



Bright Green Energy Foundation

House: 57, Road: 7, DIT Project
Merul Badda, Dhaka 1212, Bangladesh.
Phone : 88 02 9861140, FAX: 88 02 8818913
For Information: e-mail: dipal@dipalbarua.com
www.greenenergybd.com

Bright Green Energy Foundation (BGEF) is one of the leading organizations in the country to provide pollution free renewable energy to the underprivileged rural people of Bangladesh through innovative monthly installment based financing model. BGEF has created numerous green jobs all around Bangladesh by promoting woman entrepreneurs and green technicians by providing the training they require in this newly developed sector. BGEF has focused its primary work for the expansion of Solar Home System (SHS), Solar Irrigation Pump (SIP), Bio-gas Plant & Improved Cook Stoves (ICS) in rural Bangladesh. With leadership from Mr. Dipal C. Barua, from the inception in 2010, BGEF's goal is to improve living environment of rural people, inspire them for better livelihood and to create awareness for climate change and mitigation for a bright green future of rural Bangladesh.

Bright Green Energy Foundation (BGEF) has become IDCOL's (Infrastructure Development Company Limited) partner organization since June 2011. Since then it has successfully installed over 145,000 SHS in rural off-grid Bangladesh through its own network of 307 rural branch offices all over Bangladesh.

Founder of Bright Green Energy Foundation:



Mr. Dipal Chandra Barua First Zayed Future Energy Prize Winner



Advisor (PSAG), Green Climate Fund
Ambassador, Zayed Future Energy Prize (ZFEP), Abu Dhabi
Ambassador, Global 100% RE
President
Bangladesh Solar & Renewable Energy Association (BSREA)
President
South Asia Network For Clean Energy (StANCE)
IPCC : Lead Author (Chapter 16)
Councilor, World Future Council
Founding Managing Director, Grameen Shakti, Bangladesh
Former Deputy Managing Director (DMD) & Co-Founder
Grameen Bank, Bangladesh

National and other International Awards Received under the leadership of

Dipal Chandra Barua

European Solar Prize (Germany)	2006
IDCOL Award (for scaling up SHS)	2005
International Microfinance Awards from PlaNet Finance (Paris)	2009
Ashden Outstanding Achievement Award (UK)	2008
National Environment Award (Bangladesh)	2008
Energy Globe Award (Brussels)	2008
Right Livelihood Award (Sweden)	2007
Tech Museum Award (USA)	2007
Ashden Award (UK)	2006
Solar Prize (For outstanding performance)	2004
USAID Best Theme Award	2003
European Solar Prize (Germany)	2003
Energy Globe Award (Austria)	2002



Our Leadership & Unique Value Proposition:

Our Founder and Chairman, Mr. Dipal Chandra Barua is nationally and internationally renowned and first **Zayed Future Energy Prize** Winner in 2009 as the pioneer of Solar Energy in Bangladesh. He is the main driving force of successful expansion of Solar PV technology in Bangladesh. He has shown that solar PV technology can be successfully implemented on a mass scale to provide rural people with climate friendly energy, light, income and health.

As the Founding Managing Director of Grameen Shakti, he has successfully designed and implemented one of the most successful models in the world to take solar power to the rural people at the cost of kerosene. He introduced the innovative financial mechanism instalment based payment system that has made Solar Home Systems affordable for the rural people of Bangladesh. He also developed innovative awareness building programs and training programs for local technicians to ensure low cost efficient after sales service at the doorsteps of the rural people. He has successfully linked Solar PV technology with income generation and energy cost savings.

The Zayed Future Energy Prize represents the vision of the Late Founding Father and President of the United Arab Emirates, Sheikh Zayed bin Sultan al Nahyan, who championed environmental stewardship. This annual award celebrates achievements that reflect innovation, long-term vision and leadership in renewable energy and sustainability.

Our Vision:

Bangladesh as one of the First Solar Nations in the World, with 7.5 million installed SHS which will provide benefit to over 75 million people energy starved rural people. This will be a role model for 1.2 billion energy starved people around the World. Our Founder and Chairman, Mr. Dipal Chandra Barua is a passionate believer in solar energy for its potential to take Bangladesh forward, and make Bangladesh one of the first **"Solar Nations"** in the world, with half of our population enjoying the benefit of renewable energy by the year 2020.



