



Workshop on “Sustainable Energy Access for the Rural Areas”

Case Study of Bangladesh: Experience of Grameen Shakti in disseminating Renewable Energy technologies in Bangladesh

**Nurjahan Begum
Managing Director
Grameen Shakti, Bangladesh**

Beirut, Lebanon

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Grameen Bank:

Pioneer of Micro-Finance Program



- Grameen Bank is the world-famous pioneer of microcredit that was awarded the Nobel Peace Prize in 2006.
- It started its operation by Professor Muhammad Yunus in 1976, by his personal initiative and initially with his own money and later as a project of Chittagong University.
- 75% of the paid up capital of Grameen Bank comes from its borrowers. The rest comes from Government of Bangladesh.
- Out of 8.8 Million borrowers, 96% are poor rural women. They are the owner of this Bank.
- In 13 number of Board Members including Chairman, 9 members come from Borrowers.

Basic features of Grameen Bank



- Exclusive focus on the very rural poor, especially women.
- Bank goes to the poor rather than people coming to the bank.
- Collateral-free small individual loans and activities chosen by borrowers.
- Individual loan with flexible weekly installments.
- The bank, as Professor Yunus himself terms it, is an ‘anti-thesis of conventional banking’: working with the poor rather than the rich, working in rural areas rather than in cities, working with women rather than men, lending without collateral rather than asking for mortgage etc.

Grameen Bank at a glance:

August 2016

- Number of Member: 88,53,961 (M: 3,05,901, F: 85,48,060))
- Number of Center: 142,607
- Number of village: 81,392
- Number of branches: 2,568
- Cumulative loan disbursement: USD 19,833.94 Million
- Outstanding loan: USD 1,418.88 Million
- Rate of Recovery: 98.96%
- Balance of deposits: USD 2,359.88 Million
- No. of village phones: 1,670,479
- No. of houses built with housing loans: 701,093
- Higher Education Loan disbursed: USD 50.80 Million

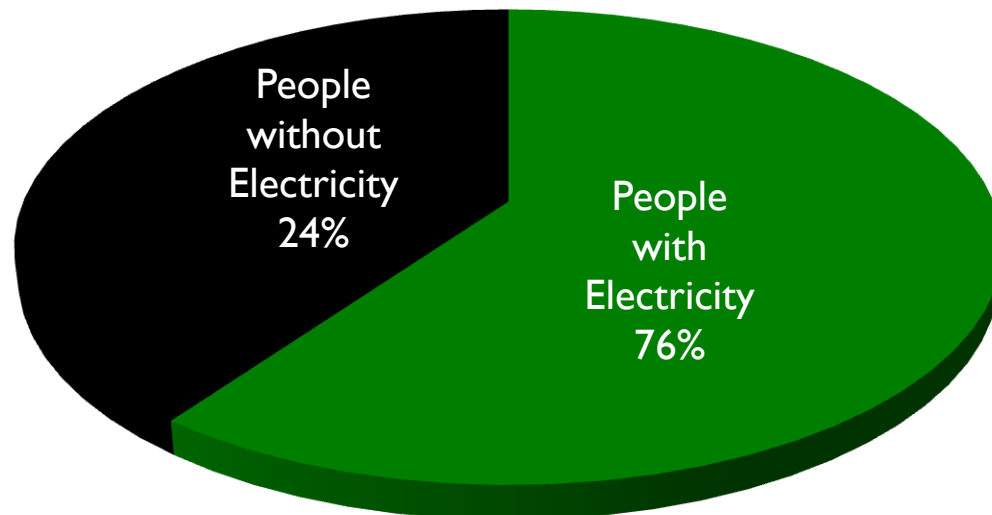
Microfinance & Renewable Energy

Microfinance ensures access to renewable energy in two ways:

- First, it increases economic capability of the poor and thus increases demand for and ability to afford renewable energy.
- Secondly, microfinance institutions can offer loans to its beneficiaries to purchase renewable energy systems.

Bangladesh Power Sector at a Glance

Power Generation Capacity (July, 2016)	12,365 MW
Per Capita Generation (June, 2016)	380 KWh
Access to Electricity (June, 2016)	76%



**Power Cell, GoB, 2016*

Grameen Shakti

Pioneer in “Access to renewable energy”



Grameen Shakti

- Grameen Shakti (GS) was established in 1996 as Not-for-profit company by Nobel Laureate Prof. Muhammad Yunus
- *Foreseeing a future where rural households of Bangladesh would have access to clean energy at affordable cost*
- *Empowering the rural people with access to green energy to generate income, reduce poverty and improve the quality of life*

**Solar
Energy**



Biogas



**Improved
cook
stove**



Country wide Network of Grameen Shakti

August 31, 2016



**Installed
Solar Home
Systems**

**1.7 Million
67 MW**

**Constructed
Biogas
Plants**

Over 32,500

**Installed
Improved
Cooking
Stoves**

Over 949,000

**Vast Rural
Network**

**6000 Staff in
1100 offices**

Solar Home System (SHS) - new era of renewable energy technologies

- SHS is suitable for off-grid & inaccessible areas
- Available of $10 - 130 \text{ Wp}$ system enables user to choose appropriate package
- Minimum maintenance & ownership model
- Replacing kerosene and decreasing Greenhouse gas emission.



