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ENVIRONMENTAL SECURITY IN THE CONTEXT OF BANGLADESH

Abstract

Bangladesh presents a test case of environmental insecurity, because of its geographic location and other physical and socio-economic parameters. The paper looked into three environmental security-related problems: a) resource conflicts among the tribals and Bangali settlers in the Chittagong Hill Tracts as an intra-state security issue, b) India's river-linking project as a regional threat, and c) climate change as a threat emanating from global sources. The paper argued that successive government policies differed with the traditional systems of resource management and customary rights of tribals. This fuelled ethnic conflicts there. With no schooling and experience in private property culture and regime, the tribals started losing out in a kind of zero-sum game. To meet the inter-related challenges of regional water-sharing and global climate change, Bangladesh needs to change the focus of her foreign policy – towards a low politics-oriented environmental and hydro diplomacy. The latter now greatly subsumes the mission of her economic diplomacy. However, Bangladesh, particularly the Foreign and Commerce ministries, appears to be not sensitive enough to the call of the time.

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Introduction

Environmental security (ES) is a new field of academic and policy inquiry. Global environmental problems, as manifest in the 1980s, have called for a redefinition of national security, with inclusion of an environmental component. Continued economic and population growth are diminishing the natural life support systems. The problems often cited are human-induced global warming, ozone depletion, deforestation, resource scarcity, etc. With half the world clustering into urban environments, natural disasters and global environmental change affect greater number of people who are dependent on civil systems for water, power, transportation, food, and other manufactured systems. Some scholars argue that low cost and relatively simple methods, compared to nuclear weapons, for environmental destruction are likely to increase the opportunities for even small terrorist groups to destabilize large populations. Military operations and training also have environmental impacts that threaten their own troops as well as having potential long-term impacts on civilian populations. As a result, the environment is now considered as an integral part of human security and is viewed much more urgent and important a future challenge than conventional or nuclear war.

While some scholars argue for inclusion of a wide range of environmental issues including natural disasters into national security thinking, others oppose, arguing that such an open-ended approach will drain the concept off its analytical usefulness. For example, the latter group contends that conflicts over resources have been a historical phenomenon for centuries and they can be handled as traditional security issues. This debate is further complicated by a wide diversity in views of what environmental security actually means. There is little coherence around its definition, threats and policy responses. The proliferation of literature on the subject during the last two decades indicates that the concept has come to stay. But opinions differ among environmental NGOs, academics and policy-makers. However, there is broad agreement that existing patterns of production and consumption are not sustainable, and

renewable resources, particularly in the developing world are being mined, with little or no consideration to their regenerative capacity. A multiplicity of factors reinforce scarcity of such resources, thereby fueling conflicts, both within and among nation-states. The threats to such scarcity from environmental changes emanate from within and beyond borders.

No matter whatever way environmental security is conceptualized, Bangladesh presents a test case, with its physical and socio-economic parameters. Almost half the US population living in a territory 65 times smaller tends to surpass the carrying capacity, both of source and sink functions of the environment. Acute scarcity of environmental resources sharpen group conflicts. The geographical location of Bangladesh can be regarded as very disadvantageous. This problem is compounded by extra-territorial threats, such as global warming and strategic control of upstream rivers by bigger neighbor India.

With such a perspective, the present paper is an attempt at analyzing the concept of environmental security as it relates to Bangladesh. The paper consists of two parts. The first part reviews the concept of environmental security and its relevance for the country. The second part deals with three issues of ES, such as resource conflicts in the Chittagong Hill Tracts (CHT), India's river-linking project, and climate change. The first issue relates to intra-state security, the second one is regional in nature and the third one relates to an environmental threat emanating from global sources.

Part – I: The Concept of Environmental Security (ES)

Viewing environmental problems as security concerns is a recent phenomenon. In the early 1970s, the OPEC oil crisis and the "Limits to Growth" thesis about how resource scarcity might affect the industrial economies gave birth to the concept of 'economic security' in the North. When Lester Brown argued for a redefinition of national security in 1977, his ideas evoked little response among scholars of world politics (Brown, 1977). In 1983, Richard Ullman

in his pioneering article titled "Redefining Security" sought to broaden the concept with non-military threats including threats to the quality of life of its citizens (Ullman, 1983). By the mid-1980s, anthropogenic impact on the global atmosphere was becoming evident. Though this period was still dominated by Cold War imperatives, their ideas have gradually generated interest in environmental change as a potential variable in understanding security and conflict in the closing decade of the 20th century.

The Report *Our Common Future* by the World Commission on Environment and Development (WCED, 1987), otherwise known as the Brundtland Commission, forcefully broached the issue of "Environmental degradation as a cause of conflict." (Part III, Chapter 11). It says: "The deepening and widening environmental crisis presents a threat to national security – and even survival – that may be greater than well-armed, ill-disposed and unfriendly alliances. Already in parts of Latin America, Asia, the Middle East, and Africa, environmental decline is becoming a source of political unrest and international tension... Poverty, injustice, environmental degradation and conflicts are influencing each other in complex ways." (p. 66). The Report notes that deforestation by highland farmers in Latin America and Asia is causing more and more destructive floods in downstream nations (p. 5). A group of scholars raise the question of environmental security and conflict potential with respect to deforestation (Myers, 1993; El-Ashry, 1996). In the Ganges river basin of the Himalayan foothills, monsoon flooding has become so frequent and widespread that it regularly imposes large damage to crops and property among the downstream communities of India and Bangladesh, even though the main deforestation occurs in upstream Nepal. Norman Myers poses the question: "Could the time be coming when as much security can be purchased through trees as through tanks?" (Myers, 1989). However, the end of the Cold War provided real opportunity for such a re-conceptualization of security thinking. Jessica Mathews argued in her widely-cited article "Redefining Security" for broadening the concept with

inclusion of resources, environment and demographic issues (Mathews, 1989).

But a group of scholars express skepticism about the relationship between environmental change and security, or considering environmental degradation as issues of 'high politics,' because inclusion of all forces that threaten human well-being within the definition of national security would drain the term off its analytical usefulness (Gray & Rivkin, 1991; Deudney, 1991). To this group, conflicts over resources are a centuries-old phenomenon, and were regarded as traditional security issues. An ES approach could result in militarization of environmental policy, and invoke nationalist sentiments to look for enemies. Others, however, contend that the recent escalation in the potential for resource conflicts and the incapacity of many states to address them merit its redefinition as an ES problem requiring innovative responses (Gurr, 1985; Westing, 1986; Gleick, 1989).

The American Council for the UN University has undertaken an environmental security study under its Millennium Project, which attempted to link environment and security. According to this study (ACUNU, 2003), the elements of the definition of ES clustered around two central concepts: 1) Repairing damage to the environment (a) for human life support and (b) for the moral value of the environment itself; and 2) Preventing damage to the environment from attacks and other forms of human abuse. Of the five suggested definitions presented to the international panel, the following two received the highest ratings: a) Environmental security is the relative safety from environmental dangers caused by natural or human processes due to ignorance, accident, mismanagement or design and originating within or across national borders; and b) Environmental security is the state of human-environment dynamics that includes restoration of the environment damaged by military actions, and amelioration of resource scarcities, environmental degradation, and biological threats that could lead to social disorder and conflict.

