



Grameen Shakti

The Bangladesh solar home system program – lessons learned

United Nations Foundation's Energy Access Practitioner Network
& Clean Energy Solutions Center

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Grameen Shakti (GS) Values:



Established in 1996

Vision

Envisaging a future where rural households of Bangladesh would have access to **clean energy at affordable cost**

Mission

Empowering the rural people with access to **green energy to generate income, reduce poverty and improve the quality of life**

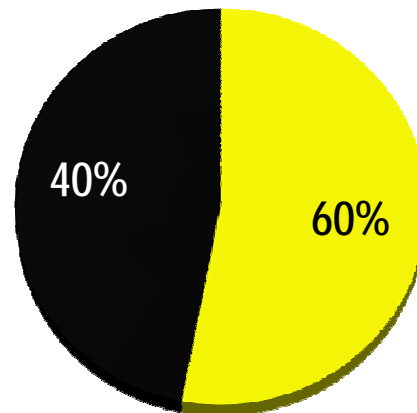
Energy Scenario in Bangladesh

Bangladesh Power Sector at a Glance* (as of 2013)

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

■ Areas with Electricity

■ Areas without Electricity



*BPDB, 2013

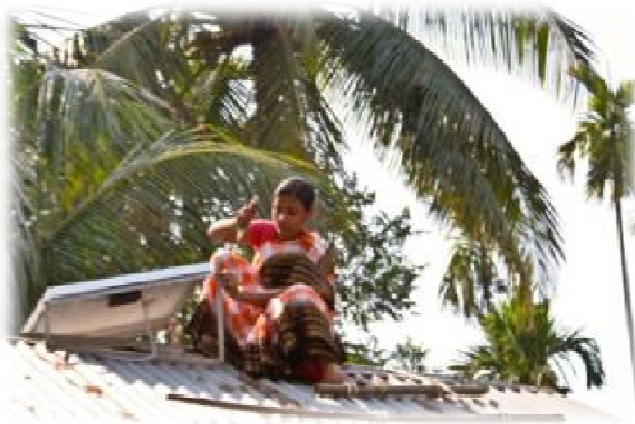
Shortage of Energy and Major Concerns:



- Dependence on Biomass fuel for cooking and heating purposes is about 90%
- Energy shortage and unstable supply lead to high cost on the economy
- Limited reserve of natural gas
- Import of fossil fuel puts huge pressure on our economy
- Environmental degradation and energy scarcity push rural people into poverty

Grameen Shakti's intervention with - Renewable Energy Technologies & Solutions

Solar Home
System
(SHS)



