



MINISTRY OF ENVIRONMENT AND FOREST
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LGED Activities on Green Energy

Sustainable Rural Energy (SRE) Local Government Engineering Department

IMPACT OF PV TECHNOLOGY IN RURAL LIVELIHOOD

Electrification is one of the priorities in development policy in many rural regions of the world. PV technology is one of the least expensive and environmental friendly options as compared to grid extension or generator. SRE project has explored a number of PV applications considering socio-economics, technology, user training, efficient use of resources, etc.

Solar home lighting system: To analyze the impact of PV technology to the rural people in their quality of livelihood and verify level of people can afford the technology SRE has installed 35 systems of capacity 75Wp for single scattered households in off grid areas in Thakurgaon district. Each household has been benefited from lighting rooms and watching TV. Sense of ownership has been developed. Users maintain the systems confidently. A tremendous interest and enthusiasm have been observed among the surroundings.



PV technology for landless poor: Due to natural calamity and other desarter every year people become landless in Bangladesh. These people migrate to the towns nearby and create extra burden. In order to avoid this problem, Asrayan- home for landless is one of the many government initiatives. SRE has selected Baradubi Asrayan in Sherpur district after taking the opportunity to provide PV technology to this community. Under this programme SRE has installed 1.725kWp solar installation to provide electricity for room lighting to 60 families and TV in community centre for information and entertainment. Necessary training has been provided, and users are capable enough to maintain the system with their contributed money.



Tourist resort: As a part of dissemination of renewable energy technology SRE has taken a programme in Abakash, a reputed tourist resort in Sherpur district by providing



solar electricity in the underground tunnel for attract tourist, and the two storied rest house lighting aids tourist comfort. Abakash development authority, headed by DC Sherpur is responsible for the operation and maintenance of the system.

Rural market electrification:



some selected rural markets, popularly called growth centre are consider as nuclei of rural economic growth. Only daytime marketing system has a negative impact to the daily laborers and farmers who have to sacrifices their certain amount of working hours for shopping or marketing their product. A multi user system with a micro-power station and a micro-grid conception has been implemented at Gangutia growth centre in Jhenidah district. This system consists of a standard AC single phase grid that distributes electricity from a micro power plant of capacity 1.8 kWp solar power to 50 shopkeepers. Market committee takes care of the system's operation and maintenance at users cost.



Rural Community Clinic PV electrification:

Delivering an adequate level of health care services in remote regions present many challenges. One of those challenges is to provide facilities of reliable source of electricity. SRE has taken initiative and selected Kamarul Community health clinic under Terokhada Upazila in Khulna ditric to deploy PV technology to facilitate better medical health care to the off grid locality. Under this initiative a 1.5 kWp PV system has been installed to provide electricity to OT lamps for medical surgery and refrigerator for vaccine, blood etc. preservation in addition to other medical equipments. Moreover, clinic lightings, fans and a TV facility have also been incorporated considering patients' comfort. Operation and maintenance of this system will be done by the Clinic authority.



Up complex under solar power: With the epoch making step of decentralization, Union parishads are gaining growing importance in the process of development and better governance at the local level. It has been decided to provide necessary infrastructure including computer to the up to facilitate effective and efficient governance at the local level. SRE has extended its solar disseminating & demonstration programme to this level and has set up a 600 Wp solar PV installation in Ambaria UP complex. With this tiny power source, the two-storied UP Headquarter including conference room has come under solar electrification in addition with a computer and a TV for information and entertainment.

PV in tribal community development:



To analyze the impact of this technology among the tribal community SRE has installed some PV installation for 15 tribal (Chakama) families in an isolated island on the Kaptai Lake in Rangamati district. Moreover, a Temple has also been PV powered in that community. A local NGO responsible for these systems' operation and maintenance with the users contributed money.



PV technology in IT development:



To develop an Information Technology (IT) culture and related infrastructure in renewable way in remote off-grid areas, SRE taken a Solar Photovoltaic programme at Kutubdia Upazila Engineers office to run Computer and printer by solar power.

Micro-grid for fisherman community:

Sairakhali Jaladas para is a sea-shore remote and off-grid area located in Fariakhali Union under Chakaria Upazila in Cox's Bazar district. The locality is based on around 72 families. Fishing is main financial activity of this area. Taking advantage of the inclusion of this area under UNDP-FAO-GOB programme for fishermen community, SRE has taken initiative to install a 5Kw PV system which would be distributed to the users through a micro grid, thereby creating synergy between different governments programmes.



