

Government of the People's Republic of Bangladesh
Ministry of Power Energy and Mineral Resources
Sustainable and Renewable Energy Development Authority (SREDA)
Development of Sustainable Renewable Energy Power Generation (SREPGen) Project

Subject: Minutes of the seventh (7th) meeting of the Project Implementation Committee (PIC) of Development of Sustainable Renewable Energy Power Generation (SREPGen)

The seventh (7th) meeting of Development of Sustainable Renewable Energy Power Generation (SREPGen) Project was held on 1 April 2019 in SREDA. Md Helal Uddin, Chairman (Additional Secretary), SREDA and National Project Director, SREPGen Project chaired the meeting. List of participants present in the meeting is attached as annex (Annex-A).

1. At the outset the Chairperson welcomed and thanked all the members for attending the meeting and requested Dr. Md. Taibur Rahman, Project Manager, SREPGen Project to give a brief presentation outlining the agenda of the meeting.
2. Project Manager briefly outlined basic features of the project and its activities. The detail presentation (Annex-B) was followed on implementation progress of the project until fiscal year 2018-2019. Subsequently, Chairperson invited all to participate in the agenda wise discussion where agendas were briefly introduced by the Project Manager. Agenda-wise discussion are presented below:

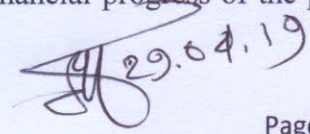
Agenda no 1: Reviewing the Project Progress;

1.1 Before reviewing the progress, decisions and follow-up Action of the 6th Project Implementation Committee (PIC) Meeting is attached herewith as annexure-I.

The meeting took note of this follow-up actions taken by the project as decided in the last PIC meeting.

1.2 Financial Progress:

The meeting was informed in detail on the component-wise budget for 2019 and progress to date. Total cost of the project is BDT 3960.82 lakhs (GoB: 790.74, PA 3170.08). The cumulative progress up to March, 2019 was BDT 2998.88 lakhs (GOB 682.70 and PA 2315.18 lakhs) which was around 75.71% (GOB: 86.34%) PA: 73.03%). The progress up to the current month (March 2019) of the year is 930.09 lakhs (GOB 60.09 + PA 870.00) encompassing around 84.55% of the annual allocation. The meeting expressed satisfaction over the financial progress of the project considering the changed context.


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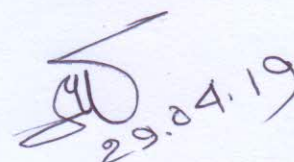
1.3 Component wise Physical Progress since inception:

Component wise physical progress since inception of the project was briefed by the Project Manager which were as follow:

Component 1: Policy support and capacity building-Under this component various policy guidelines have been prepared many of which are yet to be finalized. Training and capacity building along with workshops, seminars have been arranged under this component. Some key policy documents are:

1. Energy Net Metering Guideline has been approved by the government and published already. Around 4 MW electricity is being generated since December 2018 under this guideline.
2. Energy Net Metering Handbook is being drafted and will be finalized after proposed revision of the ENM Guideline.
3. Analysis of assessment of base-level standard tariff for utility scale solar IPP projects considering the local climatic, geographic and grid condition and power evacuation facilities has been submitted to Power Division and is being used now a day;
4. Technical and financial solutions for grid integration of solar PV water pumps and subsequent guideline has been drafted and would be finalized soon.
5. Template agreements for rooftop solar under ENMG and its grid integration has been drafted.
6. Guideline/Regulations for standards for PV system and preferred PV system has been drafted.
7. Guideline/Regulations for disposal of PV systems wastes (e.g. panels, batteries) has been drafted
8. RE power generation action plan 2019-2041;
9. Capacity Building Need Assessment has been finalized
10. Training organized for 300 officials on ENMG and continuing

The meeting took note of the preparation of the mentioned policy guideline documents and instructed to finalize those at earliest.

