

**A Seminar Paper**  
**on**  
**Renewable Energy Sources in Bangladesh: Status, Prospects and Challenges**

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# **Renewable Energy Sources in Bangladesh: Status, Prospects and Challenges<sup>1</sup>**

by

**Soumitra Saha<sup>2</sup>**

## **ABSTRACT**

Energy demand in Bangladesh is increasing day by day. Due to densely populated, energy is being consumed at a rapid rate which will completely exhaust the conventional energy resources within a short time. To meet up the increasing demand, it is essential to estimate the amount of energy reserve in Bangladesh, usage rate of it and predict the probable time to be used that non-renewable energy. Bangladesh has different sources of renewable energy like wind energy, solar energy, hydro-electric, biomass, biogas resources etc. These renewable energy sources have great prospects but some challenges make it difficult to utilize these properly. If it is possible to utilize these sources that will help to reserve the non-renewable energy for the future and the country will be self-dependent for longer period of time. This paper is based on secondary information and has discussed the present energy scenario, status of renewable energy, its prospects and challenges in Bangladesh.

**Keywords:** Power, Energy, Renewable energy, Environment, Bangladesh

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## CHAPTER I INTRODUCTION

Bangladesh is a heavily populated country. People need massive amount of energy for living and production of goods (Uddin *et al.*, 2018).

Day by day energy requirement is swelling in trend due to population growth, economic and technological improvement (Halder *et al.*, 2015). If present energy consumption rate continues, discovered energy will deplete within a few decades (Bazilian *et al.*, 2014). Energy has been testified as a vital component in our daily lives. In Bangladesh, primary energy resource situation is very poor in comparison with world energy. We have limited reserve of coal, natural gas, oil, and hydropower (Islam *et al.*, 2014). Bangladesh government offers electricity to 96% of people in 2020 and presently per capita energy generation is 510 kWh (Achievement in Power Sector at a Glance, 2020). Petro Bangla reports said that Bangladesh power generation largely depends on gas. Hence the demand of electricity is being met up by local sources and only 5% is imported. As a result, future electrification in Bangladesh will face challenges. The Bangladesh Petroleum Corporation (BPC) in the FY 2017-2018 imported 11.73 lac MT of crude oil and 55.42 lac MT of refined oil. During 2017-18, gas production capacity was 2750 MMcfd, total recoverable reserve was 28.69 Tcf, production up to 2018 was 15.96 Tcf and remaining reserve of 12.72 Tcf (Energy and Mineral Resources Division, 2019). The production of coal in the fiscal year 2016-17 was 1.2 Million tons (Mondal *et al.*, 2018).

However, with an installed capacity of 17753 MW, electricity Bangladesh produce maximum 10958 MW against the demand of 12610 MW in the fiscal year 2017-18. It shows that demand of energy is higher than production capacity in Bangladesh (Energy and Mineral Resources Division, 2019).

As the reservoir of fossil fuel is decreasing day by day, the generation of power from the conventional systems will decrease in adjacent future. World scientists, engineers and peoples are switching to the renewable energy sources to meet the heavy demand of energy (Uddin *et al.*, 2018).

Bangladesh is an agricultural country and agriculture is the sole provider of human food. Most farm machines are driven by fossil fuels, which contribute to greenhouse gas discharges and responsible for climate change. This problem is also common in other sectors also. Such environmental damage can be alleviated by the elevation of renewable resource (Chel & Kaushik, 2011).

Geographic location of South Asian countries provides them easy access to variety of renewable energy sources (Shukla *et al.*, 2017). Bangladesh is the country of natural exquisiteness; she has a great potentiality on renewable energy resources. Renewable energy sources like biomass or biofuel is not only used for cooking but also for electricity production. Another significant energy resource in Bangladesh is solar energy and solar photovoltaic (PV) cell is one of the popular technologies which is mainly used in hilly, coastal and countryside areas in Bangladesh. In Bangladesh, hydroelectricity generation is ancient concept and Bangladesh has already established several hydroelectricity projects. Emerging renewable resource in Bangladesh is wind energy, many mini and micro wind generation sites are made for electricity generation. Therefore, renewable energy plays a vibrant role in ensuring energy security in Bangladesh but this energy production is very meagre (Uddin *et al.*, 2019). The renewable energy has greater impact on sustainable development of a country than non-renewable energy. So, higher the use of renewable energy, higher the level of sustainable development of the nation (Güney, 2019).

The main emphases of this paper are recent energy status like energy production, energy consumption, current scenario of renewable energy sources, its potential and challenges which will help to identify the crucial need of renewable energy in Bangladesh that is not only important for conservation of the nation's natural resources but also environment.

### **Objectives of the Study**

The specific objectives of this review paper are as follows:

1. To review the present status of energy and renewable energy sources of Bangladesh
2. To highlight the prospect and challenges of renewable energy

## **CHAPTER II**

### **MATERIALS AND METHODS**

This paper is entirely a review paper. So, this paper is mainly based on secondary information. Different published reports and articles are used to prepare this paper. Information has been assembled from various articles published in the various books, journals, proceedings and websites available on the online platform.

Constructive suggestions from my major professor and course instructors helped me to improve this paper. Personal communication with respective resource personnel assisted me to collect valuable information to develop the paper. After the collection of all the related information, it was gathered and logically presented in the current form.

