

An Innovative Financing Mechanism: Creating Access to Renewable Energy for Rural People of Bangladesh

Prof. Dr. Shahidul Islam Khan

Dept. of Electrical & Electronic Engineering

Bangladesh University of Engineering and Technology (BUET)

Dhaka, Bangladesh

Md. Fazley Rabbi

Grameen Shakti , Bangladesh



BUET



Global Conference on Access to Rural Energy : 4-6 December, 2013, Addis Ababa, Ethiopia



Presentation Outline

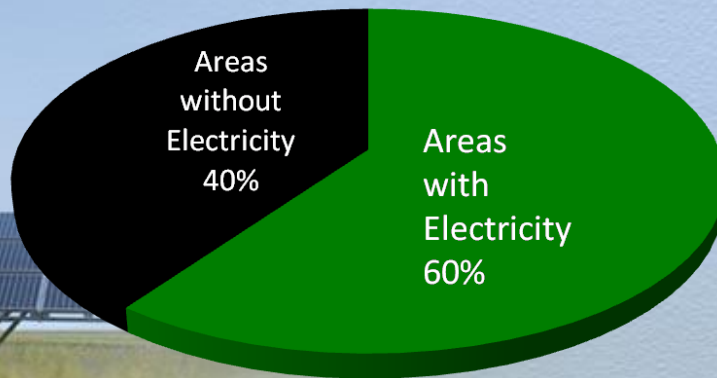
- **Electric Power Scenario in Bangladesh**
- **History of SHS in Bangladesh**
- **Financial Models for Rural Energy Access**
- **Schematic diagram of IDCOL SHS Program**
- **Green Energy for a Billion Poor**
- **Customer Friendly Innovative Financial Packages of GS**
- **Key Factors of GS's Market Implementation Approach**
- **Renewable Energy Program of GS**
- **Success Stories of Bangladesh**
- **Conclusion**

#2

Electric Power Scenario in Bangladesh

Population	152 million
Area	1,47,570 square km

Power Generation Capacity	:	8500 MW
Per Capita Generation	:	292 kWh (incl. Captive)
No Access to Electricity	:	40%
Population without Electricity	:	About 65 million



History of SHS in Bangladesh

- French-funded pilot PV project in Narsindi implemented by the **Rural Electrification Board (REB)** was the breakthrough in Bangladesh
- **Grameen Shakti (GS)** established in 1996 –introducing cash sale and credit sale
- **Infrastructure Development Company Limited (IDCOL)** established in 1997
- **IDCOL's Rural Electrification and Renewable Energy Development Project (REREDP)** was very successful

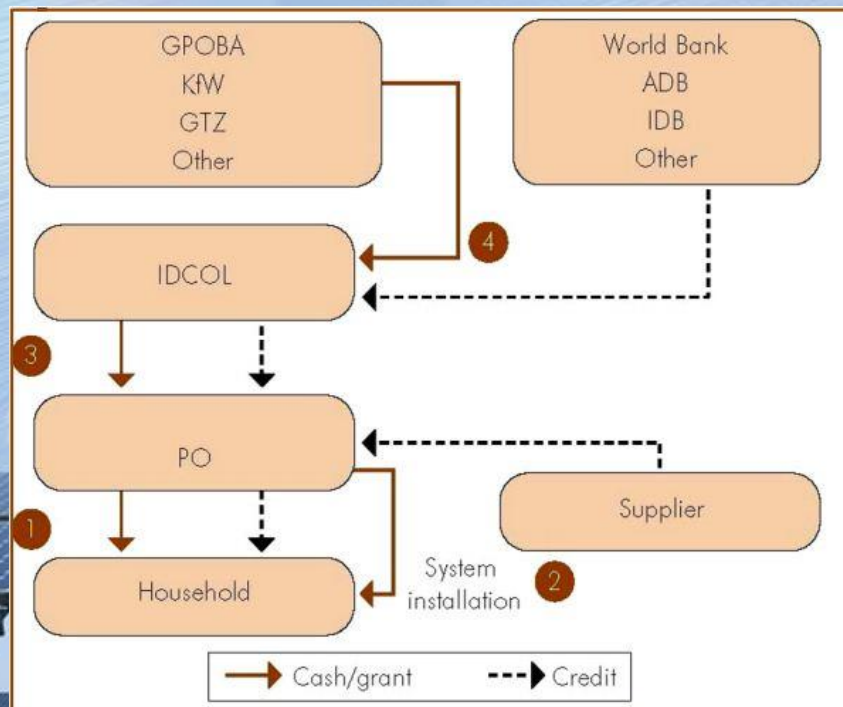
Month	Irradiance(kWh/sq. m/d)
January	4.36
February	4.92
March	5.59
April	5.76
May	5.30
June	4.53
July	4.23
August	4.29
September	4.02
October	4.32
November	4.28
December	4.21

Financial Models for Rural Energy Access

- **Village Bank model** : An implementing agency establishes individual village banks with about 30-50 members, provides "external" capital for onward financing to individual members. Repaid at weekly intervals, popular in Latin America and Africa
- **Credit Union(CU)** : CU is based on the concept of mutuality. A non-profit financial cooperative owned and controlled by its members. CUs are quite popular in Asia, notably in Sri Lanka.
- **Self-Help Groups (SHGs)** : Each SHG is formed with about 10-15 members. An SHG essentially pools together its members' savings and uses it for lending. SHG is originated in India.
- **Micro-finance** : It is the brainchild of Prof. Mohammad Yunus, the 2006 Nobel Peace prize winner. Micro financing is behind the success of SHS program of Grameen Shakti in Bangladesh.