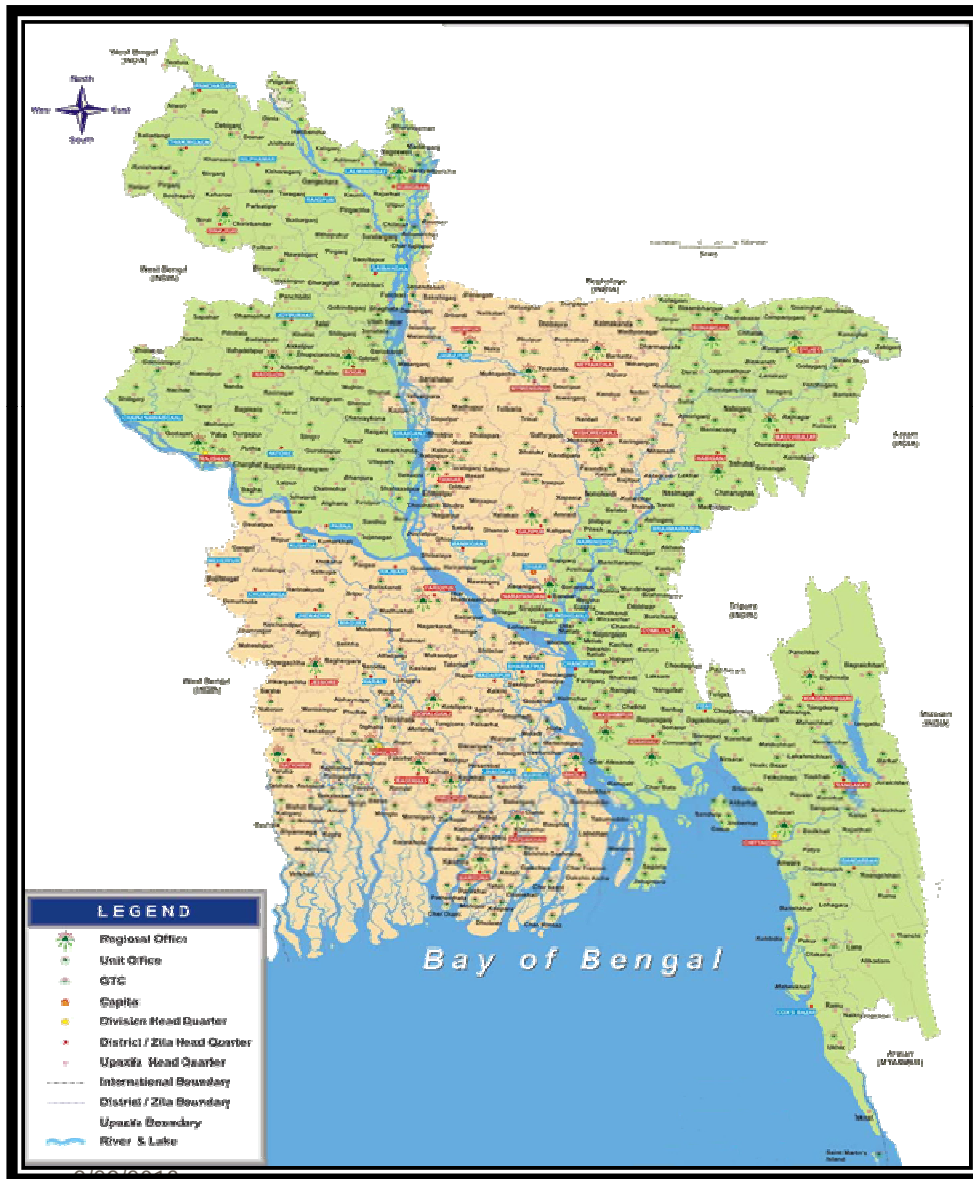
Biogas
&
organic
fertilizer



Improved
cooking
stove
(ICS)



GS's Country wide Network (August 2013)