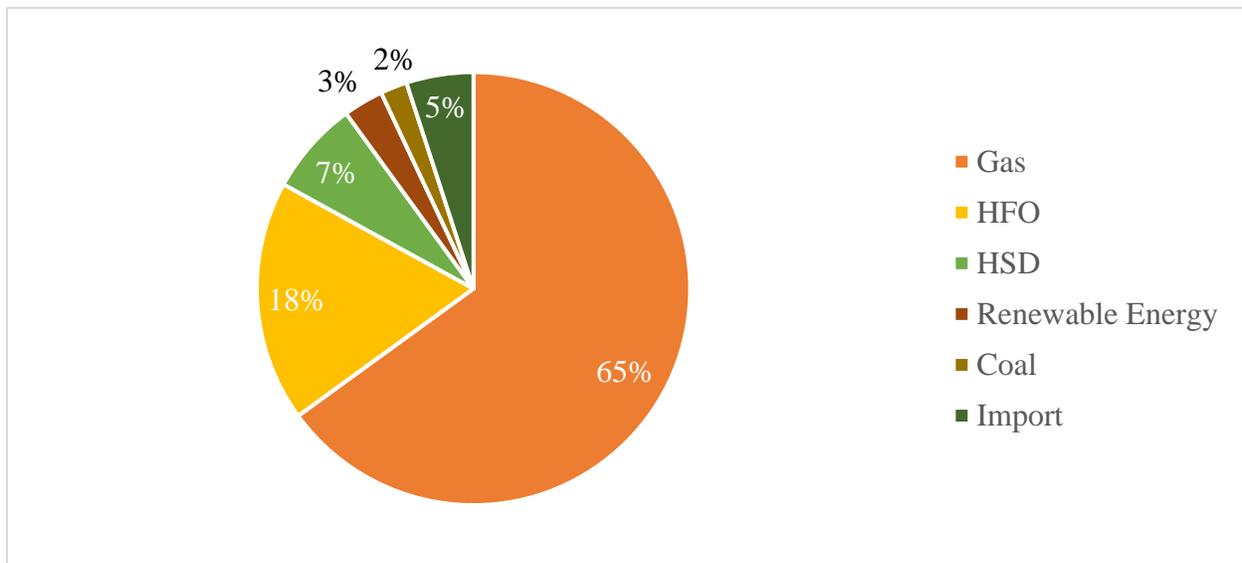
## CHAPTER III

### REVIEW OF FINDINGS

As this paper is entirely a review, the major findings found are presented here along with appropriate discussions according to the initially stated objectives.

#### 3.1 Present Energy Scenario in Bangladesh

Natural Gas, liquefied gas, coal, petroleum, solar energy, hydro energy, wind energy are the main available energy resources in Bangladesh. Consumption pattern of different energy sources is presented in Figure 1.



Source: (Uddin *et al.*, 2019)

**Figure 1.** Primary energy consumption pattern in Bangladesh

From Figure 1, it is found that energy consumption by fuel type natural gas is 65 %, heavy fuel oil (HFO) 18%, high speed diesel (HSD) 7%, power import 5%, coal 2%, and renewable energy 3%.

#### 3.1.1 Electricity Sector

In Bangladesh electricity is generating from natural gases, liquid fuel, coal, wind flow, solar system, hydro power and biogas/biomass. According to the master plan 2010, Bangladesh has been generating more power to meet up the demand estimated (Uddin *et al.*, 2018). An overview of power sector has been presented in Table 1.

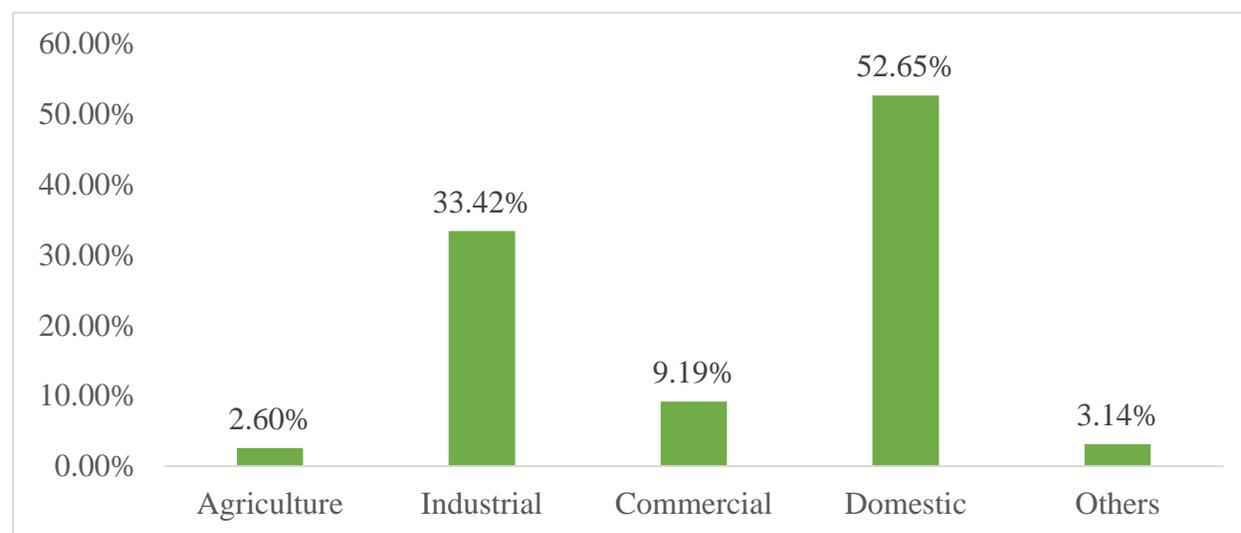
**Table 1.** Bangladesh power sector at a glance

	<b>2009</b>	<b>2020</b>	<b>Addition in 11 Years</b>
<b>Generation Capacity (MW)</b>	4,942	22787	17845
<b>Highest Generation (MW)</b>	3,268	12893	7690
<b>Import (MW)</b>	0	1160	1160
<b>Expired Plants (No.)</b>	0	6	6
<b>Total Consumers (Million)</b>	10.8	36.4	25.6
<b>Distribution Line (Km)</b>	260,000	560000	300000
<b>Per Capita Production (kWh)</b>	220	510	290
<b>Distribution Loss (%)</b>	14.33	9.35	-4.98
<b>Access Electricity (%)</b>	47	96	49

Source: (Achievement in Power Sector at a Glance, 2020)

Table 1 shows the dynamic power generation status, dwindling distribution loss, increasing accessibility of people to national grid in Bangladesh. It also gives the notion that Bangladesh is developing because the energy defines the development of a country.

Power consumption by different sectors has been presented in the Figure 2.

