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Energy Crisis and Subregional Cooperation in South Asia

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Contents

Chapter 1: Introduction

The history of the Indian subcontinent after decolonization is a history that partition creates. The partition of the subcontinent in 1947 and again in 1971 left a fractured South Asian psyche, and led virtually to mutual animosity, misperception and misunderstanding among the people, particularly among the states of the region. The people on the other side of the border are considered usually to be the enemy of the first order. Over the years, the statecraft of South Asia manipulated this situation in favour of certain groups of people in power and, up to an extent, the mental gap between the people living in this region only widened.

However, if one looks at the situation of the poverty-stricken people in this region, one can easily identify that, there are several common problems shared perhaps unconsciously by the residents of a geographically contiguous zone, separated by political boundaries. It has been pointed out by different experts in recent times that, there are some problems faced by the members of the contemporary societies across the globe which cannot be efficiently dealt with by the existing nation-state system alone. In other words, along with the state system, there may be a requirement of some transnational initiatives, which can try to solve some of the present-day problems of human society. Against this backdrop, one has to consider some of the major issues in South Asia, which are militating against the progress of the people in this part of the world.

In this context, the present study intends to bring into focus a fresh perspective on the question of power. It is known that, the regions of Eastern and NorthEastern India have a shortage of electricity particularly in the peak hours. Move toward industrialization and economic development in this region would generate more demand for power here, which cannot be met quite economically by the national initiatives alone. Moreover, as northeast India is virtually landlocked (this part of India is only linked to the Indian mainland through a narrow chicken-neck corridor of Siliguri) like Nepal and Bhutan are, any expansion in terms of power generation has to be thought of at a transnational level. It must also be noted that, the contiguous zones of Bangladesh are also in short supply of electricity. However, the concerned experts have indicated that Tripura and some other northeast Indian states have enough stock of natural gas. It has been pointed out too that, the Chittagong Hill Tracts(CHT) and the adjoining areas are also floating on gas. Nepal and Bhutan have water channels like rivers, which could be a crucial source of hydel power. Thus, these complementarities could be put together to solve the power problem faced by the eastern slice of South Asia.

However, it is easier said than done. Before taking any plunge into such a major initiative, the concerned states and their people should have a scope for assessing the pros and cons of the proposed cooperation. Hence the present research.

The major purpose of this study is to enquire into the problems and prospects of subregional cooperation among Bangladesh, Bhutan, India and Nepal in the energy sector. To be precise, the project has three different objectives: first, to evaluate the attempts to promote subregional cooperation in the power sector among Bangladesh, Bhutan, India and Nepal, if any; secondly, to identify the major obstacles in the path of promotion of such subregional cooperation here; and thirdly, to identify the potential mutual benefits of such subregional cooperation for the inhabitants of this area.

The study is based on a correlational survey. This survey deals with the existing energy situation in the eastern and northeastern India, Bangladesh, Nepal and Bhutan. Statistical inferences have been drawn from the data available. Two kinds of data have been used in this study. First, the data concerning the present level of power supply and demand for power in this specific geographical region have been dealt with. Secondly, an attempt has been made to highlight the present and future demand and potential supply of power (through the proposed subregional cooperation). These data have been acquired both in the form of published materials and through interviews with some technical experts of the four concerned countries. Moreover, in order to have a proper idea about the perception of these concerned states regarding the proposed subregional cooperation bureaucrats, politicians and policy-makers of these states have been consulted.

On the basis of these data an attempt gas been made to analyze how the crisis of energy in the eastern part of South Asia could be solved to a great extent through the proposed subregional cooperation Already certain steps have been taken in this direction, but perhaps the concerned states of South Asia have to go many miles in order to change the political mindset, without which such cooperation would be hardly sustainable.

Chapter 2: Energy Profile of the Subregion

It may be noted at the very outset that the coal, water resources and natural gas are the principal sources of energy in South Asia, and renewable energy resources have a marginal role so far in the region. Therefore, in this energy profile we shall also discuss the role of the non-conventional energy resources apart from our emphasis on the conventional resources here.

Bangladesh:

Bangladesh is referred to as a land of rivers. Its land is crisscrossed by the waters of the Ganga and Brahmaputra (these rivers are known as the Padma and Jamuna respectively inside Bangladesh). The abundance of water resources in Bangladesh indicates that, there could be a possibility of producing electricity from these water-flows. However, Bangladesh has not really adopted the path of generating hydroelectricity except in the Kaptai project over the Karnaphuli river in the Chittagong Hill Tracts (CHT) region.
Therefore, the primary sources of commercial energy in Bangladesh include natural gas, oil and coal, while the bio-mass fuels and the fuels generated from the excreta of household animals are the sources of traditional energy in Bangladesh. It may be noted at the very outset that, the eastern part of Bangladesh has more energy potential than the rest of the country because this area is rich in natural gas and oil reserves and hydel power (see map 2.1 on the natural resources of Bangladesh). Contrarily, the western part of the country has no developed source of commercial energy.

The estimated quantity of known and exploitable sources of commercial energy in Bangladesh is as follows:

Natural Gas:

The total recoverable reserve of natural gas from 20 gasfields has been reported as 13.74 trillion cubic feet (TCF), out of which 2.86 TCF has been extracted up to December 1996. The net recoverable reserve for the future use was estimated to be 10.88 TCF in January 1997.2 Based on Petrobangla's own statistics, Bangladesh has already discovered about 21 TCF of natural gas, of which roughly 12.6 TCF can be produced, and used for the country's benefit. So far, Bangladesh has consumed roughly 3 TCF of this amount leaving about 10 TCF.

Bakhrabad	1969	1.432	0.867	0.5013	0.366	2.13	0.76	1.37
Feni	1981	0.132	0.080	0.0362	0.044	0.24	0.09	0.16
Habiganj	1963	3.66	1.895	0.5674	1.328	0.10	0.03	0.07
Kailastila	1962	3.65	2.529	0.1066	2.420	27.56	1.21	26.35
Rashidpur	1960	2.24	1.309	0.0817	1.229	4.00	0.11	3.89
*Sylhet	1955	0.44	0.266	0.1582	0.108	0.89	0.55	0.34
Titas	1962	4.13	2.100	1.3534	0.747	3.02	1.89	1.13
*Chatak	1959	1.90	1.140	0.0265	1.114	0.08	0	0.08
Beanibazar	1981	0.243	0.167	-	0.167	1.82	-	1.82

Begumganj	1977	0.025	0.015	-	0.015	0.0	-	0.01
Narshingdi	1990	0.194	0.126	0.004	0.122	0.3	0.01	0.30
Fenchuganj	1988	0.35	0.210	-	0.210	0.52	-	0.52
Jalalabad	1989	1.50	0.900	-	0.900	15.75	-	15.75
Kutubdia	1977	0.78	0.468	-	0.468	-	-	-
Meghna	1990	0.159	0.104	-	0.104	0.2	-	0.21
Semutang	1969	0.164	0.098	-	0.098	0.02	-	0.02
Shahbajpur	1995	0.514	0.333	-	0.333	-	-	-
Shangu	1996	1.137	0.798	-	0.798	-	-	-
Shalda Nadi	1996	0.20	0.140	-	0.140	0.42	-	-
Total		23.205	13.740	2.856	10.884	57.12	4.65	52.48

*Production suspended,++ Cumulative production up to December 1996

Source: Petrobangla.

However, there is a debate on the point of amount of the recoverable reserve of natural gas in Bangladesh. It is interesting to note that some of the non-government organizations (NGOs) and international funding agencies like the World Bank and Asian Development Bank (ADB) claim that, the natural gas potentiality of Bangladesh is much higher than the official figure given by the government. The table 2.1 shows the amount of natural gas reserve of Bangladesh (as of December 1996).

Hydroelectricity:
The hydel power resources in Bangladesh are located mainly in the eastern part of the country. It has been estimated that the maximum availability of electricity from the Kaptai project is 1,000 Gwh per year.3

Coal:
The coal reserve of Bangladesh is located in the western part of the country. Barapukuria region has an estimated amount of 300 million tonnes of coal, but the net recoverable reserve is said to be 70 million tonnes. According to one estimate, 1 million tonnes per year will be available from the year 2000.4

The potential reserves of primary commercial energy resources are shown in the Table 2.2. It is estimated that, the existing reserve source of commercial energy may not be adequate for the developmental needs of the country. In this context, it is also necessary to point out that in Bangladesh so far the exploitation of energy resources is neither comprehensive nor systematic. There are prospects for augmentation of resources through systematic surveys and explorations, for which investment by the public and the private sector is essential.5

Traditional Energy Sources:
Primary Biomass Fuels:
In Bangladesh, the biomass fuels are usually obtained from three main sources - trees (i.e., fuel-wood), field crops (e.g., agricultural residues) and livestock (e.g., animal dung). It should be

noted that the land is the ultimate resource base that supports the production of total biomass resources.6 Different types of land supplying biomass fuels are enlisted in table 2.3.

It has been estimated that, in 1995, different types of biomass fuels contributed 69.5% of the total energy consumed in Bangladesh. It is argued that, due to the socioeconomic considerations in the foreseeable future the biomass fuels are going to play an important role in meeting the need of the country, though their relative share in the total energy will be reduced.7

Table 2.3: Amount of different types of biomass fuels available in Bangladesh Type **Amount** Reserve Forests 5.41x106 acres (46% production)
Village forests 0.74x106 acres
Crop land 20.77x106 acres
Culturable wastes 0.62x106 acres
Current fallow 1.40x106 acres
Not available for cultivation 6.36x106 acres
Total 35.33x106 acres Source: Nurul Islam, "National Energy Policy of Bangladesh and Observations on Some Selected Policy Issues", a paper presented at the 20th Bangladesh Science Conference organized by Bangladesh Association for the Advancement of Science and BUET during November 20-30, 1998, p.7)

Energy available from the Animal Wastes:
The total cattle population of the country in 1989 was estimated to be 20.36 million heads out of which 56% was male and 46% female. The total estimated working population of the cattle was 12.33 million heads. 92% of the total working cattle was used for cultivation and 0.19% for transportation.8 The milch cows are used for the preparation of land to meet the shortage of the draught cattle. At present, the power tillers and tractors are also used to meet the shortage of animal draught power. The diesel fuel necessary for these devices is accounted for under the agricultural sector.9

Table 2.4: Present Installed Capacity (July 1998)

East Zone

Name of the Power Station	Unit	Unit Type	Type of Fuel	Installed Capacity(MW)
Karnafuli Hydro	1	Hydro	Hydro	40
	2	Hydro		40
	3	Hydro		50
	4	Hydro		50
	5	Hydro		50
Ashuganj	1	ST	Gas	64
	2	ST		64
	3	ST		150
	4	ST		150

	5	ST		150
	1	CTCC	Gas	56
	2	ST		34
	2	CT	Gas	56
Siddhirganj	1	ST	Gas	10
	2	ST		10
	3	ST		10
	4	ST		50
Haripur	1	CT	Gas	33
	2	CT		33
	3	CT		33
Ghorasal	1	ST	Gas	55
	2	ST		55
	3	ST		210
	4	ST		210
	5	ST		210
Shahjibazar	1-7	CT	Gas	96
Fenchuganj	1	CT	Gas	30
	2	CTCC		30
	3	ST		30
Sylhet	1	CT	Gas	20
Rauzan	1	ST	Gas	210
	2	ST	Gas	210
Sikalbaha	1	ST	Gas	60
	BMPP-1	CT		28
	BMPP-2	CT		28

Total East Zone2615

West Zone

Name of the Power Station	Unit	Unit Type	Type of Fuel	Installed Capacity(MW)
Khulna	1	ST	F Oil	60
	2	ST	F Oil	110
	BMPP-1	CT	SKO	28
	BMPP-2	CT	SKO	28
	1	CT	HSD	13
	2	CT	SKO	10
Bheramara	1-2	CT	HSD	40
	3	CT		20
Saidpur	1-2	D	F.Oil/LDO	11
	3	D	F.Oil/LDO	
	1	CT	HSD	20
Bogra	1-2	D	HSD	5
Thakurgaon	1-7	D	LDO	10
Barisal	1-7	D	HSD	8
Rajshahi	1-3	D	HSD	3

Barisal	1	CT	HSD	20
	2	CT	HSD	20
Rangpur	1	CT	HSD	20
Bhola	1-2	D	F.Oil	6
Baghabari	1	CT	HSD	71

Total West Zone503
Grand Total3118
Source:'Emergence of Power Grid Company of Bangladesh LTD: Tasks Ahead', A.N.M.Rizwan and N.G.Saha in the *Proceedings of the Regional Workshop on Improving the Availability of Power in South Asia-Search for Optimal Technological Options*, FEISCA, Dhaka,1998, p.33-34.