Currently, three distinct communities can be identified as invoking the term “environmental security” (Fig.1) – each using it to represent different concepts (Fleishman, 1995). The *first* is a community of non-governmental organizations – environmental NGOs. In this paradigm, environmental degradation is a security concern by definition, which threatens the most fundamental aspect of security by undermining the natural life support systems. (Renner, 1989). This group calls for a basic shift in societal values to embrace sustainable development as a way of life, and to divert national security resources to enhance environmental protection. One group argues that resources should be taken from military budgets to solve environmental problems. A World Watch report, *Fighting for Survival* argues that \$200 billion of the world's \$800 billion military spending should be used to preserve and manage our natural environment (Renner, 1996). Another group views that the military should get involved in solving environmental problems beyond those they directly cause in operations and training. Only the military has the logistic capacity and financial resources to do so. The key to understanding ES from this perspective is that the focus is on the *security of the environment*.

Fig. 1



The *second* community involves the academia. However, there are several schools or models within this group, such as 1) environmental scarcity model, 2) economic development and modernization model and 3) spillover model.

1. Environmental Scarcity Model

One group follows the plight of “environmental refugees,” who can no longer gain a secure livelihood in their homelands because of soil erosion, deforestation, desertification, drought etc. (Myers, 1995). While focusing on population displacement, violence and conflicts, Robert Kaplan, a journalist-academic, asserts that these are “the national security issue of the early 21st Century.” (Kaplan, 1994). He argues that population growth and resource depletion would prompt mass migration and incite group conflicts in Egypt and on the Indian Sub-Continent. Gareth Porter argues that unlike traditional security thinking about such conflicts, which focus primarily on nonrenewable resources like oil, the ES addresses renewable resources – those that need not be depleted if managed sustainably. According to him, conflicts involving renewable natural resources are of two kinds: those in which resource exploitation is the direct cause of conflict, and those in which it is an indirect cause (as in civil wars, insurgencies etc.). For example, freshwater and fish stocks are the examples of renewable resources that can be the direct cause of potentially violent inter-state conflicts (Porter, 1995).

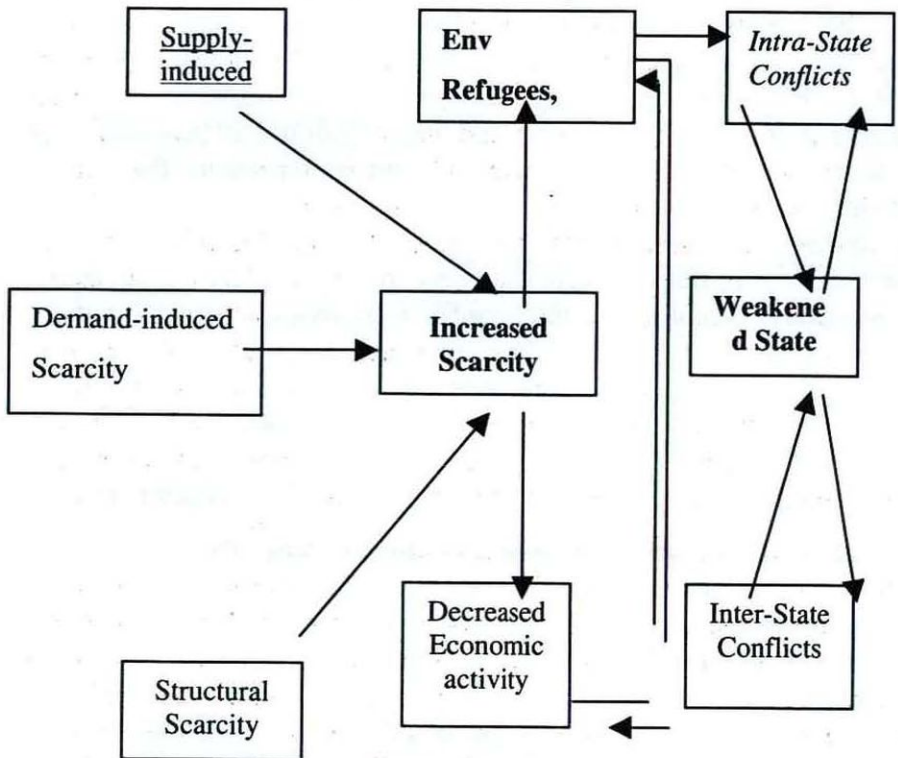
However, the most influential argument comes from T. Homer-Dixon and his group at the University of Toronto who, with some empirical studies on a number of countries of Asia, Africa and Latin America, developed a model linking environmental scarcity to decreased economic activity and mass migration (Fig.2). Exacerbation of these conditions could lead to weakened states, ethnic and deprivation conflicts (Homer-Dixon, 1994; Homer-Dixon & Percival, 1996). However, he is cautious in postulating a definite causal link between environmental scarcities and violent conflicts. The findings of this group indicate that scarcities of renewable resources rarely cause ‘resource wars’ among states, because of two

reasons: 1) in general, states cannot easily or quickly convert renewable resources into assets that significantly augment their power; and 2) the very countries that are most dependent on renewable resources, and that are, therefore, most motivated to seize resources from their neighbors, also tend to be poor, which lessens their capability for aggression.

Fig 2: How Environmental Insecurity works

Sources of Scarcity

Effects on the Society



According to this group, the renewable resource most likely to stimulate interstate war is river water. However, wars over river water between upstream and downstream neighbors are likely only

in a narrow set of circumstances: i) the downstream country must be highly dependent on the water for its national well-being, ii) the upstream country must be able to restrict the river's flow, iii) there must be a history of antagonism between the two countries, and most important, iv) the downstream country must be militarily much stronger than the upstream country. Research till to dater shows that conflict and turmoil related to river water is more often internal than international; this conflict results from dams and other major water projects that divert water and relocate large number of people.

2. Economic Development and Modernization Model

This focuses on energy-security interactions – the ways in which energy choices affect security problems, and the ways in which security choices affect energy problems (Holdren, 1992). As is known, ensuring energy security is the top priority of every state in the world and so, there is a huge scramble and competition for it. It is argued that ensuring uninterrupted supply of oil to western countries was the rationale behind US' occupation of Iraq. The main argument of this group is that the failure to address the "energy-environment-development nexus" will have adverse consequences for security in future. Suggestions of this group include: increasing the efficiency of energy end use, reducing the environmental impacts of today's energy sources, facilitating the transition to more sustainable energy options, expanding international cooperation, and halting population growth.

3. Spillover Model

This model focuses on the threat to international security posed by the degradation of the global environment, which is caused largely by a handful of developed and powerful states, and the consequences are borne by all others. For example, climate change. The victims here are the developing countries, though their contribution to greenhouse gas emissions at this point of time is certainly less than the developed countries. This reinforced the already existing North-South divide, with tensions and conflicts.

According to this view, four most prominent environmental problems having security implications are: 1) human-induced climate change; 2) ozone layer depletion; 3) acid rain, and 4) destruction of tropical forests. For solving these security issues, international cooperation is needed, and calls for redirecting one third of the US defense budget to conservation efforts and public works to alter the world's pattern of resource consumption. (Lipschutz and Holdren, 1990).

It is evident that none of the academic groups/models discussed above offers a proven formula for predicting the transformation of an environmental event into a violent conflict. As a matter of fact, establishing a definitive cause-effect relationship in this case is compounded by many confounding and intervening variables.