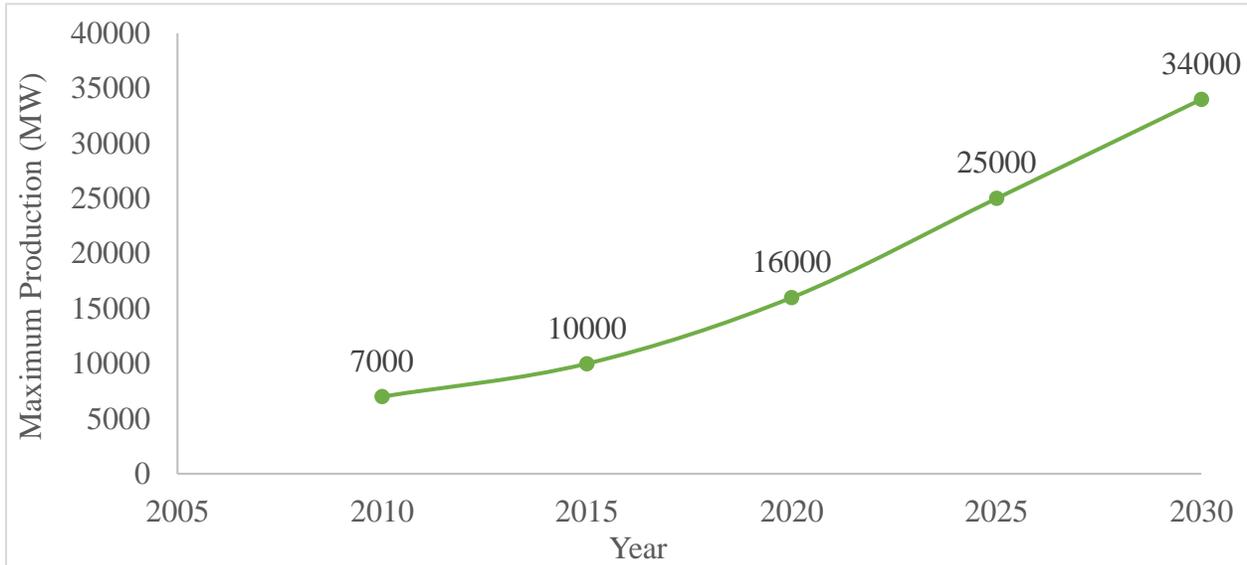


Source: (Energy and Mineral Resources Division, 2019)

**Figure 2.** Sector wise power consumption pattern (2017-18)

According to Figure 2, domestic sector is the major user of electricity which is 52.65% of total consumption. It is followed by industrial (33.42%), commercial (9.19%), others (3.19%) and agriculture (2.60%).

Demand of electricity is in increasing trend presented in Figure 3.



Source: (Uddin *et al.*, 2018)

**Figure 3.** Projected electricity demand of Bangladesh

In Figure 3, it is shown that power need is increasing every year and this increasing need is going to be fulfilled by non-renewable energy sources. It is alarming that the recent power demand is being provided by conventional power plants which mainly uses liquid fuels and causes severe injury to the environment. Besides, these non-renewable energy sources are on the way of diminution (Uddin *et al.*, 2018).

### 3.1.2 Natural Gas Sector

#### 3.1.2.1 Natural Gas Reserve

From discovery in 1955 as of today 26 gas fields, have been discovered in Bangladesh. Of them 19 are in production, one field has consumed after 14 years of generation while other fields have not been feasible for production due to insignificant reserve. The projected recoverable reserve was 28.69 Tcf. As of June 2018, a total of 15.96 Tcf gas has already been exhausted leaving only 12.72 Tcf retrievable reserve (Energy and Mineral Resources Division, 2019). Some important information about the natural gas sector in Bangladesh is presented in the Table 2.

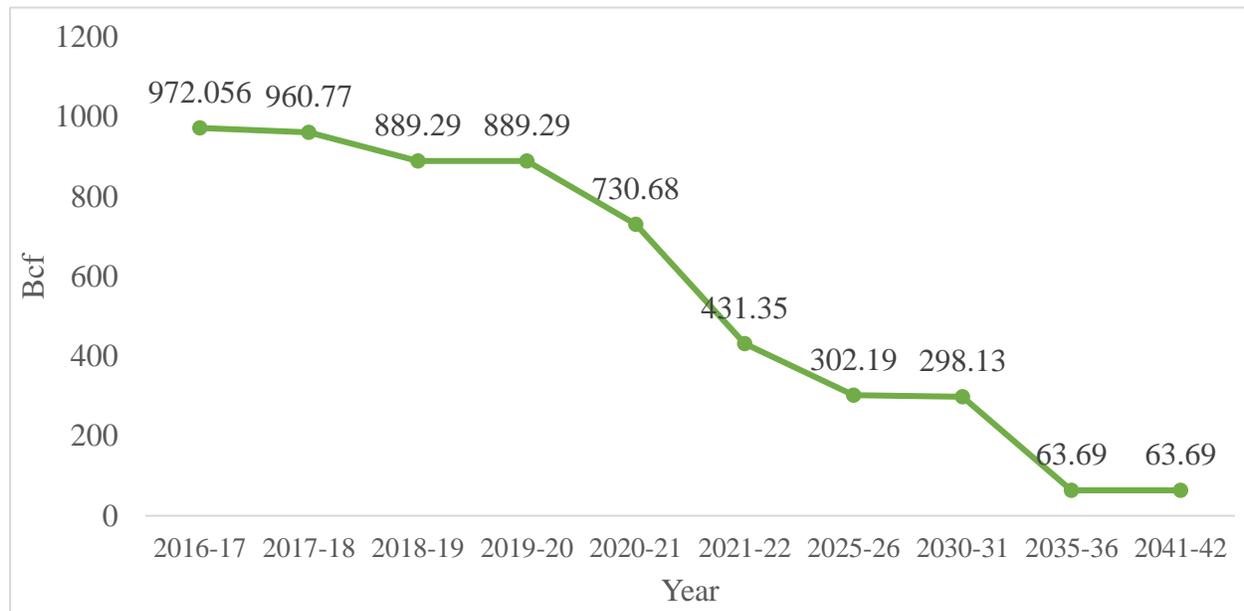
**Table 2.** Gas sector at a glance

<b>Total number of gas fields</b>	26
<b>Number of gas fields in production</b>	19
<b>Number of producing wells</b>	110
<b>Highest Production (6th May, 2015)</b>	2785.80 MMcfd
<b>Total recoverable reserve</b>	28.69 Tcf
<b>Cumulative Production (June, 2018)</b>	15.96 Tcf
<b>Remaining Reserve</b>	12.72 Tcf
<b>Present Demand</b>	3649 MMcfd
<b>Present Deficit</b>	1016.75 MMcfd

Source: (Energy and Mineral Resources Division, 2019)

From Table 2, it is obvious that there is gap between gas production and demand and more than 50 percent of reserve has been used already.