Ownership Model

- **15% down payment**
- **12/24 monthly installments**
- **9%-12% service charge**

Option 1

- **100% cash payment with 6% discount on the package price**

Option 2

- Warranty is available for product
- 3 years free after-sales service
- After 3 years, 6.5 USD/year for service

Exploring Solar energy:

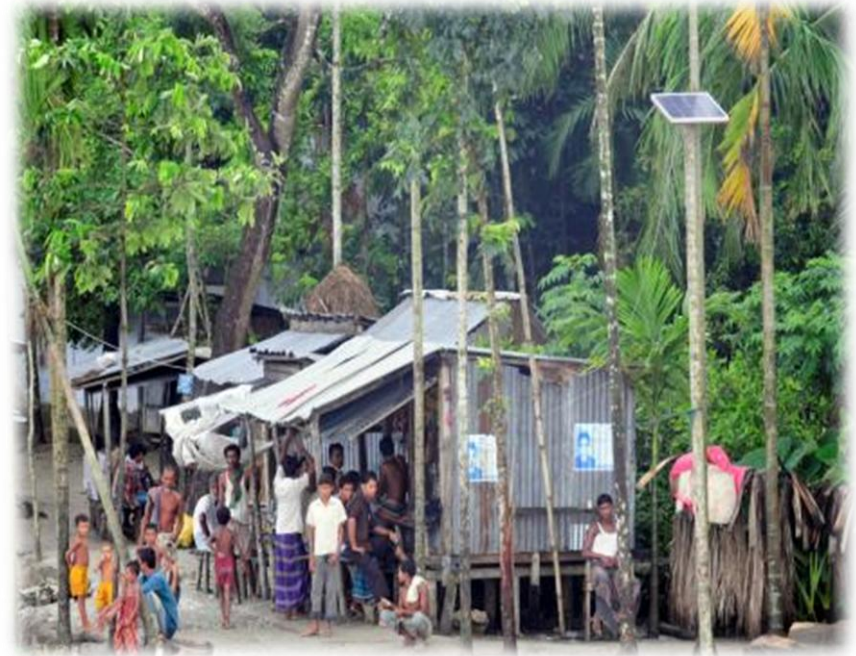
Irrigation Pump and Nano-Grid

- **Solar Irrigation Pump**
 - Environment friendly irrigation solution
 - One pump in operation & six pumps to be installed by Nov 2016
 - Replacing diesel/electricity based pump with reduced cost

- **Solar Nano-Grid**
 - Community based energy solution
 - Three Nano-Grids in operation with total capacity of 9.07 kWp
 - Grid quality electricity



Reaching the poor with micro-utility model



**Blending Market
forces with
adaptive
technology**

- Allows the owner to rent lamps to neighbors
- Reduces cost for both owners and users
- Creates energy entrepreneurship

Biogas Program: Converting waste into gas, electricity & organic fertilizer



Traditional use of cow-dung

- **Climate is favorable for biogas production**
- **Raw materials are easily available**
- **Conversion of waste switches to energy generation**
- **Environment and women health are protected**
- **Quality organic fertilizer is produced**
- **2 Unit of biogas plants (50 m³ each) in Jahangirnagar University with community based approach are available.**

Improved Cooking Stove (ICS) Program



- **Reduces indoor air pollution**
- **Reduces health hazard**
- **Saves 50-60% of the biomass fuel**
- **Reduces cooking time**
- **Reduces greenhouse gases emission**
- **Conserves the forest resources**

Traditional cooking stove

Grameen Technology Center (GTC): Creating green jobs for women



- ❑ 16 GTCs are being operated by women engineers
- ❑ Over 3000 local women technicians have so far been trained on renewable energy technologies.
- ❑ Woman technicians can work and earn money

Challenges & Barriers

- High cost of capital
- Unexplored opportunities in the use of solar technologies (Solar powered water heater, cooking stove, solar irrigation pump, street light, etc.)
- Competition with low quality products in the market
- High operational costs
- Return of Solar Home Systems by users when grid electricity becomes available
- High drop out rate of staff
- Access to very remote areas/islands
- Socio-political stability
- Policy support (Tax-free RET product)

Lesson Learnt & Way Forward

- Helps in the empowerment of the rural poor
- Green jobs are created and poverty is reduced
- Financial and policy supports from Government are very essential
- Close monitoring and supervision is required
- Commission-based sale of product may be explored
- Technology based collection system (e.g. use of mobile banking) as well as “Pay as You Go” system can be incorporated
- Designing a cost effective model operation

A Policy Suggestion

- As microcredit expanded rapidly in Bangladesh, Bangladesh Government, as advised by Professor Yunus, created an apex body called PKSF to assist, finance, expand and supervise microcredit activities all over the country.
- Same kind of policy, technical, institutional and financial assistance can be provided by respective governments to promote renewable energy in their own countries like State-owned Infrastructure Development Company Ltd (IDCOL) of Bangladesh.

Exploring Social Business with renewable energy technologies

Three Zero Theory of Prof. Muhammad Yunus to achieve SDGs

- Zero poverty
- Zero unemployment
- Zero net carbon (CO₂) emission



Thank you