The third group which invokes the concept of ES is represented by international development agencies and government institutions traditionally charged with development concerns and protecting national security. They include, for example, the World Bank, the UN agencies and national governments. El-Ashry, former Chairman of the Global Environmental Facility, emphasized that the Earth Summit identified the process of SD as "the path to take toward the goal" of environmental security (El-Ashry, 1996). Two years ago, UN General Assembly has declared 06 November as the International Day for Preventing Exploitation of the Environment in War and Conflict. At its 2nd annual observance in 2003, the UN Secretary General and the UNEP Executive Director urged the international community to assess how they could protect the environment in times of war through legal and other mechanisms (ES Scanning, January 2004). Institution of a Unit of Environmental Security under the UNEP is a reflection of such endeavors.

There is a growing understanding among the US government agencies that instability, ethnic tension and violent conflicts may have at their base certain environmental factors. The US has several working definitions and a Department of Defense Directive includes

a programmatic definition. Global environmental degradation is a foundational theme in the book of former US Vice President Al Gore, *Earth in the Balance*. It was also a stated assumption for defense policy-making in former President Clinton's introduction to his administration's *National Security Strategy*. He concluded that "large scale environmental degradation, exacerbated by rapid population growth, threatens to undermine political stability in many countries and regions." (US Government, 1994).

Some other countries have also come up with official definitions of environmental security of their own. Among the countries that do have definitions are: the Russian Federation and the Commonwealth of Independent States; the governments of Argentina and India indicated that their countries did have an official definition. China, Australia and Hungary are reported to be working for a definition. China considers environmental security under the umbrella of "environmental protection" (UNEP, 2003).

The Council of the EU has established a 'green diplomacy' network, with experts who will address the link between environment and security with the assumptions that scarce resources are a source of conflict, conflicts affects the environment, destroyed environments reduce stability, and poverty is a source of potential risk for conflicts.

ES and Sustainable Development (SD)

There is confusion about the difference between environmental security and sustainable development. Although sustainable development and environmental security are mutually reinforcing concepts and directions for policy, they are exactly not the same thing. Sustainable development focuses on environmentally and socially sound economic development, while environmental security focuses on preventing conflicts related to environmental factors, as well as facing environmental hazards and military-related environmental damages. Therefore, ensuring ES and achieving SD at different spatial scales reinforce each other.

Environmental Threats and their Nature

ES deals with threats, which are largely the unintended consequences of human activities, and usually develop in a larger time frame compared to military threats. So the ES concerns direct attention to policy responses that are cooperative, not conflictual (Fig1). So, these threats need to be organized into time dimensions, even in terms of generations. It can also be organized in terms of timeliness of response, such as immediate (biological weapons), medium (depletion of fisheries) and over a longer period of time (global warming). ES threats can originate from ignorance, mismanagement, by intention or they can be a mix of natural and human actions (Table-1). Also, not all countries and regions are likely to be affected the same way from environmental threats. Therefore, the best policy response appears to be what former US Defense Secretary calls "preventive defense," so that symptoms and conditions of environmental degradation and conflicts can be addressed *apriori*. As is evident, ES cannot be ensured by individual states alone, but requires cooperative efforts of all. Another point is that unlike the objectives of military and economic security, ES will require some degree of compromise with national sovereignty for solving particularly global environmental threats.

The above review indicates the profuse ways of how ES and its threats are conceptualized, without an agreed upon definition. Though the above perspectives differ in expressions and focus, the underlying issues tend to bind them all:

- 1) Natural life support systems are already under threat;
- 2) Environmental scarcity has the potential to ignite intra- and inter-state conflicts;
- 3) Sources of threat vary in space and time;
- 4) Defense buildup and the role of the conventional military is a negative to ES;
- 5) ES is global in nature and ensuring it depends on willing cooperation of all states, and
- 6) Sustainable development is the strategy that can lead to ES.

Table-1: Threats to Environmental Security

Scale of Threat	By Ignorance and/or Mismanagement	By Intention	Mix of Natural and Human Actions
Within a Country	Oil spills in coastal areas Aral Sea depletion in Russia Haze from forest blaze Ground water contamination Arsenic problem Fresh water scarcity Hazardous wastes Soil erosion Human settlement and development patterns	Sarin gas attack in Tokyo subway Chem attacks and draining marshes in Iraq Poisoning, diversion or misuse of water resources	Floods Famine Salinization Earthquakes Introduction of exotic species
Trans-border	Forest depletion River usage (Jordan, Nile, Tigris, Euphrates, Ganges) Chernobyl nuclear accident Diminishing biodiversity Ozone depletion Fisheries depletion Global climate change Acid rain and air pollution Poverty Radioactive waste	Burning oil fields in Kuwait Dam construction and water diversion Biological weapons	Global Warming New, emerging, and drug resistant diseases - AIDS and others affecting humans, plants and animals Desertification Population growth Rich-Poor gap

Source: Adapted from ACUNU Study on Environmental Security, 2003.

PART II: ES and Bangladesh

Resource Scarcity in Bangladesh

Bangladesh is a polity with acute scarcity of environmental resources and this sharpens conflicts among different segments of the society. The status of land resources and population pressure is an example (Table-2). Currently, population density in Bangladesh is about 1000 per sq. km, the highest in the world (except the city-states). Cropland, with about 0.18 acres (0.07 ha) per capita is acutely scarce, being perhaps the lowest in the world. Given the current rate of population growth at 1.5%, we will have almost 300 million population by 2050. Since virtually all good agricultural land has already been cultivated (Table-2), population growth in the next

Table 2: Density of Population and Per Capita Cultivable Land in Bangladesh and CHT Districts

Country/District	Population ('000') 1996 (estimated)	Total Area ('000' Acres)	Density per Acre	Total Cultivable Land ('000' Acres) *	Cultivable land as % of Total Area	Per Capita Cultivable Land (Acres)	Rural Households ('000')	Cultivable Land per Rural Household (Acres)
Bangladesh	122,100	36669	3.33	21650	59.0	0.18	17586	1.23
Bandarban	271	1107	0.24	488	44.1	1.8	45.4	10.75
Khagrachhari	404	667	0.61	118	17.7	0.29	71.6	1.65
Rangamati	470	1511	0.31	150	9.9	0.32	68.9	2.18

*Total cultivable land = Cultivable waste + Current fallows + Net cropped area, data of 1994-95.

Source: Bangladesh Bureau of Statistics(BBS), *Statistical Yearbook of Bangladesh 1996*.

four decades will cut in half the amount of cropland. The problem is exacerbated by a pattern of unequal land distribution. In an

environment of acute competition over scarce land resources, ceiling legislation and other reform programs had been initiated under the successive governments during the last 50 years. But, using legal loopholes and political connections, the landed class could largely avoid vesting of above-ceiling lands for redistribution.

The result is obvious: reports suggest that landlessness has sharply increased over time: in 1951 only 2.3% of farmers were landless, but this increased to 11.0% in 1961, 26.0% in 1966 and over 50.0% by now (ILO, 1977; BBS, 1993). Over half of the rural households owning not more than 0.5 acres of land (called functionally landless) own only 2-3% of cultivable land (World Bank, 1983). Another study reveals that the top 2% of rural households controlled 25.1% of total land and the top 10% controlled 53.9%, while the bottom 50% owned only 4.8% of land (Jahangir, 1982). According to the typology of countries based on the availability of land and ownership concentration done by Bell and Duloy, South Asia is characterized by an scarcity of land and moderately concentrated ownership. They argue that poverty would persist under a wide range of alternative policy responses including 'mildly redistributive' land reform programs (Bell & Duloy, 1974). River bank erosion in some areas exacerbates the problem of landlessness. However, the uneven distribution of land and the power relations emanating from it are regarded as one of the core social problems in rural Bangladesh. In fact, land of any kind is regarded as the main currency of power. The age-old socio-cultural philosophy of the area ties acquisition of property and power to land, the most visible form of wealth.

