

Environmentally Induced Migration from Bangladesh to India

Sarfraz Alam

Abstract

Environmental crisis in the rural areas of developing countries is increasingly becoming an important cause of cross-border migration of population and South Asia is no exception to this phenomenon. Such movement of population in the Indo-Bangladesh context is generating a range of destabilising socio-political, economic, ethnic and communal tensions in India. It has embittered Indo-Bangladesh relations, causing tensions between the two countries.

This paper focuses on environmental crisis as a reason for the continued migration of people from Bangladesh to India. It shows that scarcity of land and water in the rural areas of Bangladesh, caused by rapid population growth, environmental change and unequal resource distribution and development, are causing widespread landlessness, unemployment, declining wages and income, growing income disparities and degradation of human habitat. The affected people, unable to satisfy their needs in an economically less-developed Bangladesh, are increasingly moving to India where the prospect of life appears to be better.

The study suggests that this flow of population would continue unabated, perhaps at a greater rate, unless remedial measures are taken in the places of origin of the migrants.

— * —

Introduction

Large-scale movement of population from Bangladesh (earlier known as East Bengal and East Pakistan) to India, which started in the early part of the twentieth century, is continuing unabated. The early movement of population was confined mainly to the neighbouring Indian states like Assam, Tripura

and West Bengal. But, in the recent years migrants have moved to even far off states like Tamil Nadu, Maharashtra, Gujarat, Rajasthan and Delhi. It has been reported that there are approximately 20 million illegal Bangladeshis living in various parts of India.¹ This phenomenon has generated a host of destabilising political, social, economic, ethnic and communal tensions in many states and union territories of the country.² In fact, it has become a major source of tension between the two countries.

There can be little doubt that the continued movement of population from Bangladesh to India has been due to a variety of multi-dimensional and inter-related factors—religious, political, ethnic, economic and environmental. To give some examples, millions of Hindus fled from East Pakistan to India due to communal violence following the partition of India in 1947. Similarly, about 10 million Bengalis took refuge in India during the liberation war of Bangladesh (March-December 1971). These people left East Pakistan for shelter in the neighbouring Indian states of West Bengal and Assam due to political and religious suppression. And again, thousands of Chakmas fled to India on account of ethnic conflicts in the Chittagong Hill Tracts (CHT) during the 1970s and the 1980s.

The exodus of population from Bangladesh to India has often been sudden and instantaneous. These types of forced migrations have taken place in response to specific incidents at a particular point in time and have not continued after the incidents were over. However, sustained and uninterrupted movement of population from Bangladesh to India has been taking place for reasons other than political, religious and ethnic.³ One of the major driving forces behind this type of movement of people seems to be environmental crisis in rural areas of Bangladesh. This paper focuses on environment crisis as a factor in cross-border movement of population from Bangladesh to India.

Linkages between Environmental Crisis and Migration

People of different regions usually move to other regions on a permanent or temporary basis to survive and make a living in the face of life-threatening crises. However, in recent years, environmental stress and degradation have increased particularly in the developing countries and unprecedented numbers of population of such regions are crossing the international borders in search of their livelihood. Such migrations have increasingly been drawing the attention of the researchers and policy makers.⁴

There are three important sources of environmental crisis: environmental change, population growth and uneven resource distribution.⁵ The term environmental change refers to a decline in the quality and quantity of a renewable resource that occurs faster than it is renewed by natural processes.⁵ To get a clear picture of how environmental change causes environmental crisis, a broad distinction is to be made between everyday and episodic changes. Everyday changes include soil erosion, salination, deforestation and various types of pollution, while episodic changes include floods, drought and similar disasters.⁶

Population growth creates environmental crisis in two ways. First, an increase in population means demand for more food production, more land, more energy, more water and more forest products. As a result, the per capita availability of a resource gets reduced. It also eats away any increase in development and productivity. Second, population growth contributes to environmental damage. Extremely high population density strains the existing natural resources due to their overuse. As population grows, so do economic activities in order to keep pace with demands. This, in turn, leads to decline in the quality/productivity of those resources.

Environmental crisis is also caused by the uneven social distribution of environmental resources. Which means, a large portion of a given resource is concentrated in the hands of relatively a few people while the remaining population suffers from serious scarcity.

