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BANGLADESH-INDIA ENERGY SECURITY COOPERATION: PROSPECTS AND CHALLENGES

Abstract

The demand for energy in Bangladesh and India have been increasing due to rapid urbanization, industrialization, rising incomes, and growing use of energy-intensive products. Bangladesh faces extraordinary challenges in the energy sector. It has substantial economically recoverable natural gas reserves. But its energy mix is highly dependent on gas. The government of Bangladesh has prepared a proposal to set up a nuclear power plant and has decided to install wind-based independent power plants in offshore areas. On the other hand, India also faces a formidable challenge in meeting its energy needs and providing adequate and affordable energy to all sections of society in a sustainable manner. India's energy concerns established a new dynamism when the Indian government decided to explore and execute transportation of natural gas through proposed pipelines such as Iran-Pakistan-India pipeline project, Turkmenistan-Afghanistan-Pakistan-India pipeline project and Myanmar-Bangladesh-India pipeline project. But the proposed Myanmar-Bangladesh-India pipeline project was withheld during the period of 2001-2006 due to political mismatch between Bangladesh and India. However, there are several other scopes which can be explored in terms of energy security cooperation on bilateral and multilateral basis. The Prime Minister of Bangladesh, Sheikh Hasina and the Prime Minister of India, Dr. Manmohan Singh agreed in a joint communiqué in New Delhi on 13 January 2010 to put in place a comprehensive framework of cooperation for development between the two countries, encapsulating their mutually shared vision for the future, which includes cooperation in energy, among others.

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1. Introduction

The term ‘security’ has been significantly redefined since the early 1990s, emerging as the object of multiple interpretations. Traditionally, the definition of security was limited to military dimension of inter-state relations. In contrast, today, the concept of security is not only restricted to state and its defense from external military attacks, but also includes societies and human collectivities. Issues like infectious diseases, environmental degradation, trafficking in illegal drugs and people’s pressing concerns with security implications are categorized as Non-Traditional Security (NTS) or non-military security. It is, thus, preferable to speak of gender security, economic security, environment security, food security and more specifically, energy security.

Different countries interpret energy security differently. In the developed world, the usual definition of energy security is simply the stockpile of sufficient supplies at affordable prices, while energy-exporting countries focus on maintaining the “security of demand” for their exports, which generates the overwhelming share of their government revenues. For Russia, the aim is to reassert state control over “strategic resources” and gain primacy over the main pipelines and market channels through which it ships its hydrocarbons to the international markets. The concern for developing countries is how changes in energy prices affect their balance of payments. For China and India, energy security now lies in their ability to rapidly adjust to their new dependence on global markets, which represents a major shift from their former commitments to self-sufficiency.

Here comes the idea of energy security cooperation. “Cooperation in energy security means actual cooperation in securing energy supply at an economical (affordable) rate without disruption, and guarantee of safe deliveries of energy resources.”¹ The concept of energy security cooperation is exclusive and straight forward. It is exclusive in that energy security cooperation does not account other areas such as technology, climate related issues and environmental consequences of energy consumption, etc. Instead, energy security cooperation focuses fully on exploration, development, production/generation, and transportation/transmission. Energy security cooperation is straight forward because it is basically concerned with securing energy supply and transportation routes/transmission lines.² On the other hand, energy security cooperation may take many shapes, for example, multilateral, bilateral, regional and sub-regional, etc. For energy security, a cooperating country may consider another country as a

¹ Jaewoo Choo, “Northeast Asia Energy Cooperation and the Role of China and Japan”, in Christopher Len and Alvin Chew (eds.), *Energy and Security Cooperation in Asia – Challenges and Prospects*, Institute for Security and Development Policy, Stockholm, Sweden, 2009, p. 45, available at: www.isdp.eu, accessed on 22 December 2009.

² *Ibid.*

strategic partner or it may think the other as a business dealer in the domestic and international market.

In the South Asian region, Bangladesh and India are two neighbours. India is bordering Bangladesh on three sides and is the only important neighbour of Bangladesh while Myanmar is the other neighbour. India is several times larger than Bangladesh in every aspect such as area, population, Gross Domestic Product (GDP), export and import, oil consumption, gas reserve, consumption of coal and power generation capacity. But they can cooperate in trade, transport, telecommunication, education, healthcare, etc. alongside energy for their mutual benefits.

In this context, the present paper makes an attempt to find out the individual concerns of Bangladesh and India about their own energy security which include their present and future energy demand and supply situations and strategies for energy diversification. The study draws attention to the prospects for energy security cooperation between the two neighbours. Here, the common ground of energy cooperation is discussed from geo-strategic point of view. Finally, the paper deals with the challenges of energy security cooperation between Bangladesh and India from the historical perspective. In this part, a rigorous attempt is made to indicate how top political leadership of the two countries can make a difference in energy security cooperation despite all the obstacles.

2. Bangladesh's Concerns about Energy Security

Bangladesh, with over 140 million people in 56,000 square miles area and one of the lowest per capita Gross National Product (GNP), would require large amounts of energy in its quest to achieve energy security. Unfortunately, the country faces severe challenges in the energy sector. As of now, Bangladesh faced two energy crises, one involving commercial and the other relating to traditional fuels (agricultural waste, firewood and cow dung).

The country has no known oil reserves, but it has limited hydro-power potential, and it imports nearly 100 percent of oil and more than 70 percent of coal. It has sufficient economically exploitable coal but the problem pertaining to the development of the country's vast coal fields is now a debatable issue on whether it should be extracted by opencast or by underground mining method. It has substantial economically recoverable natural gas reserves, which is the only significant source of commercial energy that accounts for almost 75 percent of commercial energy consumption. However, more than 80 percent of the total and 95 percent of the rural households still use biomass to cook which constitutes 55 percent of the total energy in Bangladesh.

2.1 Energy Demand and Supply Situations in Bangladesh

The country suffers from chronic shortage of electricity. Only 45 percent of the population has access to electricity and such access in the rural area is only

25 percent, which is considered as the lowest per capita electricity consumption among the South Asian countries.³ During the hot summer months of 2009, the electricity situation was so acute that at peak hours (6-11 pm.) approximately 1200 MW of load shedding was required. About 300 Million Metric Cubic Feet per Day (MMCFD) of supply shortfall was experienced that naturally affected all sectors of the economy. On a regular basis, 300-400 MW of generation is lying idle and one to two large fertilizer plants have to be periodically shut down to manage gas demand. The unreliable electricity has been directly linked to the loss of productivity, and the World Bank estimates an annual loss of nearly US\$1 billion.⁴

Since the beginning of 2008, the country has been experiencing gas shortages as well. Though the country has good potential of natural gas reserves, it has not been utilized appropriately for the development of the country. The per capita availability of energy infrastructures and resources are very low in Bangladesh. Less than 45 percent households have electricity connection, and approximately four to five percent households have natural gas supply.⁵

The country is heavily dependent on the indigenous natural gas, which is contributing about 75 percent of the total commercial energy of the country. Though exploration history of oil and gas in Bangladesh goes back almost a century, exploration density has remained very low. So far only about 69 exploration wells have been drilled, which resulted in discovery of 25 gas fields of sizes ranging from more than 4 Trillion Cubic Feet (TCF) to 25 Billion Cubic Feet (BCF) Gas Initially in Place (GIIP). This indicates the extremely low exploration density but high success rate of one in three exploration wells. Of the 69 exploration wells, 13 are in the offshore with 2 discoveries and the rest 56 are onshore with 23 discoveries. It is of great significance that out of the 56 onshore wells, 47 exploratory wells were drilled in the eastern margin of the country with the discovery of 22 gas fields.⁶

According to the GIIP, Bangladesh has 21.3 TCF of proven gas (proved or with probability of 90 percent of greater or equal volume). Out of the total gas fields, 15.4 TCF is recoverable and 7.7 TCF of gas has already been produced. In addition, there is 5.5 TCF of gas as probably recoverable (probable or with probability of 50 percent exceeding) reserves. There is also 7.7 TCF of gas of possibly recoverable (possible or with probability of 10 percent exceeding)

³ Ijaz Hossain, "Present and Future of the Bangladesh Energy Policy and Possible Areas of Cooperation between Korea and Bangladesh", Paper presented in the Roundtable on *Energy – Future of Korea-Bangladesh Energy and Power*, December 2009, p. 4.