#5

Schematic Diagram of IDCOL SHS Program



- A total of 47 Partner Organizations (PO) of IDCOL install SHS systems at the consumer household
- PO makes electronic disbursement request to IDCOL for refinance and grants, as applicable
- IDCOL conducts physical verification of the installed SHSs and Technical Standards Committee (TSC) sets forth technical standard for the SHS equipment and approve solar equipment.
- IDCOL claims the funds used for financing from the World Bank, ADB or IDB and the grant from GPOBA, KfW and GIZ

#6

Green Energy for a Billion Poor

- Witness the economic and social innovations of Grameen Shakti, Founded by Nobel Prize winner Prof. Muhammad Yunus.
- Shakti masters the art of rural business, letting five million people benefit from light, electricity and additional income.
- Shakti is the vanguard model for tackling the enormous market of a billion villagers living far from the electric grid in developing countries.

-Nancy Wimmer

#7

Key Factors of GS's Market Implementation Approach

- Offering innovative financing to make the SHSs cost-effective
- Focusing on customer needs and providing high quality
- Using a de-centralized bottom up approach that strongly encourages a culture of listening to the customers service
- Tapping into local community leaders (teachers and other such influential people), institutions and local market forces
- Focusing on women as an agent of change

#9



BUET



Global Conference on Access to Rural Energy: 4-6 December, 2013, Addis Ababa, Ethiopia



SUSTAINABLE
ENERGY FOR ALL

Customer Friendly Innovative Financial Packages of GS (Ownership model)

All POs , NGOs have agreed to follow this basic unified model in Bangladesh.

- 15% down payment
- Max. 36 monthly installments
- 12% service charge

Option 1

- 15% down payment
- 12 monthly installments
- No service charge for worship places

Option 2

- 100% cash payment with 4% discount on the package price

Option 3

Kerosene price is about BDT 60 per liter, a poor rural household burns about quarter liter of Kerosene per night. One month Kerosene cost BDT 450. Monthly installment of 20 Wp SHS is BDT 400.

If Kerosene cost is half a liter per night then monthly cost is BDT 900, which is equal of a 50 Wp SHS's monthly installment.

#8

Market Penetration Strategy

- Based on forging collaboration with communities
- A local branch, part of the community provides local presence of GS
- Staff members of the local branch interact with the people of the community
- Local demonstration meetings are held on regular basis to show the real technology

Continuous Feedback

- GS receives feedback from the end users throughout the extensive geographic infrastructure
- Organizational structure of GS is designed to incorporate constant feedback, resulting in continuous improvement of the organization
- This “listening culture” of the Company is a key success factor of Grameen Shakti.



Training of Office Staff

- GS's Local Branch Office Staff are cross-trained to Conduct Sales, Installations, After-Sales Service and Maintenance, and Payment Collections
- Cross training of functions allows more of the Company's staff to be in direct contact with the end-users.
- On average, an established Local Branch Office has six staff members, one of these is designated as the Branch Office Manager.

Monitoring and Audit Process

- Ingeniously designed to provide bottom-up feed loop
- Top down monitoring and audit process ensure that the quality standards are strictly met
- GS's organizational structure allows the information to flow both ways within the organization, offering maximum operational flexibility.

#11

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



- ❑ 46 GTCs are being operated by about 150 women engineers
- ❑ Over 3000 local women technicians have been trained on RET
- ❑ Woman technicians run their energy businesses
- ❑ They can earn approx. US\$ 80 -100/month

#12

Renewable Energy Programs of GS

Solar Energy



Biogas



Improved cooking stove

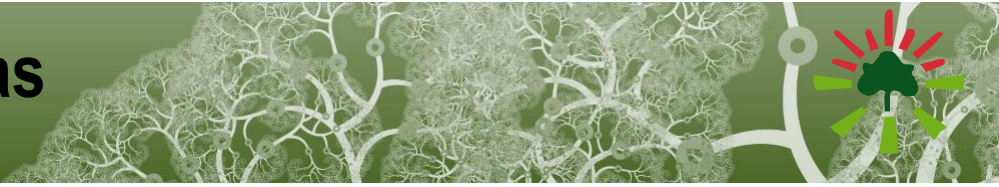


Grameen Technology Center



#13

SHS in inaccessible hilly areas



#14

Creating awareness : Effective promotional tool



**Demonstrating Solar
Home systems at
village gatherings**

#15



BUET



Global Conference on Access to Rural Energy : 4-6 December, 2013, Addis Ababa, Ethiopia



Acknowledgements

- Mr. Islam Sharif, CEO, S. K. Johnson, USA
- Shamma Shananda Saha, **EEE** student ,
BUET, Bangladesh



BUET



Global Conference on Access to Rural Energy : 4-6 December, 2013, Addis Ababa, Ethiopia



Thanks and...

...do it with joy