Promotion and designing of innovative products which will meet the needs of rural clients. This include promotion of small Solar Home Systems for low income households , micro-utility model or mini grids for sharing one Solar Home System and special system design for facilitating income generation.

Tapping new market through promoting Solar PV technology in rural schools , clinics , offices , market places as well as for rural telecommunication.

Assembling and repair of solar accessories through village based women solar technicians and entrepreneurs.

Promotion and marketing of Solar PV technology through women entrepreneurs at the village level.

These women who come from poor, disadvantaged families will find decent jobs right at their villages and will be able to contribute toward their family income, especially meeting the education and health needs of the children. This will create a positive social force at the village level for the promotion of renewable energy technologies.

Tapping into local entrepreneurs forces to localize, expand and make its programs more flexible to the needs of the rural clients.



Organization of village events such as School Children exposure programs, Science Fairs, workshops for the effective promotion of Solar PV technology.

Ushering in the Green Century:

We can be proud that Bangladesh has a world class Solar PV (Photovoltaic) technology dissemination model that has effectively demonstrated that the solar energy applications can be scaled up massively and rapidly to provide an affordable and climate friendly energy option for the rural people.

Over 4 million Solar Home Systems (SHS) have been installed by all partners of IDCOL (Oct 2015); benefitting over 20 million rural people, with over 60,000 systems are installed per month, and this number will double and triple within the next 2-3 years under the leadership and inspiration of Mr. Barua. With all partners of IDCOL together, and if the proper support is available from the government sector, Bangladesh have the capacity and demand to install 7.5 million Solar System by 2020.

At the current growth rate of Solar Home Systems, we expect that power generated by the photovoltaic cells will exceed 500 MW within the next few years and 1000 MW by 2020. It is the high time to seriously consider the potential of solar and other renewable energy technologies in Bangladesh and BGEF is working toward achieving the target.

We are over-dependent on gas. Once we thought, Bangladesh is floating on gas, but no significant additional gas field has been discovered within last few years resulting in frequent power failure and no dependable energy source to fuel the power plants. Currently (2015) the daily average electricity output totals over 10,000 MW against the demand of 13,500 MW, leaving a supply deficit of 3,500 MW and rising every day. The demand for power could well rise to 25,000 MW by 2020. Bangladesh has to find alternatives to fulfil the demand for electricity as quickly as possible.

However, solar and other renewable can play a critical role in our energy mix. We are blessed with lots of sunshine and this increases the efficiency of Solar PV technology. Not only is the price of solar panels coming down in the world market, their efficiency is also increasing, meaning there will be grid parity within a few years. The same is true for Bangladesh. When we started our Solar PV Program in 1996, only a few could afford a system. Now, however, middle income and an increasing number of low-income groups can afford a system.

Bangladesh has the potential to become a middle-income country by 2021. Poverty has been reduced: new business opportunities, created both in Bangladesh and outside, and mechanization and new technologies, have reached the rural heartland. Our resilience against the global financial meltdown has won international recognition. However, our achievements and potential can be crippled if we cannot solve our unbearable energy crisis. We also have to protect our people against threats related to climate change such as cyclones, sea level rise, increased salinity, drought, drop in underground water level, etc.

Climate change is the greatest environmental challenge Bangladesh is facing with rest of the world today. Human induced changes in the global climate and associated sea level rise are widely accepted with policy makers and scientists. Rising global temperatures due to climate change will bring changes in weather patterns, rising sea levels and increased frequency and intensity of extreme weather events. Climate change poses significant risks for Bangladesh. The exact magnitude of the changes in the global climate is still uncertain and subject of worldwide scientific studies. It is broadly recognized that Bangladesh is very vulnerable to these changes. Indeed, it has internationally been argued that Bangladesh, as a country, may suffer the most severe impacts from climate change.



Creating New Value Proposition: The Leap Forward

We believe that green technologies can protect Bangladesh and at the same time contribute towards its socio-economic development. We want to develop Bangladesh as a success story, showing what can be done with renewable in a developing country, and take this success to other developing countries, as source of inspiration where 1.2 billion energy starved people remain in the dark around the world.