⁴ *Ibid.*

⁵ *Ibid.*

⁶ The Ministry of Energy and Mineral Resources of Bangladesh, *Petrobangla Annual Report 2008*, p. 17.

reserves. Titas, Habigonj, Kailastila, Rashidpur, Bakhrabad, Jalalabad, and Sangu are the major gas fields of Bangladesh.⁷

In the fiscal year 2006-07, a total of 562.22 BCF gas was produced, while in the fiscal year 2007-08, total gas production was 600.86 BCF i.e., gas production growth rate was 6.87 percent in the fiscal year 2007-08. The future sector-wise average gas demands are shown below:

Table 1: Sector-wise Average Gas Demand Projection (in BCF)

Sector	2008-09	2009-10	2010-2011
Power	257.60	278.20	300.50
Captive	102.40	120.90	142.60
Fertilizer	94.00	94.00	94.00
Industry	111.60	133.90	160.70
Commercial	6.40	6.80	7.30
Brick field (seasonal)	0.00	0.00	0.00
Domestic	79.30	88.90	99.50
Tea-Estate	1.00	1.00	1.00
Compressed Natural Gas (CNG)	34.70	58.90	88.40
System loss	20.00	20.5	20.0
Total	707.00	802.5	913.9

Source: *Petrobangla Annual Report 2008*, p. 35.

Against the estimates of gas reserves in Bangladesh, and based on the projected gas demand, mentioned in the Bangladesh Gas Sector Master Plan,⁸ a shortfall would commence in 2011 against proved reserves. Probable reserves will meet demand until 2015 and possible reserves will meet demand until 2019. In 2025, the shortfalls in volume for the possible, probable and proven reserves would be 13.1 TCF, 8.5 TCF and 4.6 TCF respectively.

Petroleum products constitute about 23 percent of the commercial energy used in the country. Bangladesh has insignificant domestic production of petroleum products. Currently, Bangladesh imports about 1.2 million tonnes of crude and 2.5 million tonnes of refined oil each year. Total imports, including lubricants, vary from 3.2 to 3.7 million metric tonnes per annum. Since global oil price is increasing dramatically, Bangladesh government has been thinking to take new initiatives to diversify its sources of CNG and other renewable resources.

⁷ Centre for Policy Dialogue (CPD), “Energy Sector: Challenges of Adding New Capacity”, CPD Conference on *Development with Equity and Justice-Immediate Tasks for the Newly Elected Government*, 28-29 March 2009, Dhaka.

⁸ Saleque Sufi, “All About Gas Sector Master Plan”, *Energy and Power*, 15-31 January 2006.

The total coal reserves in five coal fields of Bangladesh are estimated to be 2.9 billion metric tonnes. This energy is equivalent to 67 TCF of gas. Recovery rate of coal from reserves varies with the choice of technology and method of mining. Assuming the modest recovery rate of 30 percent coal, the available reserves will translate to about 30 TCF of natural gas equivalent. Some experts say that if properly mined, this can be enough for ensuring energy security of Bangladesh for 30 years.⁹

In Bangladesh, imports of crude oil and oil products to the tune of 3.8 m tonnes per year are likely to rise. Here, transport sector accounts for about 50 percent of the consumption of oil, while irrigation makes about 16 percent. Dependence on imported crude oil and oil products makes the economy vulnerable to supply disruption and price hike.¹⁰

Installed, de-rated capacity and evening peak electricity generation have increased over the period 1994 to 2009. Compound Annual Growth Rates (CAGR) during this period were 4.59 percent, 6.17 percent and 5.26 percent respectively for installed capacity, de-rated capacity and evening peak generation respectively. In line with the increase in generation capacity, average daily electricity generation increased steadily from 29.61 Million Kilowatt-hours (MKWhr) in 1994-1995 to 77.64 MKWhr in 2007-08. Most of the electricity generation capacity of the country is located in the eastern region, mainly due to availability of gas. Of the total generation capacity, 4070 MW is located on the eastern side of Jamuna and remaining 863 MW on the western side. Compared to the demand of 3470 MW of electricity in the eastern region, there is a small surplus of 330 MW of electricity in the eastern region. The western side with a demand of 1760 MW has a shortfall of around 897 MW.¹¹ The mitigation of this east-west divide in electricity generation is imperative, not only to realize the growth potential of the western region, but also to achieve self-sufficiency in food grain production since the granaries of the country are located in the western region. Currently, due to inadequate supply of natural gas, there are substantial losses in the conversion, transmission and distribution of power as well as frequent and costly power outages.¹²

⁹ Khondkar A. Saleque, "Coal Mining Challenges in Bangladesh (Part-1)", available at: www.energybangla.com/index.php?mod=article&cat=CoalSector&article=1789, accessed on 10 March 2010.

¹⁰ A.K.M.A. Quader, "Cooperation in the Energy Sector between Bangladesh and India", available at: www.energybangla.com/index.php?mod=article&cat=RegionalEnergy&article=1765, accessed on 6 February 2010.

¹¹ CPD, *op. cit.*

¹² Nawrin Samrina, "Energy Security for Bangladesh: Prospects and Strategic Implication of Natural Gas," *ACDIS Occasional Paper*, University of Illinois, Urbana Champaign, USA, May 2004.

2.2 Diversification of Energy Supplies in Bangladesh

Energy development programme in Bangladesh has been suffering from lack of (a) long-term planning, (b) proper institutional setup and (c) apt implementation. The decisions made on energy sector projects have been influenced by internal and external factors such as (i) political party's agenda, (ii) energy based domestic companies and (iii) foreign investors. Moreover, one thing is in the offing that high dependence on natural gas for power generation may lead Bangladesh to the brink of a ditch unless it diversifies its primary sources of energy.

Considering the reality, the present government of Sheikh Hasina has planned to increase power generation from 3,500 MW to 7,000 MW by 2013.¹³ The government has prepared a proposal which stated that the nuclear power plant to be set up at Rooppur will be of 600 MW. Rooppur is located at the western region of the country. The 600-MW nuclear plant at Rooppur has also received the green signal from the International Atomic Energy Agency (IAEA). With the approval of IAEA, Bangladesh will set up a Technical Assistance Project at Rooppur. The nuclear plant is expected to be initiated by 2011.

In a meeting with high officials of Petrobangla and Energy and Mineral Resources Division (EMRD) on 16 September 2009 concerning coal mining development in Bangladesh, Prime Minister Sheikh Hasina stated,

Coal will help us confront power crisis. And there is no alternative to it. We need to finalize the coal policy as well. I understand that Germany opted for open cut method. But we have densely populated area unlike them. So we will have to be additionally careful. I would not take any decision today. We must extract coal. But before we take decision we need to know more associated impacts of open cut mining and mitigation measures. How people will be rehabilitated. How we can provide better life for people there. I would like to hear from you soon. I will decide after that on coal policy. And we will decide how we will extract coal.¹⁴

According to an inter-ministerial source, the government decided to begin the tender process for the installation of a 100MW-200MW wind-based independent power plant in the offshore areas such as Anwara, Banshkhali or Kutubdia soon. Whereas the latest wind turbine can generate electricity at the wind speed of 4.5 metres a second, the average wind speed in these areas identified was 6.5 metres a second above 50 metres from the ground. The government also decided

¹³ *The Daily Star*, 31 July 2009.