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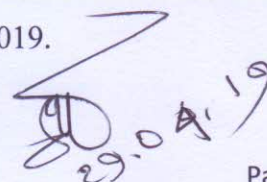
Component 2: (RE) Resource assessment support program (Solar, Wind, Bio-mass)

1. **National Solar Irradiance Study** has been going on since last year. A German research institution "ITT-rms" was recruited for the study on 28 June 2018. The study is expected to be completed by July 2019. Under this study, 10 pyranometer (out of which 2 are sun-tracker based) based monitoring stations had been planned to be installed to assess the climatology of surface solar irradiance for the national photovoltaic assessment in Bangladesh. 7 of such systems have already been installed in 5 locations: Khulna University, Shahjalal University of Science and Technology, Chittagong University of Science and Technology, Patuakhali University of Science and Technology, Rajshahi University of Engineering and Technology. Rest of the stations would be installed by April 2019. This study would support investors to prepare their investment plan and tariff negotiation accordingly. The meeting instructed to prepare a complete national solar irradiation study report using these monitoring stations.
2. **Nation-wide Bio Mass Study** (Phase 1) was commissioned and the contract was signed with NACOM for this study in July 2018. The study would be completed by June 2019. The study is progressing well. A national consultant is supervising the study on behalf of SREDA.
3. **Wind resource assessment in Manpura:** SREPGen would support viability gap funding of Wind turbine as Hybrid system with mini-grid in Manpura with 100 kW wind capacity. That wind turbine would provide wind resource data for the coastal area as well.

The meeting instructed to combine all data of these three studies in a common web-based platform so that anyone can access those data using user friendly interface.

Component 3: Affordable Photovoltaic Power for Low-income Households and associated Livelihood Enhancement

1. An agreement was signed with IDCOL on 20 November 2017 to install RE power generation related systems for low income people.
2. Till now 6000 PVSLs in total were distributed among the low income household with 30 USD buy down grant from SREPGen.
3. One Solar-Wind Hybrid mini-grids and one mini-grid in Manpura Upazilla of Bhola district with 497.5 (279.5+218) kWh capacity have been financed from SREPGen project. The project is expected to be operational by May, 2019.

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The meeting opined to arrange a high level gathering during the inauguration of these mini-grids. The meeting also instructed to conduct baseline study followed by impact study of those mini-grids in Monpura.

Component 4: Renewable energy investment scale-up

1. **Five solar boats** were developed and those are currently operational. A business model for commercial scaling up of solar boat was prepared; 5 boats were handed over to SREDA and SREDA leased those to Hatirzheel at Dhaka, Panama Lake at N'Gonj and Foy's Lake at Chittagong for demonstration effect; SREDA is currently working on to commercialize these solar boats through up-scaling. A fiber made body based solar boat would be developed once an evaluation of developed 5 solar boats are completed.
2. **A pilot Waste to Energy (W2E) project** was planned. Some viability gap funding (grant) would be made available for this plant from SREPGen project. Such piloting on Waste to Energy (W2E) project is currently planned at Kustia. This is further discussed in agenda 3 in detail.
3. **Solar Energy Assisted Ice Plant** in Char Montaz: At Char Montaz Island, Rangabali Upazila, solar powered ice plant is underway of installation with capacity of 2.5 ton per day for the local fishing community to get ice easily at minimum price. The plant is expected to be operational by June 2019. A second such plant would be considered after preliminary evaluation of the first one.
4. Proposal for Grid Integration Piloting for Solar Irrigation Pump at Kushtia installed by Bright Green Foundation was received from IDCOL. Estimated cost for this is about 22,500 US\$. This is discussed in agenda 4 in detail.

The Project Manager appraised that overall result of the project achieved to date was optimistic and forward-looking. He also mentioned that he was confident to complete all the targeted project activities in due course.

Agenda – 2: Solar-Wind Hybrid Mini-grid in Monpura

The meeting was informed that wind pilot project at Manpura is very much necessary as manifested through a preliminary study conducted by SREPGen. SREDA has set forth its firm determination to implement the wind energy project at Monpura. SREDA is trying to develop a solution considering trade-off and synergies across multiple actors after consulting all actors in this regard. This issue was already discussed with a Danish Company through Danish Embassy and a request has been made to the Embassy to send a proposal along with technical specification,

financial analysis, business model and Operations and Maintenance (O&M) issue adhering to the role of each partner e.g. Western Renewable Energy (Pvt.) Ltd. in this endeavor to implement the project. The meeting instructed to take initiatives to implement this project at soonest.