The continuing exhaustion of existing natural gas reserves is acute. Every year production is decreasing. The decreasing trend is presented in Figure 4.



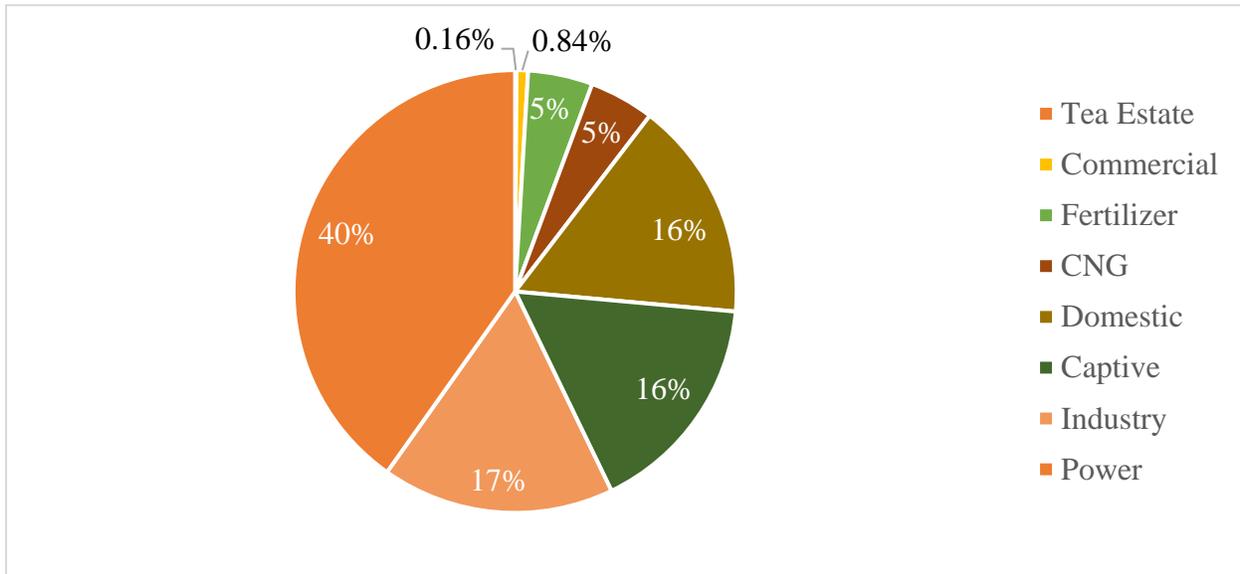
Source: (Energy and Mineral Resources Division, 2019)

**Figure 4.** Projection of gas production

Figure 4 depicts that, in 2017-18 gas production was 972.056 Bcf. It is projected that in 2041-42 it will be exhausted to only 63.69 Bcf.

### 3.1.2.2 Natural Gas Consumption

According to Energy and Mineral Resources Division (2019), a total 961 billion cubic feet (BCF) of natural gas was extracted in 2017-18 which was mostly used by power sector (40%). Then, industry-17%, captive power-16%, domestic-16%, CNG(Compressed Natural Gas) - 5%, fertilizer-5% and others very small amount. Sector wise gas consumption pattern is presented in Figure 5.



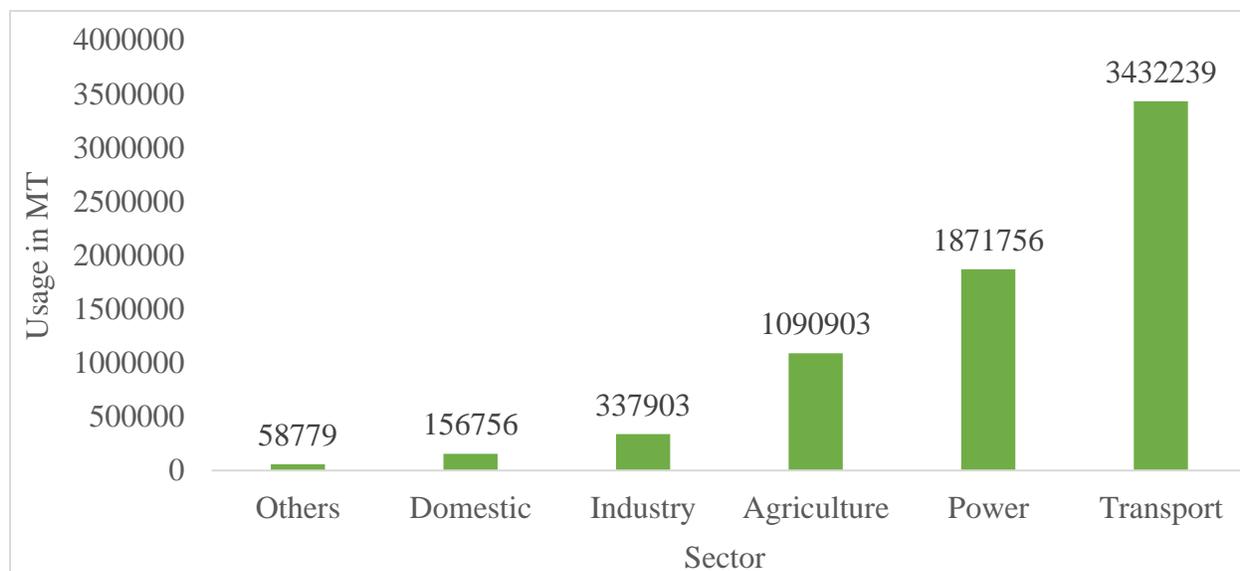
Source: (Energy and Mineral Resources Division, 2019)

**Figure 5.** Sector wise gas consumption in Bangladesh (2017-18)

Electricity generation is greatly dependent on natural gas. All the urea fertilizer industries are reliant on natural gas. Though the whole nation has been aided by this resource, only 7% of the total populations can use piped natural gas for domestic purposes. CNG is being used as vehicle fuel. Extension of CNG facilities early last decade vividly improved air quality in large cities specifically in the Dhaka city as well as it reduced pressure on oil import (Energy and Mineral Resources Division, 2019).