¹⁴ Khondkar Abdus Saleque, "Hasina Needs Convincing Information on Coal Mining", *EnergyBangla* [Online Bulletin], available at: www.energybangla.com/index.php?mod=article&cat=CoalSector&article=2121, accessed on 10 March 2010.

to install four 1MW wind-based power plants at Swandwip, Hatia and Kutubdia.¹⁵

The government intends to build a Liquefied Natural Gas (LNG) discharge platform on an emergency basis to ease the mounting energy crisis in Chittagong. It has already constituted a national taskforce to expedite the process of building the deep-sea LNG platform. The taskforce is working vigorously for a solution to the energy crisis through import of LNG. The five-member taskforce is in talks with several global firms for smooth initiation of the LNG use to ease the country's energy supply crunch. The government also actively considers importing LNG via special tankers known as floating, storage, re-gasification units (FSRUs).¹⁶

Another option for energy supply is that Bangladesh hopes to import electricity from Nepal and Bhutan. According to Murshid and Wiig, in Nepal, the category one and two rivers are thought to have a combined technical potential for generating commercial electricity of about 40,000 MW while the country's projected power demand for 2005 was about 622 MW. Huge projects were under way to develop and mainly aimed for electricity export – around 18,000 MW. Thus, Nepal may have additional electricity for export to the neighbours including Bangladesh.¹⁷ Different studies estimate that Bhutan has the potential to generate over 30,000 MW of electricity using its fast-flowing rivers coming down the Himalayan region,¹⁸ of which 23,760 MW is techno-economically feasible while only 1,480 MW is being generated currently. Bhutan's present electricity consumption is around 300 MW.¹⁹ At present, the country is exporting more than about 1,000 MW of power to India. This electricity transmits to New Delhi which is 1,116 miles route. As Bangladesh is in closer proximity to Bhutan, it may consider exporting its surplus electricity to Bangladesh which will definitely be economically viable. India's cooperation would be essential because the transmission lines will need to use Indian territory.

¹⁵ "Bangladesh Govt. to Install 100-200MW Wind-based IPP", *Energy Bangla* [Online Bulletin], available at: www.energybangla.com/index.php?mod=article&cat=GreenPage&article=2395, accessed on 10 March 2010.

¹⁶ M Azizur Rahman, "Govt mulls building a deep-sea LNG terminal", *The Financial Express*, (online edition), available at: www.thefinancialexpress-bd.com/search_index.php?page=detail_news&news_id=94561, accessed on 10 March 2010.

¹⁷ K.A.S. Murshid and Arne Wiig, "A review of development trends in the energy sector of Bangladesh," *CMI Report 2001*: 3, Chr. Michelsen Institute: Development Studies and Human Rights.

¹⁸ Shahidul Islam Chowdhury, "Bangladesh-Bhutan power co-op up in the air," *The New Age*, 25 April 2010.

¹⁹ The Royal Bhutanese Embassy in Bangladesh confirms that electricity is being produced from the rivers like Chukha (336 MW), Kurichhu (60MW), Basochhu (64MW) and Tala (1,020MW).

3. India's Concerns about Energy Security

The level of economic performance and fast growing population has made India one of the largest consumers of commercial energy (coal, oil, gas and electricity). India is highly dependent on oil imports, as approximately 70 percent oil is imported. It is expected that by 2020, India will import 80 percent of its energy needs. Indian policymakers have initiated numerous policies to address India's growing energy needs, namely, diversifying the resources beyond oil to other energy resources such as nuclear power, coal, natural gas and renewable energy resources as well as stepping up of exploration activities within its borders. Ever since its growing economy is mainly dependent on energy-intensive industries, it has been trying hard to secure hydrocarbon energy supplies. India's 'Hydrocarbon Vision 2025' has recognized the importance of oil and gas sector in the country. It emphasizes the vulnerability imposed by the dependence on energy sector. Hence, the vision aims at ensuring energy security by achieving self-reliance through increased indigenous production and investment in equity oil abroad. The new policy regimes foresee the necessity of enhancing domestic sources both onshore and offshore in order to minimize the reliance on external sources. However, the present estimates reveal that the domestic supplies are not likely to be adequate at least in the short run to meet the growing demand. Hence, they emphasize the importance of global market and the need to expand interaction with the global players.²⁰

3.1 Energy Demand and Supply Situations in India

In India's energy mix, still now, the non-commercial sources of energy constitute over 30 percent of the total energy supply, the share has declined from the earlier status due to increasing substitution with commercial sources of energy.

Table 2: Primary Commercial Energy Consumption in India

Source	Unit	1990-91	2000-01	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-9*
Petroleum Products	MMT	57.75	106.97	111.78	115.99	120.17	121.05	131.67	140.70	145.31
Natural Gas	BCM	12.77	27.86	29.96	30.91	30.78	31.33	30.79	31.48	31.77
Coal	MMT	211.73	309.63	341.29	361.25	382.61	407.04	430.83	457.08	493.28
Lignite	MMT	13.77	22.95	26.02	27.96	30.34	30.06	31.29	33.98	NA
Electricity	Bn.KWH	289.40	554.50	596.50	633.30	665.80	697.30	752.50	813.10	842.80

MMT: Million Metric Tonnes; BCM: Billion Cubic Meters; Bn.KWH: Billion Kilowatt-hour. Data reflect dispatches of Coal/Lignite (incl. stock differential).

Source: Ministry of Finance (Economic Survey) and Ministry of Petroleum and Natural Gas, India.

²⁰ Girijesh Pant, *India: The Emerging Energy Player*, Pearson Publication, New Delhi, 2008, p.52.

Due to rapid urbanization, industrialization, rising incomes, and growing use of energy-intensive products, India's demand for energy has been increasing. In this regard, following data will provide a picture of the changing scenario. Statistics show that in 2005, about 27.2 percent of India's population lived in urban areas and by 2030 this figure is estimated to grow to 45.8 percent. On the other hand, the country's per capita annual income is set to increase from US\$ 728 today to US\$ 5,930 by 2030. In 2003-04, India had 5.7 million cars while in 2030 there are expected to be 200 million cars on the roads. Moreover, India's primary commercial energy consumption is also predicted to jump from 375.8 million tonnes of oil equivalent (MTOE) in 2004 to 812 MTOE in 2030 (India's own planners estimate that this figure will be higher).²¹

According to World Bank estimates, around 35 percent of the country's population subsists below the poverty line (US\$ 1/day, 2000 PPP) and does not have access to basic amenities and clean energy forms. Even in 2001, around 44 percent of households did not have access to electricity. The country continues to face electricity shortages, with an overall power shortage of 8.4 percent and a peak time power shortage of 12.3 percent in 2005/06.²²

Despite gradual urbanization, around 72 percent of the country's population resided in the rural areas in 2001. The rural urban division in India is manifested not only by the differences in the levels of energy requirements but also in the availability and choice of fuel and technologies to meet the same useful energy needs and services. Energy demands of many households, especially those in the rural areas, continue to be met primarily by inefficient traditional energy forms like fuel wood, crop residue, and animal waste. These fuels are not only inconvenient to use and cause indoor air pollution, but also adversely affect the health of women and children who are exposed to the use of these fuels.