Increased aspirations, failure of grid electricity, growing mechanization and disposable income have created huge potential for solar energy in rural areas. Bangladesh government has set a target of reaching all with electricity by 2020. Momentum has been created for solar power which our rural people have accepted whole heartedly. Solar & other renewable are in a position to play a very important role to complement government efforts to take electricity to all by 2020.

If we can take the right fiscal and regulatory initiatives, it is possible to add another 10,000 mega watt (MW) through solar energy by 2020. Despite the growing numbers and huge demand, our success has been limited to individual Solar Home Systems and covers only a tiny portion of potential market.

The need of the day is innovative, efficient, flexible and dynamic entrepreneur based culture which will tap into the huge momentum created to make Bangladesh a Solar Nation by this decade. We will tap into this niche through the following:

Pilot testing new business models which link up small businesses with grassroots entrepreneurs specially woman in Bangladesh and in other developing countries.

Focus on creating a soft structure of rural based entrepreneurs which will be more efficient, cost effective and dynamic in reaching rural people with renewable.

Taking Solar to Schools, Health Clinics, Water pumping for Irrigation, Telecommunication, Street-lighting and soon.

Promoting Solar in Urban Areas as a tool against load-shedding.

Promoting Bio-gas plants in urban and rural areas to convert wastes into gas, electricity and organic fertilizers.

Expanding the use of Clean Cooking Stoves (CCS) to protect our women and children from indoor air pollution and untimely death.

Training 1,00,000 (One hundred Thousand) Rural Grassroots Women by 2020, to set up their own Renewable Energy Businesses and especially to promote Pico systems.

Improved Cook Stoves: They will be linked up with seed capital, technical support to create a huge network for scaling up cooking energy technologies very efficiently. They will be able to provide after sales service at very low cost and reach people with products, creating niche markets where traditional branch based structures fail.

Supporting the growth of small businesses, through training, access to cost effective finance and quality products.

Increasing competitiveness and efficiency in the local market through providing technical and market support for the set up of more solar and other accessories manufacturing units in



Bangladesh and other countries.

Helping to mitigate the impact of climate change through Eco villages, tree plantations, organic fertilizers, cyclone shelters with solar power for early warning system, water desalination etc.

Advocating for policy changes favourable to renewable in Bangladesh and in other developing countries

Our Achievements: Major Milestones:

After registering on January 28, 2010 as Bright Green Energy Foundation (BGEF) we started our operation from February 15, 2010. In this period of our operation, we have achieved tremendous growth:

Installed over **145,000 Solar Home Systems (October 2015)** in Bangladesh off-grid areas through **307 rural branches** under eleven **(11) Zonal offices** and in near future this number is expected to grow 4000 SHS installations per month. At present BGEF has over 1500 skilled employees.

Increased per staff productivity and efficiency to 5.5 systems per month.



Successfully met internal demand of all solar accessories such as charge controllers, CFLs, invertors etc through production at four (4) rural based **Green Technology Centers (GTC)** with the help of local women technicians. All the GTCs are currently run by women.

Women technicians operating are working at rural GTCs (**Green Technology Center**) and assembling and repairing solar accessories for SHS and earning more than Tk. 5000 per month. They are also providing maintenance services to their own communities at rural level and training rural women for becoming green technician.

Disbursed amounting to more than Tk. 150 core with a recovery rate of 100% till to date.

Installed Solar Energy System in 12 rural clinics to provide 4 lights including power to charge mobile phones and operate a fan, in coordination with the Health Ministry. One of these clinics was visited by Director General of WHO, during her recent visit to Bangladesh.

Successfully covered operational cost from recovery, laying a sustainable basis for the organization.

Started Clean Cooking Stove Program in partnership with GIZ. These stoves are updated versions of traditional stoves and are portable, made of clay, brick and cement, with chimneys. BGEF has four (4) production facilities (Gazipur, Comilla, Bogra & Faridpur) to serve rural district of Bangladesh. As of now BGEF has installed 7800 Improved cook stove.

Set up linkages with top renewable energy and development experts from all over the world, to bring best practices to Bangladesh as well as disseminate these to other countries.