### 3.1.3 Oil (Petroleum) Sector

About 22% commercial energy supply in Bangladesh is satisfied by petroleum products like petrol, diesel, furnace oil, octane, etc. Bangladesh is mostly dependent on imported liquid fuel. About 6% of total liquid fuel consumption is fulfilled by condensation of locally produced gas (Energy and Mineral Resources Division, 2019). Sector wise petroleum usage (2017-18) in MT has been presented in Figure 6.



Source: (Energy and Mineral Resources Division, 2019)

**Figure 6.** Sector wise petroleum usage (2017-18)

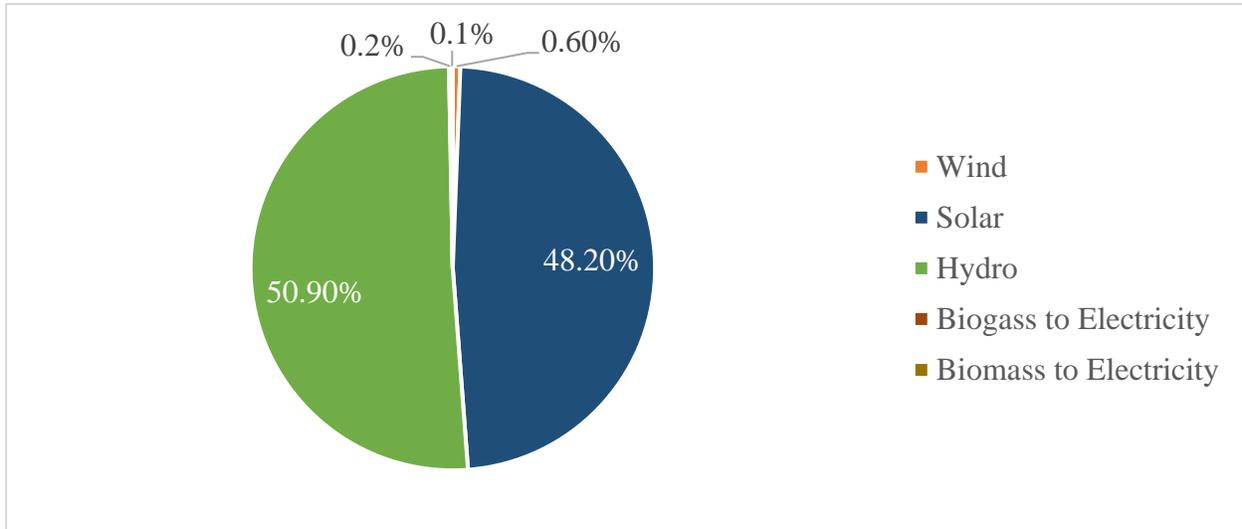
Figure 6 reveals that transport sector is the top user of petroleum (3432239 MT) followed by power, agriculture, industry, domestic and others sectors.

### 3.2 Status and Prospects of Renewable Energy Sources in Bangladesh

Gas reserve is on the way of declination and at the same time growing new power plant, industry, household etc. enhance the rapid consumption of gas. If any new field is not discovered then the country will face the scarcity of gas supply. Besides this, 20% of the power plants (Fuel running) are too old to run properly. This results in sudden shut down of these plants and require high repairing cost.

More than two-third of total electricity generation depends on gas. Renewable sources like solar, hydro, wind, biogas and biomass contribute to 2.5% of total electricity production. On the flip side, non-renewable energy sources mostly contribute to significant portion of electricity generation (97.5%) causing air, water, land pollution and harm organic environment slowly (Uddin *et al.*, 2018). Burning of fossil fuel to generate electricity, negatively affects the sustainability of the nation and responsible for the high emission of carbon (Sohag *et al.*, 2020). If this situation is not changed, future generation would face acute power crisis, experience harmful environmental hazards and may lag behind other countries. That's why renewable energy is indispensable to mitigate these problems and risks.

Renewable energy in Bangladesh means generation of electricity from that energy. The present renewable energy comes from solar, wind, hydro power, biogas and biomass. Renewable energy share in Bangladesh has been presented in Figure 7.



Source: (Huq *et al.*, 2018)

**Figure 7.** Renewable energy share in Bangladesh

Figure 7 depicts hydro (51%) and solar power (48%) are major sources of renewable energy in Bangladesh. Others source are too negligible to recognize.

Government of Bangladesh is providing facility so that both private and public sectors can invest in renewable energy projects. Table 3 provides a review of renewable energy sources and potentials in Bangladesh.

**Table 3.** Renewable energy (RE) potential in Bangladesh

Resources	Potential	Entities Involved
Solar	Enormous	Public and Private Sector
Wind	Resource mapping required	Public sector/PPP
Hydro	Limited Potential	Many public entities
Rice husk-based biomass gasification power plant	300 MW (2kg of husk consumption per kWh)	Many private Sector
Cattle waste-based biogas power plant	350 MW (0.752 m <sup>3</sup> of biogas consumption per kWh)	Many private Sector

Source: (Karim *et al.*, 2019)

Table 3 evinces that solar is highly potential renewable energy source. More feasibility study is required for wind energy generation. Hydro energy has limited potential in comparable to others because to generate this energy required high water current. Power generation from rice husk and cattle waste is an emerging concept where mainly private agencies are involved.