On per capita basis, India's energy consumption is still a fraction of that in the developed countries. In 2003, India's primary energy consumption was 439 kilogram of oil equivalent (KGOE) per capita, compared to 1090 (KGOE) in China, 7835 (KGOE) in the US and a world average of 1688 (KGOE).²³

Various estimates indicate that India would need to increase its primary energy supply by at least three to four times and its electricity generation capacity by five to six times of the 2003/04 levels, by 2031. The Integrated Energy Policy Report brought out by the Planning Commission estimates that

²¹ Tanvi Madan, "India's energy mix", *Energy security series*, 2006, available at: <http://www.brookings.edu/fp/research/energy/2006india.pdf>, accessed on 21 July 2007.

²² Leena Srivastava and Riru Mathur, "India's Energy Security", *FES Briefing Paper*, 2007, available at: http://www.fes-globalisation.org/projects/new_powers.htm, accessed on 23 January 2008.

²³ *Ibid.*

under 8 percent GDP growth scenario, India's total energy requirements would be in the range of 1536 MTOE to 1887 MTOE by 2031 considering alternative scenarios of fuel and technological diffusion. The Energy and Resources Institute's (TERI) analysis based on the Market Allocation (MARKAL) model indicates that under the same GDP growth scenario with current plans and policies of the government, commercial energy needs would increase to 2108 MTOE by 2031/32. In reality, the government of India would like to achieve a GDP growth rate of above 10 percent per annum.²⁴

Given the current statistics of energy access and shortages and the likely need for energy in the future, India faces formidable challenges in meeting its energy needs and providing adequate and affordable energy to all sections of society in a sustainable manner.

Although India has considerable coal reserves, with current coal production technology, it is estimated that India's domestic coal production could increase to a maximum level of around 6000 million tonnes per annum (MTPA). India's total coal reserve is around 586000 million tonnes (MT) of which anthracite and bituminous comprise 54000 MT and sub bituminous and lignite comprise 4600 MT. In 2008, total coal production was 194.3 MT of oil equivalents while consumption was 231.4 MT of oil equivalent. India's demand for coal may quadruple exceeding two billion tonnes a year by 2031-32.²⁵

India has only 0.5 percent of the global total oil reserve while its share in the global production is 0.9 percent. Its share in total world's consumption has made India the 4th largest oil consumer. Oil production has stagnated at around 33 MT in the past few years and is not expected to increase significantly. In 2008-09, India imported about 128.151 million metric tonnes (MMT) crude oil worth US\$ 75701 million. India depends to the extent of 75 percent on imported oil (more than 30 percent of the country's total imports in 2008-09). This dependency is expected to increase to 90 percent by 2050.

Furthermore, natural gas has emerged as a relatively clean option in the past decade, but there is uncertainty regarding the level of its indigenous availability. Gas reserves stand at 1005 billion cubic meters (0.6 percent of the world's proven reserves). At about 100 million metric standard cubic meters per day (MMSCMD), India produces only about 50 percent of total gas for consumption. India's gas demand is set to increase to 280 MMSCMD by 2011-12. In 2009-10, the demand would be 225 MMSCMD, while supply would be 168 MMSCMD implying a demand supply gap of 57 MMSCMD.

²⁴ *Ibid.*

²⁵ UNESCAP, "Energy Security and Regional Cooperation: An Indian Perspective", 2009, available at: www.unescap.org/.../energy/...cooperation/.../subregional%20perspectives/.../India.doc, accessed on 7 October 2009.

As far as power sector is concerned, India's installed power generation capacity is 147402.81 Megawatt (MW). Till December 2008, the installed power generation capacity by mode was coal (77458.88 MW), gas (14734.01 MW), diesel (1199.75 MW), nuclear (4120 MW), hydro (36647.76 MW) and other renewable energy sources (13242.41 MW), considering percentage, the scenario would be - coal 52.54 percent, gas 9.9 percent, diesel 0.81 percent, nuclear 2.7 percent, hydro 24.86 percent and other renewable sources 8.9 percent. The country is facing power deficit today of about 20,000 MW. In future, the power sector will be the major thrust area for natural gas.

Accordingly, under a Business-as-Usual (BAU) scenario, the country is expected to increasingly become reliant on imports of all forms of commercial energy, with total energy import dependency increasing to around 80 percent by 2031. Although the country has been dependent on oil imports for several decades, imports of coal and gas have started during the last decade. By 2031, TERI estimates indicate a dependency of 78 percent for coal (over a billion tonnes), 93 percent for oil (~ 700 million tonnes) and 67 percent for gas (~ 93 BCM) with current estimates of future availability of indigenous energy. India's Energy Dependency (according to BAU scenario) will remain in terms of infrastructural requirements for port development, handling and transportation of this energy.²⁶

3.2 Diversification of Energy Supplies in India

The growing oil consumption and limited domestic supplies have led India to import oil from other countries. According to the data provided by the Ministry of Petroleum and Natural Gas (MPNG), 160 MMT of crude oil was processed in India's refineries in 2008-09. Of this amount, 127 MMT (79 percent) was imported and the balance of 33 MMT (21 percent) was sourced from domestic production. The dependence on imported crude oil is expected to increase from 77 percent in 2004-05 to nearly 90 percent by 2024-25.²⁷ Indian hulls carry 14 percent of the total Indian cargo. Of this amount, oil accounts for approximately 95 percent of the cargo. The major sources of India's import of crude oil, based on 2004-05 statistics, revealed that imports of around 67 percent were from West Asia followed by Africa (25 percent), Asian Countries (5 percent) and the remaining comes from America. Saudi Arabia is the major exporter among the West Asian countries, which contributes more than 80 percent of total crude oil.²⁸

²⁶ Leena Srivastava and Riru Mathur, 2007, *op.cit.*

²⁷ Ministry of Petroleum and Natural Gas (MPNG), *Annual Report 2008-09*, The Government of India, New Delhi, 2009.

²⁸ Ministry of Petroleum and Natural Gas (MPNG), *Annual Report 2004-05*, The Government of India, New Delhi, 2005.

In the coming decade, the major sources of crude oil import are unlikely to change significantly. Since most of the crude oil comes from the volatile countries, India's concern on its import is about uncertainty and supply disruption. In order to strengthen its imports, India has been diversifying the supplies and has achieved some successes on this front. While maintaining traditional supply line from the Middle East, India has sourced supplies from the countries in Africa, Latin America, Southeast Asia and Commonwealth of Independent States (CIS) region. Apart from this, India has initiated to add LNG terminals, encourage pipelines, acquire assets abroad, and conduct aggressive "gas diplomacy". At present, Indian companies purchase LNG on the spot market. Qatar's RasGas also has a twenty-five year contract (started in 2004) to supply Petronet, which operates the terminal at Dahej.

India's energy concerns showed a new dynamism when the Indian government decided to explore and execute transportation of natural gas through pipelines. Pipelines in general are a high-risk venture, but its impact on development of the region through which they pass and on the possibility of intra-regional cooperation has been positive. Therefore, many times these are described as peace pipelines.²⁹ Certainly, they involve high diplomacy because more than one sovereign state is involved. They are vulnerable due to a tight chain, which means each interruption affects the whole chain and has high interdependence between seller and buyer and the transit country. Since it is a transitional project, the risks are added up. Despite the constraints, the pipeline regimes of gas transportation are growing fast compared to LNG shipment in the world.