The Renewable Energy Sources of Bangladesh - Mini Hydel power
Wind and Solar Energy:
According to a report of the Working Committee on Mini-hydel Power Generation in Bangladesh, there is a potential for producing 10 Gwh of electricity per year.10 It has to be mentioned here that, a Chinese Mini Hydropower Study Team submitted a report in 1985, where it was recommended that, three sites viz., Madhab at Sylhet, Mahamaya at Chittagong, and Swalek in the CHT could be developed with 2.3 Gwh electricity generating potentiality per year.11 However, the Government of Bangladesh has not carried out any detailed feasibility study so far. The prospects of the other renewable energy technologies, such as, the wind generator, solar heater, solar PV unit, and the prospects of tidal power and sea-wave power are to be assessed with reference to the specific end-uses and locations.

Power Generation, Distribution and Consumption:
During the last 50 years, the installed capacity of electric power plants increased from 21 MW in 1947 to 3091 MW in the late 1997.12 However, as many of these plants are outdated and have not been maintained properly, they are hard to be operated any more. Moreover, the essential routine maintenance could not be carried out because of the acute shortage of power in Bangladesh.
It is interesting to note that, though the BPDB (Bangladesh Power Development Board) has an installed capacity of 3118 MW (Table 2.4), it could produce a maximum of only 2215.8 MW of electricity against a demand of 2300 MW. As a result, power cut is a regular phenomenon in Bangladesh.

On the basis of the current electricity usage pattern in Bangladesh, it has been estimated that, 1% growth of the GDP of the country would require 2-2.5% growth in electricity generation. At present, the gross energy shortages on an overall basis are more than 10% and, the deficit during peak hours is about 15%. During the past decades, especially during 1991-96, the growth rate of electricity generation in Bangladesh has remained much lower than its demand.13 Table 2.5 shows the increase in primary energy consumption during the past two years.

So far as the consumption of natural gas in Bangladesh is concerned, the present production of natural gas under the initiative of Petrobangla/Cairn exceeds 860 million cubic feet per day, with about 46% of the share being used for generation of electricity, and 35% for the production of fertilizers. According to the Power System Master Plan (PSMP,'95), the total cumulative natural

gas consumption for generation of power alone over the last 20-year period would be around 4.5 TCF. It has been estimated that, per year the natural gas consumption would be 0.225 TCF.14

Table 2.5: Bangladesh's Primary Energy Consumption

Energy source	1987 '000 TOE	%	1990 '000 TOE	%	1993 '000 TOE	%	Growth per annum 1987-1993
Oil	1,672	32.8	1,925	28.4	1,927	27.3	2.4
Coal	162	3.2	388	5.7	39	0.5	-21.1
Gas	3,095	60.7	4,176	61.6	4904	69.4	8.0
Hydel power	168	3.3	288	4.3	198	2.8	2.8
Total	5,097	100	6,777	100	7,068	100	5.6

Source:*Electric Utilities Data Book for the Asian and Pacific Region*, ADB, Manila, 1996, p.56

At present, the total installed capacity of electricity generation in Bangladesh is nearly 3200 MW. Out of this, much come from the thermal power plants constructed during the 1960s-1990s. These plants are mostly run with gas and oil (nearly 84%) except the 230 MW capacity hydroelectricity power plant at Kaptai.

It is worth mentioning here that the indigenous energy sources like the natural gas and hydropower are used for generating power in the eastern part of Bangladesh and imported petroleum fuels are mostly used in the western part. In order to minimize the fuel cost of power generation, the electricity generated in the eastern part is transmitted to the western part through an east-west inter-connector of 230 KV line established in 1982. It was decided that a second inter-connector would be installed by 1992-93 in order to ensure adequate supply of power in the western part.15 The capacity of the existing interconnection, which is a 178 km. long, 230 KV double-circuit transmission line between Ghorashal and Ishurdi, is about 450 MW.16

The BPDB's transmission and sub-transmission system comprised 821 circuit-kilometres (cct-km.) of 230 KV lines, 3,781 cct-km. of 132 KV lines and 167 cct-km. of 66 KV lines. The transmission capacity increased from 1,955 MVA in 1985 to 6,718 MVA in 1993.17 It may be noted that, while the primary distribution is at 33 KV, the secondary distribution is at 11 KV and 0.4 KV lines. Some of the 11 KV lines are supplied directly by 132 KV/11 kv transformers. By the end of 1993, the distribution system comprised about 8,531 cct-km. of 33 KV lines and 31,235 cct-km. of 11 KV lines.18 Moreover, the multipurpose Bangabandhu bridge constructed recently to connect the east and west of the country would accommodate a 30" dia high pressure gas pipe and the 132 KV double circuit power transmission line has already been built along the bridge. Therefore, the gas-based power generation is possible now in the west.19 (See map 2.2)

Despite these silver linings, so far only 16% of the entire population of Bangladesh havs access to electricity. To increase the rate of electrification and to cover up the power deficit, a substantially large amount of new capacity has to be created at the rate of 300 MW per year up to 2005. During 1996-1998, there was about 310 MW generation addition, out of which 210 MW at

Raozan and 100 MW at Khulna have been installed. By the mid-1999, it is expected that, another 430 MW capacity would be added. For this, 210 MW electricity would be generated at Ghorasal and 220 MW would be added to the system at Khulna.20

Institutional set up:
The Ministry of Energy and Mineral Resources (MEMR) of Bangladesh has the overall responsibility for the energy sector. At present, the three state-owned agencies under the MEMR are responsible for the development of electricity in the country. These are: i) The Bangladesh Power Development Board, (BPDB) which is responsible for the generation and transmission of power in the country and its distribution in the urban areas except the area under Greater Dhaka.

ii) The Dhaka Electricity Supply Authority, (DESA) which is responsible for the distribution of electricity in the Greater Dhaka area including the metropolitan city of Dhaka, and

iii) The Rural Electrification Board, (REB) which is responsible for the distribution of electricity in the rural areas.21
The Government of Bangladesh approved the creation of two new executing agencies on September 18, 1996, in order to enhance the efficiency and competition in the power sector. It was decided that, the Powergrid Company of Bangladesh (PGCB) would look after the transmission of power in the country, and the Dhaka Electric Supply Company (DESC), would be responsible for the distribution of electricity in the Dhaka metropolitan area.22

System Losses:
The high system losses have been a serious and continuing problem for the BPDB and DESA. During the year 1980 and 1981, the total system losses were approximately 35% of the gross generation, which reduced to 31% in the year 1986. Between 1987 and 1992, the system losses increased by more than 40%. Accordingly, an emergency plan was introduced to reduce such system losses. As a result, the system losses came down to 37.2% in 1993.23 At present, the overall power system loss is around 34.90%.24

A portion of this loss is technical in nature, and it is due to the transmission and distribution loss, which includes auxiliary use in the generating plants. The reduction of technical loss depends on huge investment for the up-gradation and reinforcement of transmission and distribution network with efficient devices. On the other hand, the non-technical loss is due to the illegal electricity connections, improper billing, inadequate metre-reading and pilferage.25 The loss of BPDB is around 21% of the gross generation and this figure does not include the loss incurred by the DESA; and that of the DESA and REB is 28% and 16.4% respectively.26 It should be noted that, the BPDB and DESA have already taken steps to reduce their non-technical loss by establishing high-level organizational unit for monitoring system loss.

In a nutshell, the power sector in Bangladesh has been facing two major problems over the years. Over and above the non-technical loss, the deficit in power supply is leading to frequent power-cuts, especially during the peak-hours in the evening.

Demand and Supply Scenarios:
As against an estimated peak demand of 2,460 MW, by the end of the 4th Plan period (June 1995) the actual generation of electricity was only 1,970 MW. This indicates a gap between the demand and supply of electricity in Bangladesh. It is important to note that, unlike many commodities, electricity cannot be stored for future use. It must be generated and supplied instantaneously to meet the demand. This imposes heavy pressure on the power supply for a specific period, known as the peak hours. As the power generation in Bangladesh during the peak hours can hardly match the relatively high demand of these hours, severe power-cuts take place. The demand for power varies between summer and winter (due to variations in household demand for electricity), as also between day and night. The variations in demand between day and night are often in the tune of 400-500 MW. (The projected maximum demand is expected to be 3,447 MW for the year 1999-2000, 3,736 MW for 2000-2001 and 4,051 MW for 2001-2002 respectively.)

The Current Options and Reference Options are the two supply options, which have been proposed to meet the commercial energy demand. It is mentioned in the National Energy Policy (NEP) of the country that, the implementation of current options would lead to strains on the economy by the sharp increase in energy import bill27 (See tables 2.6 and 2.7).

Table 2.6: Demand Supply Balances of Current Option (in Peta Joule)

Description	1990	1995	2000	2005	2010	2015	2020
Demand							
Low Scenario	256.0	342.0	512.0	769.0	1025.0	1537.0	2050.0
Ref. Scenario	256.0	362.0	531.0	827.0	1314.0	1979.0	3055.0
Indigenous Supply							
Natural Gas	168.84	262.31	366.83	366.83	366.83	366.83	366.83
NGL&LPG	1.56	2.97	7.27	7.27	7.27	7.27	7.27
Oil	1.0	0.0	0.0	0.0	0.0	0.0	0.0
Coal	0.0	0.0	27.0	27.0	32.4	32.4	32.4
Peat	0.0	0.0	0.0	0.8	0.15	0.15	0.15
Hydro	11.43	11.43	11.43	14.43	14.86	14.86	14.86
Sub Total	181.83	276.71	412.53	412.60	412.51	412.51	412.51
Deficit in PJ							
Low Scenario	74.17	65.29	99.47	356.40	612.49	1124.49	1637.49
Ref. Scenario	74.17	85.29	118.47	414.40	901.49	1566.49	2642.49
Deficit in MTOE							
Low Scenario	1.74	1.53	2.32	8.34	14.34	26.33	38.34
Ref. Scenario	1.74	1.99	2.77	9.70	21.11	36.68	61.88

Source: Bangladesh Gazette: National Energy Policy, Ministry of Energy and Mineral Resources, Government ofthe People's Republic of Bangladesh, Dhaka, January 1996, p.339

Table 2.7: Primary Energy Mix for Power Generation (figures in GWh)

Type	1990	1995	2000	2005	2010	2015	2020

Total Generation							
Low Scenario	8207	11584	18315	26063	30994	46491	61998
Ref. Scenario	8207	12280	18971	28060	39750	59858	92402
Gas	7285	10500	15000	15000	15000	15000	15000
Coal	0	0	1030	2000	2000	2000	2000
Hydro	800	800	1000	1000	1300	1300	1300
Total generation from indigenous fuel	8085	11300	17030	18000	18300	18300	18300
Deficit+							
Low Scenario	122	284	1285	8063	12694	28191	43698
Ref. Scenario	122	980	1941	10060	21450	41558	74102

+To be generated by imported fuels.
Source: Bangladesh Gazette: National Energy Policy, Ministry of Energy and Mineral Resources, Government ofthe People's Republic of Bangladesh, Dhaka, January 1996, p.340

Bhutan:
Despite the fact that Bhutan has not really opted for the path of large-scale industrialization, its per capita energy consumption is relatively high. This is mostly due to the abundance of forest resources. It should be noted at the very outset that, the fuel-wood accounts for about 75% of the total energy consumption of Bhutan. Out of the total fuel-wood consumption, the household sector uses 95%, the government and commercial sectors use 3%, the agricultural sector 0.9%, and the industrial sector uses only 0.7%.28

Bhutan has no oil or gas, and all the petroleum products necessary for the country are imported. In 1994, the petroleum products accounted for 9% of the total energy consumption.29 About 60 bio-gas plants of Bhutan produce energy for the purpose of lighting.30 It may be noted that, the electricity was first introduced to Bhutan in 1960 when the diesel-generating sets were installed there. Again in 1966, another diesel-generating power plant with 256 MW installed capacity was established in Phuentsholling.

