

# Country Paper: Bangladesh

Md. Afrazur Rahman<sup>1</sup>, Musrat Meh Jabin<sup>2</sup>

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## 1. INTRODUCTION

Energy is one of the basic ingredients required to alleviate poverty and socio-economic development. Government of Bangladesh has issued its Vision and Policy Statement in February 2000, to bring the entire country under electricity service by the year 2020 in phases, in line with the direction of the Article 16 of 'The Constitution of the People's Republic of Bangladesh,' to remove the disparity in the standards of living between the urban and rural areas through rural electrification and development. The energy prospect is generally assessed on the basis of available commercial sources of energy i.e., fossil fuel like gas, coal, oil etc. Worldwide, there is a major transition underway in the energy sector. It is happening due to the following three major reasons:

- (i) A decline in fossil fuel availability, their predicted gradual extinction in the next few decades and the resultant price volatility due to demand-supply gap.
- (ii) The need to drastically cut global emissions for mitigating climate change (80% reduction by 2050).
- (iii) The need for energy security.

In Bangladesh efficient utilization of renewable energy resources is yet to assume commercial dimensions and hence rational policy dissemination on renewable energy usage is essential. The renewable energy includes solar, wind, biomass, hydro, geo-thermal, tidal wave etc.

Renewable energy in the form of traditional biomass is the main source of primary energy in the country comprising some 35-60% percent of total primary energy use. The size and economic potential of the renewable energy resources (e.g., solar photovoltaic, solar thermal power, wind power, biogas, etc.) in Bangladesh are yet to be determined and the capacity of renewable energy development is presently low. Although investment costs of renewables are generally higher compared to fossil fuel alternatives, this option becomes economically viable when all externalities (e.g. environmental cost, health hazards etc.) and lower operating cost are taken into consideration.

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<sup>1</sup> Senior Information Officer, Energy and Mineral Resources Division, Ministry of Power, Energy and Mineral Resources

<sup>2</sup> Senior Assistant Chief, Economic Relations Division, Ministry of Finance

The major sources of renewable energy are:

**Solar:** Solar photovoltaic: Solar photovoltaic (PV) systems are in use throughout the country with over 300,000 household-level installations having capacity of about 15 MW (November 2008). Scaling-up of solar PV systems assisted by the development partners are being implemented through Infrastructure Development Company Limited (IDCOL), Rural Electrification Board (REB), Local Government Engineering Department (LGED), Bangladesh Power Development Board (BPDB), NGOs and Private Organizations implementing solar energy program. There is a strong potential for solar energy within the country.

**Solar Thermal Power/Concentrating Solar Power (CSP):** The technology involves harnessing solar radiation for generation of electricity through a number of steps finally generating mechanical energy to run a generator. This technology needs to be disseminated in the country to supplement the power supply.

**Wind Energy:** Wind Energy has also made some inroads but its potential is mainly in coastal areas, and offshore islands with strong wind regimes. These coastal settings afford good opportunities for wind-powered pumping and electricity generation. Presently there are 2 MW of installed wind turbines at Feni and Kutubdia.

**Biomass:** Bangladesh has strong potential for biomass gasification based electricity. More common biomass resources available in the country are rice husk, crop residue, wood, jute stick, animal waste, municipal waste, sugarcane bagasse etc. This technology can be disseminated on a larger scale for electricity generation.

**Biogas:** Biogas mainly from animal and municipal wastes may be one of the promising renewable energy resources for Bangladesh. Presently there are tens of thousands of households and village-level biogas plants in place throughout the country. It is a potential source to harness basic biogas technology for cooking, and rural and peri-urban electrification to provide electricity during periods of power shortfalls.

**Hydro:** Microhydro and minihydro have limited potential in Bangladesh, with the exception of Chittagong and the Chittagong Hill tracts. Hydropower assessments have identified some possible sites from 10 kW to 5 MW but no appreciable capacity has yet been installed. There is one hydro power plant at Kaptai established in the 1960s with present installed capacity of 230 MW.

Other renewable energy sources include bio-fuels, gasohol, geothermal, river current, wave and tidal energy. Potentialities of these sources are yet to be explored.

## 2. OBJECTIVES

The objectives of renewable energy policy are to:

- (i) Harness the potential of renewable energy resources and dissemination of renewable energy technologies in rural, peri-urban and urban areas;
- (ii) Enable, encourage and facilitate both public and private sector investment in renewable energy projects;
- (iii) Develop sustainable energy supplies to substitute indigenous non-renewable energy supplies;
- (iv) Scale up contributions of renewable energy to electricity production;

- (v) Scale up contributions of renewable energy both to electricity and to heat energy;
- (vi) Promote appropriate, efficient and environment friendly use of renewable energy;
- (vii) Train; facilitate the use of renewable energy at every level of energy usage;
- (viii) Create enabling environment and legal support to encourage the use of renewable energy;
- (ix) Promote development of local technology in the field of renewable energy;
- (x) Promote clean energy for CDM; and
- (xi) Achieve the targets for developing renewable energy resources to meet five percent of the total power demand by 2015 and ten percent by 2020.

### **3. INSTITUTIONAL ARRANGEMENTS**

An institution, Sustainable Energy Development Agency (SEDA), shall be established under the Companies Act, 1994, as a focal point for sustainable energy development and promotion, 'sustainable energy' comprising renewable energy and energy efficiency. SEDA Board will comprise of representatives of stakeholders including business community, academics and/or representative from Bangladesh Solar Energy Society, NGOs, financial institutions and implementing agencies.