Based on these facts, it is argued that the underlying cause of the ethnic conflict in the CHT is the scarcity of resources, particularly land. Land scarcity, poverty and socio-economic dislocations arising out of recurrent floods, cyclones and river erosion, tend to serve as strong 'push' factors for migration, both within and without. Out-migration is already causing violent conflicts among groups and inter-state strains between India and Bangladesh. While exact degree of out-migration is difficult to gauge, some estimates indicate

that between 1951 and 1974, close to 5 million Bangalis migrated to northeastern states of India, where population density is about one-third of Bangladesh. Though statistics are not available after 1974, one report suggests that out-migration has substantially increased after 1974 (Hazarika, 1993). According to a 1951 projection of population growth rates, Assam should have had a population of about 15 million in the early 1990s, yet it had more than 7 million extra (latest census). These extra numbers are regarded by some as immigrants from Bangladesh and their descendants (Homer-Dixon & Percival, 1996). It may be recalled that in 1983, during a bitterly contested national election in Assam, the Lalung tribals massacred nearly 1700 Bengalis of a village in a five-hour rampage. Therefore, despite the fact that the Government of Bangladesh does not recognize any out-migration to India, the issue is causing inter-state strains, especially after BJP-led government's push-in moves. In mid-1999 Dhaka-Delhi had reached an agreement to stop unilateral push-in across the borders, within the bilateral understanding of 1991.

Table 3: Land Utilization in Bangladesh and in CHT Districts, 1994-95 ('000' acres)

Country /Dist	Total Area	Not avail. for cultiv.	Forest	Cultivable Waste	Current fallows	Net crop. area
Bangladesh	36669 (100.0)	10128 (27.6)	4861 (13.3)	1517 (4.1)	1000 (2.7)	19133 (52.2)
Bandarban	1107 (100.0)	212 (19.1)	407 (36.8)	387 (35.0)	30 (2.7)	71 (6.4)
Khagrachhari	667 (100.0)	112 (16.8)	437 (65.5)	58 (8.7)	21 (3.2)	39 (5.8)
Rangamati	1511 (100.0)	142 (9.4)	1219 (80.6)	09 (0.6)	45 (2.9)	96 (6.3)

Source: BBS, *Statistical Yearbook of Bangladesh 1996*, Table 4.33, p.128.

Resource Scarcity in the CHT

With a population of less than 1% of Bangladesh, the CHT region covers 9% of the total area of the country. Thus, the current density in three CHT districts ranges from 5 to 14 times less (Table-2) than the national average. The population density is also the lowest in Rangamati, with about 60 persons/sq.km. Table-2 shows cultivable land per capita in Bandarban as 1.8 acres, compared to 0.29 acres and 0.32 acres in Khagrachhari and Rangamati. Table-2 also shows the share of cultivable area as 44.1%, 17.7% and 9.9% in Bandarban, Khagrachhari and Rangamati respectively. Thus, Bandarban contains the highest share of cultivable waste (35%), which can be brought under agricultural cropping with appropriate inputs. Tables-3 and 4 show the land ownership pattern in the CHT, with not much of a difference in landlessness there, compared to the national-level data.

Table 4: Landlessness by Category ‘ Households)

Country/ District	HH not owning any land	HH owning only homeste ad land	HH with homestead & cultivable area upto 0.5 acre	HH with 0.51to 1.0 acre cultivable area
Bangladesh	8.7	19.6	28.2	12.3
Bandarban	7.7	21.7	11.2	10.2
Khagrachhari	5.1	14.0	21.3	13.9
Rangamati	17.5	16.6	16.8	12.6

Source: BBS, *Statistical Pocketbook 1997*.

Table-5 shows how the ratio of population in the CHT has changed over time in favor of non-tribals. While in 1947, non-tribals formed only 2% of the CHT population, the 1991 census figures

show almost half of the CHT population as non-tribals. During the decade 1981-91, Khagrachhari witnessed the highest share of the increase of settlers, while Rangamati the lowest. Thus, this rapid growth of non-tribal populations, aided by the settlement policies of the successive governments, has invariably fuelled group-identity conflicts over availability of land resources. The bulk of value addition in the CHT comes from forestry (84.8%). Fishery and livestock adds only about 3% of the total (Table-6).

Table 5: Distribution of Tribal and Non-Tribal Population of the CHT Districts since 1947 (%)

Ethnicity	1947	1951	1974	1981	1991
Tribal:	98.0	90.9	88.4	62.0	51.5
Bandarban	-	-	-	55.0	47.0
Khagrachhari	-	-	-	65.0	48.0
Rangamati	-	-	-	63.0	57.0
Non-Tribal:	2.0	9.1	11.6	38.0	48.5
Bandarban	-	-	-	45.0	53.0
Khagrachhari	-	-	-	35.0	52.0
Rangamati	-	-	-	37.0	43.0

Source: Shaukat Hassan, *Problem of Internal Stability in South Asia*, PSIS Occasional Paper, Geneva, p.8; *Statistical Yearbook of Bangladesh 1996*.

The data on the resource and economic characteristics of the CHT region do not present a bright picture, though looking at the population density, some people may think of it as a frontier land, waiting to be exploited. The region is already under environmental stress. The government's settlement plan was actually an addition of a group of lowland destitute to another such group living in the upland. Overpressure on the marginal and sloped land is accelerating soil erosion and causing flash flooding. A recent World Bank study estimates 10% of the hilly land as highly erodible (World Bank, 1997). The system of vertical ploughing instead of terracing for crop production causes soil erosion and siltation of hill rivers. To this are added the harmful effects of the age-old *jhum* cultivation (slush and burn), such as deforestation, loss of topsoil, burning of soil and nutrients, killing of wildlife and environment-friendly

insects. Because of population pressure and scarcity of land, the rotation period of *jhum* has decreased from 15-20 years to 3-5 years. Once the green hills of the CHT are turning bald. Extensive discussions by this author in all the three districts with hill people during 1999-2000 revealed that productivity in *jhum* had greatly declined. Given options, the tribals, quite aware of environmental consequences, appear ready to move away from this practice.

Unlike in the plain land, single cropping dominates in the CHT areas. Only farmers in the valleys can do some double cropping, but its share of land is not large. One of the reasons is the lack of irrigation water in the upland for cultivation. There is an acute scarcity of both surface and ground water. The hill rivers, such as Shangu and Matamuhri, unlike other rivers of Bangladesh, flow from south to north and are fed mainly by rain and spring water. They remain navigable for few months of the year, causing serious problems in river transport, the main source of communication in the CHT. Similar is the problem with drinking water, for which local people have to travel long ways. Local communities suggest the building of micro dams on hill streams/rivulets and harvesting of rain water for catering to the needs of both potable and irrigation water. Because of land slides and soil erosion, the rivers have been heavily silted, and torrential rains cause flash floods, submerging the high banks along the rivers.

Another problem was the introduction of plough cultivation in the area, which has led to social differentiation even within the Hill people. Those living near river valleys, mainly the Chakma and Marma tribes, managed to acquire plough land, and thus benefited from this new culture of livelihood (Roy, 1995). Those groups living on mountain ridges – Mon, Baum, Pankhua and others – continued *jhumming*.