Hydel-power:
The four major rivers of Bhutan, namely, the Torsa, Sunkosh, Wangchu and Manas, from the west to east, have a total energy generation potential of 40.4 billion KW. In addition, micro and mini projects on the smaller rivers and minor tributaries could contribute as much as one billion KW.31 The theoretical potential for power generation has been estimated at 20,000 MW, of which 50% is considered to be economically viable. At present, there are 21 micro and mini hydel power plants, out of which 8 mini hydels were built with the Indian technology and assistance. These hydel power plants consist of the Chukha hydel power station with an installed capacity of 336 MW, mini hydel power plants ranging from 300 KW to 1,500 KW, and micro hydel plants with capacities ranging from 20KW to 200 KW. These power plants supply electricity for the domestic consumption and small-scale industries in different districts. Thus, they have played an important role in the socioeconomic development of the country.

Through the commissioning of the Chukha Hydel Power Project in 1988, Bhutan could harness her vast water resources for the first time. The Project also became a symbol of the Indo-Bhutanese cooperation. The Chukha Hydel Power Corporation (CHPC) started with a generating capacity of 336 MW of power. In a press statement, Lyonpo Dawa Tsering, Chairman of the Chukha Project Authority, stated in February 1987 that, out of the four turbines in Chukha, the last two, each with a generating capacity of 84 MW, would be commissioned by March 1988. The surplus power generated from these last two turbines is being supplied to India. The power sold to India by this project is distributed among the several neighbouring provinces of India. West Bengal, Bihar, Orissa and Sikkim are already receiving power from the Chukha plant. It has been reported that, 25% of the power supplied to India goes to the Damodar Valley Corporation (DVC), 5% is unallocated and is at the disposal of the Government of India.32

The CHPC has given a tremendous boost to the economy of Bhutan. It is one of the major revenue earners for the Royal Government of Bhutan. The CHPP has also played a dominant role in achieving self-reliant and sustainable economic growth of the country.
The Power System Master Plan (PSMP) study was conducted in Bhutan during 1990-1993. The Study has identified 91 potential hydel-power sites with 10 MW capacity each. But this may not be the accurate figure because there are many remote places where such a survey for the study could not be conducted on account of inaccessibility. According to the recent data, the techno-economically exploitable hydel-power in Bhutan is over 16,280 MW.33

According to the recent report of the CHPC, it has earned total gross revenue of Nu. 2460 million in October 1993, which is equal to the total investment of the project. In the year 1997, it earned gross revenue of Nu. 1503.37 million, and thus it earned a net profit of Nu. 1213.80 million and Nu. 849.66 million, before and after paying corporate tax respectively. In fact, during the Seventh Five year Plan of Bhutan, the power sector accounted for some 25% of the government revenue.

According to the Eighth Five Year Plan (1997-2002) Report, published by the Ministry of Planning, Royal Government of Bhutan, in 1996, the annual domestic consumption of electricity increased from 216.455 Gwh at the end of the Sixth Five Year Plan, to 340.773 Gwh by the middle of 1995. The distribution network also increased, and this led to the increase in the number of consumers from 19,626 to 29,000. At present, there are 23 hydel-power generating stations with an installed capacity of 344 MW along with 13 MW diesel-generating sets. The commissioning of the CHPC during the Seventh Five-Year Plan further added 20 MW to the overall generation capacity. Table 2.8 displays the trend of national power generation during the years 1990-95 in Gwh.

Table 2.8 : National Power Generation Data during 1990-95
in GWh (in million units)

Source	**1990-91**	**1991-92**	**1992-93**	**1993-94**	**1994-95**
Mini hydel	6.619	7.364	5.046	5.488	5.880
Micro hydel*	0.876	0.876	1.445	2.015	2.015
Chukha hydel	1542.408	1554.37	1677.812	1679.239	1623.31

Diesel power	0.046	1.315	3.059	1.085	1.069
Total generation	1549.949	1563.925	1687.362	1687.827	1632.878

*Estimated at 25% average plant use factor

Source : Eighth Five Year Plan Report (1997-2002), Ministry of Planning, Royal Government of Bhutan, 1996, p. 146

The western part of the country comprising Chukha, Thimpu, Paro, Haa, Wangdiphodrang and Punakha, are receiving electricity from Chukha. With the construction of the CHPC, these Dzongkhas could have immense economic benefits. The commissioning of the 2.2 MW Rangjung hydel project with the help of the Australian government, could make a provision for additional electricity for the urban and rural areas in Trashigang and Yangtse Dzongkhas. It covers seven gewogs and gives electricity to more than 3,000 consumers.

Bhutan's main advantage in generating hydel-power at cheap cost is the possibility of run-of-the river schemes which does not need big reservoir dams. It should be worth mentioning here that, in almost all the cases, the construction of high, big dams lead to displacement of people and environmental and ecological disorders. Bhutan is free from the fear of displacement not only because Bhutan is sparsely populated, but also for the run-of-the-river schemes. The hydel power is a renewable resource that is likely to last as long as the snow and rain continues on the Himalayas. The Royal Government of Bhutan has requested the Government of India to prepare a Detailed Project Report (DPR) on the Bunakha Hydroelectric Project and Sunkosh Hydro Power Project keeping in view the importance of harnessing the hydel-power potential of the country. This is in addition to the feasibility studies of four perspective mini hydel-power sites.

There are six important hydel-power projects in Bhutan, which are under construction. Out of these six, two plants namely the Kurichu and Basochu projects together will have the capacity to generate about 105 MW power by the year 2000. (For the details of these projects see Table 2.9.).

Table 2.9: Hydroelectric Projects (under construction)
during the Eighth Five-Year Plan

Project	**River**	**Installed Ultimate Capacity**	**Estimated cost (in million Nu.)**
Tala	Wangchu	1020 MW	15500
Bunakha	Wangchu	180 MW	9000
Wangchu	Wangchu	900 MW	12000
Sankosh Multipurpose	Sankosh	4060 MW	–
Kurichu	Kurichu	45 MW	3100
Basochu	Basochu	60.8 MW	–

Source:Based on the interviews of leading technical experts in Bhutan.

1) The Kurichu hydroelectric project (45 MW) and Basochu hydroelectric project (60.8 MW) will be commissioned around the middle of the Eighth Five-Year Plan. The construction work for these projects has already started. The Kurichu hydroelectric project will provide 45 MW of power with a provision for future addition of another 15MW. It will facilitate economic activity in the five eastern Dzongkkhags and also the construction of Dungsum cement project at Nanglam. It is being built with the assistance of India.

2) The Basochu project will produce 291 KW of power and increase the reliability of power supply to the Dzongkhags in the western part of the country.

3) Another important hydroelectric project under construction is the Tala hydroelectric project on the river Wangchu, with an installed capacity of 1020 MW and estimated cost of Nu. 15500 million. The DPR of the Tala project has been completed by the year 1994, and the Tala Hydel Project Authority has also been established to execute the project. The agreement for financing, power purchase and project implementation has already been signed with the Government of India in 1996 during His Majesty's visit to New Delhi. This project will generate 3962 KW of power per annum and after 2003, it will be one of the biggest power plants in the country. All the surplus power from this project will be exported to India. It is expected that, the availability of such surplus power will meet the power shortages in the eastern and northeastern part of India. In turn, the sale of surplus power from the project will generate substantial revenue for Bhutan.

4) The Bunakha Reservoir Scheme project on the river Wangchu is also ready for implementation in the Eighth Five-Year Plan. It is expected that this scheme would be commissioned during the course of the Ninth Five-Year Plan. The estimated cost for this project is Nu. 9000 million. According to the DPR, it will generate 688 KW of electricity annually, and contribute 101 KW of additional energy to the existing Chukha Hydel project.

5) The Wangchu Reservoir scheme, will have an installed capacity of 900 MW at an estimated cost of Nu. 12000 million. The DPR for this scheme has already been submitted.

6) The Sunkosh Multipurpose project will have an installed capacity of 4060 MW. Besides power generation, this project will help India in many ways like controlling flood, and improving irrigation and navigation facilities. The DPR for this project has been already submitted.

While the above mega projects are designed mainly for export, two small hydropower projects - Lhuntse Small Hydel Project (1 MW) and Panbang Mini Hydel Project (200 KW) will also be constructed for the local domestic supply and distribution to neighbouring Dzongkhags.

Transmission and Distribution:

The power transmission and distribution system in Bhutan comprises three components:

a) an interconnected grid supplying the Thimpu and Phuentsholling areas, fed from Chukha and the other power plants in these areas, and connected to the Indian grid for power exports from Chukha.

b) Local networks from India - Samdrupjongkhar and Geylegphug Electric Supply Units (ESUs)

by the Assam Electricity Board and the Samchi area of the Phuentsholling ESU served by the West Bengal State Electricity Board, and
c) Isolated local networks such as Bumthang and Tashigang ESUs34

According to the Eighth Five-Year Plan Report, the construction of 40/20 MVA, 220/66/11 KV substation at Semlokha and 50/20 MVA, 132/66/11 KV substation at Gelephu was completed with the assistance of the Government of India. The construction of a 20 km. 66 KV line between Lobesa and Basochu which is to be completed during this Eighth Five-Year Plan. This line will be connected with the Basochu Hydropower project and will evacuate power from Basochu stage 1 (22.2 MW) to feed into the existing grid to Lebosa.

Similarly, under the Eastern Grid Plan, for evacuation of Kurichu power, a 132 KV transmission line from Gyelposhing to Naglam and a 66 KV line from Gyelposhing to Tashigang via Mongar and Pemagatsel to Deothang, are to be constructed. Map 2.3 shows the proposed hydropower projects and transmission grid of Bhutan.

A study report states that the construction of a 35 km. 220KV line between Basochu and Semtokha substations is feasible and the Government of Japan is willing to grant assistance.

In Thimpu, numerous substations and underground cables are upgraded to meet the demand for power. There has already been constructed an 11 KV line between Gelephu and Sarpang and 33 KV line between Gomtu and Samtse (see map 2.4). The sub-transmission and distribution programme funded by the Government of India brings electricity to Pemagatshel.
The rural electrification scheme achieved over 80% of its target in the Seventh Five-Year Plan, despite financial delays, the Eighth Five-Year Plan reports. The Governments of India and Netharlands gave the assistance. It is expected that, the remaining villages will be served in the Eighth Five-Year Plan. This scheme invisages the grid extension, construction of micro/mini hydels and, in some cases, photovolatic panels to provide electricity to 5000 rural households.35

Solar Energy:
Solar energy has already been accepted as a pragmatic alternative to the conventional fuels for a range of uses. By the end of the Seventh Five-Year Plan, there were 1316 photo-voltaic panels throughout the country which distribute light to schools, monasteries and basic health units in the remote areas and even to remote animal husbandry farms. total of 46 sets of photo-voltaic panels were distributed to the public institutions in Gasa Dzongkhag.

Fuelwood:
Fuel-wood remains till today the major source of energy for lighting, heating and cooking in the rural areas of Bhutan and it constitutes more than 75% of the total energy consumption in the country. According to the Eighth Five-Year Plan Report, per capita consumption of firewood is 1.2 ton in Bhutan. In order to minimize the fuel-wood consumption, extensive rural electrification has been already launched.

System Losses:
The system losses were 29.1% in 1984 out of the total gross generation plus imports from India. Gradually these losses were reduced from 29.1% to 22% in the year 1986, and during 1994 it

came down to 11.1% approximately. It was mostly due to the improvements in transmission and distribution networks and the implementation of strict control procedures for metres.36

Bhutan has a rich hydel power potential as its territory is crisscrossed by the mountainous rivers. Bhutan has not opted so far for large-scale industrialization. Therefore, her industrial demand for electricity is negligible. Bhutan's household demand for electricity is also quite low. In such a scenario, Bhutan is in a position to export her surplus hydelpower (which is both cheaper and cleaner than any other kind of electricity) to her neighbouring countries. As of now, Bhutan is supplying power to the adjoining areas of India and earning a large amount of revenue in the process. Additional export of electricity by Bhutan to India and other neighbouring countries could meet the demand of the latter as well as add more money to the exchequer of the former. However, the inadequacy of capital, skilled manpower and advanced technology has not so far allowed Bhutan to live up to her own expectations so far as the generation and export of electricity are concerned.