Interaction among these three sources produces profound socio-economic stresses and increases human vulnerability. Homer Dixon⁷ has identified two common patterns of interaction—resource capture (i.e., economic marginalisation) and spatial (i.e., ecological) marginalisation. *Resource capture* takes place when a sharp decline in the quality and quantity of renewable resources in combination with rapid population growth encourages powerful groups within society to shift resource distribution in their favour at the cost of greater misery for the poor and weaker groups whose claims to resources are opposed by these powerful groups. *Ecological marginalisation* occurs when already existing unequal resource distribution in combination with rapid population growth impels displacement of people to ecologically fragile regions such as hill tracts, coastal regions, riverbanks, etc. High population density in these areas, combined with lack of knowledge and capital to protect local resources, causes severe environmental damage and chronic poverty. Economic and spatial marginalisation caused by everyday environmental change typically

increases the vulnerability of the poor to episodic change, breaking down previous defence mechanisms against ecological stress.⁸ One of the major consequences of these two patterns of interaction has been the migration of people from one region to another within a state or from one state to other neighbouring states as environmental migrants.⁹

To substantiate the argument presented above, this paper focuses on Bangladesh. The country represents an environmental pressure point with extreme population pressure on a limited natural resource base. Scarcities of natural resources caused by environmental change, rapid population growth and unequal access over these resources, are causing ecological and economic marginalisation of the poor. Already, half of its population is living at the subsistence margin. Their conditions are worsened by recurring natural disasters in the form of cyclones, riverbank erosion and floods. In other words, a vast majority of the poor fall below the subsistence margin whenever natural calamities occur. To survive, people are forced to move. The sluggish urban-industrial economy is incapable of absorbing such a large population. The absence of hope of survival in other parts of their own country leaves them with no other option but to migrate to India in large numbers.¹⁰

Scarcity of Productive Agricultural Land

Land constitutes the most important natural resource of Bangladesh and agriculture is the most important activity using this resource. Land use pattern shows that more than 53 per cent of the land is under agriculture.¹¹ Agriculture is the principal source of food and income in rural areas of the country. Of the total rural employment, about 63 per cent is in agricultural and allied activities directly or indirectly.¹¹ It contributes to about 30 per cent of the Gross Domestic Product.¹¹

Notwithstanding the importance of land as the principal means of production, Bangladesh presents a Malthusian nightmare, with too many people on too little land.¹² The man-land ratio at 0.15 acre per capita is already very unfavourable for sustainable food grain production. At the same time, there is very little scope for bringing new land under cultivation. The main reasons for the scarcity of productive agricultural land in the country are rapid population growth, land degradation, unequal distribution of land and land use conflicts.

The population of Bangladesh has increased at a brisk rate over the last fifty years. According to the 2001 Census, it has reached 129.2 million from 42.16 million in 1951, a net addition of 87.04 million people. In other words,

the country's population has tripled over the last fifty years. Accordingly, the density of population has increased from 285 to 975 persons per sq. km. The Fifth Five Year Plan of Bangladesh projected that by the year 2020 the total population of the country would be 169.8 million.¹³ This increase in population should be considered against the background of available resources, as 'population growth is the most important and constantly changing factor in the ecological equation affecting the demands on the natural resources of Bangladesh.'¹⁴ The current man-land ratio being very unfavourable for sustainable development, further population growth will be more strenuous on the availability of land.

The second important reason for increasing land scarcity is land degradation and physical loss. Land degradation refers to the human-induced decline in the overall quality of the land that occurs faster than it is renewed by natural processes. Large areas of good agricultural land are being either rendered unsuitable for crop cultivation due to environmental degradation or are lost to development projects. Though degradation of land has become a serious problem in Bangladesh, the nature and extent of the problem is not exactly known. Nevertheless, some macro level estimates of land degradation in the country suggest that the problem is not only serious but also geographically widespread.

- The organic matter content in over 50 per cent of the agricultural land is below the critical level.¹⁵
- About 8 million hectares of land shows fertility decline and deficiency of nutrients, which has significant implications for production.¹⁶
- About 4.5 million hectares and 1.75 million hectares of land have been identified to be deficient in sulphur and zinc respectively.¹⁷
- Salinity-affected areas in the coastal districts have increased to about 3.05 million hectares in 1995 from 0.83 million hectares between 1966 and 1975.¹⁸

Another important reason for land scarcity is an extremely skewed distribution, with a small proportion of households owning most of the land. For example, according to the National Agricultural Census¹⁹ undertaken in 1996, 24.14 per cent of farmers (who are rich) own 56.89 per cent and operate on 58.81 per cent of the land. On the other hand, landless and small farmers

(each owning upto 1.49 acres of land) constitute 64 per cent of total households of the country but own only 26.24 per cent and operate on 23.3 per cent of the land.