Installed
Solar Home
Systems

1.2 Million

Daily Power
Generation
Capacity

185MW-hr

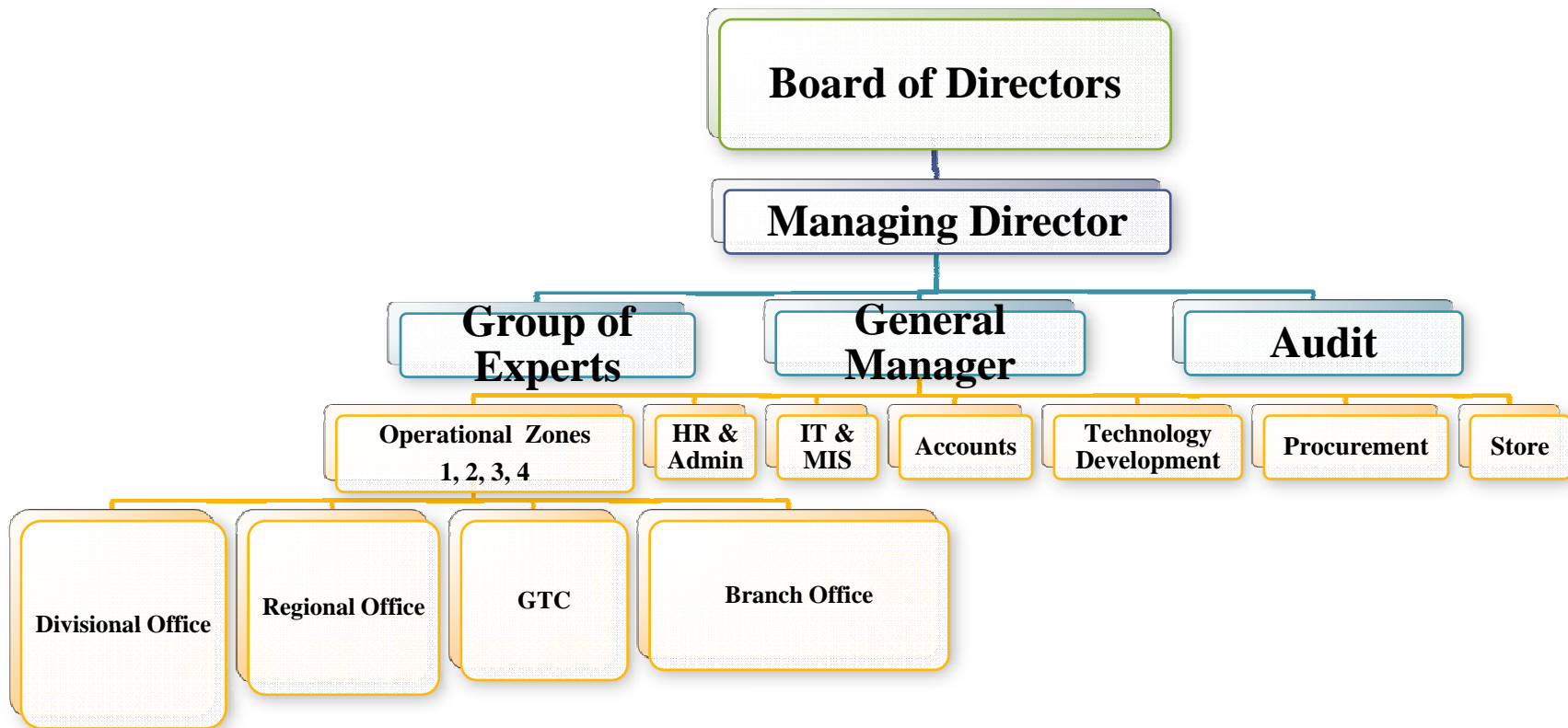
Vast Rural
Network

**11000 Staff
in 1500
offices**

Monthly
Installation

Over 26000

How GS works ...



Developing A Rural Business – Takes Time

Creating Trust

Personal contacts
Listening to rural people
Customized products

Creating Sustainability

- No direct subsidies
- Credit Facility
- Vast rural network
- Monthly visit to customers



Capacity Building

- Trained & motivated “Social Engineers”
- Local technician trainings
- Linking technology with income generation
- Local manufacturing & assembling of SHS accessories

