Using ICT and Solar Power for Development in Bangladesh

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Broad Benefits from ICT

- ICT for Education
- ICT for Health
- ICT for Economic Opportunity
- ICT for Empowerment and Participation
Existing IT Infrastructure in Bangladesh

- Satellite
- Microwave Links
- Optical Fiber Links
- Cellular Coverage

Fiber Links & Cellular Coverage

- Backbone is transferred from microwave links to optical fiber links
- Roughly 1,800-km fiber is installed along 2,900-km railway track
- Leased by Grameen telephone to spread telecom footprint across the country

Source: www.gsmworld.com
ICT Solution for Bangladesh

Take a closer look at a target country: Bangladesh

Area: 144,000 km² - Flat terrain
Population: 150 million people (1041 people/km²)
Infrastructure: optical fiber, cellular tower, microwave station

With existing infrastructures, WiMax is the most optimum option. But backbone must be able to support data needed at base stations

Possibility for Nationwide Telecom-and-Internet Access in Bangladesh

In Bangladesh, about 90% of the population could be served by as few as 25 towers with multiple base stations using WiMax technologies.
**New Initiative**

- Grameen Shakti participates in a demonstration project with Grameen Phone to install 6.5 kWp solar plants for three mobile phone base stations.

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

Source: southasia.oneworld.net
Solar-powered CORDECT network in Bhutan

Source: tatabpsolar.com

Solar-powered telecom relay station in Saudi Arabia

Source: ETC power
Solar-Powered Base Station in China

Solar Energy
**SHS Installation Status in Bangladesh**

- **Number of SHS**
  - 0, 50,000, 100,000, 150,000, 200,000, 250,000, 300,000

- **Year**
  - 1997 to 2008

**IDCOL SHS Program**

**SHS Installation Growth (Cumulative)**

- **CAGR since 2002:** 60%
- **Installed Power Capacity:** 11MW
- **Energy Generation:** 44MWh / day

**Installed Power Capacity Breakdown**

- **2007:** 127968
- **2006:** 79629
- **2005:** 51638
- **2004:** 33004
- **2003:** 19213
- **2002:** 11413
- **2001:** 6753
- **2000:** 3593
- **1999:** 1838
- **1998:** 598
- **upto 1997:** 228
Potential for Solar Home Lighting in Bangladesh

- 60% of the people in Bangladesh and 80% of rural population have no access to grid electricity and rely on kerosene for lighting

Solar Home Lighting Activities in Bangladesh
Young Women Technicians are Dedicated and Reliable

Multi-family Solar Home Lighting System
From Lantern Light to Electric Light

The customers love coming to my shop, now that I have bright light. They can see what they are buying and what I have in stock. And they can watch television and charge mobile phones. My sales have gone up by at least Tk 300 a day.”
Indian Villagers Working with 3Watt LED Light

Solar Powered Street Lights
Solar Electricity in China

Grid-Connected PV in Tibet, China
PV Array for Microgrid in Tibet, China

Turtle Sanctuary on St. Martin’s Island, Bangladesh
A recent World Bank study has reported the following:

“Access to electricity raises rural household income by 20%, and children’s study time goes up by 33% with the availability of electric light”.

*(Backbone for HBES is Solar PV for lighting)*
Potential Cost Reductions in HBES

Home-Based Electricity Supply Systems (HBES)

Use smaller modules
USE LED lamps

(Can result in large scale market penetration of Solar PV for lighting)

Source: Grameen Shakti, B’desh
Thank you for Your Attention

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