Road to Cooperation in the Energy Sector

It is clear from the discussions in the earlier chapters that, the South Asian sub region comprising Bangladesh, Bhutan, Northeastern and Eastern parts of India and Nepal, has several commonalities in terms of energy use. All these states have not only low level per capita energy consumption, but also high load growth and shortage of power, in general, and have experienced high level transmission and distribution losses. It may be noted that, though these states have plenty of natural resources, they are facing acute shortage of power. This shortage can be referred to as the energy crisis of this subregion.

Against this backdrop, this study intends to review several initiatives that have been taken in this subregion to achieve cooperation in the energy sector in the last few years. These initiatives are of two types - bilateral and multilateral. The bilateral power exchange programme has been operationalized between India and Bhutan in a large scale and between India and Nepal to a limited extent. Apart from exporting the excess power to India, these states also buy electricity from India in order to electrify some of their bordering areas, which are not connected with their National Grids.

Interconnection between India and Bhutan:

Since the commissioning of the Chukha Hydroelectric Power Project in Bhutan generating 336 MW of electricity everyday with the financial and technical assistance of India, both parties have witnessed the mutual beneficiality of power trade. Through the development of this project, Bhutan has also benefited in a big way in meeting its requirements through low cost power and earning through export of power to India. On an average, India imports power from this project to the tune of 1400 million Kwh per annum by which Bhutan earns a revenue of about Rs.140 crore.1 According to a report, in 1996, the Chukha power station generated 1906.874 million Kwh of electricity, which was the highest generation achieved since the CHPP was commissioned. The export of power to India was also the highest annual export so far which was 1495.818 million Kwh for that year.2

The power sold to India by the CHPP is distributed among several neighbouring Indian states of Bhutan namely, West Bengal, Bihar, Orissa and Sikkim. It has already been highlighted that about 25% of the total power supplied to India from the CHPP goes to the Damodar Valley Project, and the balance part is distributed among the states of Eastern India.

It is expected that the work on the Tala hydroelectric project, which will have an installed capacity of 1020 MW, would further boost the friendship and cooperation between India and Bhutan. For developing this power project, an interconnection with the Indian Grid, which can give the requisite market for power generated in Bhutan world be necssary. At present a 400 KV transmission line has already been planned to supply power from the Tala project to Birpara/Siliguri in West Bengal in the Indian Grid. For further transmission of power from Birpara/Siliguri high capacity transmission networks are being considered in North Bengal.3 It may be remembered in this connection that an additional 132 KV link already exists between Bongaigaon of India and Gaylegphug of Bhutan.4

Interconnection between India and Nepal:
Similarly, the power exchange across the Nepal-India border started for the first time in early 1972. The initial quantity of power exchanged between the two countries was 5 MW at a fixed price. This exchange of power has subsequently been increased. As a result, the import from India shot up to 14 MW and the export to India to 7 MW. Influenced by the World Bank, both parties agreed in 1988-89 to increase the power exchange to 50 MW. However, technical and supply constraints on both sides have prevented the trade from reaching the desired level so far.5

The Potential projects like Pancheshwar with capacity of about 6000 MW would be developed to export power to India, which needs special institutional and financial assistance. The other projects which are being considered for development and exporting power to India are West Sati (750 MW) and Arun Hydroelectric Project (685 MW). To transmit power from these projects 765/400 KV lines are being constructed which would terminate at suitable locations.6

As of now, most of the power exchanged between Nepal and India is through the interconnection lines, two at 132 KV level and 14 others at 33 KV and 11 KV levels. Both these 11 KV and 132 KV lines are used to connect the Gandak power station with the Bihar State Electricity Board (BSEB). An additional 132 KV line from Tanakpur of India to Mahendranagar of Nepal is under construction.7 One point to be noted here is that, till now the Nepalese and the Indian power grids are not directly interconnected at any point. The exchange of power between the two countries is mainly handled by the local operational organizations in isolated areas.8

Multilateral Initiatives:
The initiatives taken at the multilateral level can further be subdivided into two categories – initiatives taken by the South Asian states on their own and the initiatives taken by the South Asian states due to some external factors. Both types of initiatives have been taken in South Asia in recent times.

Among the initiatives taken on multilateral cooperation in the energy sector in South Asia, the one by the Federation of Engineering Institutions of South and Central Asia (FEISCA) is significant. In collaboration with the Institute of Engineers, Bangladesh (IEB), FEISCA organized a two-day workshop on Improving the Availability of Power in South Asia: Search for Optimal Technology Options, at Dhaka on August 7 and 8, 1998. Most speakers at this workshop observed that the countries in South Asia would benefit immensely by sharing their energy resources.9 This workshop also highlighted the importance of setting up a Regional Power Grid. The Dhaka Declaration, released at the end of the Conference, suggested the creation of a SAARC Power Grid to ensure quality power supply in the region (see map 3.1). It also indicated that, “this new spirit of cooperation would help to resolve not only the power supply situation and the infrastructure development but also catalyse the economic resurgence of the region.”10 It was reported during the workshop that the Power Grid Corporation of India Limited had already completed a feasibility study on the exchange of 150 MW electricity between Bangladesh and India, and India at the following two intersection points:

i) between Farakka of the Eastern region of India and Isharwadi of the west zone of Bangladesh, and
ii) between Shahjibajar of east zone of Bangladesh and Kurnaghat of the NorthEastern region of

India.
iii) Although it was not the first and the only initiative to promote subregional cooperation in South Asia, this workshop can be considered a major step toward such cooperation in recent times.

Similarly, the World Bank, impressed with the ASEAN experience of Growth Triangle, has also expressed its eagerness to support a similar cooperative venture in South Asia. It may be recalled that the scheme of "growth triangle" of the ASEAN involves three geographically close regions of the three member-countries to achieve economic complementarity. Under the banner of growth triangle, three major initiatives have been taken. First, the 'Southern Growth Triangle', the oldest one, involves Rian of Indonesia, Johor of Malaysia and Southern Thailand. Secondly, there is the 'Northern Growth Triangle', which links the northern tip of Sumatra with the northern peninsula of Malaysia and Southern Thailand. Finally, there is also the 'East ASEAN Growth Area (EAGA)', which roughly involves the Southern Philippines, the Indonesian islands of Sulawesi and Maluku, Sarawak and Sabah in Eastern Malaysia and the Sultanate of Brunei.11 This scheme of growth triangle of the ASEAN has influenced the World Bank to promote the 'South Asia Development Triangle' (SADT). The proposed project has emphasized a programme of transboundary development cooperation. It may be noted that the geographical proximity is an important criterion in initiating a process of subregional groupings. Therefore, the World Bank has suggested a basin-wise cooperation encompassing most of the Ganga-Brahmaputra-Meghna basin, and it covers the Eastern and the NorthEastern parts of India, Bangladesh and Nepal.

The Asian Development Bank (ADB) has also viewed the subregional cooperation in South Asia from an optimistic perspective. According to the ADB, the "dividend of effective cooperation in this region is beyond imagination." It has also mentioned that, there is tremendous potential for such cooperation in the generation of hydropower and preparing other infrastructures. However, the ADB's definition of subregionalism is slightly different from that of the World Bank. The ADB has emphasized on a 'growth quadrangle' instead of a 'growth triangle', comprising Bangladesh, Bhutan, Nepal and NorthEastern and Eastern parts of India.

Perhaps a success story of the Mekong subregion in Southeast Asia since 1992 has influenced the ADB to promote the idea of a similar type of subregional cooperation in South Asia. In this context, a brief look at the Greater Mekong Subregion (GMS), named after the Mekong River, may help us to appreciate the significance of such cooperation. The GMS comprising Cambodia, Laos, Myanmar, Thailand, Vietnam and the Yunnan province of the People's Republic of China (PRC), covers a land area of 2.3 million square kilometres with a population of almost 230 million (as of 1996). Within the GMS, there are evidences of sharing of borders, natural resources and, of course, people-to-people interactions. (See map no. 3.2)

The economic cooperation within the GMS started in an informal and limited way. Initially, it took place bilaterally. In order to restore peace in the subregion and also to speed up the market-oriented economic reforms in Cambodia, the PRC, Laos, Myanmar and Vietnam, opportunities for large-scale comprehensive cooperation were created. Here the ADB (Asian Development Bank) played a very crucial role. As a development finance institution aiming at the promotion of regional cooperation and development among its developing member-countries, the ADB has played the role of a catalytic agent in the GMS initiative. Thus, the GMS has emerged as an

informal grouping of the neighbouring countries with specific activities within the framework of existing relationships. With the assistance of the ADB the six member-countries of the GMS entered a new phase of economic cooperation in 1992.

From the very beginning of its journey, the GMS has some unique features in its decision-making structure. This cooperation programme is based on the initiatives taken by the member-countries. The major decisions have been adopted through the 'subregional consultations', both at the ministerial as well as the bureaucratic levels. Usually, a series of ministerial conferences lead to the formation of agreements in concerned sectors for cooperation. These agreements mainly highlight three major requisitions: first, to fix criteria for setting priorities among the projects; secondly, to ascertain the priorities of different subregional projects and initiatives; and thirdly, to establish the institutional arrangements without which these cooperative initiatives cannot be implemented.
Seven priority sectors, viz., transport, energy, telecommunications, environment, human resource development, trade investment and tourism have initially been identified. The GMS attaches importance to the making of Master Plans on the basis of sectoral studies for every priority sector. It is believed that, in the absence of such Master Plans, it would be difficult to implement the concerned initiatives in a fruitful manner. At the very outset, the GMS has taken up the sectors of infrastructure and energy to facilitate economic cooperation. In the energy sector, altogether twelve subregional projects have been prioritized. Out of these, eight are in the areas of power generation and transmission, two in the hydrocarbon sub-sector and the rest are in the area of institution-building.

These subregional energy projects are as follows:

Power Generation and Transmission:
1. Xe kong and Se San Basin Hydropower Development Project in Cambodia, Laos and Vietnam including the transmission interconnection among them.
2. Nam tha Hydropower Project in Laos including the transmission interconnection with Thailand.
3. The transmission interconnection with Thailand of the Jinghong Hydropower Project in Yunnan province.
4. Nam Theun Basin Hydropower Development in Laos, including the transmission interconnection with Thailand and Vietnam.
5. Thanlwin Basin Hydropower Development in Myanmar and Thailand, including the transmission interconnection between the two countries.
6. Theun Hinboun Hydropower Project in Laos including the interconnection with Thailand.
7. The immediate Interconnection of the existing power systems.
8. The long-term subregional generation and transmission system development.

Natural Gas Transmission:
1. Yadana-Bangkok (Myanmar-Thailand) gas pipelines project.
2. The planning and preparedness for emergency response to the marine oil and hazardous substance pollution.

Institution-Building:

1. The establishment of an electric power forum for the GMS.
2. The strengthening of the legal and institutional planning and framework for effective water management.12

Therefore, appropriate lessons could be learnt for South Asia from the success story of the GMS. The proposed subregional cooperation in South Asia could be initiated either on the basis of 'basinwise cooperation', or cooperation within 'growth triangle', or within 'growth quadrangle'. Mr. Horayangaputra, the then ADB Chief of Mission in Dhaka in 1997, argued that the ADB and other co-financiers had already funded a hydroelectric power project in Laos to meet the electricity demands of Thailand, and other member-states of the subregion. He said that the ADB would like to help the South Asian region in the same way.13 Mr. Horayangaputra is optimistic about the cooperation between Nepal and India's NorthEastern state of Meghalaya, which has the potentiality to produce about 50,000 MW of hydro electricity. The ADB has already funded a technical assistance project to facilitate the commercial arrangements in electricity sharing between Bangladesh and India. The ADB tends to view that, "Bangladesh could become a financial hub of the subregion if its ports were developed and opened to cater to the needs of the landlocked Nepal, Bhutan and the seven NorthEastern states of India."14

The ADB also organized a three-day South Asian Summit on National Gas Potential during March 19-21, 1995. The focus of that summit was on broad themes of policy pricing, institutional, technological and contractual issues related to the regional trade on natural gas. The summit provided an opportunity to discuss the emerging issues and develop approaches for future development. It also facilitated discussions on maximizing gas transmission efficiency, determining institutional measures needed, identifying the barriers to import of natural gas, developing security of supplies and making financing agencies more responsive to the needs of the borrowers. These issues are of pivotal concern to the future economic development of South Asia.

