive uses such as cooking, water heating, or industry, so should not be thought of a full solution to energy access (Kumar and Zubair, 2013).

Lessons

Successful features

- **A 100 percent rural company**: all Shakti engineers and technicians learn the business from scratch by providing a service to villages and providing energy to the rural population of Bangladesh, where electricity is much needed for growth and social well-being.
- **IDCOL support:** local government support through the IDCOL programme devoted to solar power. It is playing a major role in bridging the financing gap for developing medium- and large-scale infrastructure and renewable energy projects in Bangladesh. The IDCOL Solar Energy Program promotes the dissemination of SHS in the remote rural

areas of Bangladesh. IDCOL implements the program through 29 POs, one of which is Grameen Shakti. A refinancing facility is provided to POs and direct grants are provided to reduce the SHS cost. IDCOL stakeholders include government, the private sector, non-governmental organizations, multilateral institutions, academia, and the people of Bangladesh.

- **Assistance of Grameen Bank:** Grameen Shakti has leveraged the assistance of Grameen Bank to be able to appropriately design the microcredit financing scheme, which is unique, as it requires no collateral. The bank's credit delivery system has some unique features, such as its focus on providing banking facilities to the poor, its emphasis on empowering women and its group pressure approach to repayments. This approach involves individuals being put into groups, which are monitored by local GTCs. In the group, only two borrowers at a time are allowed to receive loans; once these are repaid other members are able to receive loans.
- **Participation of local community:** extensive work has been carried out in terms of information/awareness and training in order to ensure that the rural population understands the economic, environmental and health benefits of using a SHS instead of conventional energy sources. Empowering communities, developing social acceptance, and rewarding outstanding performance have all played an important role in making Grameen Shakti a success.
- **Innovative soft green financing scheme:** loans are given without any collateral and are repayable in weekly installments spread over a year and other different financing models are available depending on the initial investment of the individual. The SHS program is a grassroots project that proves the success of rural community involvement and how an innovative microfinancing model can alleviate poverty and make green growth possible.
- **Help income generation in villages:** this has directly improved the rural economic development as individuals are earning more and innovating in other areas as having a basic need, energy, met is allowing them to do much more than in the past.

Limitations

- **The Grameen Shakti programme is context-specific:** a similar soft financing model may not be replicable in other countries. The microfinance scheme is unique and the entire set-up of engineers and entrepreneurs from rural communities is innovative. In the case of Bangladesh, we are looking at extreme poverty and so individuals are driven to make money and, at the same time, it happens that the country is slowly moving towards green growth.

Further Information

Infrastructure Development Company (IDCOL): http://www.idcol.org/energyProject.php

Grameen Shakti: http://www.gshakti.org

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