Solar Irrigation Pump (SIP)

The farmers of Bangladesh is facing many challenges from climate change. Imbalance and insufficient rainfall and heated weather causes less productivity. The farmers are assured of irrigation for their crops, even on the most overcast days. Especially during the dry season irrigation is very necessary for cultivation. The solar pumps enable an easy installation and transition from the traditional systems. This solar powered irrigation pump function without noise or pollution and require less maintenance. SIP can also contribute to the social income generation.

Most of the power is limited to the rural areas of Bangladesh. Usually rural irrigation system relies on Low Lift Pump (LLP), Shallow Tube Well (STW) and Deep Tube Well (DTW). LLP and STW mostly use diesel and DTW is mainly operated by electricity. A solar powered irrigation pump is a best possible source to overcome this seasonal irrigation problem. The solar pumps reduces farmers' dependence on diesel supply, which is often costly particularly in remote rural areas.

BGEF has started installing Solar Irrigation pump in rural off grid areas to support the agricultural sector of the country. Already BGEF installed three (3) submersible pumps in the western part of Bangladesh (Kushtia) and replacing diesel run pumps. On an average these pumps are producing approximately 16 Lac liters of water from ground water source each day.





Negotiation is going on for providing consultancy and advice for scaling up renewable energy technologies, joint collaboration, replication in Asia, Africa and Europe.

Set up very good linkages with top energy experts / businesses all the over the world including MASDAR, UAE, Total, France to bring new solar/renewable energy technologies to Bangladesh.

Also set up linkages with top universities such as Yale, Stanford, MIT to bring Interns to Bangladesh.

Become partner of IDCOL (Infrastructure Development Company Limited) for **Solar, Bio Gas & Improved Cook Stove** to receive financial support (grant/loan) for expanding solar home systems in rural areas.

Working Experience with various government or non-governmental organizations

BGEF has installed Solar Energy systems in 12 rural clinics to power 4 lights and one DC fan in coordination with Ministry of Health. List of Community Clinics with SHS installed by BGEF is given below:

Hazrakhana Community Clinic	Chowgacha, Jessore	March 2, 2010
Niamotpur Community Clinic	Chowgacha, Jessore	March 2, 2010
Kushli Community Clinics	Tungipara, Gopalganj	March 16, 2010
Gowhurdanga Community Clinic	Tungipara, Gopalganj	March 17, 2010
Ghoserghat Community Clinic	Tungipara, Gopalganj	March 16, 2010
Munshir Char Community Clinic	Tungipara, Gopalganj	March 16, 2010
Patgati Mondol Bari Community Clinic	Tungipara, Gopalganj	March 17, 2010
Baghaircul Community Clinic	Tungipara, Gopalganj	March 18, 2010
Balohar Community Clinic	Tungipara, Gopalganj	March 19, 2010
Uttarpara Haatkholra Community Clinic	Tungipara, Gopalganj	March 19, 2010
Horinhati Community Clinic	Tungipara, Gopalganj	March 19, 2010
Taporia Community Clinic	Tungipara, Gopalganj	March 19, 2010

Easy access to credit for green business:

It is inspiring to see that Bangladesh Bank has set up a special credit scheme to popularize green energy. However, most end-users are not aware of this scheme and the banks do not have a distribution channel to reach potential customers. The scheme would be more productive if it targeted service providers directly, instead of customers.

Currently service providers can access the fund at 10-25 percent interest rate, which is too high, and the payment is only made after the product has been installed. This does not allow an organization any fund for purchasing the system or retaining its distributional channel. We can amend this scheme to provide very low interest loans to entrepreneurs for carrying out green businesses including setting up battery/solar factories, etc.



BGEF Head Office

BGEF monitors and operates from its head office which is located in Road: 7, House: 57, Merul badda, DIT project, Dhaka-1212. We have 30 skilled members at the head office to monitor overall collection efficiency & discipline. We have strong administration, accounts, Information technology, R&D department to support a smooth work force. Below is the Head office operation details:

Administration & HR:

- Administration updates the policy decided by the authority and circulate the office orders;
- This particular Department prepare monthly staff salary & payroll;
- Process the promotion and yearly increment of the staff;
- Evaluate the staff performance;
- Update & maintain personal files of the staff;
- Branch, area and zonal office information updates such as office rent;

Recruitment & Training: Head office recruit new employees according to the demand.