The summit also assessed the structure, economy, and logistics of regional gas transportation. The discussions involved both policy and practical issues. During the first day of the summit, the issues such as, 'Role of Natural Gas in the Economic Development of South Asia', 'Role of Private Sector and Multinational Institutions in South Asia Natural Gas Development', were discussed. Day two brought the issues like 'Future Natural Gas Pipelines for South Asia', and 'Supply Options of Natural Gas to South Asia'. Finally, a panel of experts reviewed the deliberations over the two days, and provided a summary and the conclusions.15

It may be noted that the idea of subregional cooperation has a great impact on the minds of the South Asian decision-makers. They have started to believe that they can also replicate the ASEAN model of subregional cooperation. At the official level, the South Asian subregionalism has already received the initial momentum from a few steps taken by the governments of Bangladesh, Bhutan, India and Nepal since 1996. The decision-makers of these states have identified several projects which can be viewed as the 'priority subregional projects'.

The meeting of the four concerned Foreign Secretaries at Kathmandu in January last year has also lubricated the process of subregionalism in South Asia. Accordingly, the concerned states

are expected to present their Detailed Project Reports (DPRs). Bangladesh is still preparing the project papers on two areas – harnessing the natural resources and energy. Nepal is doing it on transport and tourism and Bhutan on environment. India is expected to submit the project papers on trade and investment. On the basis of these DPRs, the 'master plan' for each priority project can be drawn. As Bangladesh is yet to prepare its report on energy, the whole process of proposed energy trade is still on hold.

It appears that the governments of this subregion are keen to develop a process of mutual cooperation. Several non-governmental organizations (NGOs), like the Dhaka-based Bangladesh Unnayan Parishad (BUP) and the Centre for Policy Dialogue (CPD) and the Centre for Policy Research, both of New Delhi and Nepal's Institute for Integrated Development Studies (IIDS) have also taken initiatives to promote mutual understanding among the countries in the subregion. These institutes of Bangladesh, India and Nepal have carried out a collaborative research to assess the prospects of undertaking joint development programmes for the Ganga-Meghna-Brahmaputra (GMB) basin. They are interested in harnessing the Eastern Himalayan rivers for the equitable benefit of 'coriperian' countries. They have tried to mobilize support for environmental management and water resource development in the region through conferences and seminars. Their report was published in 1994. The name of this publication is Converting Water into Wealth: Regional Cooperation in Harnessing the Eastern Himalayan Rivers.16

These institutes of Bangladesh, Nepal and India first prepared their country reports in order to make the regional report. This final report indicated that the steady development of the Himalayan hydel resources and gas and coal-fired thermal stations in India and Bangladesh, would lead to the possibility of inter-linkages in an Eastern Himalayan power and gas grids, covering Nepal, Bhutan, Bangladesh and India. The report said that it would not only stabilize the power system as a whole but also help to improve its operational efficiency. It also mentioned that water resource development must not be viewed merely as a 'single-sector end-objective', but as a prime factor to develop larger systems with multiple linkages.17

The report advised to prepare a general 'framework' treaty, which would presumably be a kind of water resource treaty or treaty on rivers and would no doubt embody an agreement between the countries concerned on a set of general principles.18 The report also cited several international experiences in this regard, which can be noticed from table 3.1.

In 1995, the ESCAP and UNDP took an initiative for a project to enhance technical cooperation in South Asia through the collaboration in energy and environment. Technical experts and governmental officials, and politicians belonging to both the government and the opposition of the countries concerned participated in different meetings to identify the collaborative projects. Since late 1996, there has indeed been a coordinated campaign in favour of subregional cooperation in South Asia at the governmental level. The concept of subregional cooperation was first floated in South Asia at state level by the Bangladesh Foreign Minister, Abdus Samad Azad in December 1996 at the SAARC Foreign Ministers' Conference in New Delhi. It is, however, interesting to note that the meeting was held only a few days after the landmark Indo-Bangladesh Treaty on the Ganga water. The former Prime Minister of India, I.K.Gujral, also admitted that the contiguous zone comprising Bangladesh, Nepal and Bhutan forms "a dynamic area of growth."19 Nepal also expressed its enthusiasm to create a subregional grouping in South Asia's

eastern part. The former Nepalese Water Resources Minister, Shumsher Rana, optimistically declared that, “the subregion has enormous rivers flowing through it, enormous water resources and enormous deposits, whether it be the minerals in Bihar or the gas in Bangladesh.”20

The priority list of the proposed subregional cooperation includes various important and relevant issues: water sharing, cooperation in the field of energy, tackling the problems of trafficking in women and children, promotion of cross-border trade and controlling intra-regional smuggling, checking environmental degradation and combating insurgency and terrorism in the region.21 The concept of SADQ is expected to get a new shape when the Foreign Secretaries of the four countries met at Kathmandu on January 6, 1998 to present specific project papers on two areas, harnessing natural resources and energy. Bhutan undertook the task of preparing the paper on environment, while Nepal was engaged in making a study on multimodel transportation and tourism. India was expected to submit a project paper on trade and investment.22

The first phase of the SADQ took off in July 1997 with a stipulated one-year timeframe. As agreed among the member-states, the conceptual papers on specific projects were to be completed within this period. Initially, except Bangladesh, the other three countries decided to implement the proposal for subregional cooperation independent of the SAARC. Accordingly, Sheikh Hasina Wajed, the Prime Minister of Bangladesh said at the Male Summit of the SAARC, held in May 1997, that, according to Article VII of the SAARC Charter, the proposed initiative would, in fact, supplement the efforts of regional cooperation by the SAARC.23

This was the beginning of a not-so-smooth journey to subregionalism in South Asia. As far as the subregional cooperation in the energy sector is concerned, three different types of energy resources are usually referred to in South Asia. These are the natural gas resources of Bangladesh, coal resources of India and hydropower resources of Bhutan and Nepal. It was expected that, in future, studies would be undertaken to assess the techno-economic feasibility of different projects from the point of view of the potential investors. Simultaneous attention would also be given to make the investment projects acceptable to the people of the respective countries and the politicians.24

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Chapter 4: Problems & Prospects of Subregional Cooperation in South Asia

In the preceding chapters, we have already dealt with the various aspects of the utilization of energy resources in the eastern part of South Asia. In view of such prospects of utilization of these resources, a few questions may now arise as to how to sidetrack the existing differences of opinion among the states in this subregion, where the historical past still dominates over geographical proximity, in order to initiate cooperation in the energy sector, how to strike an agreement so that the people of the subregion could have the maximum benefit from the natural resources, especially hydropower, natural gas and oil of this subregion and finally, how to ensure a more or less equitable distribution of these benefits.

These questions perhaps indicate that there is an urgent 'need for new thinking', looking beyond the concept of state sovereignty. It is high time to realize mutual mistrust, suspicion and animosity usually lead to more conflicting situations. Even the 'national interest' of the concerned states may be difficult to be safeguarded this way. What is desirable is a 'durable agreement'1 that 'does justice to all'. Such an agreement would pave the way for a 'positive-sum game' involving mutual understanding, cooperation and accommodation. After all, world politics does not necessarily involve a 'zero-sum game', where the gain for one is the loss for the other, and the net result of the game is zero leading to 'unrelieved competition'. There is scope for 'positive-sum game' in the domain of international relations, which usually can facilitate cooperation.

This awareness is required not only at the political level, but more so at the level of the civil society. The role of the civil society is usually very crucial for the creation of a suitable environment for such cooperation. Only as an exception, Bhutan has been able to enter into a mutually beneficial bilateral agreement with India over the sharing of electricity although in Bhutan the civil society has not quite evolved. By and large, if the civil society becomes aware of the urgency of cooperation it can mount pressure on the concerned states to take positive steps in that direction. And for bringing this awareness among the people of the subregion, there is a need for dissemination of information. After all, information forms the basis of knowledge and knowledge is power.

Simultaneously, there is also a crucial need to change the dominant perspectives on national security. It is important to appreciate that the national security can best be ensured through the security of the people and not by simply arming the states of a region. The notion of unidimensional security implying only military security should be replaced by the concept of 'common security', encompassing the whole region.2 After all, any contemporary definition of security should include economic and social security of the people over and above military security.

Hence the need for subregional cooperation in South Asia. In an age of economic interdependence and cooperative security, a sustained growth is one of the major objectives of all the states in the subregion. This approach would have a tremendous positive impact on the economies of the countries in South Asia. After all, in an era of economic liberalization, the

states in South Asia can hardly afford to lag behind in seizing opportunities for regional and subregional cooperation, which could facilitate rapid economic growth3. As energy is likely to be one of the major determinants in world politics in the new millennium, the four concerned states of the Eastern South Asia may take concrete steps to initiate specific projects for sharing the energy resources of the region.

It seems from the discussions in the earlier chapters that, there is hardly any doubt about the technical or economic feasibility of subregional cooperation in the energy sector in the eastern part of South Asia. In fact, it has a bright prospect in this part of the world. Taking stock of the resource base in this region would suggest that there is a significant degree of complementarity in the subregion. In other words, if there appears to be a resource crunch in a particular part of a country of this subregion, then there is no dearth of such resources across the border in the neighbouring country. However, enough has to be done for the proposed cooperation.

Decisive steps have to be taken at the political level. It is the political will among the countries concerned, which could turn an environment of mutual animosity into one of mutual cooperation. It may be noted that, the bilateral tensions between India and Pakistan, mainly over Kashmir, have so far dominated the politics of South Asia. The South Asian Association for Regional Cooperation (SAARC), although born in 1985, has hardly been able so far to create a congenial atmosphere for regional cooperation here The Indo-Pak tensions have been primarily responsible for this. The recent nuclear race between the two neighbours, the Kargil conflict and the hijacking of the Indian Airlines flight IC 814 have only increased the mutual suspicion between India and Pakistan.
But, in the proposed subregion, the bilateral tensions do not appear to be so crucial a factor. As Pakistan is not a part of this subregion, it is unlikely that the Indo-Pak bilateral tensions would vitiate the atmosphere of subregional cooperation. India’s relations with Bangladesh, Bhutan and Nepal have never been so contentious as it has been between India and Pakistan since their birth in 1947.

However, even in the proposed subregional cooperation in the energy sector, there may be several roadblocks. Let us first take up the case of energy cooperation between Northeast India and Bangladesh, which is a classic example of politics of energy in the subregion. Various estimates put the gas reserve in Bangladesh from 15 trillion cubic feet (TCF) to even 80 TCF, but such high estimates have not been corroborated by all concerned so far. The figures like 21 TCF as the discovered reserves and 12.6 TCF as proven or recoverable reserves appear to be officially acceptable. Newly discovered reserve, but not announced yet, put forward by some source is of 5.5 TCF.4 According to one estimate, so far, Bangladesh has roughly consumed 3 TCF of this amount, leaving about 10 TCF. With the additional discovered reserve, the total recoverable reserves at this point are over 15 TCF. But contradictory estimates lead to apprehensions about the feasibility of long-term cooperation.

On the other hand, the known natural gas reserve in the Eastern and the Northeastern India may not be adequate for the generation of electricity in the region, as evident from the presently available data. However, India has a huge economy with a growing appetite for energy, and various Indian organizations are, in fact, planning to import gas from distant suppliers in West and Central Asia. In this scenario, Bangladesh definitely has a competitive advantage that could

work to the mutual benefit of both Bangladesh and India. Therefore, on the one hand, there remains a strong possibility of Bangladesh exporting gas to India, and on the other, another possibility of supplying gas from Assam and Tripura through Bangladesh to the rest of India for a fee.