The Iran-Pakistan-India pipeline project has been discussed over the last decade and a half. First proposed in 1989, various routes have been suggested to transport gas from Iran to India (through pipelines) like deep-sea via the Persian Gulf and the Gulf of Oman, skipping Pakistan; onshore and then offshore along the coast of Pakistan; and onshore through Pakistan. The first option was considered to have too many technical obstacles (though with the construction of the Blue-stream pipeline from Russia to Turkey, some say another feasibility study should be conducted). Experts considered the second option likely to meet the technical obstacles. While considered the most economically viable, the third option through Pakistan was thought to have "serious security" obstacles.³⁰ Many in Indian strategic community thought that Pakistan could potentially disrupt (or at least threaten) India's natural gas supply, because the proposed pipeline will pass through Baluchistan and Sind provinces in Pakistan. Baluchistan is politically unstable and vulnerable; hence it is a security threat to lay down the pipeline through this province. However, the pipeline would certainly have benefits for each country - Iran would find markets for its gas; India would

²⁹ Girijesh Pant, *op. cit.*, p. 77.

³⁰ Tanvi Madan, *op. cit.*

receive much-needed gas; and Pakistan would get natural gas for itself, as well as transit fees (US\$8 billion), taxes (US\$1 billion) and savings in energy costs (US\$5 billion).³¹

Asian Development Bank (ADB) and Union Oil Company of California (UNOCAL) conducted initial feasibility studies on Turkmenistan-Afghanistan-Pakistan-India pipeline project. The proposed pipeline would bring gas from Daulatabad in Turkmenistan through Herat, Kandahar, Quetta, and Multan to India where it would link up with India's Hazira-Vijaipur-Jagdishpur (HVJ) pipeline. It is estimated that this would bring 1.6 BCF of gas to the country at US\$2.4 to US\$3 per Million Metric British Thermal Units (MMBTU).³² India would offer a large market for gas from Daulatabad (and the pipeline would allow Turkmenistan to diversify its options). Some have proposed to add Russia and Kazakhstan at the beginning of the pipeline.

Another pipeline project is Myanmar-Bangladesh-India, which would bring gas from Myanmar through Bangladesh. This project got complicated when Bangladesh linked the laying of pipeline with new conditions, which made the future of gas pipeline through Bangladesh completely uncertain. This situation forced Myanmar and India looking for an alternative route. Further, India had an initiative to bring Bangladesh's gas to India through pipeline. However, it did not happen due to a debate over the actual gas reserves in Bangladesh.

4. Prospects of Energy Security Cooperation

Bangladesh is strategically located between the two great geo-economic areas, namely South and Southeast Asia, bordering India to the north, west and north-east, Myanmar to the Southeast and the Bay of Bengal to the south. Apart from its strategic location, Bangladesh and its surrounding areas are thought to be rich in energy resources, which remain largely untapped and unexplored. According to some statistics, Bangladesh's own gas reserves appear to be sizeable and have generated considerable interest amongst the large international oil companies. Northeast India and Myanmar are well endowed with gas, in addition to possessing significant oil reserves. Neighbouring Nepal and Bhutan also enjoy a huge, largely untapped hydro-electricity potential. The South Asian economies (especially India and Bangladesh) have been experiencing good rates of growth in recent years, at around 5 to 7 percent.³³ The huge Indian economy has opened gradually to foreign investment. The demand for commercial energy and power has increased rapidly, leading to large emerging shortages manifested in frequent power outages. Demand in Bangladesh is also set to rise quickly (at 6 to 8 percent), although from a much lower base. Thus, in medium term demand

³¹ *Ibid.*

³² *Ibid.*

³³ *Ibid.*

for power in India is likely to rise quickly and the country will need to evolve a policy strategy to ensure adequate supplies. Bangladesh should think over its long term energy security and that may need to look beyond its borders to achieve a sensible and optimal energy strategy.

In the context of Bangladesh-India energy cooperation, gas export to India from Bangladesh was the major issue some years back. The issue of gas export to India was first raised by Union Oil Company of California (UNOCAL), operating in Bangladesh. The UNOCAL Corporation had submitted a gas pipeline proposal to the government of Bangladesh, which includes the construction of a thirty-inch diameter, 847-mile (1,363 kilometer) long pipeline with an initial capacity of 500 MMCFD of gas, from northeastern Bangladesh (from the UNOCAL - developed gas field Bibiyana) to New Delhi. Further, UNOCAL proposed to export 3.65 TCF of natural gas over a period of twenty years. According to UNOCAL projections, the government of Bangladesh could have received an estimated US\$3.7 billion (approximately 200 billion in Bangladeshi Taka) as revenues and tax receipts.³⁴ UNOCAL also believed that Bangladesh could become an energy hub allowing the transport of gas from Myanmar and North Eastern India to the energy-hungry mainland. Dhaka could just sit back and charge transit fees. In the wake of the proposal, the Bangladesh Supreme Court itself intervened to prevent an immediate decision.³⁵

However, current situation in Bangladesh reveals that the country has shortage of gas reserves and it will run out of its reserves by 2025 and it needs large imports unless new reserves are not found. It is a proven fact that Bangladesh does not have sufficient gas to export. Rather, it is looking forward to importing gas from Myanmar and electricity from India.

4.1 Myanmar-Bangladesh-India Energy Cooperation Agreement

After the Bangladesh-India bilateral energy cooperation became a 'pipedream', in the proposed Bangladesh-India-Myanmar Pipeline project, once again both Bangladesh and India were in a position to benefit in a number of ways by the construction of this pipeline. The cabinet committee brief was prepared by Bangladesh Ministry of Power, Energy and Mineral Resources during the period of Begum Khaleda Zia government (2001-2006), which

³⁴ Srinjoy Bose, *Energy Politics: India-Bangladesh-Myanmar Relations*, Institute of Peace and Conflict Studies, New Delhi, IPCS Special Report, No. 45, July 2007, available at: <http://www.ipcs.org/IPCS-Special-Report-45.pdf>, accessed on 13 June 2008.

³⁵ Mohan, C. Raja. (2002), "Pipeline politics in Bangladesh", *The Hindu*, (Online edition), available at: <http://www.hinduonnet.com/2002/07/22/stories/2002072202791100.htm>, accessed on 12 November 2007.

underscored the pipeline's benefits to the country.³⁶ These include revenue earning from granting a right of way to the pipeline, an estimated US\$ 100 million per annum, wheeling charges over the gas transmission through Bangladesh, an investment of about US\$ 150 million inside Bangladesh for the pipeline construction and involvement in the project of the Gas Transmission Company Limited (GTCL), from which the company may earn US\$ 24 million per year. These advantages are coming to Bangladesh even when it is neither investing in the pipeline nor assuming any risk involved in its construction.

In fact, from the very beginning, Bangladesh was viewing the pipeline as a means of securing economic concessions from New Delhi. During the Yangon deliberations Dhaka made three major economic demands on India:

- Transmission of hydro-electricity from Nepal and Bhutan to Bangladesh through Indian territory;
- Granting of unrestricted and round-the clock transit facilities to and from Nepal and Bhutan through India, and
- Taking necessary measures to address Bangladesh-India trade deficit.³⁷

None of these issues were new and have been on the Bangladeshi agenda for a long time. With domestic concern over the trade deficit with India and unfulfilled transit demands, Bangladesh viewed the pipeline negotiations as an opportunity to leverage some concessions. India, on the other hand, viewed the gas transit pipeline as a purely commercial deal de-linked from other bilateral issues. Also, the issue of trade deficit could not be resolved by India alone and even a complete removal of trade barriers would not resolve the problem. Regarding transit facilities, India felt that the quantity of current bilateral trade did not justify enhancing the existing transit facilities already provided to connect Bangladesh and Nepal. Also, Bangladesh's ability to receive electricity from Nepal and Bhutan presupposes the existence of a common grid across the region that was not in place and since Nepal has been buying electricity from India, the prospect of exporting it to Bangladesh in the near future looks very unlikely.³⁸

³⁶ Anand Kumar, "India-Myanmar Gas Pipeline Through Bangladesh-Pipe Dream?", South Asia Analysis Group, Paper No. 1216, January 2005, available at: <http://www.southasiaanalysis.org/papers13/paper1216.html>, accessed on 4 April 2005.