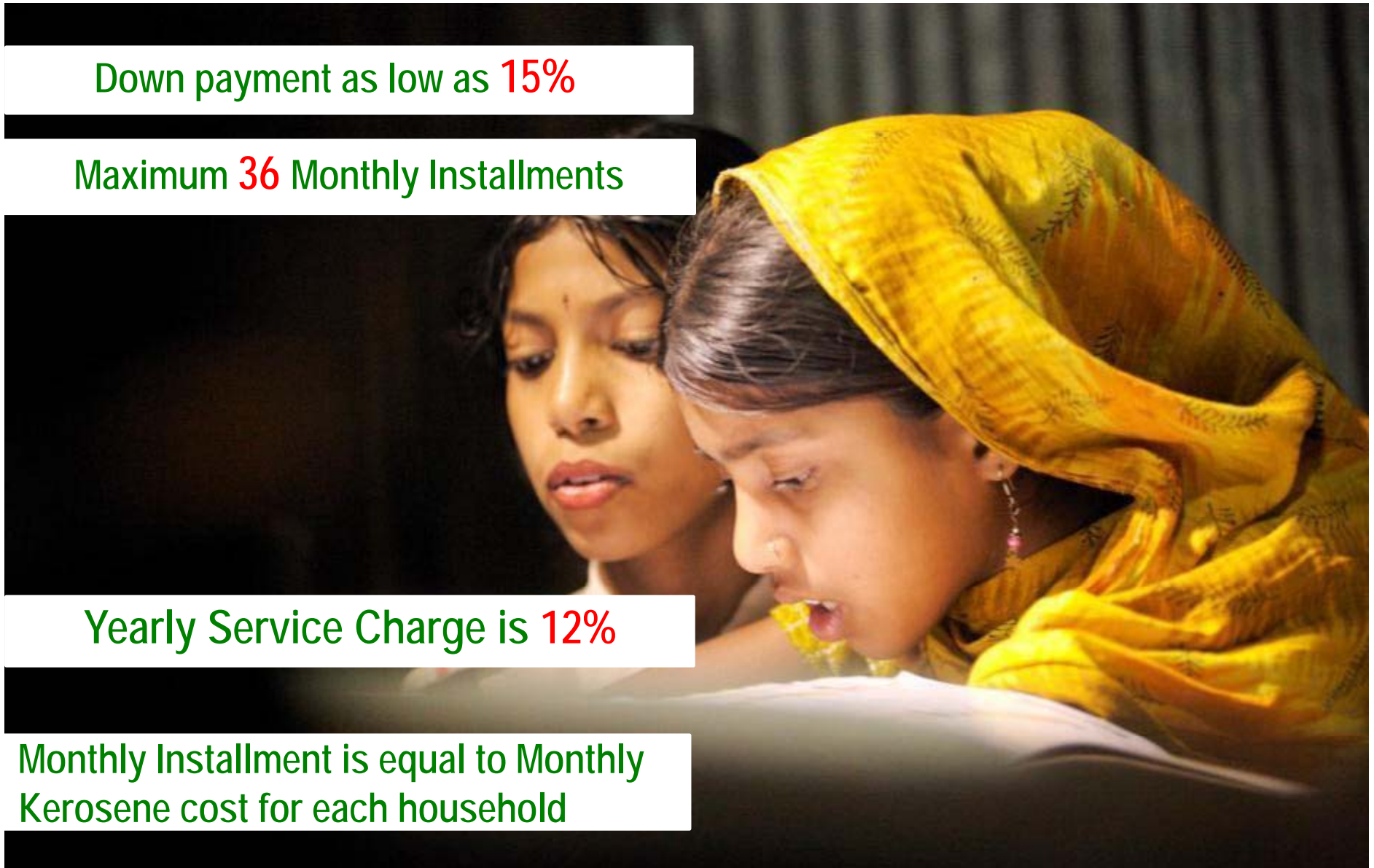
Customer Friendly Innovative Financial Packages (Ownership model)