The responsibilities of SEDA as a company shall be to:

- (i) Provide coordination of sustainable energy planning, including action plans linking together the activities of several agencies or organizations;
- (ii) Promote awareness of renewable energy and other clean energy technologies and integrate their development within overall national energy policy and development;
- (iii) Support demonstration of new technologies and new business models for renewable energy and other clean energy technologies;
- (iv) Support establishment of small and medium renewable energy enterprises and providers;
- (v) Enable systematic development of renewable energy projects and opportunities through energy audits;
- (vi) Create market opportunities and start-up business models for sustainable energy technologies in Bangladesh, such as energy services companies and rural energy providers;
- (vii) Develop financing mechanisms and facilities by using grant, subsidy and/or carbon/CDM fund for public and private sector investments in all forms of sustainable energy;
- (viii) Collect data and assess the renewable energy resource base, especially in the context of rural energy master plan;
- (ix) Provide fund for the development of standardized renewable energy configurations to meet common energy and power applications, such as solar, biogas and bio-diesel for mechanical irrigation and improved community practices for forest management and conversion and use of fuel wood by using grant, subsidy and/or carbon/CDM fund;
- (x) Stimulate market development for sustainable energy technologies, such as improved cook stoves and household biogas digesters;
- (xi) Provide financial support in the research and development of renewable energy technology;
- (xii) Implement policies for mitigation of environmental issues arising out of use of Renewable Energy; and
- (xiii) Solicit and processing of grid connected renewable energy projects.

Power Division of the MPEMR or its assignee will facilitate the development of renewable energy until SEDA is formed.

Overall policy formulation and development functions of renewable energy shall lie with the Power Division of the MPEMR.

## **4. RESOURCES, TECHNOLOGY AND PROGRAM DEVELOPMENT**

SEDA in conjunction with the Power Division of the MPEMR shall be responsible for determining the priorities for renewable energy technology development and program implementation.

SEDA shall support capacity building, technology development, and market development sufficient to boost the share of electricity generated from renewable energy technologies.

All power utilities, Local Government Engineering Department (LGED), other interested government departments, private agencies and NGOs are to develop renewable energy development program for implementation throughout the country.

Electricity generated from renewable energy projects, both in public and private sectors may be purchased by power utilities or any consumer through mutual agreement (less than 5 MW).

Renewable energy project sponsors may use existing electricity transmission and distribution systems, if there is adequate capacity, to supply electricity to its customers through mutual agreement between the project sponsor and the owner of transmission/distribution facilities.

In addition to electricity generation, renewable energy for solar heating and biogas or other means like cooking etc shall be developed.

SEDA will encourage human resource development and local production of renewable energy equipment, facilitate and monitor quality of renewable energy equipment, and will assist to setup quality control laboratory to test the renewable energy equipment.

For large biomass electricity projects (i.e. greater than 1 MW) the project developer must demonstrate that the biomass is being sustainably harvested and that no adverse social impact will result from that development.

Production and use of bio-fuels may be encouraged in limited scale without jeopardizing the existing crops.

## **5. INVESTMENT AND FISCAL INCENTIVES**

Existing renewable energy financing facility shall be expanded that is capable of accessing public, private, donor, carbon emission trading (CDM) and carbon funds and providing financing for renewable energy investments.

To prompt renewable energy in power sector, all renewable energy equipments and related raw materials in producing renewable energy equipments will be exempted from charging 15% VAT. SEDA or power division of the MPEMR or its assignee until SEDA is formed, will fix up

the acceptable mechanism to reach the benefits of tax exemption to end users in consultation with NBR.

In addition to commercial lending, a network of micro-credit support system will be established especially in rural and remote areas to provide financial support for purchases of renewable energy equipment.

Power Division of MPEMR will facilitate investment in renewable energy and energy efficiency projects. SEDA, in co-operation with local government offices, will set up an outreach program to develop renewable energy programs.

SEDA will consider providing subsidies to utilities for installation of solar, wind, biomass or any other renewable/clean energy projects.

Private sector participation including joint venture initiatives in renewable energy development will be encouraged and promoted. Power Division of MPEMR/SEDA may assist in locating the project(s) and also assist in acquiring land for renewable energy project(s).

Renewable energy project investors both in public and private sectors shall be exempted from corporate income tax for a period of 5 years from the date of notification of this policy in the official gazette and it will be extended periodically following impact assessment of tax exemption on renewable energy.

An incentive tariff may be considered for electricity generated from renewable energy sources which may be 10% higher than the highest purchase price of electricity by the utility from private generators.

To promote solar water heaters, use of electricity and gas for water heating will be discouraged. In this regard necessary steps will be considered accordingly.

For successful implementation of renewable energy projects and initiatives lending procedure will be simplified and strengthened.

## **6. REGULATORY POLICY**

Renewable energy project(s), to sale electricity from plants shall be required to get power generation license from BERC if the capacity of the project(s) is 5 MW or more.

Power Division of MPEMR and SEDA, in consultation with BERC will create a regulatory framework encouraging generation of electricity from renewable energy sources.

BERC shall approve the energy tariff in consultation with Power Division of MPEMR/SEDA as per the provision of the BERC Act 2003 if the capacity of renewable energy project(s) is 5 MW or more. Electricity distributors may offer “green energy” tariffs, which provide consumers an opportunity to co-finance through their electricity bills the development of new renewable energy sources.