

Grameen Shakti

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Renewable energy solutions in Bangladesh

History of organization: Grameen Shakti (which means “Rural Energy”) is a sister organization of the Grameen Bank, with a fully independent management. It started in 1996 as a social business selling solar home systems (SHS), and in 2005 launched biogas plants and improved cook stoves to address the energy needs of the poor in rural Bangladesh (target monthly income of \$150/households). Initial challenges faced by Grameen Shakti were

- 1 lack of rural networks;
- 2 no awareness of solar power among the rural people;
- 3 lack of trained manpower;
- 4 high upfront cost of renewable energy technologies; and
- 5 lack of funding.

Grameen Shakti used Grameen Bank’s experience to develop a financial package based on payments through installments, though it ultimately decided to handle financing independently, not through Grameen Bank. Grameen Shakti also had to earn the goodwill of the rural people and did so notably by providing excellent after-sales services to ensure the success of its program, instead of investing in awareness building campaigns. Key for its early growth, Grameen Shakti initially received financial support from IFC (\$100k soft loan), USAID (\$1.5m grant), and other development banks and agencies (KFW, GTZ). It also received longer-term support from IDCOL⁸ in grants to test products, develop its training programs and finance part of the product acquisition for end customers. IDCOL still funds a declining subsidy per unit installed (from \$100 in 2003 to \$46 in 2010). Currently, Grameen Shakti is one of the largest and fastest growing rural based renewable energy companies in the world. By 2015, it aims to have sold 2m SHS, 200k biogas plants and 5m improved cook stoves.

Product/service offering and value proposition: Grameen Shakti aims to promote affordable, clean and sustainable renewable energy technologies for the rural people of Bangladesh:

- *Solar home systems (SHS)* provide light for less money than kerosene lamps (up to \$10 in savings/month once fully paid), are healthier than kerosene lamps as they do not give off smoke, can power various electrical appliances in addition to lighting and require little maintenance. SHS also allows shops or craftsmen and women to work longer hours, and create new business opportunities such as mobile phone charging shops, electronic repair shops and community television centers. Grameen Shakti sells SHS at a 10 to 130W capacity (a standard 50W system powers 4 lights, mobile phones and a television). A system includes solar PV panel, deep cycle tubular 30-130, battery, inverter, 2-12 CFL lights (LED light in option for the 10W system) or tube lights (7W), 12V plugs. The most popular SHS is the 40-50W model (15% of sales) and the 20W solar panel (now at 40% sales). SHS are priced approximately at \$115 for 10W system, \$340 for 50W and \$840 for 135W. Payment options include:
 - 15% down payment. 85% payable in 36 monthly installments with 8% flat rate service charge
 - 25% down payment. 75% payable in 24 monthly installments with 6% flat rate service charge
 - 35% down payment. 65% payable in 12 monthly installments with 5% flat rate service charge
 - 4% discount on package price for 100% down payment
 - 10% down payment for micro utility system 20, 40 and 50 Wp. 90% payable in 36 monthly installments with 5% flat rate service charge
 - 25% down payment. 75% payable in 12 monthly installments without any service charge (only for mosque/temple/pagoda/church)

8 Infrastructure Development Company Limited, set-up by the Bangladeshi government as a non-bank financing institution to bridge the financing gap for developing private medium and large-scale energy infrastructure and renewable energy projects in Bangladesh.

Technicians visit clients' home monthly to guarantee after-sales service (over 3 years) and collect repayment (over the duration of credit). After 3 years, customers are offered a maintenance contract for \$4/year. Grameen Shakti also offers long-term warranty (20 years for panels, 5 years for batteries and 3 years for charge controllers) plus buyback options where a client can return his system if the area becomes connected to the grid, or if flood or fire causes the SHS to default.

- *Improved cook stoves (ICS)* help reduce energy spending and improve health conditions as they require 50% less fuel and generate less indoor pollution, blackening and heat loss. ICS are popular among low/middle-income households as well as businesses. They are sold at \$12. Grameen Shakti sales agents provide after sales services for customers who request maintenance. There is no credit offered for ICS, however people can pay only 50% before stove installation and the remaining 50% once installation is complete.
- *Biogas plants* of 1.6 to 4.8m³ work with the natural process of anaerobic decomposition of poultry waste and cow dung (a 3m³ biogas plant can produce sufficient gas for ~7 cook stove hours and electricity for 8 to 24 hours a day). Grameen Shakti sells biogas plants at \$187 for a 1.6m³ plant and \$422 for a 4.8m³ plant. Payment scheme allows credit: 15% down payment and 24 monthly installments with 8% flat rate. Like for SHS, technicians provide after-sale service during monthly visits.

Value chain:

- *Product manufacturing:* Grameen Shakti designs itself its high quality, innovative products for rural populations. For the SHS, it imports solar panels from Japan (Kyocera) and China (Suntech). Lamps also are imported from Taiwan, Japan, and Thailand. High quality tubular batteries are serviced locally. Charge controllers, tube lights, inverters, mobile chargers and DC converters are assembled in local Grameen Technology Centers (GTCs). For the construction of improved cook stoves, Grameen Shakti has setup 104 manufacturing units in rural areas.
- *Recruitment and training:* Grameen Shakti trains its branch staff and independent technicians in its 46 GTCs, to market and produce or repair SHS and SHS accessories. The program also trains young women from underserved communities (over 3k to date). As of 2012, Grameen Shakti has trained 15k technicians of which it still directly employs 3k. In total, it employs more than 11k people, including 1.4k branch managers ("social engineers"), 2k local technicians, 5k sales agents and 150 regional managers.
- *Sales and after sales:* Grameen Shakti has 1.4k rural branches. The branch manager, or "social engineer," usually oversees four sales agents and two technicians, and is in charge of opening new villages by meeting opinion leaders. The sales agents, called "supervisors," are charged with further marketing the products, selling them, communicating with clients, ensuring customer satisfaction and liaising with technicians. Technicians can also do some commercial prospection, but mainly install and maintain SHS. During their maintenance visits they also collect the monthly payments of clients paying through installments. A different network of technicians install the improved cook stoves, and others biogas plants. Each branch covers about 30 to 40 villages of 1-1.5k people each.

Results: By end of November 2012 Grameen Shakti has reached a million homes (with an average 10% penetration rate) with solar powered electricity in Bangladesh. It will reach 2 million homes by the end of 2015. Grameen Shakti has already installed more than 70% of the total solar home systems in the country. More than 8 million rural people are now directly or indirectly benefitting from this initiative. It is inspired by the concept of social business and creates employment, fosters entrepreneurship, empowers women, youth and communities, breaks energy poverty and helps to limit environmental damages. SHS has simply extended the length of each day for more activities in rural areas. A 2002 survey indicated a 99% customer satisfaction. Grameen Shakti has also installed 24k bio gas plants, and 595k improved cook stoves (December 2012), with 2-digit year on year growth for its cook stoves and SHS sales.

Grameen Shakti became profitable within four years of operations, partly due to credit lines at subsidized rates for end users and output-based subsidies from public partners. A typical mature GS branch (i.e. more than three years of operation) generates sufficient margin to cover its operating expenses and overhead. In 2011, Grameen Shakti generated over \$80m (25% yoy growth) of sales revenues, plus \$10m subsidies, allowing a \$0.5m profit.

Exchange rate: 1 USD = 82 BDT

Sources:

Interview with Absar Kamal, Acting Managing Director, September 2012

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Grameen Shakti website: www.gshakti.org

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