More than 3 million solar home systems (SHS) have already been installed by Bangladesh state-owned infrastructure development company limited (IDCOL) and over 13 million of the rural people are using this clean energy (Uddin *et al.*, 2019). Installation of other renewable based plants are also increasing. Progressing picture of renewable energy sector has been presented in Table 4.

**Table 4.** Growth in the renewable energy sector

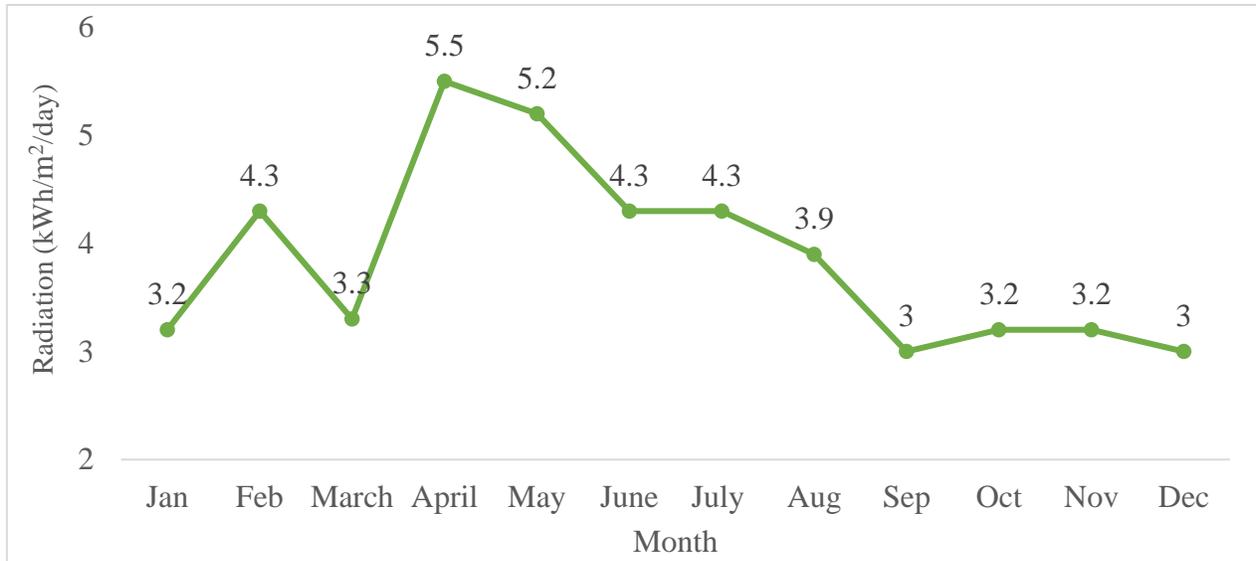
<b>Activities</b>	<b>MW</b>
Installation of Solar Home System (3.5 million)	150
Installation of solar panel on buildings and shopping center	1
Installation of solar panel at govt. semi govt. offices	3
Installation of solar panel by the consumer during new electricity connections	11
Installation of Wind based power plants	2
Installation of Biogas based power plants	5
Installation of Biomass based power plants	1
Solar Irrigation	1
Hydro Electric power generation	230
Total	404

Source: (Uddin *et al.*, 2019)

Table 4. shows that the country is generating a total of 404 MW of electricity from the renewable sources. Of them the solar home system is becoming popular (producing 150 MW) specially in the remote and rural areas.

### **3.2.1 Solar Energy**

Bangladesh is very potential for electricity generation from solar energy. Being a subtropical country, the country receives ample amount of sunlight. So harvesting sunlight by solar panel is crucial. Location of Bangladesh between 20.30° and 26.38° north latitude and 88.04° and 92.44° east which is a appropriate for solar energy harvesting. (Uddin *et al.*, 2018). Month wise average solar radiation is shown in Figure 8.

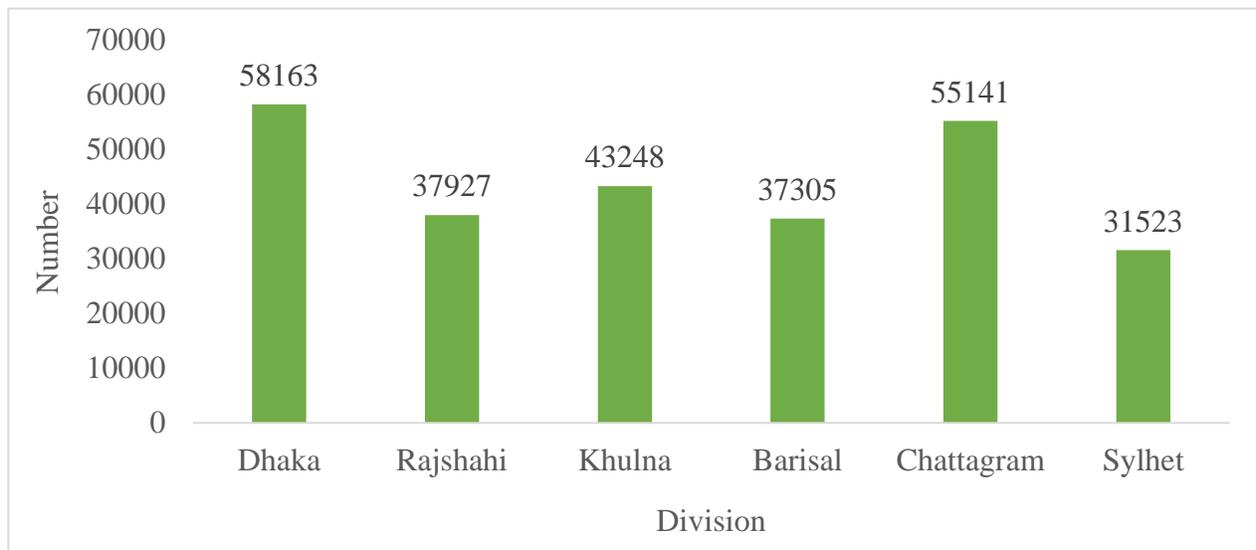


Source: (Uddin *et al.*, 2018)

**Figure 8.** Month wise average solar radiation in Bangladesh

Figure 8 shows that solar radiation varies from season to season in Bangladesh. Average daily solar radiation that Bangladesh receives is 4-6.5 kWh/m<sup>2</sup> which is indicating a great potential of capturing solar energy by solar panel.

