Lack of demonstration of the technology environmental sciences essay

ASSIGN BUSTER

INTRODUCTION

In Bangladesh fuels account for 99% of energy consumed in rural households. Only about 38% of total populations in Bangladesh have access to electricity and it would take around 35 years to provide electricity to all (World Bank, 2009). Supplying electricity to most of the rural people by national grid is almost impossible in the near future[1]. A solar PV system is an important emerging option to supply electricity with quality light, reliable service, and long-term sustainability [2]. This system not only would provide reliable, clean, and environmentally friendly energy but also could create employment opportunities in the vicinity of its operation. Despite these appealing features, solar PV systems do not yet have broad market acceptance because of the existence of barriers arising from the need for large-scale implementation. The main obstacle is high initial costs. Lack of demonstration of the technology, limited awareness, and uncertainty over after-sales service are the other barriers in the promotion of solar energy–based electricity [3]. The implementation of SHS programs was carried through two different delivery models(Ahsan 2012). Energy is the key input and basic need in indus trial facilities all over the world for development, economic growth, automation and modern ization in the industrial sector [4, 5]. However, global energy demand sare increasing rapidly and this concern is addressed by international researchers on how to fulfil the future energy demand. The energy consumption will increase by 33% from 2010 to 2030 intheworld [6]. Electricity is a very important factor in developing the economy and the standard of living of a country. It must be generated using the national resource of that country. Bangladesh largely depends on natural

gas and hydro power stations to generate major portion of power. Though many power generation units have been added to the national grid to solve the power crisis issue, it is not enough. High demand and increasing need of power have created challenge for the power stations to meet the demand. In our country, a major portion of total population still does not have the access to electricity. Only 10% of the rural households have electricity connection and there are some parts of Bangladesh which will not get the access of electricity connection from the national grid within next 30 years [7]. Rural electrification has been singled out as a potential field for international collaborative activities within the IEA framework. Policy makers, industries and R&D institutions in the targeted economies have all expressed interest in discussing with one another and with international experts, in exchanging their experiences, lessons learned and continuing challenges in their efforts to bring energy services to the rural world. In response to this interest, the IEA has begun exploring its role as facilitator of international exchanges on energy technologies and policies for rural electrification in developing economies [8]. Bangladesh is situated in north-eastern part of south Asia and shares its longest border (4000 km) with neighbouring country India. Myanmar is the extreme southeast neighbour of Bangladesh and the Bay of Bengal is the southern boundary of it. With a land area of 147, 570 km2 and population of 162. 20 million in 2011, [9]. Bangladesh is one of the least urbanized nations with 72% people living in rural areas. Again, it is one of the poorest nations in the whole world with gross domestic Product (GDP) per capita of US $1, 700 in 2010 and average annual growth of GDP is to be 6% [10]. Energy, and more explicitly electricity, is a prerequisite for thetechnological development, higher economic growth and poverty

reduction of a nation. The future economic development of Bangladesh is likely to result in a rapid growth in the demand for energy with accompanying shortages and problems. The country has been facing a severe power crisis for about a decade [11]. Known reserves (e. g., natural gas and coal) of commercial primary energy sources in Bangladesh are limited in comparison to the development requirements of the nation. It can only be transformed. To get electrical energy, generally hydrocarbon resources are used. Bangladesh power station depend on natural gas and major power stations here are run by natural gas; as a result the gas reserve has fallen to such an alarming level that if no new reserves are discovered then this reserve may last for another 6 to 7 years. So generation of electricity from the alternative sources has become the crying need for Bangladesh [12]. Bangladesh has a vast potential for renewable energy and the natural availability of alternative energy creates opportunities of growth in power sector. Not only the technologies should be developed to produce energy in an environment friendly manner but also enough importance should be given to conserve the energy in most efficient form. Government has issued its Vision and Policy Statement in February 2000, to bring the entire country under electricity service by the year 2020 in phases [13]. From an authentic study we find that in 2012, the peak power demand is about 6000 MW per day while in full summer it may grow up to 7000 MW [14]. Small hybrid system which uses renewable sources as a plant material might be an effective solution of this power crisis. As we are using several renewable sources, the reliability of such hybrid network is higher than using only one renewable source. The important feature of this type of hybrid system is; it can operate on both off grid and on grid condition. In

Bangladesh, only 40% of the population has access to electricity with a per capita availability of 136 KWh per annum [15]. There are more than 87, 319 villages in Bangladesh, and most of them are not connected to the national grid. In view of the dispersion of localities, the low demand, the cost of production, transmission and especially distribution of electricity would be prohibitively expensive for these regions. Decentralized and standalone systems could effectively become a viable option in these areas [16]. In the perspective of Bangladesh, several NGOs like IDCOL (Infrastructure Development Company Limited), GS (Grameen Shakti), Rahim Afrooz, BRAC (Bangladesh Rural Advancement Committee), CCDR (Center for Community Development & Research) foundations are working to develop our electricity sector [17]. In spite of the rapid urban growth that Africa has experienced over the last 20 years, the majority of Africans still reside in rural areas. Although this distribution is likely to change in the not-too-distant future, rural Africa continues to be home to the majority of Africans (see brief regional profile). Bangladesh is located in the north eastern part of South Asia between 20840 and 268380 degree North Latitude and 888010 and 928410 degree East Longitude. The total population is about 140 million with an average population density about 750 per sq. km (among the highest in the world). As of 2000, nearly 36% of the population lived below the national poverty line. At present, only about 30% of the population in Bangladesh has access to electricity [18]. The rural areas of Bangladesh, where 76% of the population live, are seriously deprived of electricity. As the grid expansion is very expensive to the rural areas attempts have been taken to popularize the use of renewable energy sources. About 90% of the population of Bangladesh lives in rural areas. Of these, more than 90% live below the

poverty level. The sources and sinks of the rural farming system are closely interrelated. Bhatia [19] has proposed a flow chart for traditional energy with the following farm activitiesin the rural sector: (i) household energy consumption; (ii) crop production; (iii) livestock maintenance; (iv) agro-industries and transport. Using these activities and utilizing a geometric representation rather than a time-flow graph to emphasize the non-separability of various activities and energy forms, Gupta [20] proposed an energy cube. Today, more than 1. 4 billion people worldwide lack access to electricity: 585 million people in sub-Saharan Africa (including over 76 million in Nigeria and some 69 million in Ethiopia) and most of the rest in developing Asia (including 400 million in India and 96 million in Bangladesh) [21]. Therefore, it’s the toughest challenge to ensure electricity for all and surely not possible to meet the ever increasing demand by fossil fuel or nuclear energy. Environmental degradation by fossil fuel and proliferation and waste management risk from nuclear energy make that repellent choice for future energy generation. in spite of the significant resources used at the national and international level to assess future food availability (e. g., yearly agricultural surveys, monitoring of the crop season, weather forecasting models and agro-climatic models based on satellite data, etc.), the exercise remains difficult, politically sensitive, and prone to controversy. For example, marketing year 2004/05, initially considered as one of the best years ever known in the Sahel, finally proved to be a deficit year [22]. 1. Khan., M. F. K. a. M. M., Prospect of PV Home system for Promoting and Stimulating Economic Development of Rural Bangladesh, Khan, M. F. et al. J. Elec. Engg., Instn. Engrs., Bangladesh, , , December 2009. 36(II). 2. Ibrahim, M., Anisuzzaman, M., & Kumar, S., Demonstration of PV micro-utility system for

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