The rate of deforestation in Bangladesh (3.3%) is almost the highest in the world, but the pressure on the supply of timber is the greatest on the CHT forests, as harvesting of other natural forests including Sundarbans remains banned. Long years of insurgency in

the Hill only added fuel to the fire. The real problem lies with the nationalization of forests in the CHT areas, which caused erosion of age-old customary rights and alienation of local communities. Though, over three-fourths of the CHT area are regarded as forests and forest land, most of them were classified as Unclassed State Forests (USF), and were put under the Revenue Department of the District Administration (since the British period). In the 1990s, the government through a series of notifications has declared some of those as 'reserved forests.' Such forests theoretically allow customary rights in a controlled manner, but for all practical purposes, they are rendered useless other than as license rights under the control of the Forest Department (FD). The overwhelming share of the value addition (85%) from forestry in the CHT actually does not benefit the upland communities; rather it serves the government treasury, corrupt timber merchants and a section of forest officials. The livelihood of the tribals, who for centuries were used to living in harmony with nature, is threatened by such commercial timber harvesting.

Table 6: Gross Value added to Agriculture by Bangladesh and CHT at Current Price (mn Taka, 1994-95)

	Total value added	Agri. Crop	Livestock & Poultry	Fishery	Forestry
Bangladesh	349597 (100.0)	224005 (64.2)	39828 (11.2)	43138 (12.4)	42626 (12.2)
CHT	25958 (100.0)	3126 (12.1)	542 (2.1)	269 (1.0)	22021 (84.8)

Source: BBS, *Statistical Pocketbook 1997*, Table 4.02, p.95

Hill political and community leaders ventilated their grievances against further nationalization of hill forests. The security forces have taken control of 'risky' forest areas, with no border outposts in undemarcated areas. These forests were reportedly used by the tribal insurgents as hideouts. The track record of performance of the FD does not bode well for a sustainable forestry. Local communities

blame corrupt timber traders and foresters for rampant deforestation. The result is that even elephants are losing their natural habitats, threatening the lives and properties at nearby population centres.

As a matter of fact, the policy of the successive governments in developing the CHT region and settling the lowland landless peasants there exacerbated the sense of deprivation among the Hill people. Together with socio-cultural grievances, this resource deprivation turned the conflict into an armed insurgency that drew the neighboring India into the process. This sense of deprivation, perceived or actual, had its root in the historical status of CHT as an "Excluded Area," under the British Administration (CHT Manual, 1900). The Manual under its regulation 34 banned the non-hill people from buying or acquiring land in the CHT. The then Government of the newly-independent Pakistan settled several thousand Muslim families in the north and south of the CHT. Then came the construction of the Kaptai Hydro-Electricity Dam in the early 1960s, which submerged 40% of arable land of the area, displacing around 100,000 persons, most being the Chakmas (Roy, 1995). Mostly uncompensated, about half of them took shelter to India, with the other half moved further up the Hills as 'internal refugees.' In the independent Bangladesh, the initial insensitivities to a separate socio-cultural identity of the Hill people was fuelled further by the government decision in 1976 to settle the lowland landless poor in the CHT, with financial assistance from the government. Thus, by the mid-1980s, about 400,000 Bengalis moved into the CHT districts. This settlement process engendered armed conflicts, with killings and counter-killings between the tribals and settlers.

The governments' scheme of settling the Bengalis into the area fuelled the crisis. Each settling family was promised 5 acres of hilly land, 4.5 acres of mixed land and 2.5 acres of paddy land, together with some financial assistance. But one study suggests that on the eve of the settlement plan, there was not enough land for such a redistribution: the availability for each resident family in the CHT was 3.7 and 4.63 acres of hilly and mixed land, and between 1.0-1.3

acres of paddy land; though the government opened up a portion of a 'reserved forest' for settlement, this was reportedly not sufficient (Roy, 1995).

The rehabilitation plan of the 'internal' and 'external' refugees of the government is also likely to run short of land. For example, under the Peace Treaty signed between the Government and the tribal leaders in early December 1997, the government will ensure "leasing two acres of land in the respective locality subject to availability of land to landless Tribals or the Tribals having less than two acres of land per family." (Clause. C [3] of the Peace Accord).

Table-7: Total loss in foodgrain production under the climate change scenarios

Climate Change Scenarios	Production loss due to soil salinity (in tonnes)		
	<i>Aus</i>	<i>Aman</i>	Total grain
Baseline, (CCS0), 2000	65617.9	130780.2	196398.1
Moderate (CCS1), 2030	75770.5	196170.2	271940.8
Severe (CCS2), 2075	97622.4	560722.0	658344.4

1. Source: Karim, Z. et al.(1999): "Climate Change and Vulnerability of Crop Agriculture" in Huq. S et. al (eds), *Vulnerability and Adaptation to Climate Change for Bangladesh*, Kluwer Academic Publishers.

Table-2 shows the cultivable land per rural household in the CHT: it is 1.65 acres, 2.18 acres and 10.75 acres respectively in Khagrachhari, Rangamati and Bandarban. The figures include cultivable waste and current fallows. Therefore, the government plan of providing on average two acres of land can be implemented only in Bandarban. However, the problem of distribution is likely to be complicated with the promises of land title deeds that the government already had given in the early 1980s to the settlers, mentioned above. One source says that in many cases the plots of land mentioned in the title deeds did not actually exist or that the

plots in the possession of the settlers did not correspond with the plots referred to in the deeds (Roy, 1995).

Thus, the most vexing issue is the conflicting rights over land. The root lies in the conflict between the traditional customary rights to land and forests of the Hill people and the government schemes. Though the CHT Manual recognizes a variety of land rights including private rights and communal rights (Rules 12 and 34), private rights were restricted if one compares to those of the lowland people. Land in the CHT was not as freely tradable/transferable as in the plains. These restrictions were maintained, for example, in the State Acquisition and Tenancy Act (SATA) of 1950. SATA recognizes especial tenurial status of lands falling within the traditional domain of aborigines in section 97, but it did not define "aboriginal". Sub-section 2 provided that:

No transfer by an aboriginal *raiyat* of this right in his holding or in any portion thereof shall be valid unless it is made to another aboriginal domiciled or permanently residing in Bangladesh.. (Farooque, 1995).

Thus, imposition of such a restriction weakens the property rights bestowed upon the Hill people. Those restrictions were conducive to maintaining cultural territoriality and ecological balance of the CHT. In fact, the application of SATA had been restrained to the CHT, where tribals usually lived under a customary, communal land-tenure system headed by Chiefs. Those rights were recognized in the CHT Manual (Rule 50). However, the government in 1979 amended the clause 34(1) of the CHT, thereby allowing non-tribals the right to land ownership. But the Hill people were not used to private property rights on land as such, and they never bothered about acquiring title deeds from government authorities. This posed problems when the government began to allot plots to the settlers.

On the other hand, the land-hungry lowland settlers, well-groomed in individualism and private ownership system, were quick in utilizing their expertise of owning land through title deeds, particularly in the fertile, valley areas. The non-tribal revenue officials posted in the CHT are reported to have colluded in unfair

transactions (Roy: 1995). The non-recognition of the customary communal rights of the Hill people by the government agencies explains their losing in the zero-sum game over land acquisition. Under such circumstances, it is not clear how “the land record and right of possession of the Tribal people will be ascertained after finalization of the ownership of land of the Tribal people... and resolve all disputes relating to land...” (Clause. C [2] of the Peace Accord). This explains the sharp differences between the government and the Hill Tracts Peoples Solidarity Organization (HTPSO) over the constitution, mandate and power of the Land Commission, envisaged in the Peace Accord and is now working in the area.