³⁷ The Government of India, "Joint Press Statement (Bilateral between Ministry of Energy and Mineral Resources of Bangladesh and Ministry of Petroleum and Natural Gas of India to promote bilateral energy cooperation)", 13 January 2005, available at: <http://www.meaindia.nic.in/pressreleass/2005/01/13js01.htm>, accessed on 7 November 2007.

³⁸ Sreeradha Datta, "Bangladesh Factor in the Indo-Myanmar's Gas Deal", *Strategic Analysis*, Vol. 32, No.1, January 2008, p. 105.

Initially, Bangladesh even agreed to host a meeting on 20-21 April 2005, to sign the formal Memorandum of Understanding (MoU) but back-tracked as the three bilateral preconditions put to Delhi remained unfulfilled. Dhaka insisted on resolving the bilateral issues before agreeing to the tripartite MoU. During his visit to India in June 2005, Foreign Secretary Hemayetuddin clarified that Bangladesh was not adverse to the idea of trans-Myanmar pipeline but insisted that some differences needed to be ironed out before any progress could be achieved.³⁹ This has indeed been a common Bangladeshi position in the post-Yangon phase. Given the domestic opposition on his return from the Yangon meeting, the then Petroleum Minister Dr. Khondokar Mosharraf Hossain stressed that without an Indo-Bangladesh bilateral treaty, Dhaka would not be able to “sign the trilateral one”.⁴⁰

In July 2005, the Petroleum Ministers of Myanmar and India met in New Delhi to discuss the modalities of transporting Myanmar’s gas. Citing insufficient advance notice, Bangladesh boycotted the meeting. The trilateral meeting thus was reduced to a bilateral affair. Reflecting the prevailing mood in Dhaka, Mahmudur Rahman, adviser to the energy ministry, sarcastically observed: “...if they can do without Bangladesh, let them do.”⁴¹ But when the Indian Petroleum Minister visited Bangladesh in September, 2005 Bangladesh took a conciliatory position and proposed the formation of two committees, one for the proposed tri-nation gas pipeline and the other for resolving trade issues. These, too, finally did not work out. Once again, India and Bangladesh failed in the energy trade which could have been much beneficial to both the countries.

4.2 Future Possible Cooperation in Energy Sector

After the election held in December, 2008 in Bangladesh, the situation appears to be friendly. The two governments are expected to cooperate in all possible manners particularly in the energy sector. There are a number of possible areas for cooperation between India and Bangladesh.

Bangladesh, Bhutan, Nepal and India multilateral electricity trade can be a viable option in the near future. Experiences of power trade between India and Bhutan, and India and Nepal since the 1960s can be the replicable model for Bangladesh for realizing cooperation in power sector. India will be the key player in coordinating and implementing cooperation projects or deals. Absence of interconnecting transmission systems between India and Bangladesh on the

³⁹ *Ibid.*

⁴⁰ *The Daily Star*, (Online edition), available at: <http://www.thedailystar.net/2005/01/16/index.htm>, accessed on 25 February 2005.

⁴¹ “Tri-nation Pipeline: Dhaka skips Delhi talks over delay in invitation”, *The Daily Star*, available at <http://www.thedailystar.net/2005/07/06/d5070601022.htm>, accessed on 7 September 2009.

Eastern and North Eastern side has to-date hindered the transfer of electricity. Such interconnection at several points along the border can be established immediately if India and Bangladesh agree. This will make electricity import from Bhutan and Nepal to Bangladesh a reality.

Here, several findings can be stated from the study report entitled, "Four Borders Project: Reliability Improvement and Power Transfer in South Asia" conducted by South Asia Regional Initiative-Energy (SARI-E) programme of United States Agency for International Development (USAID) in November 2001. It suggested connecting Siliguri (India) to Anarmani (Nepal) and Thakurgaon (Bangladesh) initially by 132 kV lines, which is capable of being upgraded to 220 kV as the volume of interchange increases.⁴² It also suggested the alternative of connecting Purnea (India) to Duhbi (Nepal) and Ishurdi (Bangladesh). Connections from Chhukha (Bhutan) to Siliguri and then on to Purnea already exist. System studies confirmed the technical feasibility of the option that was considered better than the option of constructing 220 kV lines from the beginning or having 132 kV lines all the time. It could support power transfer capacities in the range of 50 MW to 500 MW. Capital costs would range from US\$9.0 million to US\$52.0 million. Cost of transmission could fall to 0.2 cents/kWh when interchanges amount to 500 MW. The project is expected to have acceptable rates of return, an easy-to-implement five year time frame, and no major environmental issues. Possible problems of synchronous operation of the four systems have to be identified and resolved.⁴³

In this connection, a hydropower project in the Kosi River Basin and its integration with the power system network of Bangladesh, Bhutan, India and Nepal deserves our attention. This project has been proposed by Asian Development Bank (ADB) as a means to support the initiative of sub-regional cooperation in energy put forwarded by Bangladesh, Bhutan, India and Nepal under the name of South Asia Growth Quadrangle (SAGQ). ADB has a practical experience in fostering cooperation in energy in the countries of the Greater Mekong Sub-region (GMS) that can be replicated in the case of South Asia. The proposed project itself foresees the interconnection of the power system network of the four participating countries and its integration with the hydropower development projects in the Kosi river basin of Nepal, which emphasizes on medium size run-of-river projects in the short/medium term leading to larger size

⁴² Shanker Krishna Malla, "Towards a Regional Energy Market in South Asia", *SACEPS Paper 16*, South Asia Centre for Policy Studies, 2008, available at: http://www.saceps.org/upload_file/download_pdf/Energy%20Report%20K%20Malla%20whole%20pdf.pdf, accessed on 9 September 2010.

⁴³ World Bank, "Potential and Prospects for Regional Energy Trade in the South Asia Region", available at: http://siteresources.worldbank.org/SOUTHASIAEXT/Resources/Publications/4488131219694050026/Regional_Energy_Trade_in_South_Asia_Final_ESMAP.pdf, accessed on 9 September 2010.

storage projects at a later stage. This concept is based on the rationale that medium sized run-of-river projects are relatively less risky, less controversial, relatively less affected by adverse environmental impact, problems of displacement and rehabilitation of the project affected people. Fortunately, such projects are available in the Arun river basin, a tributary of Kosi river basin. These include 402 MW Arun 3 project, 335 MW Upper Arun project and 308 MW Lower Arun project.⁴⁴

India can export its surplus refinery products to Bangladesh in the coming years. With forecasted total domestic refining capacity of 4.96 Million Barrels per Day (MB/D) by 2012, India will become the world's fourth largest refining centre, after the United States, China and Japan. Although expected to grow strongly, Indian product demand by 2012 will grow less rapidly than additions to its domestic refinery capacity. India currently consumes petroleum products at a rate of just over 3 MB/D, growing briskly at slightly more than 4 percent per annum to 3.44 MB/D in 2012. By 2012, therefore, domestic refining capacity will exceed product demand by over 1.5 MB/D. Assuming refinery capacity utilization of slightly below 100 percent by 2012, India will be in a position to export approximately 1.4 MB/D of refined product to the global markets. With the establishment of the world-leading Jamnagar complex and the imminent start-up of 1.2 MB/D of highly complex greenfield refinery capacity, India looks likely, to dominate Asian exports of highest quality products such as high-octane gasoline, alkylate, ultra-low sulphur diesel and petcoke. All these exportable refinery products have a potential market in Bangladesh.⁴⁵

Bangladesh and India can have common strategic reserves of crude oil and petroleum products. For example, Strategic Petroleum Reserve (SPR) can be built over time which could be used during the periods of high prices. It could also constitute a strategic stockpile of certain discovered reserves of oil and gas to be activated to full production whenever the prices for crude are too high for the economy to absorb.