However, there is a strong anti-India lobby in Bangladesh. This lobby feels that the proposed cooperation would lead to an Indian hegemony over Bangladesh. Against this backdrop, there is an ambiguity in the policy of Bangladesh on whether it should export its surplus gas to India for supporting the latter's electricity generation or not. While a gas-based cooperation between India and Bangladesh seems to be techno-economically prospective, the Government of Bangladesh has developed cold feet after displaying initial interest in this issue. In March 1997 the 14-member Bangladesh delegation, led by Abdus Samad Azad, Foreign Minister of Bangladesh, had given its consent to the Indian proposal for exporting natural gas for some projects in West Bengal.5 But, both the ruling and opposition parties in Bangladesh seem to agree on the point that the natural gas from Bangladesh is not for export, "now or in the near future".6 On March 21, 1999, while inaugurating the Jalalabad Gas Plant in Sylhet, the Prime Minister of Bangladesh Sheikh Hasina Wajed once again reiterated her country's stand and said, "Bangladesh has no plan to export gas...". Earlier she had said, "We don't think about export of gas yet…". Former Prime Minister and now the Leader of the Opposition in the Parliament, Begum Khaleda Zia said, "We cannot sell our wealth and then become beggars."7 Some other political parties of Bangladesh like Bangladesh Muslim League or Jamaat-i-Islami had expressed their concern at the very outset when the prospects of forming a subregional grouping within SAARC were being discussed in 1997.8

Therefore, the uncertainty over gas exports from Bangladesh to India persists. Some politicians from both the ruling and the opposition parties in Bangladesh have argued that a pragmatic approach to exports of gas is likely to emerge, especially, if there are several big discoveries in the early stages of exploration. The need to diversify the country's export base may also dictate the timing of any gas exports. After all, eventually the oil companies may persuade Bangladesh to export gas for their own financial reasons.

It should be noted that there is certainly a ready market in India, where the energy demand is far outpacing domestic supplies. Over and above, India is ready to buy Bangladeshi gas. Cairn, operator of the new Sangu offshore field near Chittagong, estimated that reserves of about 7 TCF would be enough for a pipeline carrying between one billion cubic metres of gas a day to the power stations and industries in Eastern India. That would probably earn the Government of Bangladesh about $500 million a year.9

Be that as it may, it is interesting to note that India and Bangladesh are not the only two countries which are involved in this politics of gas export. Even some extra-regional players have a keen interest in such politics. For instance, while both the ruling party and the opposition leaders of Bangladesh have expressed their reluctance to export gas to India, the US Ambassador to Bangladesh, John Holzman, believes that "Bangladesh should now consider gas export to India as the domestic consumption alone would not bring about an economic breakthrough."10 He said this while speaking at a seminar on Developing Bangladesh's Gas Resources held in Dhaka. According to him, the gas reserves of Bangladesh would last for about 45 years. He argued that,

“if one assumes 10 per cent annual growth in domestic consumption, a very fast and probably unsustainable rate, the reserves would last 17 years.” Ambassador Holzman, therefore, concluded that Bangladesh has already discovered enough natural gas to comfortably meet domestic demand until 2015 to 2020. Holzman argued that these figures do not take into account any of the reserves that might be discovered in the blocks included in the second gas bid round in Bangladesh.

It is interesting to note that while visiting Bangladesh in February 1999, the US Assistant Secretary Calvin Humphrey offered, on behalf of his country, to help Bangladesh carry out a study of existing drilling data (i.e., not relying fully on the data available from the Petrobangla, the official agency dealing with the issue in Bangladesh), and production and depletion rates to determine a new estimate of recoverable reserves. Humphrey also suggested that such a study could be carried out with the help of a grant from the United States Trade and Development Agency or through a partnership with the United States Geological Survey.

According to Ambassador Holzman, the conclusions from such a study “would surely engender greater confidence in estimates of the size of Bangladesh’s already discovered gas reserves and could be the basis for more informed decision-making about the gas industry’s future.”11 It is interesting to note that the US Geological Survey is currently conducting a worldwide resource survey which will include the Brahmaputra basin. The results, when available, could also serve as an indicator of Bangladesh’s potential natural gas resource base.12

It is important to remember that in an era of globalization the multinational corporations have become the key players in the area of investment. With the growing dominance of these corporations in the world economy the states, particularly in the underdeveloped regions, have sometimes been quite marginalized. In other words, these multinational corporations, more often than not, are in a position to compel the concerned states to change their overall policies, even at the cost of the latter.

Therefore, in the near future, Bangladesh may be persuaded to export gas to India just for the interests of the foreign multinational corporations if not for any other reason. The multinational corporations involved in the exploration of gas in Bangladesh have their own priorities and it is these priorities which might prevail over the political and economic considerations of Bangladesh in the long run. If their dreams come true, these multinationals may be interested in sending Bangladeshi gas to Calcutta or Haldia through pipelines rather than only selling it to the potential consumers in Northeast India. In other words, if left to the multinationals, there is no guarantee that the gas available from Bangladesh would at all be utilized for generation of power in India as envisaged by many. Such gas may ultimately be processed and sent elsewhere in SouthEast Asia through Calcutta or Haldia port for higher dividends.

Moreover, even if Bangladesh ultimately agrees to export gas to India for the latter’s power sector, the militant outfits in NorthEast India could put up another serious roadblock by sending gas from Bangladesh to, say, Calcutta. The demand might be raised by such organizations that these resources have to be allowed to be used in Assam or other parts of NorthEast India through which the pipelines would go. From past experience with regard to the disruption of oil supply from Assam to the rest of India, such apprehensions are not easy to push over.

As far as the proposed cooperation between India and Nepal in the energy sector is concerned, it has to be kept in mind that Nepal is a repository of water resources. Therefore, the hydel power projects built on the rivers and waterways of Nepal could be of immense help to the power-starved India. However, here also there are at least two problems. First, due to their political differences and other factors, the fate of the Mahakali Treaty hangs in a precarious balance. Therefore, the chances of power-sharing between India and Nepal seem to be remote. Given the presence of an anti-India lobby also in Nepal, the situation may be more complicated. Secondly, one has to take into account the recent arguments against the big dams all over the world. There have been scathing attacks on such initiatives across South Asia (as it has been the case in Arun III high dam project in Nepal or the Sardar Sarovar project in Western India). Under the circumstances, the plan of constructing new big dams over the rivers in a comparatively densely populated Nepal may not be translated into reality. So, it would not be easy to generate hydel power through the construction of high dams and to supply the surplus electricity, if any, to the Eastern and NorthEastern India.

Moreover, as some experts have pointed out, any cooperation between India and Nepal in the sector of hydel power should involve the states of Bihar and UP in India. After all, the Ganges flows through these states. Therefore, it would be rather unwise to think about a water-sharing formula without taking Bihar and UP into account. Even a subregional cooperation should include these states although the state of UP does not belong to Eastern or NorthEastern India.

As far as the energy cooperation between India and Bhutan is concerned, there are maximum possibilities of raising the level of such mutual collaboration. It has already been pointed out how the states of Eastern India get benefited through the power available from the Chukha Hydel Power Project in Bhutan. The installation of a much larger Tala Power project in a few years would add more teeth to such outstanding cooperation between India and Bhutan.

If one closely looks at the cooperative ventures, both existing and potential, in this subregion of South Asia, it becomes clear that the prospects of such cooperation in the energy sector are mainly confined to the bilateral level and do not necessarily reach the multilateral level. For instance, the cooperation between India and Bhutan, the best so far in South Asia, is a cooperation between two friendly neighbours of the subregion. Here a sparsely populated tiny Himalayan kingdom, having a shortage of capital and skilled manpower, gets financial and technical help for her enviable hydel power projects from one of the largest countries in the world, and from a major power of the region at that And, in return, she agrees to supply surplus electricity to India at a very nominal price (although power sector is the largest revenue-earner for the Government of Bhutan). When the Tala project would be fully operational, the additional surplus power could partially be supplied to certain parts of Nepal through the chicken-neck corridor of Siliguri/Birpara in Northern Bengal. However, the issue of Nepali immigrants in Bhutan and the consequent refugee problem in Nepal do not go well between these two Himalayan states. Therefore, although the technical experts in these two countries do not find any difficulty in this potential cooperation, the political decision-makers on two sides are by and large reluctant about it.

At the technical level, there appears the factor of huge transmission loss in in supply of electricity in the South Asian countries. This loss can be accounted for in two major ways. First,

the inferior quality of transmission lines leads to such loss. Unless and until necessary steps are taken to upgrade the lines, the amount of loss will be difficult to reduce. However, as the electricity boards, particularly in Eastern and NorthEastern India, are suffering from ill-health, it is easier said than done. Secondly, the large-scale hooking from the transmission lines also leads to huge system loss.

Financially speaking, the illegal electrical connections from the transmission lines or nearby posts give rise to poor earning of revenue for the electricity authorities. This is one of the principal causes of the poor financial health of the electricity boards in India. Secondly, quite often the populist measures by the concerned regimes in different states in South Asia also contribute to the ill-health of the electricity authorities in this region.

So far as the issue of complementarity in the energy sector is concerned, the experts suggest that there should be an optimum hydro-thermal mix in order to get maximum benefit out of the proposed cooperation. Demand and supply management of electrical energy is gaining special importance in view of the current deficits in meeting peak demands. In the subregional context this assumes a greater significance with the large hydro potential of Nepal and Bhutan and coal/gas-based thermal power generation in Eastern India and Bangladesh. Over and above, the environmental issues are taking rightful entry in energy planning and the subregion under study has a combination of sources, which could be developed and integrated in the transition from conventional to ecologically sustainable energy supply. Therefore, the utilization of renewable energy resources of the subregion could also lead to increased cooperation among the states of this subregion.

Despite these, as has been pointed out earlier, the main problem lies at the political level. One the one hand, there is, by and large, a lack of political will to initiate cooperation at the transnational level, particularly at the multilateral level. On the other hand, the presence of strong anti-India lobbies in Bangladesh and Nepal does not also allow the four neighbours in Eastern South Asia to go for a subregional cooperation.

Therefore, even if the investors and the technical experts of the concerned countries of the region seem to be optimistic about the potential supply of gas from Bangladesh to ignite some power stations in the contiguous zones of Eastern or NorthEastern India, the lack of political will appears to choke the possibility of translating this optimistic flow of ideas into reality. The political leaders of the states in the Eastern part of South Asia are still oblivious of the techno-economic demands of development of their region and, therefore, they are not yet prepared to bury their traditional differences.

Against this backdrop, the problems still outsmart the prospects of subregional cooperation in South Asia. Nevertheless, as has been argued before, the civil society in this subregion could facilitate a change in the traditional mindset, and this could possibly set the tone for a potential subregional cooperation in South Asia. If this happens, it is the people of South Asia who would benefit from the resources available in the region. Otherwise, as the demands for electricity rise in this part of the world, it will gradually plunge into darkness due to the lack of necessary cooperation among the neighbouring countries.

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"The true test of civilization is not the census, nor the size of cities,
nor the crops–no, but the kind of man the country turns out."
–Ralph Waldo Emerson, Society and Solitude.

The controversial advent of India and Pakistan into the global nuclear club following the nuclear tests of mid-1998, and the subsequent complications in Indo-Pak relations has brought South Asia into the international limelight. On the one hand, a series of confidence building measures had been initiated over the past several months by governments of both countries. But on the other hand, India and Pakistan continue to disagree more obdurately and fiercely than ever before, on the resolution of the long-standing Kashmir dispute and other related issues such as terrorist activities and arms proliferation in Kashmir Valley. Given these circumstances, it is not surprising to find a vigorously renewed interest in studies pertaining to patterns of cooperation and conflict among the major South Asian countries. In like manner, this project seeks to examine the prospects of regional cooperation in South Asia on the basis of the indicators of order, welfare and legitimacy in this part of the world. The fundamental objective of such research is to present a theory that explains the patterns of cooperation and conflict in South Asia, along with possible solutions for ameliorating some of the ills of this part of the world. The project may also contribute to the larger concern of regional studies in the Third World while tackling the question of the "region-ness" of South Asia.