Down payment as low as **15%**

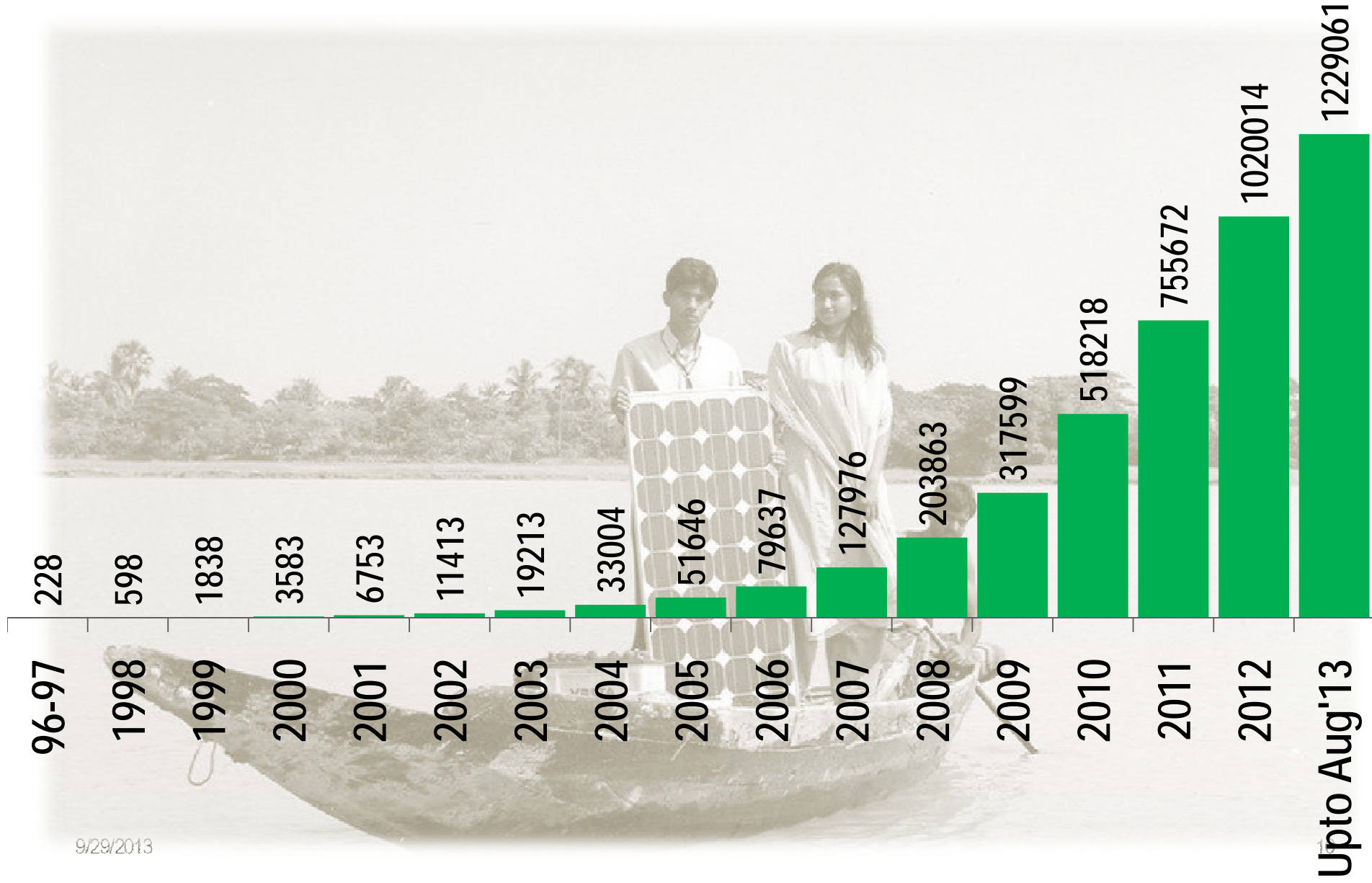
Maximum **36** Monthly Installments

Yearly Service Charge is **12%**

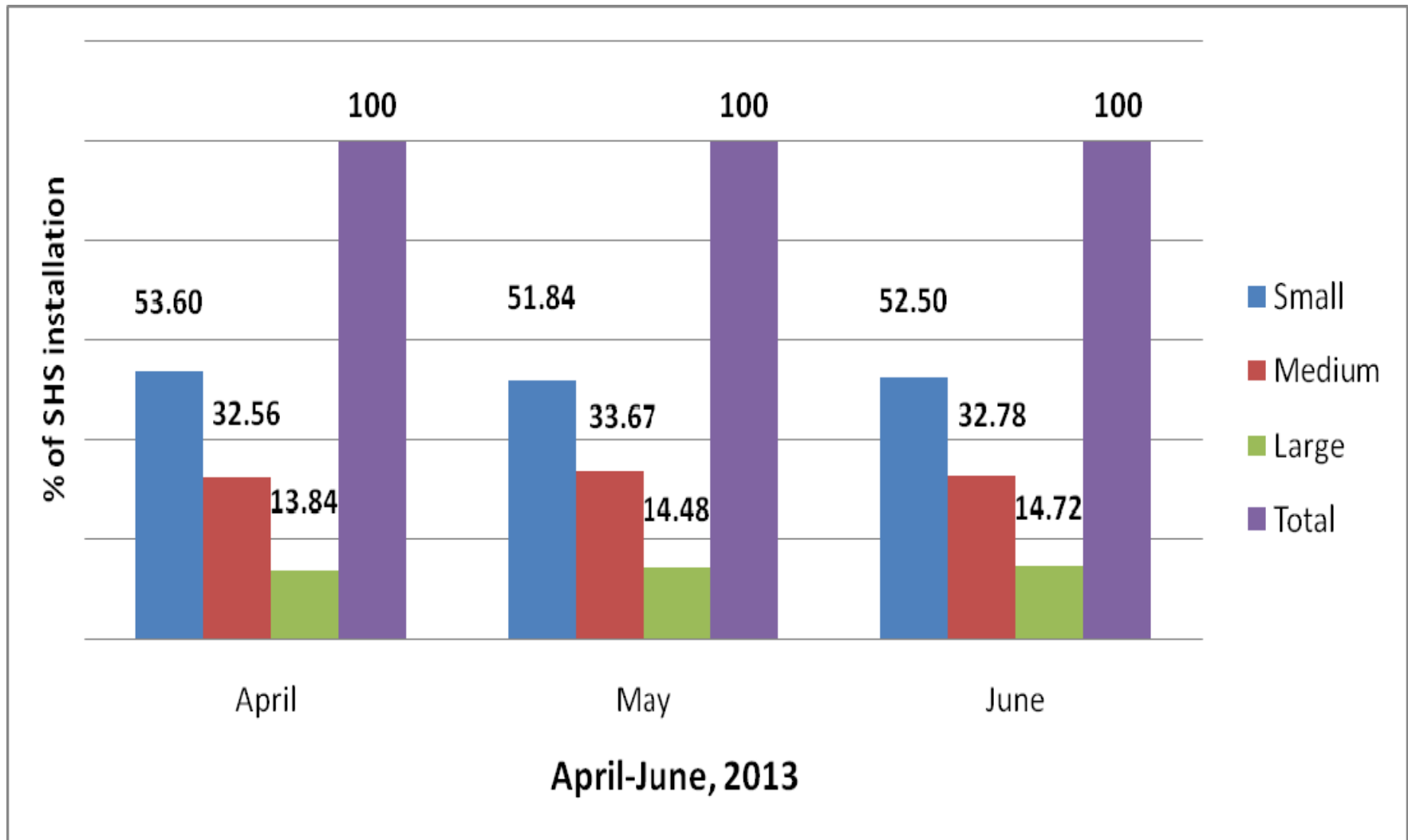
Monthly Installment is equal to Monthly
Kerosene cost for each household



SHS Installation Growth (Cumulative): 1996 – 2013



SHS Installation Growth : Watt wise April –June 2013



Small: 20-30 Watt

Medium: 40-50 Watt

Large: 60 and above Watt

Uses and benefits of SHS

Rural Clinic



Solar Refrigerator to Store Vaccines



Rural Tailoring shop



Education



Solar Mini grid – New initiative

Capacity: 2.07 Kilo watt, 30 homes can be electrified



Solar System in Agriculture (Capacity: 11.2 kW)