Agenda-3: Financing Waste to Energy Project in Kushtia

A pilot Waste to Energy (W2E) project was planned to be implemented. A proposal for such pilot Waste to Energy (W2E) project was received for Kushtia municipality which is currently being reviewed by SREDA and IDCOL. The meeting instructed to follow a competitive bidding process to identify the investors. This would be an IPP project and there would be some portion of the total cost allocated as grant. Bidder must provide technical and financial proposal separately and financial proposal must include total project cost (BDT), soft loan if any (% of Total Project Cost), payback period, investment portion in terms of percentages (%), requested absolute amount of grant portion etc. This to be sought grant amount would be the basis of financial evaluation. Initial tariff rate around BDT 15 per kWh would be set as starting point for the bidding process and land would be provided by the municipality. It was decided that UNDP CO would be requested to initiate the bidding process at soonest.

Agenda-4: Grid Integration of Solar Irrigation Pump (SIP) Guideline and Tariff

The meeting was informed that a proposal document is underway of preparation to commission this piloting. Estimated cost for this is about 22,500 US\$. The deployment of solar irrigation pumps (SIPs) in agricultural fields is seen as one of the most promising use of renewable energy that simultaneously address access to energy and contribute to food production. The agriculture sector is responsible for 14.8% gross domestic product (GDP) (Bank 2016) and the livelihood of millions of farmers in Bangladesh, making it imperative for a reliable irrigation system. Approximately 1.6 million units of irrigation systems were in operation in 2016 in Bangladesh. Around 1.31 million or 81% of the total irrigation units are powered by diesel, resulting in annual consumption of 1 million tons of diesel worth nearly 770 million US\$ (GlobalPetrolPrices.com 2018). 19% of the remaining irrigation units are powered by electricity from the national grid, which adds additional strain on the national electricity grid. IDCOL has the highest share of SIP project implementation with ¹³³⁷923 SIP systems already in operation. IDCOL aims to install 50,000 solar powered irrigation pumps by the year 2025 (IDCOL 2018). The meeting discussed the possible modality of implementing this grid integration piloting. As the SIP sponsor, Bright Green Energy Foundation (BGEF) is a non-profit organization and also an IDCOL Partner Organization (PO), the meeting recommended to commission the project possibly through MCG modality of UNDP. The meeting instructed the project manager to start the MCG process.

Agenda-5: Evaluation of the Technical Performance and Operational Effectiveness of Five Solar Boats for further commercialization

Five solar boats were developed and those are currently operational. A business model for commercial scaling up of solar boat were prepared. 5 boats were handed over to SREDA and SREDA leased those to Hatirzheel at Dhaka, Panama Lake at N'Gonj and Foy's Lake at Chittagong for demonstration effect. A technical evaluation committee was formed in this regards to evaluate the technical performance and operational effectiveness of five boats to figure out suitable business option for further scale up.

Agenda-6: Net Metering related works under SREPGen Project

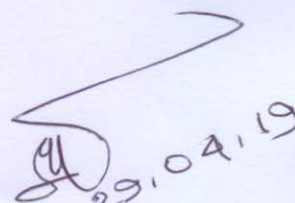
The meeting discussed in details on the Net Energy Metering guideline which was supported by SREPGen Project. Net energy metering (NEM) refers to a policy mechanism that allows electricity consumers to connect their renewable energy systems to the distribution grid. If the generation facility is a solar PV system, first the DC electrical energy produced must be converted to AC through an inverter before fed into the utility network. The power generated more than the owner's electricity consumption is fed into the grid through a bi-directional energy meter capable of registering both import and export of electricity. The arrangement of a net metering system utilizes the same service line for excess power injection into the grid which is already being used by the consumer for draw of power from utility network. However, an electrical inspection will be carried out prior to energizing a generation interconnection to verify whether the generation arrangement meets utility, product safety and grid interconnection specifications and standards. The meeting instructed to publish the hand book of ENM implementation and arrange mass scale training for relevant stakeholders.

Agenda-7: Miscellaneous

The meeting was appraised about the initiative to implement a submersible mini-hydro plant with a capacity of 20 KW in Thanchi, Bandarban to improve the living condition of the indigenous people following the slogan of "Leaving no one behind". The ultimate objective of the project is to develop a decentralized pathway for sustainable electrification in the remote places of Chittagong Hill Tracts Districts based on renewable energy generation through micro and mini hydro power plant in order to improve the living condition of indigenous people. The meeting recommended to implement the project through MCG modality if all the conditions are met and also instructed to consult Ministry of Chittagong Hill Tracts Affairs in this regard.