The paper begins with an introduction to the main propositions. Thereafter, it provides an overview of South Asia as a whole, as also country-specific profiles of India, Pakistan, Bangladesh, Nepal, Sri Lanka, Bhutan and the Maldives. Subsequently, it outlines various aspects of interstate relations in South Asia, with particular emphasis on the conflictual issues. The South Asian Association of Regional Cooperation (SAARC) and other related economic issues have also been stressed in this section. This is followed by an in-depth evaluation of the security concerns of South Asia, with special reference to the Indo-Pak arms race, and the nuclear developments in both countries. Recent events, such as the Kargil crisis and its aftermath, have also been tackled in this section. The paper then concludes with the issue of the 'region-ness' of South Asia, thereby highlighting the problematic areas as well as the prospects of cooperation.

Introduction

The present study attempts to explain the lack of cooperation in South Asia in terms of its shortcomings as a region. The main contention here is that South Asia is still in the process of evolving as a "region" due to two basic factors: first, an adequate degree of complementarity of interests has not yet been achieved among the South Asian states; and second, the almost perpetual preoccupation with intrastate conflicts and crises leaves individual states with scarce time or resources to work towards regional solutions.

At the very outset, it would be useful to elaborate upon these two points, and consequently, outline the broad parameters of this study. Basically, a region can be defined on the basis of certain specific indicators which confirm its existence or otherwise. For the purpose of this study, a set of countries in close geographical proximity to each other can be categorized as a "region" when, first and foremost, they share a certain commonality of (national) interests. These interests could incorporate a whole gamut of social, economic, political, cultural, historical and other factors. Second, this set of countries should be sufficiently enlightened so as to understand the significance of placing cooperation above conflict in the conduct of interstate relations. This should also be bolstered by a collective desire to come together on a common plank to technically evolve some lasting mechanism for regional cooperation. These sentiments are more or less lacking among the South Asian states, as is evident in years of lacklustre performance of the South Asian Association for Regional Cooperation (SAARC). As subsequent pages will indicate, following the conception of SAARC in 1983, very little has been actually done to promote this sole existing mechanism for collective cooperation in the subcontinent.

Such lack of "region-ness" in South Asia can also be understood in terms of another related phenomenon, that is, the persistence of myriad social, economic and political problems in practically each and every South Asian state. As elaborated shortly, such intrastate problems are often either the cause or the consequence of interstate disputes and misperceptions. Thus, there emerges an inextricable connection between the internal and external relations of South Asian states, with patterns that are further complicated by what has been succinctly explained as the pursuit of "order, welfare and legitimacy". This triad has been adopted in the theorizing of Edward Kolodziej as part of his explication of the occurrence of regional conflicts across the globe. The main proposition of Kolodziej's theory is that international relations involve the global pursuit of order, welfare and legitimacy, as represented by the acronym "OWL". In other words, this implies that the nation states and peoples of the world are engaged in a ceaseless struggle to define authoritatively what systems of order and welfare should prevail for their respective societies. If these systems of order and welfare are perceived to work and if they are also viewed as just or fair, then they are invested with legitimacy, that is, with authority which sanctions how the peoples and nations of the world believe they should be governed and how they should pursue their welfare needs, within the framework of global concerns. A corollary of Kolodziej's theory is that the occurrence of conflicts, either at the national or the international level, adversely affects the OWL imperatives and hence, the conduct of international relations in the region involved.1

In adapting the "OWL Theory" to the South Asian context, the present study shows how most of the South Asian countries have inadequate levels of order, welfare and legitimacy owing to the

persistence of various intrastate and interstate conflicts. The converse also holds true. Such dismal circumstances also affect the prospects of regional cooperation among the states concerned. Not surprisingly, even the rest of the world views South Asian countries with reservation, often bordering on pessimism.

An Overview of South Asia

Viewed from either the global or the regional perspective, South Asia provides a disappointing picture in every social, economic and political context. Taken collectively, though the Governments of India, Pakistan, Bangladesh, Sri Lanka and Nepal have been making efforts to improve their socio-economic conditions through democratic means, these attempts have often been frustrated against the background of colonial rule and societies behest by extraordinary religious, ethnic, and linguistic complexity. Among the issues related to welfare, the most important concerns of South Asia include limiting population growth, raising literacy levels, and addressing environmental degradation. South Asia today contains 20 per cent of the world's population. At present levels of growth, the most recent World Bank projections for the year 2025 put India's population at 1.3 billion, Pakistan's at 244 million, Bangladesh's at 180 million, Nepal's at 38 million, and Sri Lanka's at 24 million. These high rates of population growth threaten to undermine the benefits of economic development as well as advances in agricultural productivity, and place massive pressures on the land and its resources. With a substantial population living below the poverty line in most of the South Asian countries (one-third, in the case of India) and with extremely low Physical Quality of Life Indices (39 for a well-established democracy like India), none of these nations can really afford added detriments to their overall growth and progress.2 In fact, South Asia contains more people living in abject poverty than any other part of the world. Furthermore, the migration of the landless into cities exacerbates urban environmental problems and creates opportunities for socio-political unrest. The movement of people across the subcontinent's borders in search of food and employment causes friction within and between the regional neighbours. Moreover, despite some improvements in the past four decades, the literacy rates remain disappointingly low throughout most of South Asia, especially for females and in the rural areas. The overall adult literacy rate for India is an estimated 48 per cent, for Pakistan and Bangladesh about 35 per cent, and for Nepal 26 per cent. High illiteracy rates stifle family planning efforts, limit farmers' ability to utilize technological improvements, and reduce labour efficiency in the general manufacturing sector. Only Sri Lanka has achieved solid success in improving literacy, with literacy rates close to 90 per cent. Although most of the South Asian countries have recently initiated varying degrees of economic reforms by adopting liberalization and free market economic policies, the pervasive and innate character of their domestic/regional problems tends to negate most of the constructive efforts.

According to a 1997 Report of the Human Development Centre, South Asia is fast emerging as the poorest, the most illiterate, the most malnourished, the least gender-sensitive—indeed, the most deprived region in the world today. And yet it continues to make more investment in arms than in the education and health of its people. The per capita GNP of South Asia ($309 in 1993) is lower than any other region in the world. To reiterate a statement made above, nearly 40 per cent of the world's poor live in South Asia. While the region contains 22 per cent of the world's population, it produces only 1.3 per cent of the world's income. The adult literacy rate (48 per cent) in South Asia is now the lowest in the world. Its share of the world's total illiterate population (46 per cent) is twice as high as its share of the world's total population. There are more children out of school in South Asia than in the rest of the world, and two-thirds of this wasted generation is female. The UNICEF Report titled "The State of the World's Children,

1999” has pointed out that given the enormity of illiteracy, it would take an additional US$1.6 billion in South Asia each year for the next ten years to educate all children.3

According to another recent UNICEF study, the worst affected region for malnourished children is South Asia, not Sub-Saharan Africa. Half the children in South Asia are underweight, compared to 30 per cent in Sub-Saharan Africa, despite the much higher GNP growth rate and a more robust increase in food production in South Asia. Further, South Asia’s Gender-Equality Measure (GEM), prepared by UNDP’s Human Development Reports to reflect economic and political opportunities open to women compared to men, shows the lowest value (0.235) among all the regions in the world. South Asia is also the only part of the world that defies the global biological norm, with only 94 women for every 100 men (instead of 106 women to 100 men as in the rest of the world), so that 74 million women are simply ‘missing’. The extent of human deprivation in South Asia is also colossal: about 260 million people lack access to even rudimentary health facilities; 337 million lack safe drinking water; 830 million have no access to basic sanitation facilities; and over 400 million people go hungry each day.4

Every year since 1990, the UNDP has commissioned the Human Development Report by an independent team of experts to focus world attention on the need to put people at the centre of development. Table 1 gives the ranking of all seven South Asian states as per the Tenth UNDP Human Development Report 1999, released in India in July 1999. This ranking is based on a Human Development Index (HDI), which is a combined measure of longevity, educational attainment and ability to buy basic goods and services. While Sri Lanka tops the list as the most developed, Bangladesh emerges as the least developed country in South Asia.5

Table 1: HDI Ranking of South Asian Countries, 1999

Country	HDI Ranking
Sri Lanka	90
Maldives	93
India	132
Pakistan	138
Nepal	144
Bhutan	145
Bangladesh	150

Despite such glaring backwardness, South Asia is one of the most militarized regions in the world. The widespread human deprivation contrasts sharply with large armies, modern weapons, and expanding military budgets in the region. Indeed, two of the largest armies in the world are in South Asia, and it is also the only region where military spending (as a proportion of GNP) has gone up since 1987; it declined substantially in all other parts of the world after the end of the Cold War.6

Environmental degradation in South Asia is analogous to the region's population problem apart from having several negative socio-economic and politico-security implications. The dependence of the poor regions of South Asia on their natural resource base, such as soil, water, forests and fisheries is self-evident. And yet, environmental abuse is rampant here to an unbelievable degree. Deforestation (a particular problem in Sri Lanka and Nepal), soil erosion, droughts (as in Bangladesh and certain parts of India), floods (as frequently experienced in Bangladesh due to silting of rivers and channels), and urban pollution (New Delhi, the capital of India being the third most polluted city in the world today and even hitherto clean environs like those of Nepal becoming increasingly polluted) have often undermined economic growth, depleted food supplies and caused socio-political instability in South Asia. As per statistics, the subcontinent is also losing a considerable amount of productive land due to waterlogging and salinity. In India alone, over 3 million hectares are believed to be affected by salinity and up to 8.5 million hectares by waterlogging. Nearly 5 million acres of forests are cut down each year in South Asia, with only feeble efforts at reforestation. Fresh water resources are being depleted at a rapid rate—by as much as one-third in Pakistan during the 1980s. Moreover, such problems also have "spillover" ramifications (like aggravating global warming and depletion of the ozone layer). And most of these environmental problems finally link up with the desperate poverty of people in South Asia: due to lack of any viable alternatives for sustaining their livelihoods, they have no choice but to denude and destroy the very land, forests and water resources that they live on, little realizing that these resources are not everlasting.7

Furthermore, South Asia is an area of tremendous political complexities. Certain South Asian states like Pakistan and Bangladesh have been largely ruled by authoritarian, military rulers. In fact, the former has had the dubious distinction of being labelled as a "Garrison state" (literally, a fortified state furnished with military troops) due to its lengthy trysts with military regimes. Even during the times when Pakistan claimed to be a democracy (as, for instance, during the premiership of Benazir Bhutto), in reality there were irreconcilable differences between the democratically-elected Prime Minister and the President who is usually backed by the military-bureaucratic junta. As in the case of Bangladesh, Pakistan's military intelligence agencies (like the Inter-Services Intelligence, or ISI) reportedly exercise a crucial influence over the country's national and international affairs.

The election of democratic governments in South Asia had accompanied raised expectations by citizens of the region for a better life (related to the imperative of welfare). Hence, failure by elected governments to deliver economic and social benefits sought by the citizens has repeatedly undermined the faith in democracy (and subsequently the legitimacy of the system) in South Asia. In Nepal, for example, it has been felt that the democratically elected governments have failed to produce any better results than the old royal regime, and that corruption is as widespread as ever. Besides, ethnic and religious conflicts are posing major threats to the democratic governments of South Asia. In addition to creating law-and-order problems, increased human rights violations, and a heavy reliance on security forces (all indicators of dysfunctionality of the order imperative), such conflicts divert the attention and resources of governments from urgent socio-economic needs, undermining their ability to satisfy the demands of the electorates (that is again the question of legitimacy). In South Asia, the problem of civil violence has in recent years emerged as a more serious security issue than the problem of interstate warfare. India has been variously preoccupied with quelling conflicts in the states of

Punjab (due to the separatist demands of the often-violent Akali community), Kashmir (an issue which remains contentious between India and Pakistan, and has certain religious, ethnic, psychological and economic underpinnings) and the North-Eastern states (stemming from ethnic and regional movements in Assam, Nagaland, Mizoram, Tripura, etc.). The law-and-order situation is insecure in most of the rural areas and the Indian Government is said to spend nearly $9 million per day to maintain about half a million security forces in Kashmir alone. Moreover, the Indian Government announced a huge increase of 21 per cent in the country's defence spending since 1990–91.8 (Further military data follows on subsequent pages.)