Solar Powered Irrigation Pump

Solar Power for Telecommunication Tower (BSL) 6.4 kW



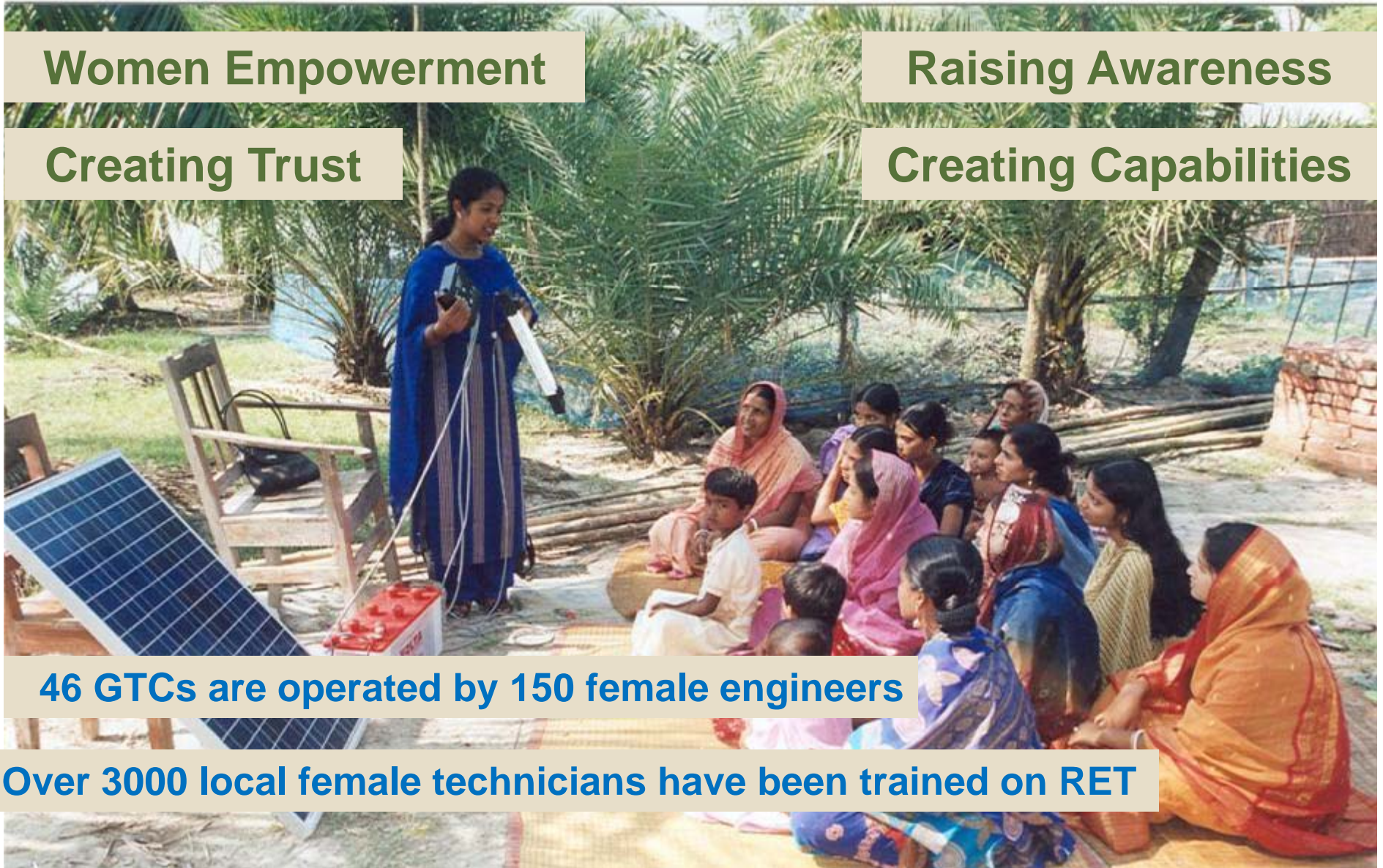
Grameen Technology Center: Creating Awareness An Effective Promotional Tool

Women Empowerment

Raising Awareness

Creating Trust

Creating Capabilities



46 GTCs are operated by 150 female engineers

Over 3000 local female technicians have been trained on RET

Carbon Emission Reduction by installed SHS

Activities (Till August 2013)	Yearly Kerosene consumption Per household (In Liter)	Yearly Total Kerosene Saving (In Liter)	Yearly Total Savings of Kerosene cost (US\$) 1US\$=80.00Tk	Emission Reduction per household (tCO ₂ /Year)	Total Emission Reduction (tCO ₂ /Year)
Installed Solar Home System (1,229061)	108 L	132 Million L	116 Million	0.232	285142

Key Challenges for SHS



- Limited sector investment
- High organizational & operational costs
- Managing procurement & inventory
- After sales service
- Lack of trained manpower

What we have Learnt: A SWOT Analysis



Strength

- Vast **country-wide network**
- Technology know-how
- Good supply chain management**
- Assurance** of qualitative products
- Effective **after-sales service**
- Strong **monitoring and auditing**



Weakness

- Lack of RET training institutions and trained man power
- Reaching the BOP**
- Keeping big sized inventory
- Drop out of field staffs