In recent years, demands for non-agricultural uses of land have been increasing day by day for carrying out developmental activities such as construction of industrial and housing complexes, roads, highways, flood protection embankments, canals, brick fields, etc. As a result, fertile agricultural land is being diverted for non-agricultural use, causing shrinkage of cultivable land. There has been a decline of cultivated land from 20.16 million acres in 1983-84 to 17.78 million acres in 1996 indicating that, on an average, nearly 2 lakh acres of cultivable land is going out of agriculture every year.¹⁹ The 1996 Agricultural Census also reports that a substantial amount of land has been diverted from cultivation to be placed under municipalities, cities, homesteads, rural roads and infrastructure development.²⁰ For example, a huge amount of productive agricultural land has been lost in the process of construction of nearly 7,000 kilometre-long flood control embankments and 150,000 kilometre-long roads of different types in the country for the past four decades.²¹

Due to increasing land scarcity, the poor in rural Bangladesh are facing serious socio-economic difficulties in the form of rising landlessness, unemployment, decline in real wages and income and socio-economic marginalisation.

The 1996 Agricultural Census is an important pointer towards increasing landlessness and marginalisation of functional landless and marginal households.²² The data shows that the functional landless households of category one (households with homesteads but without cultivated land) constituted 28.06 per cent of all households in 1996 as compared to 19.64 percent in 1984, indicating a significant growth (i.e. 5.23 per cent growth per year) in landlessness. The proportion of functional landless households of category two (households with homesteads and cultivated land upto 0.50 acre) and marginal farmers (households with homesteads and cultivated land varying from 0.51 to one acre) are also increasing sharply at the rate of 2.42 and 3.23 per cent per year, respectively. Thus, small and marginal farmers (i.e., functional landless households) are increasingly becoming landless labourers. Due to their continuing indebtedness (poverty) they are either compelled to sell or mortgage their land to meet basic expenditure or buy inputs for cultivation.

The landless and the marginal households, (i.e., households owning up to one acre of cultivated land) in Bangladesh mostly resort to the occupation of labour in agriculture and allied sectors as they fail to find jobs outside the agricultural sector. The slow growth of the manufacturing sector as well as lack of technical and professional training among the landless labourers means that the new generation of landless labourers remains attached to the occupation of agricultural labour for a living. Thus, the abundance of such labourers in agriculture means that they are compelled to work on agricultural lands of large farmers on very low wages.

The problems of unemployment and lower agricultural wages have further accentuated due to of the dismal performance of the agricultural sector. As a matter of fact, the number of unemployed persons has increased from 1 million in 1990-91 to 1.4 million in 1995-96.²³ On the other hand, there has been decline in real agricultural wage rate from about 21 taka per day in 1985-86 to 19 taka per day in 1991, dropping further to 18 taka per day in 1995.²⁴ Although there has been rapid growth in rural non-agricultural employment in the recent years, its productivity growth has been very slow.²⁵ Also, the incidence of rural poverty (estimated as percentage of the population with per capita consumption below the poverty line) has only negligibly decreased from 53.8 per cent in 1983-84 to 52.9 per cent in 1991-92.²⁶ These factors seem to be the prime motivation for their migration.

The Census report also suggests that the process of pauperisation of landless labourers is taking place in the rural areas of the country. According to the report, the percentage of landless households (i.e., households without homesteads) vis-à-vis the total households is decreasing at the rate of 3 per cent per year.²⁷ This indicates that they are either shifting from farming to non-farming occupations or migrating to urban areas within the country or to the neighbouring states of India.

