Bringing Green Energy, Health, Income and Green Jobs to Rural Bangladesh

Md. Fazley Rabbi
Sr. Manager

g_shakti@grameen.com

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Grameen Shakti was established as a not-for-profit company in 1996.

Our mission is to empower the rural people with access to Green Energy and Income.

Professor Muhammad Yunus, Chairman of Grameen Shakti and Mr. Dipal C. Barua, Managing Director since day one.
Renewable Energy to Fuel Bangladesh’s Sustainable Development

Women and children: the main victims of energy poverty

- 60% of the people in Bangladesh have no access to grid electricity and rely on kerosene for lighting
- 97% of the population are dependent on biomass for cooking
- It compounds environmental degradation, poverty, and inequality
- Bangladesh needs to climb the energy ladder to develop economically and socially without damaging the environment
A Vision for 2015

75 million people of Bangladesh (50% of the population) will benefit from access to modern, clean, and affordable energy.
A Vision for 2015

- 7.5 million Solar Home Systems
- 2 million Biogas Plants
- 20 million Improved Cooking Stoves
- 100,000 Green Jobs especially for young women
Grameen Shakti is successful in providing sustainable clean energy solutions to rural people in Bangladesh.

- Installed more than 285,000 SHS, more than 13,000 SHS installed/month
- Constructed more than 7,000 Biogas Plants
- Produced more than 40,000 Improved Cooking Stoves
- Created more than 20,000 Green Jobs and trained 3,000 rural women as Renewable Energy Technicians and Entrepreneurs
<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Offices</td>
<td>786</td>
</tr>
<tr>
<td>Branch Offices</td>
<td>627</td>
</tr>
<tr>
<td>Regional Offices</td>
<td>102</td>
</tr>
<tr>
<td>Divisional Offices</td>
<td>12</td>
</tr>
<tr>
<td>GTC</td>
<td>45</td>
</tr>
<tr>
<td>Districts Covered</td>
<td>64</td>
</tr>
<tr>
<td>Upazilas Covered</td>
<td>508</td>
</tr>
<tr>
<td>Villages Covered</td>
<td>40,000</td>
</tr>
<tr>
<td>Islands Covered</td>
<td>16</td>
</tr>
<tr>
<td>Social Engineers</td>
<td>5,000</td>
</tr>
</tbody>
</table>
Grameen Shakti
Solar PV Technology Program

Potential:
- 85 million (80% of rural population) have no access to grid electricity

Target:
- 1 million SHS will be installed by 2011

Achievement:
- More than 285,000 systems
- 786 field offices with 5,000 trained social engineers to manage installation and maintenance locally
- 45 GTC to assemble accessories locally
CAGR since 2002: 60%
Installed Power Capacity: 12.5 MW
Energy Generation: 50MWh / day

Projection up to December 2009: 350,000

Year

- 1997: 228
- 1998: 598
- 1999: 1,838
- 2000: 3,583
- 2001: 6,753
- 2002: 11,413
- 2003: 19,213
- 2004: 33,004
- 2005: 51,638
- 2006: 79,629
- 2007: 127,968
- 2008: 203,855
- July '09: 260,000

Overall Cumulative: 350,000
The Art of Serving the Rural People

- Innovative financing making SHS cost-effective to alternative energy sources
- Free maintenance during repayment period and low-cost warranty afterwards
- Community based social engineers and entrepreneurs who understand rural people
- Mobilizing local social forces to create awareness
- Social commitment by creating jobs for local youth especially women
- Motivational programs such as scholarship programs for school children of Solar System Owners
- Consumer friendly practices such as buy-back systems, and removal of dead batteries
Illuminating Lives

SHS provide access to green electricity

• Enhancing children’s education, providing access to valuable information, powering health centres and schools

• Providing better opportunities for developing local entrepreneurship, income generating activities, and employment in rural areas

• Replacing kerosene and reducing fire hazards, indoor pollution and associated health risks

• Reducing carbon emissions
# Financial Mechanism

<table>
<thead>
<tr>
<th>Option</th>
<th>Down payment</th>
<th>Installments</th>
<th>Service Charge (Flat rate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option-1</td>
<td>15%</td>
<td>36 months</td>
<td>6%</td>
</tr>
<tr>
<td>Option-2</td>
<td>25%</td>
<td>24 months</td>
<td>4%</td>
</tr>
<tr>
<td>Option-3</td>
<td>100% cash payment with 4% discount</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSHS</td>
<td>Min 15%</td>
<td>24-36 months</td>
<td>6%</td>
</tr>
</tbody>
</table>

People can own a SHS at the same cost of Kerosene.
Blending Market Forces with Adaptive technology

- **Micro-utility Model** - Sharing a Solar Home System to reduce cost and increase income

- **Mobile Phone** centers with Solar powered mobile phones

- **Small Solar Home Systems**: Popular among low income household helping to replace kerosene and generate income
Grameen Technology Centers
Creating Green Jobs for Women

- 45 GTCs already set up all over Bangladesh to support Grameen Shakti’s services
- GTCs assemble and repair solar accessories, promote, install and maintain SHS and ICS
- GTCs train rural women to become RET technicians and entrepreneurs (so far 3,000 women have been trained)
- Target: more than 100 GTCs by 2011
Mobilizing Social Forces

More than 11,600 school children from rural areas have learned about Renewable Energy Technologies.

More than 53,900 rural women have learned to take care of the systems installed in their homes.
Green Job Initiative: Collaboration with ILO

Areas of Focus:
- Training poor disadvantaged rural women as Solar Technicians so that they can find decent jobs right in their villages. They can also set up small businesses at their homes to assemble solar accessories.
- Training families on the use and marketing of bio-slurry.
- Development of training manuals on Solar PV technology, bio-slurry based organic fertilizers.
Solar Home Systems in Schools
Solar powered Refrigerators in Remote areas

30 Solar Powered refrigerators have been installed in Clinics in remote areas.

These refrigerators are helping to store vital medicine for vaccinating Livestock.
Installing Computers in Off-grid areas

Solar powered computers installed in remote offices in Sandip & Bagerhat

Solar panels on roof tops give power to computers

Solar powered computer training center in Tangail
New Initiative

- Grameen Shakti participates in a demonstration project with Grameen Phone to install 6.5 kWp solar plants for 3 BTS

- Potentially, Grameen Shakti plans to be a provider of solar plants to Bangladesh’s 22,000 base telecom stations

- Compared to diesel, solar electricity offers a sustainable, cost-effective and environment-friendly electricity supply for Bangladesh’s growing telecommunication industry.