Opportunities

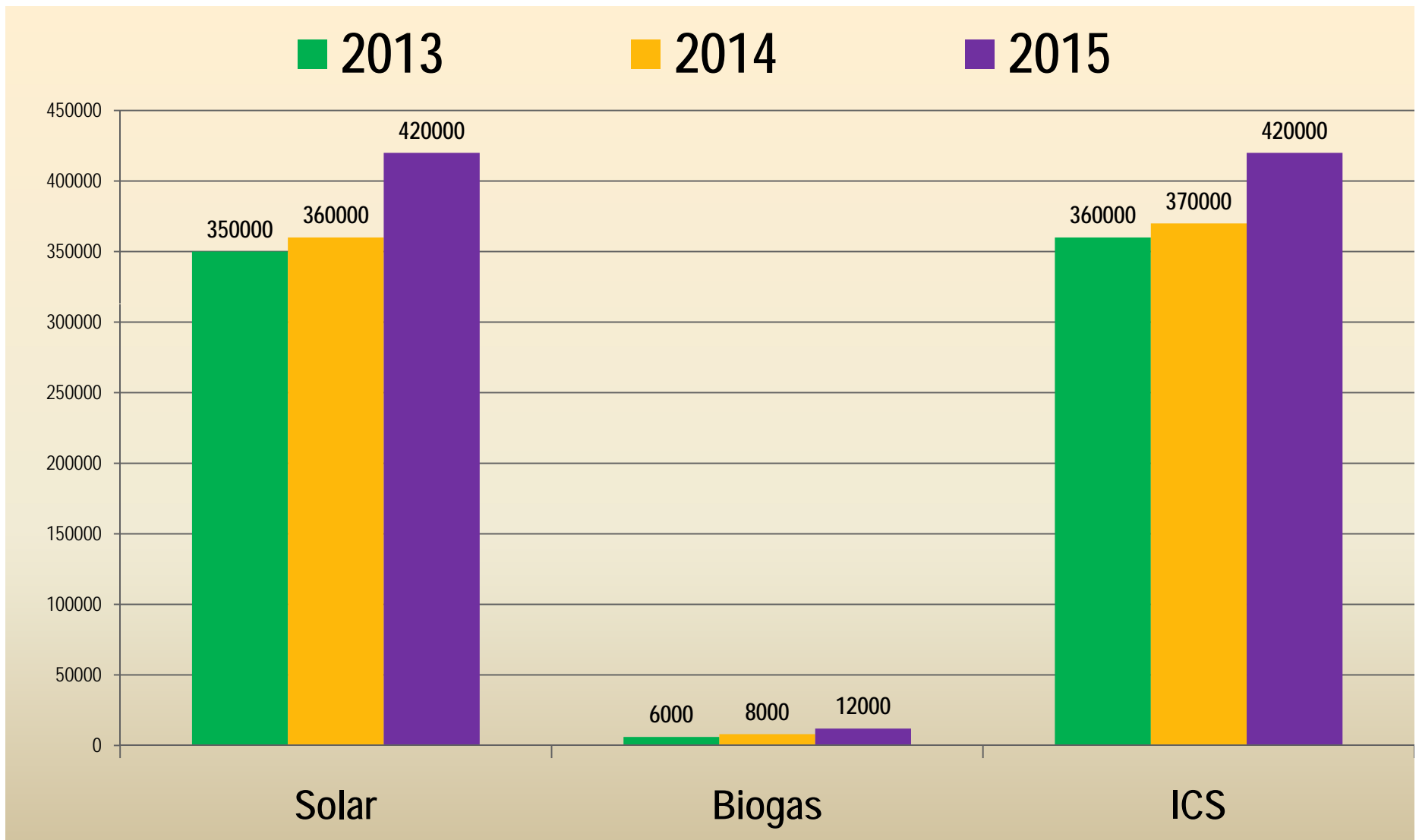
- Replicable
- Suitable for inaccessible areas
- Reachable to millions of off-grid people**
- Positive attitude towards microfinance
- Growth of RET industry and **new job creation**
- Recycling industry of PV panels & batteries**



Threats

- High** upfront cost
- Dependence on **imported goods**
- Limited** sources of fund
- Natural Disaster

Future Plan, 2013-2015: Creates 20 thousand green jobs



How does GS play the role of Social Business

- Disseminates RET solutions all over the country
- Reduces poverty
- Creates green jobs
- Provides entrepreneurial skills for income generation
- Upholds women empowerment
- Improves standard of living
- Helps growing other industries
- Creates social awareness, environmental sustainability
- Profit reinvested to expand the energy services for more rural people

Thank You and...

...do it with joy