The above discussion shows that the region suffers from an scarcity of natural resources, no way less than the plainland areas. Though population density is much lower in the CHT, per capita cultivable land is not much higher particularly in Khagrachari and Rangamati districts. The result is that landlessness covers 40-50% of the rural households in the CHT, a situation not very different from the plainland. A significant portion of cultivable land remains as wasteland, mainly because of lack of water and irrigation facilities. Availability of water, both for irrigation and drinking purposes is much lower and problematic than in the plainland. The mainstay of the CHT economy – exploitation of forest resources done mainly by non-tribal outside forces does not benefit the local communities. On the contrary, unregulated commercial exploitation and *jhum* cultivation are causing rampant deforestation in the area. The resulting land slides and soil erosion fill up the hill streams and river beds, adding further problems to availability of water and river communications. This stands in the way of marketing of local agricultural products, such as fruits, vegetables and spices. It was clear from the author’s discussion with the local communities in the CHT, that they are quite conscious of these resource and environmental predicaments. But their poverty and powerlessness combine in a vicious cycle with continued resource and environmental degradation. The ultimate result is all-pervasive

threats to ES in terms of erosion of the very foundations of local resource and livelihood support systems.

This insecurity was exacerbated by the programs of development and settlement of the successive governments of Bangladesh in the CHT. These programs, initiated with not much home work, clashed with the age-old tribal values and ways of life. Wide and extensive consultations were not initiated with different levels of the local communities before implementation of the programs. Once the ground was not made ready, the tribals began to see the settlement plan as a zero-sum game for obvious reasons. The result is intensification of conflicts, which gradually turned into armed insurgency.

As discussed, the non-recognition of centuries-old communal management and customary rights over local resources by the successive governments of Pakistan and Bangladesh, and restricted private property rights of the tribals set in the CHT Manual of 1900 and SATA of 1950 made them a loser in the game of acquisition of property rights. The tribals were not schooled well in individualism and private property culture. The creation of open markets for land and other resources without imparting proper training tends to further impoverish the tribals.

But the poor, either of the lowland or of the upland, are more of victims, rather than agents of environmental scarcity and degradation. A regime of livelihood security based on natural resources, such as land, forest and water is what each member of both communities is up to and this should form the nuclei of a regime of cooperation, not conflict. Based on this compulsion, local resources such as hilly lands, forest and water resources can be put to community management and use. Empirical studies on management of natural resources under biotic pressure around the world has shown that sustainability of renewable resources is a function of property rights and management strategies that are locale-specific and locally-grown, that involve local communities in decision-making, control of resources and equitable sharing of benefits.

As a matter of fact, *cultural relativity* operates not only in defining what constitutes a resource, but also in defining what constitutes a regime of sustainable resource management. The type of property rights in specific communities plays a defining role in such a regime. Any functioning bundle of property rights in resources, such as land, forest and water must possess a moral grounding in the socio-cultural values of the communities. Therefore, any success in the Peace Accord, maintaining sustainable peace between the two ethnic communities and ensuring ES in the CHT are likely to depend, more than anything else, on devising appropriate communal and participatory models of management of land, forest and water resources.

Thus, ES in this context can be said to be a function of building a cooperative regime in resource use and management. In recent years, a variety of cooperative/participatory models of resource management either in common property resources or state property has been initiated around the world. Such examples are Joint Forest Management in India, User Groups in Nepal, Stewardship Program in the Philippines, Forest Village in Thailand, Forest Farmer Group in Indonesia, Ejido (Cooperative) Groups in Mexico, etc. Despite differences depending on the local milieu, these cooperative models are sustaining because of community autonomy, security of tenure, and above all, an enabling policy-legal framework within which they operate.

The killing of Piren Slan, a Garo youth of the Modhupur Sal forest, by the forest guards in early 2004 can be mentioned here. The Garos living in and around the forest did not welcome the plan of constructing a brick wall for the proposed Eco-Park, which threatened their livelihood opportunities and the right of free movement. This episode engendered solidarity across all the ethnic communities in Bangladesh. What the government could and should have done before embarking such a project is to sit with the Garos first, discuss the issues in detail and explain the economic opportunities for the local communities from establishing the Park. The government would have been wise to propose a joint

management by the FD and the Garos, where a significant share of the revenues derived from eco-tourism could be invested for development of the Garo community. This would have been wiser all the more in view of the past track record of the FD in their mission of conservation. Such a co-management model would have been more satisfying for both parties in terms of development, conservation and revenue generation. Even our region is already replete with examples of such management strategies. It is time that our government resource managers still steeped in colonial psyche of policing natural resources learn to adapt to changing demands and needs of time.

River-Linking Project of India: An Environmental Threat Emanating from Across the Borders

Many country leaders and scholars argue that the next war in the Middle East is likely to be over fresh water, not oil. Not so long ago, former Indian Prime Minister Vajpayee warned that “conservation of water was so essential that if steps were not taken to do so now, the day was not far off when people would fight over it” (AFP, 04 May 2003). As mentioned, the potential for armed conflicts over water depends on country and regional dynamics. Literature on this subject focuses mainly on the Middle East, rather than on South Asia, because of Western strategic interests there. About 40% of humanity lives in the 263 major international water basins shared by two or more countries, of which 158 lack cooperative agreements; hence one should expect an increasing need for bi-and multi-lateral treaties to prevent conflict.

In 2003 the Government of India has tasked an 8-member Panel with assessing an ambitious scheme to interlink India’s rivers to reduce water shortage as well as floods. The panel was headed by former Power Minister Suresh Prabhu, a stalwart of the ruling BJP (he later resigned). The project aims to connect nearly 30 rivers in the country and envisages diverting water from surplus river basins in the flood-prone northeast to water deficit central provinces. According to India’s Ministry of Water Resources, the project report

is expected to be completed by 2006, with the linkage possibly finished by 2016. BBC reported that India's erstwhile BJP-led government saw the inter-linking of rivers as a long-term solution to many of the internal water-related problems and inter-state conflicts.

The former ruling party planned to involve its grass-roots activists in the project (BBC News, 23/05/03). "We plan to disseminate the idea and educate the masses through our party workers," President of the BJP's youth wing, Kishan Reddy, told BBC. Mr. Reddy, who was heading the awareness drive, said workers of the youth wing would take the concept to state capitals from where they would spread into the districts and villages. The BJP argued the project, when complete, was expected to irrigate an additional 150 million ha of land and generate 3,500 MWs of electricity; this would boost India's food production from about 200m tonnes a year to 500mt, the annual average income of farmers rising from the present \$40/acre of land to over \$500. The then Prime Minister even called for German assistance and expertise in the project (*The Hindu*, 30/05/03).

Prabhu said he had for inspiration the neighboring China's mammoth river diversion projects, including the newly begun \$59 billion project to divert water northward from the mighty Yangtze to Beijing and other areas. But hydrology experts have warned that India is not China – either topographically or in its political organization (Dawn Internet version, 16/05/03).

The project has been elevated to the level of a creation myth by referring to it as "Amrit Kranti", invoking the imagery of *Sagar Manthan* – the creation story of Indian mythology in which the gods and demons churned the ocean leading to the separation of the "Amrit" (nectar) from the "Vish" (poison). This is the symbolism with which the project is referred to in the new brochure produced by the Task Force on Interlinking of Rivers.