Infrastructure development company limited provides support in installation of solar home systems (SHSs). Division wise distribution of SHSs installation (2013) has been presented in Figure 9.



Source: (Sharif *et al.*, 2018)

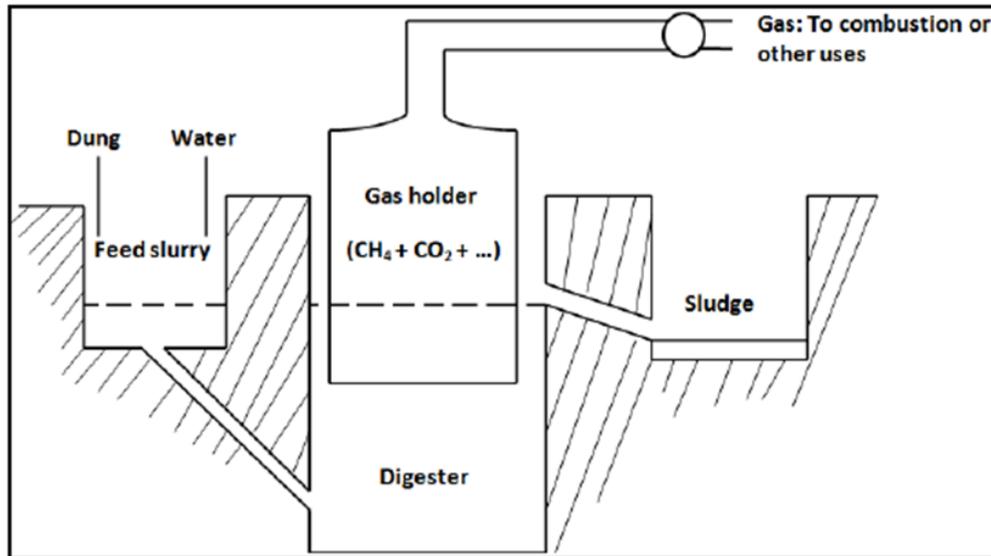
**Figure 9.** Division wise distribution of SHSs installation (2013)

Figure 9 shows distribution of SHSs installation in divisions and describes that the distribution of the SHSs is lowest in Sylhet division and highest in Dhaka in the year of 2013. There is a research gap here because no data after 2013 has been found.

### 3.2.2 Biofuel

#### 3.2.2.1 Biogas Energy

Biogas is a mixture of gases which is formed by the biological breakdown of organic matter and it happens in the absence of  $O_2$ . Dead animal and plant materials are organic wastes which are used in biogas plant (Figure 10). Furthermore, kitchen waste and animal dung can be transformed into biogas.



Source: (Sharif *et al.*, 2018)

**Figure 10.** Construction of a typical biogas plant

Thus, biogas is a type of bio-fuel. Biogas comprises 40-70% methane ( $CH_4$ ), 30-60% carbon dioxide ( $CO_2$ ) and other gases 1-5%. It also includes some trace gases. Figure 10 shows a biogas plant for electricity production which comprises a gas holder, digester, a generator as well as the controls and piping which are obligatory for effective operation. The famous NGO, Grameen Shakti is well known in biogas generation in Bangladesh. 13,500 biogas plants have installed by them. A 25-kW biogas-based power plant model has been proposed by another organization named Seed Bangla Foundation. A government owned investment company, Infrastructure Development

Company Limited (IDCOL), has set a target of installing biogas plants in the northern part of Bangladesh. Several organizations, using their own resources have constructed domestic biogas plants (Sharif *et al.*, 2018).

Installation of biogas plant is increasing. This increasing trend has been presented in Figure 11.



Source: (Islam *et al.*, 2017)

**Figure 11.** Year wise cumulative installation of biogas plants in Bangladesh

Figure 11 depicts that in 2011 total no. of installed biogas plants were 42615, which has nearly doubled in the year of 2017. The Bangladesh government is encouraging to install biogas plants by providing subsidies through the IDCOL (Uddin *et al.*, 2018).

### 3.2.2.2 Biodiesel

In recent years' global warming and fossil fuel exhaustion are burning issue around the world. In that case, biofuel can be a right source of energy to mitigate carbon discharges and diminishing reserves of fossil fuels. Biofuel can reduce the emission of greenhouse gases like CO<sub>2</sub>. Biodiesel production from algae is time efficient and less expensive than the petroleum diesel. Instead of using petroleum fuel in the generators of power plants, biodiesel can be used. It will not only cost effective but also lessen the dependence on the decreasing fossil fuel reserve. Besides this,

biodiesel has no negative impact on environment (Anam & Bustam, 2011). Production amount of biodiesel from common oil crops has been presented in the Table 5.

**Table 5.** Production amount of biodiesel from common oil crops

<b>Plant</b>	<b>lb. oil/acre</b>	<b>Gallons of Biodiesel/acre</b>
Algae	6757	700
Coconut	2070	285
Jatropha	1460	201
Rapeseed	915	126
Peanut	715	112

Source: (Anam & Bustam, 2011)

Table 5 above shows a comparison of oil yield of several oil producing crops. It is obvious that, Algae are desirable to produce biodiesel because they produce more oil/acre than others. This algae can take waste from CO<sub>2</sub> and transform it into natural oil. The climate of Bangladesh is suitable for the production of algae (Anam & Bustam, 2011).