On the economic front, the initial pace of market reforms adopted by India in 1991 has been slackening over the past few years. Though many global giants and institutional investors agree that India is a future market, they don't really seem to be in a hurry to invest here. And a feeling of disillusionment with the pace of Indian reforms as well as with the Indian Government's commitment to improve the basic infrastructure and to alleviate endemic economic problems has been growing even in international circles. Thus, India is far from becoming a much-favoured destination on the economic map of the world, even as political uncertainty and slow policy change figure high on the long list of irritants. Discussions at the 1998 World Economic Forum held in New Delhi also conceded that even as South-East Asia has been rejuvenating itself at a remarkable pace, India (as also the rest of South Asia) has fallen sharply in the ranking of foreign investment, primarily due to its inability to sustain the pace of reforms. A survey conducted by consultants A. T. Kearny showed that Indian companies registered an alarming 21 per cent decline in investor preference over the latter half of 1998. The fact that South-East Asian countries have far outstripped India in the past two decades, and even after their mid-1998 financial debacle, have a much higher per capita, was aptly summed up in the words of Percy Barnevik, the Chairman Investor AB as, "I keep hearing that India escaped the South-East Asian problem because it went slow. Frankly, I don't mind losing 100 per cent after a growth of 500 per cent."9

Neighbouring Sri Lanka has also had its share of socio-economic problems. Democracy in this tiny island-nation remains overshadowed by the Tamil-Sinhalese ethnic conflict and frequent outbursts of Sinhalese militancy. These conflicts have stymied the Government's economic reform efforts and polarized political debate. Simultaneously, continued political instability has equally been the result of Tamil militancy. In Pakistan, the society faces sporadic bursts of violence emanating from ethnic, sectarian and religious differences in its diverse community. For instance, the conflict in the Sindh province between ethnic Sindhis and those residents who migrated from India following Partition has made the province, specially its capital, Karachi, ungovernable. Conservative religious elements are also very powerful in Pakistan, leading to tensions and conflicts over religious fundamentalism, which has also played a major role in sustaining the Indo-Pakistan altercations over Kashmir. Religious orthodoxy is evident in Bangladeshi society as well, manifesting itself in attacks on women's groups, prominent non-governmental organizations (Bangladesh Rural Advancement Committee and the Grameen Bank), and the intellectuals (like Taslima Nasreen). In Sri Lanka, religious chauvinism, intensified by the corrosive effects of years of civil war, is powerful and erodes the tolerance that is imperative for maintaining the country's democracy. All this can largely be attributed to the fact that political and governing institutions in most of the South Asian countries are weak, while the political parties themselves lack vigour, organization, discipline, and commitment.

Country-Specific Profiles

Taken individually, each of the South Asian states suffer from some kind of instability, and consequently, projects varying intensities of human deprivation.

India

In India, 291 million adults are still illiterate and 45 million children were out of primary schools in 1995 alone. Out of the total population, 44 per cent lives in absolute poverty and nearly one-third of the world's poor live in India. Another stark reality is that India has the largest illiterate population in the world: it has almost 2.5 times more illiterate people than the whole of Sub-Saharan Africa. In its report, "State of the World's Children—1999", the UNICEF had several disquieting things to say about India. According to this report, India will be the world's most illiterate nation by the turn of the century. As it is, two-thirds of the total number of the illiterate in India are women. The country also has the maximum number of school dropouts, and every third illiterate in the world is an Indian. Equally distressing is the fact that while 46 per cent of India's population survives in absolute poverty, with an income of less than US$1 a day, about two-thirds are "capability poor": that is, they do not receive the minimum level of education and health care necessary for functioning human capabilities. On the Human Development Index, India ranks 132 out of 174 nations. Children and women bear the brunt of human deprivation in India. About 62 million children under the age of five are malnourished. According to another recent UNICEF study conducted across the country, gross malnutrition accounts for more than half (about 55 per cent) of the total child mortality in India. In a majority of low-income families in rural India, girls suffered up to seven times more from malnutrition than the boys. Pointing out that malnutrition was imposing a tremendous burden on the national economy, the study showed that annual national loss in terms of economic productivity was estimated to be close to Rs. 1,200 billion. Moreover, nearly one-third of the children under 16 are forced into child labour. Of all pregnant women aged between 15 and 49 in the country, 88 per cent suffer from varying degrees of anaemia. Unemployment, in general, is becoming a serious problem in India. About 7 million people are added to the labour force every year, and they are increasingly educated. "Jobless growth" of the type being witnessed in the country has left a majority of the population unaffected by, and dissatisfied with, the forces of economic growth. And yet, in the face of all this, India was ranked first in arms imports, but 147 in per capita income.10

The crux of many socio-economic problems in India seems to be the country's population explosion. The unchecked addition of about 20 million people every year to a large multi-ethnic, multilingual and multireligious country portends dangers that need to be dealt with on a war footing. India does have the potential to become one of the leading economic powers of the world. But its burgeoning population and consequential problems like poverty, hunger, and social injustice are a serious hindrance to the realization of that potential. In fact, the country's population has trebled since 1947.11 The reasons for this are well known: deep-rooted traditional beliefs and lack of education, a high child mortality rate motivating parents to have more children, for more children mean more income, the stigma against the girl-child and the suppressed, secondary role of women, and in certain communities, religious orthodoxy prohibiting family planning.

Several studies show that India has had a long history of social, economic and political turmoil. Fat programmes of economic and social progress have so far produced few fruits for the general

masses. Years of expected growth have actually just been years of gap—gap between promise and performance, between the fabulous luxury of the few and the abysmal misery of the many, as also between a supposedly impressive liberal democratic structure and the arbitrary exercise of political power.12 Recent years have also witnessed dramatic ups and downs in the Indian economic scenario, with the present situation being far from satisfactory. By staying away from the global trends towards liberalization and free market economy until 1991–92, all that India could achieve was a huge current account deficit of $9.7 billion. The foreign exchange reserves had fallen to a record low of $1.1 billion. By mid-1991, the Reserve Bank of India (RBI) had to airlift nearly 47 tonnes of gold to London as security for a loan of $400 million from the Bank of England and the Bank of Japan. With bankruptcy knocking at the doors, the Government of India was left with no other option but to open up the Indian economy. Under Narasimha Rao's leadership, the then Congress Government had initiated an impressive economic reforms programme, and the Indian economy was beginning to recover by 1992–93. The next two years saw more dramatic changes as the country surged towards liberalization and a free market economy. But from 1995–96 onwards, in tandem with the growing political instability, economic growth in India has also been increasingly curtailed.13

According to a forecast by the Institute of Economic Growth (IEG, a Delhi-based think-tank) in April 1999, the Indian economy is unlikely to come out of the current slowdown in the next two years, with the GDP growth rates likely to be in the range of 5.8 to 5.9 per cent. The study, Economic Outlook for India: 1999–2000, projected an average GDP growth rate of 6.1 per cent for the remaining three years of the Ninth Five Year Plan (1997–2000). This is significantly lower than the average 7 per cent growth for the next three years, as projected in the Indian Government's Ninth Plan document itself. Even the World Bank had forecast that an economic turnaround would begin only in mid-2000, that too, being heavily dependent upon the political situation of the country at the turn of the century. Moreover, the Asia Development Bank (ADB) warned in March 2000, that India was vulnerable to a major currency crisis due to weaknesses in its financial sector and economy.14 In light of the continued political instability within India, the International Monetary Fund (IMF), in its "World Economic Outlook" (WEO) of 1999, sharply criticized India for not carrying out the much-needed economic reforms since 1996. The IMF said that India has missed an opportunity to grow 1.5 to 2.5 per cent faster by slowing down its reform process and singled out stalling of the structural reforms process and deterioration of the Government's finances as a main factor for the economic downslide.15 Following the general elections of September 1999, a spate of events including mounting defence spending in the aftermath of the Kargil war (details follow), rising food subsidy due to record foodgrain stocks, virtually stagnant income and corporate tax revenues, election expenses and cost of delayed decision making, soaring global oil prices, and burgeoning interests payouts are said to have left the Indian Government in the doldrums.16

Pakistan

Pakistan's social and human indicators also make very dismal reading. In the context of development, the governments in Pakistan have been up against a crisis that has four features: widespread poverty; rapid and unplanned urbanization; rising debt; and rapid erosion of the natural resource base. Over two-thirds of Pakistan's adult population is illiterate and there are 740,000 child deaths a year, half of them linked to malnutrition. Pakistan is also experiencing one of the fastest rates of urbanization in the developing world which may result in the urban

population exceeding the rural by the turn of the century. At the same time, the population growth rate at around 3 per cent per annum is the highest in South Asia. According to long-term UN projections, Pakistan will emerge as the third most populous country in the world by the year 2050. Already, 36 million of the population live in absolute poverty. According to statistics, poverty has actually worsened over the past one decade: nearly 40 per cent of the population now lives below the poverty line. More than half of the cultivable land in the holdings of 50 acres and above, is in the hands of big landlords, thereby encouraging the rich-poor divide to further widen. Even after five decades of independence, Pakistan has remained an essentially feudal society.

With their conservative economics and fickle political loyalties, the feudal landlords are to said to blame for Pakistan's disastrous economy and chronic political instability. Using their legislative strength and government connections, a few thousand elite families have staved off efforts to distribute land more equitably, a major reason why agricultural productivity remains low. Most have also resisted the implementation of an agricultural tax—as repeatedly demanded by the International Monetary Fund—to help defray the country's acute fiscal deficit. And successive parliaments dominated by feudal landlords have paid little attention to Pakistan's dire social needs, making it one of Asia's poorest and most illiterate nations. Furthermore, despite enjoying the privilege of an elected female Prime Minister for a few years, the status of women in Pakistan is very low. Apart from being subjected to subjugation through several orthodox customs and traditions, female mortality is disproportionately high in Pakistani society. Against 100 males, only 16 females are economically active—the lowest ratio in the SAARC region. Likewise, the share of women in Parliament is also the lowest in South Asia.17

While the overall state of human development is poor in Pakistan, widespread regional disparities make the situation even worse. For instance, urban Sindh has the highest Human Development Index (0.537), comparable to Zimbabwe, but rural Baluchistan has the lowest HDI (0.388), at par with Zaire. These regional disparities also indicate that the task of national integration in Pakistan is difficult since it requires both a major investment in accelerating the pace of human development as well as ensuring a special emphasis on less developed regions, particularly in rural areas. At the same time, the treasury is worse off than broke—it owes roughly $30 billion to domestic creditors and another $30 billion abroad. Graft is so shameless that Transparency International, the German-based monitoring group, has named Pakistan as one of the five most corrupt countries in the world.18

Continuing further, ethno-national problems of political autonomy have plagued Sindh, Baluchistan and the North-Western Frontier Province of Pakistan since the 1950s. The ethnic issue drew worldwide attention with the 1971 dismemberment of Pakistan, that subsequently led to the creation of Bangladesh. The situation is said to have worsened in recent years with ethnic conflicts between Pathans, Mohajirs, Sindhis and Punjabis assuming serious proportions. For example, in 1986 more than 300 people were killed in riots between Mohajirs and Pathans in Pakistan. Estimates also show that more than 3,000 Sindhis have been massacred in the country since 1971 and countless others are 'missing'. Since the early 1990s, many Pakistani cities such as Karachi (the capital of Sindh) have become battlegrounds for rival Islamic sects (the Sunnis versus the Shias) and widespread sectarian violence now perpetually poses a crisis of legitimacy for the ruling Pakistani Government. More than 1,000 people are reported to have been killed in

sectarian clashes in several parts of Sindh during 1998 alone, forcing the authorities to repeatedly declare emergency in this strife-torn province.19

From the purely economic viewpoint, even though Pakistan initiated reforms prior to India, the former's track record is much worse than that of the latter. Immediately after assuming office during his first term in November 1990, the then Prime Minister Nawaz Sharif announced a bold series of reforms to reduce government involvement in the economy, to privatize public sector companies and to encourage private sector growth. The Government also opened most sectors to foreign investors and reduced financial and bureaucratic obstacles to businesses. It strove to attract greater foreign inflows of capital, technology and jobs to invigorate Pakistan's economy. While these reforms were appreciated, the economy continued to face several immediate financial and political hurdles. The budget deficit consumed a significant portion of GDP due to heavy defence spending and debt repayment, coupled with an inability to slash spending. This also threatened future loans from international lenders. The trade deficit has since widene

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