Conduct regular staff training which includes:

- ❖ Prepare installation according to IDCOL standard;
- ❖ After sales service;
- ❖ Provide training to the staff for better collection efficiency;
- ❖ Marketing & customer service;

Operation management:

- Set sell and collection target for each zone and monitors progress everyday
- Monitors Daily sales of each branch office
- Monitors per staff sell and collection efficiency
- Ensuring after sell service to customer.
- Inspire to improve collection and sell efficiency
- Supervise employee performance
- Regular Field visit and report the progress to head office
- Customer visit and maintain regular communication with customers

Accounts:

- Ensure cash Collection daily through:
 - Traditional Banking (Demand Draft + Online)
 - Mobile Banking (Started the method from Jan-15)
- Maintain Cash Book & Bank Book and update balances daily basis
- Payment to Supplier
- Controlling overall operating Expenses
- Maintain books of accounts and registers for proper documentation
- Use of Accounting Software from Head Office
- Cash Management
- Prepare financial Reports and present to Management
- Assist External & Internal Audit
- Submission of Yearly Tax Return
- Reports to Government Authority in time
- Preparing and updating supporting document for Credit Rating required by Bangladesh Bank.



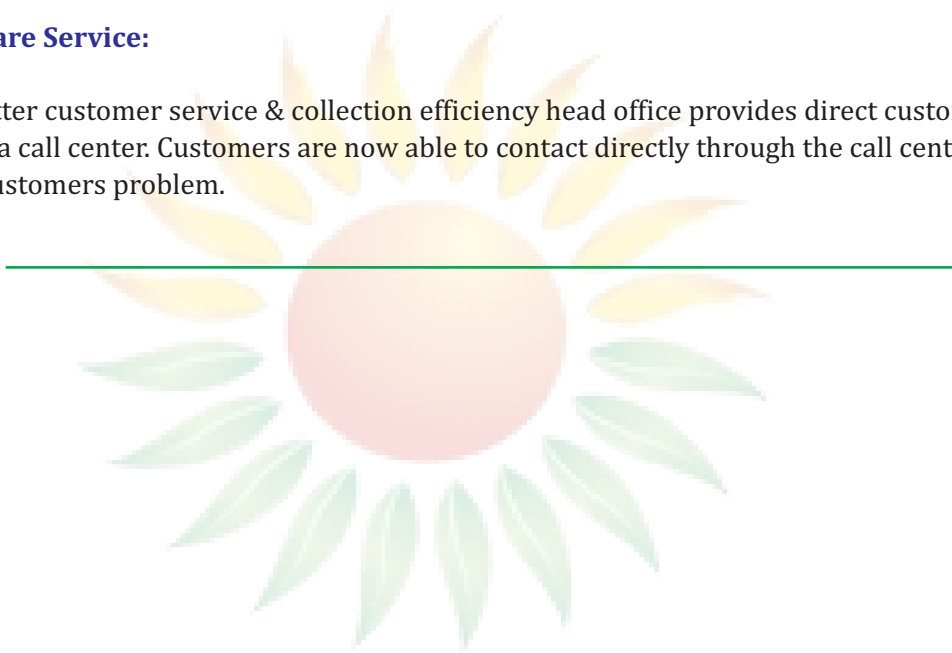
BGEF Head Office

Information Technology (IT):

- Provide software and hardware support
- Remote software support
- Monitor daily sell reports
- Generate monthly sell reports
- Provide the softcopy for IDCOL's disbursement request
- Employee data updates and generate new employee ID
- Branch update in software
- Salary Process
- Bill Processing for IDCOL claim

Customer Care Service:

To ensure better customer service & collection efficiency head office provides direct customer service operating by a call center. Customers are now able to contact directly through the call center and our agent resolve the customers problem.





B G E F

BGEF Projects:

- Solar Home system (SHS) dissemination
- Solar Irrigation Pump (SIP) Installation
- Bondhu Chula (Clean Cook Stove)
- Bio Gas
- Solar diesel Hybrid Grid
- Decentralized Solar PV and Renewable Energy solutions
- ECO-Village
- Solar Lantern with Solar Charging Station