It is important to note that India is constructing a SPR for its energy security. The first storage facility at Visakhapatnam will hold approximately 9.8 million barrels (bbls) of crude oil (1.33 million tons) and is scheduled for completion by the end of 2011. The second facility at Mangalore will have a capacity of nearly 11 bbls (1.5 million tons) and is scheduled for completion by the end of 2012. The third facility of Padur, also scheduled to be completed by the end of 2012, will have a capacity of nearly 18.3 million bbls (2.5 million tons). The SPR

⁴⁴ Shanker Krishna Malla, 2008, *op.cit.*

⁴⁵ International Energy Agency, "India's Downstream Petroleum Sector Refined product pricing and refinery investment", available at: www.hindustanpetroleum.com/Upload/En/.../AnnualReport2009-10.pdf - India, accessed on 9 September 2010.

project is being managed by the Indian Strategic Petroleum Reserves Limited (ISPRL), which is a part of Oil Industry Development Board (OIDB), a state-controlled organization. India does not have any strategic crude oil stocks at this time.⁴⁶ To this tune, Bangladesh and India can go ahead to build common strategic crude oil and petroleum reserves, if the latter agrees.

India has been contemplating for bringing natural gas and crude oil from the North Eastern India (Tripura and Mizoram) to Eastern India through Bangladesh. Tripura has immense reserves of natural gas presently in crude form. The gas is of high quality, with high methane content of up to 97 percent. Since 1972, Oil and Natural Gas Corporation (ONGC) has been actively engaged in exploration activities in the state. Based on the exploration work so far, ONGC has estimated the total gas reserves as prognosticated reserves of about 400 BCM.⁴⁷ On the other hand, a survey by the central petroleum ministry about a decade back stated that Mizoram falls in the 'proven commercial productivity zone' and rough estimates indicated there could be about 170 million metric tonnes of untapped crude reserves.⁴⁸ H. Lallenmawia, the Head of Mizoram's geology and mining department said, "We hope crude oil would transform Mizoram into Kuwait in the very near future with the state located in an area believed to be a black gold mine."⁴⁹ Tripura is surrounded by Bangladesh on the north, west, and south-east whereas in the east it has a common boundary with Assam and Mizoram. Mizoram lies in the north east end of India, with much of its southern part sandwiched between Bangladesh and Myanmar. Against this backdrop, India needs Bangladesh to transmit the natural gas of Tripura and the crude oil of Mizoram to the eastern part for reasons of viability and cost-effectiveness of the potential projects. In this context, Bangladesh can extend her cooperation if the pipelines transporting gas/oil either from Myanmar or North Eastern India go through Bangladesh with the provision of accessibility to the gas/oil from these lines when necessity arises.

5. Challenges in Energy Security Cooperation

Many countries in other regions have been cooperating in bilateral and multilateral issues by forming regional forums, making agreements and allowing business bodies to deal freely. But Bangladesh and India are lagging far behind particularly in energy sector. The challenges in energy security cooperation

⁴⁶ Country Analysis Brief, India Energy Data, Statistics and Analysis - Oil, Gas, Electricity, Coal, available at: <http://www.eia.doe.gov/cabs/India/pdf.pdf>, accessed on 10 September 2010.

⁴⁷ KNOW INDIA, available at: <http://www.indiainbusiness.nic.in/know-india/states/tripura.htm>, accessed on September 10, 2010.

⁴⁸ Mizoram to become Kuwait of northeast with crude flow, available at: <http://www.whereincity.com/news/2/14587>, accessed on 10 September 2010.

⁴⁹ *Ibid.*

between these two neighbours, therefore, need to be addressed more carefully. Bangladesh-India economic cooperation has been overshadowed by mistrust. Before 1947, East Bengal and part of Sylhet region of Assam (present Bangladesh) were part of India and the major networking activities were integrated. To date, the railway links of the North Eastern India with Eastern India through Bangladesh is closed. The North Eastern India which was the natural hinterland of Chittagong port up to 1947 cannot access the port. The access of Nepal or Bhutan through an Indian corridor for transportation of goods to and from Bangladesh and through Bangladesh is restricted. After the independence of Bangladesh in 1971, the mutual relations were thought to have been improved. The first Awami League government of Bangladesh made Ganges water sharing treaty in 1974 with India and some other positive steps were in progress. But the tragic killing of Sheikh Mujibur Rahman, the Father of the Nation, in 1975 hampered the smooth development of bilateral relation. After that, secularism was dropped from the constitution as a state principle of Bangladesh. The military regimes of General Ziaur Rahman and General Hussain Muhammad Ershad had much resentment about the so-called Indian hegemony. Even the initiative taken by Bangladesh to create South Asian Association for Regional Cooperation (SAARC) in 1980s was propagated to protect the political sovereignty of small states in the region. Thus, a sense of misunderstanding and lack of trust have prevailed throughout the years on the issues of re-establishing the lost networks and opening new connectivity like India-Bangladesh gas pipeline projects or electricity transmission lines from Nepal or Bhutan through Indian territory.

Some outstanding disputes that have been affecting Bangladesh-India relations are - fair sharing of waters of 53 common rivers other than Ganges water; the much debated *Tipaimukh* Dam; cross border terrorism in east and north eastern India; maritime boundary demarcation; land boundary demarcation and fencing; alleged illegal migration of Bangladeshis to India; and trade imbalance. Most of the issues have been unresolved for many years. For example, the maritime boundary dispute has been a problem for more than three decades. In November 2008, after an oil and gas exploration attempt by Myanmar in a disputed area, the naval forces of Bangladesh and Myanmar came face to face in the Bay of Bengal. Continuing with their diplomatic effort to resolve the crisis, the top leaders of Myanmar and Bangladesh met in New Delhi on the sidelines of the Bay of Bengal Initiative for Multisectoral Technical and Economic Cooperation (BIMSTEC) Summit.⁵⁰ Later, India and Myanmar made their submissions to the UN on 16 December 2008, and 11 May 2009, respectively, encompassing undersea basins that fall within Bangladesh's

⁵⁰ Anand Kumar, "Bangladesh disputes Myanmar explorations in Bay of Bengal", South Asia Analysis Group, Paper no. 2931, 21 November 2008, available at: www.southasiaanalysis.org/papers30/paper2931.htm, accessed on 7 February 2010.

Exclusive Economic Zone (EEZ) stretching up to 200 nautical miles from the baseline. Bangladesh also formally lodged a protest note to the UN against maritime claims of India and Myanmar on the extended continental shelf in the Bay of Bengal. Bangladesh claimed 29,000 and 22,000 square nautical miles from India and Myanmar respectively, as extended continental shelf in the sea.⁵¹ Bangladesh is concerned that it might become sea-locked by both India and Myanmar if two powers insist on resolving the issue based on the principle of equidistance instead of equity. As the issue contains many technical and legal aspects, the problem might remain inconclusive for a long time in the future. No doubt, this kind of unresolved dispute would affect negatively on any attempt of India-Bangladesh cooperation regarding strategic energy reserves or Myanmar-Bangladesh-India pipeline link.