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3. After threadbare discussion following decisions were made at the meeting:
- 3.1 A complete national solar irradiation study report using the installed monitoring stations will be prepared.
 - 3.2 A common web-based platform will be developed for all the four datasets on solar, biomass, biogas and possibly wind so that anyone can access those produced data using user friendly interface.
 - 3.3 IDCOL will galvanize the effort involving all relevant and potential stakeholders considering trade-off and synergies among multiple actors to implement the wind-Solar-hybrid project at Manpura and will evaluate and approve any of such investment proposal (e.g. proposal of a Danish Company) and approve through its board.
 - 3.4 UNDP CO will be requested to initiate the bidding process at soonest for selecting investor/sponsor for 100 kWh waste to energy project at Kushtia municipality.
 - 3.5 UNDP will be requested to process MCG support for implementing SIP project through Bright Green Energy Foundation (BGEF).
 - 3.6 Commercialization of solar boats in the country will be promoted and a technical evaluation committee will be formed to evaluate the technical performance and effectiveness of five solar boats to have directives to take further initiative in this regard.
 - 3.7 A submersible mini-hydro plant with a capacity of 20 KW in Thanchi, Bandarban will be implemented and UNDP will be requested to evaluate the feasibility of MCG modality in this regard.
- 4.0 The meeting was concluded with vote of thanks to and from the Chair.


(Md. Helal Uddin)
Chairman, SREDA
And
NPD, SREPGen Project

Annexure-I

Decision	Follow-up Action
<p>3.1 SREPGen Project was recommended to finance grant portion (50% of total cost as per IDCOL's practiced business model) for two solar mini-grid projects with each capacity of 279.5 kWp and 218 kWp to be implemented by the Western Renewable Energy Limited at South Sakuchia Union and South Monpura Union of Monpura Upazila under Bhola district respectively based on the Financing Agreement signed between IDCOL and SEREPGen on 20 November 2017.</p>	<p>Project is financing grant portion (50% of total cost as per IDCOL's practiced business model) for the mentioned two solar mini-grid projects at Monpura upon approval of last PSC meeting. The fund has been disbursed through IDCOL. These mini-grids are expected to be operational by May 2019.</p>
<p>3.2 SREDA will request Power Division to mobilize financing for wind-turbine particularly for hardware part or 50% of the total cost as per business model of IDCOL from GoB sources and eventually UNDP will cover associated costs (technical in nature) or rest of the 50% of the cost as grant. Meanwhile, UNDP will try to mobilize resources through other partners if needed for financing this wind portion of solar-wind hybrid mini-grid at Manpura, which is planning to be completed by July 2019.</p>	<p>SREDA and UNDP have been working together to secure 50% grant support of the total cost as per business model of IDCOL. Last PSC meeting has instructed North West Power Generation Company Ltd. (NWPGL) to contribute 50% of the total cost for integrating preliminary planned 100 kW wind-turbine with the 279.5 solar mini-grid project at South Sakuchia Union, Monpura Upazilla where SREPGen will provide rest 50% of the total cost. In such case, GoB (SREDA & NWPGL) will own the wind-turbine system and will consider leasing it to the mentioned solar-minigrid owner for smooth operation or any other appropriate operational model after construction of such system. Meanwhile, UNDP has mobilized a Danish company through Danish Embassy in Bangladesh to own the project by investing 50%. In that case, NWPGL financing would not be required. Proposal from Danish company is expected to receive by Mid-April 2019. SREDA will decide then about the selection between NWPGL or Danish Company.</p>
<p>3.3 A baseline study will be commissioned to provide an information base against which to monitor and assess the activity's progress and effectiveness during implementation and after the activity is completed to be tracked by the SDG indicators upon installation of the mini-grids which will be financed by SREPGen at Manpura.</p>	<p>The mentioned baseline study has been commissioned and report finalization is expected before inauguration of the mini-grids at Monpura.</p>
<p>3.4 SREPGen will consider financing waste to energy project for Kushtia municipality or elsewhere and SREPGen, SREDA and IDCOL will work together to materialize this target.</p>	<p>UNDP and SREDA are jointly working for this. A bidding process will start by April 2019 in this regard. Bidding document is being prepared currently.</p>

<p>3.5 SREPGen project will promote commercialization of solar boats in the country and if necessary fiber-made solar boats can be explored in this regard.</p>	<p>SREPGen project has already taken initiative to commercialize solar boat. A committee formation process is going on in this regard.</p>
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