Several environmental bodies raised concerns that the project would alter the basic character of many rivers and leave several

thousand people displaced. The famous environmental expert, Vandana Shiva argues that "at a time when conservation should guide water resource planning, an obsolete paradigm of non-sustainable water use and water management is being pushed through the river-linking project." (Znet, 17/11/2003). The project is a "waste of money" and a "political gimmick," says Medha Patkar, who leads the Narmada *Bachao Andolan* (NBA) or Save the Narmada Movement, one of India's best-known popular movements against the construction of giant dams across the westward-flowing Narmada river in the central part of the country. A People's Water Parliament was organized at Ken-Betwa river basin in 2003, whose link is likely to increase flooding and farmers have started protesting. The drying up of the Aral Sea in the former Soviet Union and the fact that the Colorado River in the US no longer reaches the sea and the fact that only 10% of the Nile now gets to the Mediterranean Sea are better-known results of human beings tampering with rivers.

Analysts suggest that the calculation of the former BJP government was that even if water did not reach dry areas, the project would win it support and votes in the elections. As is known, the sharing of river waters is an issue of tensions among some states, the most outstanding example being Karnataka and Tamil Nadu. These two southern states have been fighting for over a century over the Cauvery river. The BJP government counted that this project would win over the competing states over sharing of river waters. The election results proved otherwise, with apparently no visible impact of the RLP on the voters. Now, the Congress-led government seems to be taking a go-slow approach to the RLP.

India has ignored the international implications of the project. Already President Gen Parvez Musharraf said that any disturbance to a treaty to share the water of the Indus would be cause of war (Znet, 17/11/2003). **Bangladesh** fears the project would bring about colossal economic damage to deltaic plainlands, reducing river flows and navigability, depleting fish stocks and threatening the livelihoods of millions of people. It could also lead to desertification in the north and increased siltation at river mouths in the south.

Reports in the Bangladesh press say, if India goes ahead with the construction of a dam on the river Barak for irrigation and hydroelectricity, the natural flow into the rice terraces of Bangladesh' fertile Sylhet will be reduced drastically. The Barak is said to be the first in a series of trans-boundary rivers to be dammed by India under the project. At the 35th JRC meeting held in Delhi in 2004, the agreement on the joint statement text lurched into many hours of extra time because of serious differences in which India wanted Bangladesh to drop the river-link issue, saying the project was in a conceptual stage. But Bangladesh insisted and it was mentioned in the text (*The Daily Star*, 02/10/03). Ainun Nishat, a former member of the Joint Rivers Commission, suggested for the formulation of a long-term strategy based on a quantitative analysis of probable adverse effects of the river-link project (*The Daily Star*, 02/10/03).

Bangladesh blames India for violating the 1996 Water Treaty by diverting more water from the Ganges at Farakka than agreed upon, leaving fertile hinterlands in the lower riparian country parched in the dry winter. But India does not agree, saying it is releasing the stipulated minimum amount of water during the lean season. Evidence shows that the north-western part of Bangladesh is affected by expanding desertification. It may be mentioned that Nepal and Bhutan are also likely to be negatively affected by this river-link project.

This development shows there is a potential even of armed conflict between Bangladesh and India. Most of the conditions that can lead to war over water, mentioned in Part-I, are present in the region, except the one that Bangladesh as the lower riparian country is militarily much more weak, compared to India. Therefore, the only option for Bangladesh is to pursue a vigorous hydro-diplomacy, both within and beyond the region. In these efforts, Bangladesh may take resort to the approaches of Riparian Rights and Equitable Utilization by all countries in a shared river basin.

Climate Change

The Third Assessment Report (TAR) of the Intergovernmental Panel on Climate Change (IPCC) predicts a 1.4 to 5.8 degree increase in temperature by 2100. Large changes in regions' rainfall and an increase in storminess of their weather are also likely. Several UN reports issued in December 2003 also warn of dramatic consequences of climate change. WMO reports that late 20th century temperatures were the highest for the past millennium, the 1990s were the highest decade in the Northern Hemisphere, and 1998 the warmest year in the past 100 years.

Effects of climate change are not the same across the globe. Those economies less dependent on agriculture and natural resources may not care much. The developing, tropical countries of Asia, Africa and Latin America are likely to be affected most. In the TAR, the IPCC states that the "effects of climate change are expected to be greatest in developing countries ... in terms of loss of life, effects on investment, and effects on the economy." The IPCC concludes that LDCs will experience:

- greater food insecurity due to changing weather patterns;
- diminished access to water resources as precipitation decreases;
- irreversible loss of biodiversity;
- increased incidence of water-borne and vector diseases as climatic zones shift;
- sea-level rise leading to coastal erosion and salt water intrusion; greater incidence of flooding; and
- exacerbated desertification.

According to the TAR, the sectors and areas of agriculture, water, coastal zones and marine ecosystems, human settlements, human health, energy and industry would be most affected. A 45cm sea level rise (SLR) would inundate 10.9 % of Bangladesh territory, exposing 5.5 million populations of the coastal areas (WG II, TAR, IPCC, 2001). It is by now widely known and recognized that Bangladesh is one of the most vulnerable countries to the impacts of

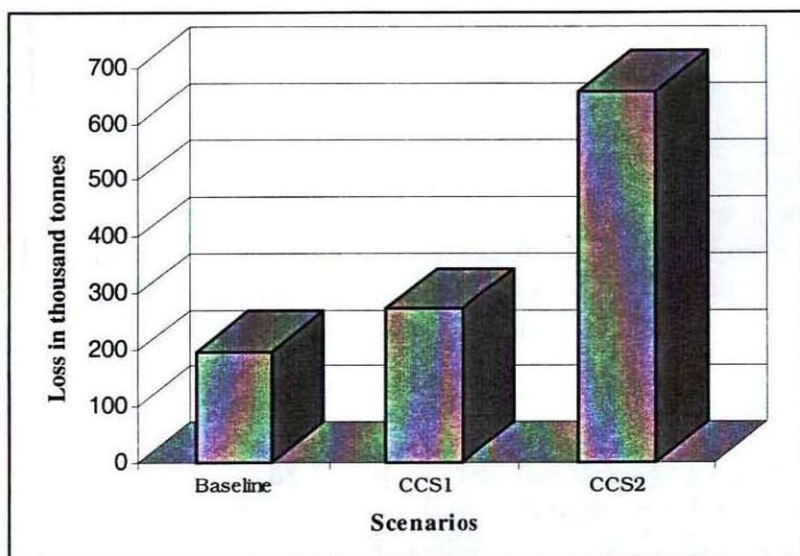
climate change. Geographic, socio-economic and demographic features of Bangladesh make her extremely vulnerable to natural disasters including climate events. More than 90% of Bangladesh's stream flow originates from outside the country (Ahmad, Q.K et al., 1994). Thus, Bangladesh being the lowest riparian bears the brunt of flooding in the Ganges-Brahmaputra-Meghna (GBM) region. Climate change effects are issues of Bangladesh's very physical survival, for which our country contributes least.

Some Examples of Impacts from Climate-related Events

- Over 40 cyclones took place during 1960-2002: Human casualty from the 1970's most severe cyclone stood at around 0.5 million. Again, the 1991 cyclone and storm surge in the southeast of Bangladesh killed about 150,000 people.
- 7 major floods happened during 1974-1998;
- The 1998 flood kept about two-thirds of Bangladesh under water for two months; about 40 million people affected, and over 1000 lives lost.
- About US\$ 5 billion in economic losses due to 1991 cyclone and 1998 flood, which is about 10% of the country's GDP.