### **3.2.3 Wind Energy**

Wind is a source of renewable energy where turbine is used to transform wind energy into electricity. Bangladesh produced 1000 KW Wind Power at Kutubdia Island and 900 KW at Muhuri Dam in Feni. Different organization like BRAC, Grameen Shakti, IFRD, Bangladesh Center for Advanced Studies (BCAS) set up a total of 19.2 kW wind energy system at different coastal areas of Bangladesh. Though, Bangladesh has a world longest coastal belt in the line of Bay of Bengal which is around 724 km long, electricity generation from wind energy in Bangladesh needs more techno-economic study. Recently, 22 sites for wind power generation were identified by BPDB along the seashore of coastal regions of Bangladesh. Besides, BPDB has planned a 16 MW Wind Power Plant in Muhuri Dam Area of Feni, 50-200 MW wind generations plants in Anawara of Chittagong area, Mognamaghat of Cox's Bazar, Kepupara of Borguna, Parky Beach of Anwara in Chittagong and Kuakata of Patuakhali (Uddin *et al.*, 2019). In Table 6, potential of wind energy production of different places has been presented.

**Table 6.** Feasibility study of wind condition for generation of electricity at different places

Site	Annual Average Wind Speed (m/s)
Cox's Bazar	2.42
Sandip Island	2.16
Teknaf	2.16
Patenga Airport	2.45
Comilla Airport	2.21

Source: (Uddin *et al.*, 2019)

Wind speed of these places showing high potentiality of electricity generation from wind (Sharif *et al.*, 2018).

### 3.2.4 Hydro Energy

Hydroelectricity is a renewable source of energy where water is used to transform water head into kinetic energy in which water flow helps the turbine propeller to rotate. Comparably Bangladesh has lower sources of hydroelectricity than world hydroelectricity production rate. Production capacity of hydroelectricity in Bangladesh in 2014 was 230MW (Karnafuly Hydro Power Station) and global sharing is very insignificant (Uddin *et al.*, 2019). Table 7 represents the proposed micro hydro-electricity projects.

**Table 7.** Proposed future micro hydro-electricity projects in Bangladesh

Name of the River	Potential of Electricity Energy in MW
Kaptai	100
Shangu River	100
Matamuhuri River	100
Mohamaya	23-65
Lohajari	4.5

Source: (Uddin *et al.*, 2019)

Table 7 shows that Kaptai, Shangu and Matamuhuru are highly potential for generating electricity which is around 100 MW.

Being a riverine country, Bangladesh has enormous advantage for hydro electricity generation. Micro hydro-power can be produced from this vast amount of river currents and sources of low head of water falls. Micro hydro are those which can produce up to 5-300 KW of electricity using hydro power. This technology transforms hydropower to mechanical power (Anam & Bustam, 2011). In 1981, Bangladesh Power Development Board (BPDB) and Bangladesh Water Development Board (BWDB) and discovered potential sites which are appropriate for micro-hydro electricity generation that are listed in Table 8.

**Table 8.** Potential micro hydro sites identified by BPDB and BWDB

<b>Serial No.</b>	<b>District</b>	<b>Name River/Chara/Stream</b>	<b>Potential of Electrical Energy kW</b>
1.	Chattagram	Foy's lake	4
2.	Chattagram	Chotokumira	15
3.	Chattagram	Hinguli Chara	12
4.	Chattagram	Sealock	81
5.	Sylhet	Nikhari Chara	26
6.	Sylhet	Rangapani Gung	616
7.	Jamalpur	Bhugai Kongsa	69
8.	Jamalpur	Marisi at Dukabad	35
9.	Dinajpur	Dahuk at Burabari	24
10.	Dinajpur	Punarbhaba	11
11.	Rangpur	Buri Khora Chikli	32
12.	Rangpur	Fulkumar	48

Source: (Ullah *et al.*, 2012)

From Table 8, it is found that Rangapani Gung of Sylhet has potential of producing 616 kW of electricity followed by Sealock river of Chattagram (81kW) and Fulkumar river of Rangpur (48kW).

### **3.3 Renewable Energy (RE) in Bangladesh: Challenges**

Bangladesh has great potential to go towards sustainable energy. However, significant development activities which includes green arrangements and sustainable power source in Bangladesh are facing various challenges which are mostly technical, commercial, and regulatory in nature. Since renewable energy projects are more intricate, unpredictable and full of unpredicted risks and dangers, the investors in this field may face serious financial problems which has negative impacts on future development and commercialization of the renewable energy projects and technologies (Quek *et al.*, 2018). The investors find it difficult to persuade the financial institutions and other financiers to get the necessary funding. Sometimes, different renewable energy related projects need huge investments at the initial stage (Williams *et al.*, 2015). This is again very challenging for the entrepreneurs, because there are already available standard, but inexpensive alternatives in the market. Besides, geographical factors have impact on the performance of renewable energy projects. Hence, a renewable energy project can be successful in one country probably will not be feasible to another nation for the presence of sunlight-based variables, biomass, wind and sea between nations in the tropical and other areas. Generally, renewable energy project entrepreneurs are small companies with inadequate resources (Sovacool & Drupady, 2012). All these above-mentioned challenges are critical for Bangladesh to progress and promote renewable energy in the future. Without checking these barriers, it will not be possible for Bangladesh to attain its national goals relating to renewable energy (Karim *et al.*, 2019).

## **CHAPTER IV**

### **CONCLUSIONS**

On the basis of the findings of this review paper, the following conclusions are drawn.

1. Power sector in Bangladesh has seen a great improvement in the recent years. Power generation in this country is mainly dependent on non-renewable energy sources like gas, petroleum, coal etc. To meet the increasing energy demand, burning of fossil fuel has increased tremendously. This burning and release of CO<sub>2</sub> is a huge contributor to the greenhouse effect and climate change. Besides country's natural gas reserve is on the way of declination. Govt. of Bangladesh has already made some investments in the renewable energy. Of them solar and hydro energy are contributing most in our power sector. But their contribution in the national grid is not considerable.
  
2. Significance should be given on solar energy because it is the emerging renewable energy sector in Bangladesh which has vast potential to fulfill the majority of the country's energy demand. The government has already made an attempt to utilize more energy in near future from other renewable energy sources like wind, biogas, biodiesel etc. High initial cost, complexity, unpredictability are some challenges to implement renewable energy projects. The government and the private sector should work together to overcome those challenges. As the stock of fossil fuel is decreasing day by day, there is no alternative of put more emphasis on renewable energy sources to meet power demand locally.

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