Lack of political wisdom by the leadership of both Bangladesh and India has been the ultimate challenge in building energy cooperation between the two countries. As Quader rightly commented that the prevailing deadlock in building cooperation has its roots in non-existence of vision and mission statements dealing with each other. If there were ones, the leaderships would have met frequently and talked coherently to build bilateral and multilateral cooperation.⁵² It is relevant to mention how leaders of other regions show their wisdom and eagerness in dealing with their common interests particularly on energy. Bayano Valy reported from Namibia that a meeting of the Forum of Energy Ministers of Africa (FEMA) was held in Mozambican capital, Maputo recently. In that forum, the President of Mozambique, Armando Guebuza called for greater cooperation among African states, and participation of private business and development donors. Citing the examples of current cooperation among African states such as the Southern African Power Pool and the Western Corridor Energy Project in southern Africa, he said, "Today we all need each other, if we are all to survive."⁵³ On the other hand, the Heads of state and government of the countries of Latin America and the Caribbean met in Salvador, Bahia, Brazil, on 16 and 17 December 2008, with the aim of strengthening regional cooperation specially to maximize the generation of energy, diversification of energy sources, exchange of experiences and best practices on energy policies based on efficiency and conservation, transfer of technology on national bio-fuel programme and energy security. They also committed to convene regional meetings to advance the implementation of these objectives. In the South Asian region, political leaders of neighbouring countries were not seen to have gathered with a view to making an agreement on energy security cooperation.

⁵¹ *New Age*, 18 December 2009.

⁵² A.K.M.A. Quader, *op. cit.*

⁵³ Bayano Valy, "African energy ministers call for cooperation", available at: [www.namibian.com.na/index.php?id=28&tx_ttnews\[tt_news\]=31020&no_cache=1](http://www.namibian.com.na/index.php?id=28&tx_ttnews[tt_news]=31020&no_cache=1), accessed on 18 March 2010.

However, in a joint communiqué in New Delhi on 13 January 2010, the Prime Minister of Bangladesh Sheikh Hasina and the Prime Minister of India Dr. Manmohan Singh agreed to put in place a comprehensive framework of cooperation for development between the two countries, encapsulating their mutually shared vision for the future, which would include cooperation in water resources, power, transportation and connectivity, tourism and education. The Prime Minister of India agreed to supply 250 MW electricity to Bangladesh from its grid. In this context, both Prime Ministers emphasized the need to expedite inter-grid connectivity. They also agreed that the two countries shall cooperate in development and exchange of electricity, including generation from renewable sources, and may set up joint projects or corporate entities for that purpose. Following the understanding, on February 2010, Dhaka and New Delhi agreed to form a joint venture company under Indian management and operation for installation of a 1,320 MW coal-based power plant in Khulna worth up to US\$1.8 billion. Both the sides also finalized the terms and conditions for installing a cross-border power transmission line for enabling Dhaka to import 250 MW of electricity from India.⁵⁴ The New Delhi joint communiqué indicates that India has changed its mind-set towards Bangladesh. In this regard, India got a historical opportunity to apply Gujral's doctrine of 'cooperative security' approach that India would extend its assistance to sort out the outstanding problems and issues with its extended neighbours. India would not ask for anything in return but would give and accommodate what it is able to, in good faith.⁵⁵ It is important to note that by saying 'comprehensive framework of cooperation for development between the two countries' India wanted to uphold its natural leadership of the South Asian region. And, by putting priority on energy sector, India actually intended to take Bangladesh as a strategic partner of her present and future security concern. Undoubtedly, it is a sign of maturity on the part of Indian leadership.

On the Bangladesh side, leadership is divided into two camps namely Awami League on the one hand and Bangladesh Nationalist Party (BNP) and Jamaat-i-Islami Bangladesh on the other. The Awami League leaders value bilateral ties with India and respond to any cooperative efforts of India on a priority basis for which they are labeled as pro-Indians by the opposition. The opposition and others have been reluctant to cooperate with India for they allege that India has always shown eagerness to get the bigger share in any agreement whether it is bilateral or multilateral. For this reason, while in power during 2001-2006, the Energy Minister of the BNP-Jamaat coalition government stymied the

⁵⁴ *Energy Bangla* [Online Bulletin], "Bangladesh Govt. to Install 100-200MW Wind-based IPP", available at: www.energybangla.com/index.php?mod=article&cat=GreenPage&article=2395, accessed on 10 March 2010.

⁵⁵ Mohd. Aminul Karim, "Bangladesh-India Relations: Some Recent Trends", ISAS Working Paper, No. 96, 12 November 2009, available at: www.isas.nus.edu.sg, accessed on 17 March 2010.

Bangladesh-India-Myanmar gas pipeline deal with a view to having more concessions before hand from a bilateral accord with India. The Khaleda Zia government had a foreign policy of 'Look East' for building economic cooperation, but literally had no room for energy relation with these countries. Even in her belated visit to India on 20-22 March 2006, Begum Khaleda Zia did not discuss about energy security cooperation with her counterpart Dr. Manmohan Singh.⁵⁶

6. Conclusion

Energy is a scarce resource and an economic commodity. Energy security cooperation has foreign policy implications and strategic postures. It may take many shapes such as multi-lateral or bilateral and regional or sub-regional cooperation. But the materialization of the prospective energy ventures depends largely on individual country's energy security concerns and willingness of the leadership of the partner countries.

In this paper, it has been observed that India is going to be reliant on imports of all forms of commercial energy, with total energy import dependency increasing to around 80 percent by 2031. The country has been dependent on oil imports for several decades, but imports of coal and gas have started during the last decade. These concerns have led India to import gas from Myanmar through Bangladesh. On the other hand, Bangladesh has been heavily dependent on the indigenous natural gas serving about 75 percent of the total commercial energy. The country has been facing severe electricity shortage for the last two decades. These concerns have led Bangladesh to import electricity from Nepal and Bhutan crossing the Indian borders.

This paper also observed that after many twists and turns in the past, the present leadership of Bangladesh and India has shown their eagerness to cooperate in energy sector. Following Gujral doctrine of 'cooperative security', Indian leaders have extended their assistance to resolve the outstanding problems and issues with Bangladesh. Both the current head of the governments of the neighbouring states agreed to expedite inter-grid connectivity, development and exchange of electricity including generation from renewable sources, and setting up of joint projects or corporate entities.

However, this paper has come up with some possible joint venture projects of energy security cooperation like Bangladesh, Bhutan, Nepal and India multilateral electricity trade; export of India's surplus refinery products to Bangladesh; Bangladesh and India common strategic reserves of crude oil and petroleum products; and natural gas and crude oil from the North Eastern India (Tripura and Mizoram) to Eastern India through Bangladesh. These projects are robust and need political fine tuning of the parties concerned.

⁵⁶ *The Daily Star*, 23 March 2006.

Finally, it is important to note that the region of South Asia has a good potential of energy resources, yet the countries lack in technology and high investment. Hence, countries can utilize resources if they come forward for cooperation. India is in a strategic position to strike bilateral deal with any of its neighbours while Bangladesh, Bhutan and Nepal are unable to do so without involving India. Against the backdrop of such a ground reality, the present leadership of Bangladesh and India has made a fruitful beginning.