The geographical location and socio-demographic feature of Bangladesh makes it one of the most vulnerable countries to climate change. Its long coastline, vast low-lying landmass, high population density and nature-dependent agriculture would be impacted upon due to climate change. Impacts of climate change has been assessed under different climate change scenarios for different sectors and the following areas have been identified as critical where development policy makers will have to consider necessary measures to combat the adverse impacts of climate change in a warmer Bangladesh.

Impact on Agriculture: The impacts of climate change on production of rice and wheat have been assessed by some studies. One study (Karim et al, 1999) concluded that production of rice and wheat would decline from 15 to 40% due to a 2-4⁰C rise in temperature (Table 7).

Figure 3. Total loss in food grain production under climate change scenarios

Effects of Sea Level Rise: Sea level rise (SLR) would have far reaching effects on the economy, infrastructure, ecosystem, production and livelihood systems. It has been estimated that more than 25,000 sq.km (over 17% of the total area of Bangladesh) would be affected by inundation due to sea-level rise. About 80 to 100% of the land area of some southwestern coastal districts (Patuakhali, Barisal, Noakhali, Comilla) would be under the threat of one-meter of sea level rise. Other infrastructures including road, railway, small towns/municipalities, coastal embankment, and one sea-port would be affected by one-meter of SLR. Other adverse effects would include increased flooding, salinity intrusion, frequent tidal surges in the cyclone prone coastal zone.

Fresh water availability: Availability of fresh water will become a serious problem in the dry season due to low river flows and increased evapo-transpiration in the dry period. The flow in the lean season is restricted through the structural controls of the cross-border rivers by the upstream neighbor. As a result, the country faces

serious problems in the western and southern coastal areas. The additional effect of saline water intrusion in the estuaries and into the groundwater stimulated by low river flow and sea level rise will be significant. Pressure of the growing population and economic development will further reduce fresh water availability.

Increased intensity of disasters (extreme events): Disasters including cyclones/storm surges, floods and droughts will become evident with climate change. Though the country is relatively well equipped in one aspect of disaster management i.e. disaster response, there remains a serious lack of current data (specially in terms of lead time) in monitoring, and preparing for these events. Additionally, increased intensity of the disasters implies major constraints to the country's social and economic development, particularly in its coastal zone, covering about 30% of the country. Private sector investment in this area is likely to be affected by the risks of cyclones and increased flooding.

Contribution of Bangladesh to Climate Change

As an LDC, Bangladesh makes minimal contribution to global emission of greenhouse gases through various activities. The sectoral activities that contribute to GHGs, include energy, agriculture, forestry, transportation and households. Total emissions of CO₂ in Bangladesh is about 25 million tons, up from 7.6 million tons in 1980. Per capita emission of CO₂ is about 0.2 ton in Bangladesh, compared to 1.6 ton in the low-income countries and about 5.0 tons in the world as of today.

Relationship between Sustainable Development and Climate Change (CC):

It is clear from the above discussion that the relationship between SD and CC is negative. Effects of CC are likely to undo the efforts aimed at SD. Here is a vicious circle. Combating CC and adapting to its impacts are preconditions to ensuring SD. At the same time, economic development will enable to withstand the effects of climate change. One of the principles of the UNFCCC (Art

3.4) states: "The Parties have a right to, and should, promote sustainable development. Policies and measures to protect the climate system against human-induced change should be appropriate for the specific conditions of each Party and should be integrated with national development programs, taking into account that economic development is essential for adopting measures to address climate change." Bob Watson, the former Chair of the IPCC, rightly stated that climate change should not be viewed as an environmental issue, but very much as a development issue.

Initiating a Sustainable Development Strategy and an Environmental Security-oriented Diplomacy

It is clear from the above discussion that Bangladesh is really in a predicament in terms of natural resource endowment, relative to population pressure. Pressure on limited environmental resources will surely increase in future, as the country passes through the development trajectory. However, environmental pressure to a great extent can be obviated through initiating a long-term sustainable development strategy, a buzzword now used by every development practitioner. In the context of Bangladesh, environmentally-sound development will be a real uphill task. This can be eased out only through a management practice that is socially equitable. Experience worldwide and in Bangladesh shows that government management of natural resources is not effective because of many reasons. Therefore, involving the local communities and local governments in autonomously managing natural resources is the way out to sustain resources under heavy biotic pressure. Based on this assumption, the paper sought to argue that communal systems of resource management and customary rights of tribal peoples conflict with the government policies in this regard. The latter contributed to differentiation both within the tribals and between them and the Bangali settlers. Since the upland people were not used to the culture and regime of private property rights, they need time to catch up with the Bangali settlers. So the Land Commission established under the Peace Accord should have this consideration while dealing with land settlement cases.

Regarding the regional and global issues of water sharing and climate change, Bangladesh needs to initiate an environmental security-oriented foreign policy. The reasons are obvious: in an era of declining development assistance, the need for reduction of poverty is viewed, not so much from humanitarian perspective, but from the perspective of environmental protection in countries like ours. It is in this context that growing shortage of fresh water will have extremely serious consequences on our poverty alleviation efforts. Climate change will only exacerbate the water problem. Bangladesh needs to highlight the Indian river-link project from this perspective as a challenge that is likely to undermine our whole development programs. The more powerful India as the upper riparian country will try to stick to the approach of Absolute Sovereignty in harnessing the shared rivers upstream. But in this age of globalization, this approach is not valid from the perspective of international law. Bangladesh needs to buildup coalition and strengthen lobbying with Nepal, Bhutan as well as with Indian environmentalists who share common perspectives and interests with us. Doing solid homework in-country and within the region will strengthen our case in global forums. It may be recalled that the Dhaka Declaration of the 13th SAARC Summit stressed the need of regional cooperation in areas including water resources. Bangladesh's position based on the principles of Riparian Rights and Equitable Utilization is expected to contribute to building diplomatic pressure on militarily-powerful India, with whom Bangladesh cannot afford to wage an armed confrontation.

Regarding the extreme vulnerabilities due to global warming, Bangladesh already has some good will from the international community. Our country needs to build on that. The international community has accepted the principle of common but differentiated responsibility, contained in most of the multilateral environmental agreements including the UNFCCC in solving problems of global commons like the atmosphere. Based on this principle, Bangladesh can lead the LDC and other developing country groups through serving as the intellectual hub for climate negotiations. Increasing

amounts of project and program funding are available under the UNFCCC including the LDC Fund established to fully finance the preparation and implementation of the National Adaptation Programs of Action (NAPA). Therefore, this NAPA needs to be integrated with the country's long-term development strategy. As the effects of human-induced climate change are a long-term phenomenon, building capacities at different levels for facing the recurring disasters from climate variability will prepare Bangladesh for ensuring environmental security. For the purpose, Bangladesh needs to change the focus of her diplomacy – towards a low-politics-oriented environmental and hydro diplomacy, which now greatly subsumes the mission of economic diplomacy. The latter in conventional form works no more until our exportable items are put on a track of environment-friendly production process. Environmental protectionism, not the conventional trade restrictions, is going to be an area of intense conflict among trading nations. Here Bangladesh, particularly the ministries of Foreign Affairs and Commerce, appears to be not responsive enough to the call of the time.

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