WIND ENERGY DEVELOPMENT

Energy harvesting for wind needs reliable information of wind characteristics and for this a long term systematic wind data analysis is required. In most places around 3.5m/sec wind speed has been recorded by Metrological Department so far which is not wind power trapping. Currently, lack of appropriate wind speed has limited large-scale programme for harvesting wind energy on commercial basis. In this connection, SRE has conducted a joint study programme with BUET and BIT Chittagong titled WERM, (**Wind Energy Resources Mapping**) targeting wind mapping at twenty different locations in the country at different height.



Meanwhile, SRE has designed a wind mill at a low speed regime (2m/sec) for water pumping. Two demonstration plants has been installed at two locations in Sherpur and Cox's Bazar district. Moreover, a 400 W wind turbine, hybrid with a 150 Wp solar PV, has been installed at Kuakata. . However, wind mill and small wind turbine hold potential for demonstrating the technology as well as raising awareness of the people about the prospect and benefit of use of wind energy in Bangladesh.



MICRO-HYDRO PLANT: INDIGENOUS WAY OF POWER GENERATION



Bangladesh is primarily a flat country but some hilly regions in Chittagong and Sylhet can be found where micro-hydro plants can a player to mitigate local electrical power scarcity. In order to identify potential sites of SRE has signed a memorandum with Aung Thui Khyn, a low head micro-hydro plant designer. SRE has also come forward to providing assistance to Aung Thui Khyn's initiatives. Moreover, installation of a 10kW micro-hydro plant at Banskhal in Chittagong is under SRE consideration.

Biomass Technology promotion

SRE project encompasses biogas technology not only as an alternate source of energy but also as a means for better health and sanitation for rural poor. In order to support LGED's movement on biogas technology, SRE project has implemented two community based biogas plants. The first one has installed at Talihati union under Nikli Upazila in Kishoregonj district targeting a total of 150 families and the other is under construction at Senhati Zakaria madrasa under Digholia Upazila in Khulna district for nearly 400 orphanages. These demonstration plants would benefit the community in many ways: providing energy for cooking and thereby saving fuel wood, ensuring better health and sanitation of the community and also producing good quality pathogen free fertilizer for agriculture use. From the community, a beneficiary committee has been formed and this community is entrusted with the responsibility of proper operation and maintenance of the system.



Beside that, SRE has planned to analyze the option of Bio-gasifier technology in this country. A 5kW Bio-gasifier demonstration plant is under planning.

RENEWABLE ENERGY INFORMATION NETWORK (REIN)

One of the main difficulties encountered in Bangladesh is the lack of information on the most appropriate renewable energy systems and technologies. For efficient implementation of future projects on renewable energy technologies, there is a need for access to reliable information. Keeping that view in mind, LGED has developed Renewable Energy Information Network (REIN) with a comprehensive scope for developing an information platform for renewable energy utilizing modern

technologies with long-term perspective. This network will be designed and tailored to facilitate the energy planners, project developers, researchers and all relevant organizations in developing renewable energy projects and promotion of renewable energy utilization in Bangladesh. SRE has taken initiative to design and hosting of website on renewable energy development. This web-based information platform has compiled RET information on the different issues of resource database, renewable energy projects, research and development, and information media. Regular publication of renewable energy newsletter and maintain web-portal on RET are also mandated under this programme. GIS Based studies/research on renewable energy resource assessment and utilization at community level in various regions of the country adds a new dimension.

TRAINING FOR CAPACITY BUILDING AND TECHNOLOGY TRANSFER

As a part of capacity building SRE has provision to train renewable energy technology to LGED personnel. Meanwhile, SRE has conducted a number of training programs for Assistant Engineer level. Moreover, 30 LGED engineers from different areas have given extensive training targeting they will train Community Organizers, SAEs and Mechanical Foremen at grass root level throughout the country. In addition with that, SRE has conducted a number of beneficiaries training among around 500 rural people.

Please visit our website at : { HYPERLINK "http://www.lged-rein.org" } , { HYPERLINK "http://www.lged.gov.bd/sre" }

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