

ENERGY STATUS AND FUTURE OUTLOOK: BANGLADESH AND NEPAL

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1. Bangladesh

1.1 Area, Geography, Population and Economy

Bangladesh is located in the north-eastern part of South Asia. The country is bordered with India on the western, northern and north-eastern sides, with Myanmar on the south-eastern side and with Bay of Bengal on the south. The land area of the country is 147,570 square kilometres with the greater part of the country comprising of flat river basins and deltas. Due to this geographic formation, Bangladesh has been vulnerable to natural calamities such as floods and cyclones. In 2005, population of Bangladesh was about 140 million and this figure is expected to reach 150 million by 2010. The 2007 per capita Gross Domestic Product (GDP) in Purchasing Power Parity (PPP) basis was US\$ 1,311. Bangladeshi economy is heavily reliant on service sector, agriculture and light industries. An average economic growth rate of about 5.5% was maintained during the last decade. However, the high level of population growth (exceeding 1.5% p.a.) had put continuous pressure on the country's growing economy.

1.2 Energy Resources and Use

Bangladesh is a SAARC member country blessed with fossil fuel deposits. Natural Gas and Coal extracted from these deposits are being used to meet part of the energy requirement of the country. Natural gas supplied 74% of all commercial energy needs in 2006 financial year while petroleum products supplied 22% (used primarily in the transport sector).

The energy sector is governed by a hierarchy of state organizations and the Ministry of Power, Energy and Mineral Resources (MOPEMR) functions at the top of this governing structure. There are two divisions within the ministry, managing the petroleum and power sectors separately. There are many state and private sector organizations operating under the supervision of these two divisions of the Ministry.

The 3rd meeting of the Energy Ministers and Senior Officials of SAARC Countries was held in Colombo over January 28-29, 2009. Discussion on the prospects for regional cooperation in Energy was one of the key items in the agenda. This article describes the energy situation in Bangladesh and Nepal and the prospects for cooperation with other SAARC countries.



Figure 1: A busy Street in Dhaka - Bangladesh

Natural gas in Bangladesh was first discovered in 1957. The proven gas fields are estimated to contain approximately 8 trillion cubic feet (tcf) of natural gas deposits. In addition to these proven reserves, a further 12 trillion cubic feet of unproven natural gas resources are estimated to be available within the country. According to the latest estimates, Bangladesh has about 3,300 million tons of coal resources out of which 880 million tons are proven reserves. Coal extraction started quite recently and the use is primarily for the power generation. Though smaller in quantity compared to gas and coal reserves, oil deposits (of about 40 million barrels) also have been discovered in Bangladesh. Due to the natural flat terrain, the hydroelectric potential is relatively small and is estimated to be around 330 MW, out of which 230 MW have already been developed. Apart from the use of these indigenous energy resources, liquid petroleum fuels are imported, mainly for the transportation sector.

In 2006 financial year, the total electricity demand was 22,741 GWh and this was supplied by a

combined power plant capacity of 5,275 MW. 88% of the fuel used for power generation came as natural gas. Bangladeshi power system has been able to provide electricity to only 40% the households in the country, and these residential consumers account for 44% of the total electricity demand. Industrial sector is also a significant consumer category accounting for 42% of the total electricity demand.

1.3 Challenges and Growth of Energy Sector

With the expected development of the country in the coming years, the energy demand of Bangladesh is also expected to grow at a rapid pace led by electricity demand projected to grow at about 8% a year. To cater to this energy demand growth, the depleting natural gas resource would have to be increasingly supplemented by coal. Minimising losses and improving efficiency of energy use would also be significant contributors to meeting the future challenges faced by the energy sector of Bangladesh.

Providing the electricity services to the remaining 60% of households in the country, in the midst of limited indigenous energy resources, is a challenge Bangladesh would have to address in the coming years.

2. Nepal

2.1 Area, Geography, Population and Economy

Nepal is a SAARC member country to which many tourists are attracted to, being the gateway to Mount Everest and the birth place of Lord Buddha. It is a land locked country bordered by India and China. The land area is about 147,181 square kilometers. It has a diversified land structure ranging from altitudes of 60m to 8,848m. Nepal is blessed with about 6,000 rivers with a high hydro power generation potential which can provide a sound basis for the economic development of the country as an energy resource and a foreign exchange earner. According to a census done in 2001, population of Nepal is about 24 million and the average annual growth rate of population is 2.2%. The 2007 per capita GDP in PPP basis was US\$ 1,078.

Ministry of Water Resources oversee the power sector and hydro resources development of the country. Nepal Electricity Authority and Nepal Oil Corporation are the two main energy sector organizations in the country.

2.2 Energy Resources and Use

Nepal has an untapped hydropower potential of 83,000 MW. 43,000 MW of this potential has been identified as economically and technically attractive for development. At present the power system of Nepal is harnessing only about 560 MW of this potential while the majority of the population is yet to be electrified. The total installed capacity of Nepal power system is about 600 MW. But the effective capacity is lower due mainly to hydropower plant operating constraints. Apart from the hydro potential, small amounts of fossil fuel deposits have been discovered, in the form of natural gas and coal.



Figure 2: Hydroelectric potential being developed in Nepal

In the total energy mix, share of traditional energy (fuel wood and other biomass) is about 85%. The share of electricity in the total energy mix is only 9% and the balance is sourced as petroleum products imported from India. Households are the main energy consuming sector in the country and it accounted for 89% of the country's total energy consumption in 2006. Industrial and transport sectors consume 4.5% and 3.7% respectively of the total energy demand of Nepal. The level of electrification is about 40% of the population. Even with the lower availability, commercial energy sources such as petroleum, coal, and electricity are gradually replacing the traditional non-commercial fuels.

2.3 Challenges and Growth of Energy Sector

Nepal's Ministry of Water Resources has taken positive steps to improve the supply of commercial energy. Licenses have been issued for the development of several major hydro projects totalling to over 2,000MW. The primary objective is to harness the abundant hydro resources and export the generated electricity to the Indian market.

Being a landlocked country, the inability to have its own petroleum refining facilities is also a hindrance to the energy security of Nepal.

resource and exporting electricity to India are essential to maintain economic growth and ensure energy security.

The higher rate of economic growth resulting in increased per capita income and a corresponding change in life style is expected to raise the energy demand, particularly in the industrial and transport sectors. Developing the vast hydro

Similar to Bhutan, Nepal offers a high potential for renewable energy development and trade with SAARC countries, for which an agreed mechanism requires to be established.

From the Sri Lanka National Energy Database:

