WIND ENERGY SITUATION AT ST. MARTIN'S ISLAND OF BANGLADESH

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Abstract The paper presents an overview of wind energy scenario at St. Martin's Island, an isolated island of Bay of Bengal and critically examines the data on wind speed and its frequency and measurements. The station for generating data on the basis of fluid dynamics and steps for wind power development in Bangladesh is identified. Finally, some suggestions are made for harnessing the potentials of wind power in Bangladesh.

Keywords: Wind energy potential, Weibull function.

INTRODUCTION

Natural gas is the major source of energy in Bangladesh. It is used both in industry and in household consumption. Power plants are also run by gas. If gas is utilized in the same terrain it will be exhausted by twenty-five years. Gas is a commercial fuel, its consumption needs control. Other sources of energy especially needs energy especially renewable energy need exploration. Renewable energy especially wind energy is promising. Efforts may be made to harness wind energy in some regions of Bangladesh.

In this context, highest attention for exploring renewable energy sources requires to keep our socio-economic development at a sustainable level. Till now in Bangladesh, per capita energy consumption of this major portion of the population is below the minimum acceptable limit. Right now expansion of the national grid in the undeveloped remote areas specially in coastal zone are progressing very slowly done to various economical and technical constraints. So, an alternative source of energy, which is both technically and economically feasible for our socio-economic environment, should be explored. Application of wind energy might be a solution of this problem. The paper is an overview of wind energy scenario of prospective isolated St. Martin's Island from which it can be imagined about wind energy in the coastal zone of Bangladesh.

WIND ENERGY IN BANGLADESH

Bangladesh is situated between $20^0$34'-$26^0$38' North Latitude and $88^0$04-$92^0$44' longitudes. It has more than seven hundred kilometers long coastal line and many small island in the Bay. The strong south/south-western monsoon wind comes from Indian Ocean. This trade wind blows over our country from March to October. This wind speed is enhanced when it enters the V-shaped coastal regions of Bangladesh. Since this trade wind strikes the coastal belt of Bangladesh after travelling a long distance over oceanic water surfaces, it becomes energetic. According to preliminary studies it is found that some time wind speed ranges from 7m/s to 8m/s in some coastal areas of Bangladesh. It is to be mentioned here that having the some climates, monsoon trade winds, surface roughness and terrain types as those of Bangladesh, India is generating several hundreds of MWs of power from their coastal regions.

The wind of the coastal region is generally classified in four distinct type and they are:
1.North-Easterly Trade Wind
2.South-Westerly Trade Wind
3.Sea Breeze
4.Land Breeze

In Bangladesh, the potential sites of Wind Energy are as follows:
i)Patenga ii) Cox's Bazar iii) Teknaf iv)Companigonj v) Sonagazi vi) Kuakata vii) Bhola viii) Char Fession ix) Pathorgatha x) St. Martin's Island xi) Sandwip xii) Hatia Island xiii) Kutubdia Island and many other coastal places and off-shore islands.

Other than the coastal areas, in Bangladesh there are plenty of rivers, haors and bills where wind speed is also feasible for small-scale power generation.

WIND ENERGY AT ST. MARTIN'S ISLAND

St. Martin's Island is an isolated island of Bay of Bengal under the district of Cox's Bazar, Bangladesh. It is situated twenty nine kilometers away from the main land. Its area is 15 sq.km and the population is about 5000. There are some highly prospective resources in this island such as fishing, tourism, poultry farming etc.

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