Various developmental projects taken up by the state for the construction of dams, roads, railways, and highway bridges, etc., have caused physical displacement of people from their habitats. For example, the construction of Kaptai Hydroelectric Project (1957-62) on the river Karnaphuli in the CHT had caused large-scale involuntary displacement of the ethnic minorities. In the process of building a huge lake (reservoir) for the project, about 100, 000 hill people lost their lands, 40 per cent of their arable lands were inundated, and above all, 40,000 of them crossed the border and settled in India.²⁸ Similarly, the Jamuna Multi-purpose Bridge Project (JMBP) has led to the displacement

of over 100,000 persons. Some of them have been rehabilitated but most have disappeared from their homes.²⁹

Thus, scarcity of productive agricultural land and decline in agricultural production seem to be two important reasons for inducing migration. Unable to find employment in rural areas, they emigrate to urban centres within Bangladesh or to India.

Decline in the Quality and Quantity of Freshwater Resources

Bangladesh is rich in freshwater resources. There are about 700 rivers, canals and streams in Bangladesh with a total length of approximately 22,155 kilometres. The country is also endowed with numerous perennial and seasonal closed water bodies and has rich under-ground water aquifers. It receives abundant rainfall mostly during the summer and monsoon seasons.

Despite being endowed with such an abundant water resource, Bangladesh faces severe problems with respect to freshwater resources in adequate quality and quantity. Problems mainly emanate from: (i) pollution of rivers and other inland water bodies; (ii) drying up of rivers due to reduced water flow and silting during the winter season; (iii) shrinkage and disappearance of inland water bodies due to their encroachment for expansion of agricultural land and human settlement, and overuse of water for irrigation, and (iv) depletion of the underground water table due to excessive withdrawal for irrigation.

The socio-economic consequences of the decline in the quality and quantity of freshwater are usually manifested in the decline of agricultural and fisheries production, disruption of inland water transport and health hazards, which in turn act as powerful push factors for people to emigrate.

Over the last few decades, water levels in almost all major river systems of the country have shown a declining trend. This has caused losses in agriculture, disruption of inland water transportation and drop in fish catches, which in turn have resulted in the loss of sources of livelihood for a large portion of the population in the country. As a result, the inhabitants have been forced to leave their habitat for of survival elsewhere.

Increasing surface water salinity in the coastal areas and salt-water intrusion have adversely affected dry season agricultural production. Studies show that increasing soil salinity reduces productivity of rice during its germination, vegetative (early) growth and reproductive stage.³⁰ It has been reported that

agricultural production in 1.47 million hectares of coastal and offshore areas affected by salinity, has declined by 30 per cent.³¹ Other negative impacts of increased water salinity are non-availability of ground water for irrigation, industry and domestic use. According to one study, the advent of shrimp farming in the coastal areas of the country and the consequent environmental degradation has created a number of socio-economic problems such as increasing the proportion of landless farmers, loss of supplementary source of income for the landless, increasing inequality and class conflicts, and out migration.³²

Fishery, particularly open inland water fishery (i.e., rivers, canals, estuaries, monsoon-inundated flood plains, etc.) plays a dominant role in providing employment and nutrition. It provides employment to about one million people employed as fishermen, fish traders, transporters, packers etc. It also supplies 85 per cent of the animal protein intake. It is perhaps the only livelihood source open to the landless and the poor. But recently, fish production has declined due to the physical loss, shrinkage and pollution of aquatic habitats on the one hand and over-exploitation of the fish on the other. The decline in fish production has adversely affected livelihood security of the fishermen and fish traders, denied them the most important source of animal protein supply, and increased socio-economic inequality and tensions between the rich and the poor. For example, the environmental and social impact study of the Chandpur Flood Control and Irrigation Project, done in 1978, shows that the fish catch fell by about 35 per cent within two years and threw 10,000 fishermen out of work. Though the project has helped promote fish farming, only the pond owners (who are rich traders and landlords) have benefited. People who used to make a living on the flood plains have become wage labourers.³³

The numerous closed inland water bodies in Bangladesh have made water transportation in the country. The mode of transportation is an important source of employment besides its crucial role in the economic development of the country. However, due to the reduction in the volume and discharge capacities of many of these rivers and the consequent emergence of chars and shoals, the movements of motorised vessels and even non-motorised boats in many waterways across the country are getting affected. According to Bangladesh Inland Water Transport Authority, more than 9,600 kilometres of the inland river water routes across the country out of total 14,000 kilometres have lost navigability due to silting, while another 2,500 kilometres

have become risky for operating riverine vessels.³⁴ The disruption of inland water transport has affected the livelihood of boatmen, employees in waterways transport, and businessmen. For instance, according to one report, silting of the river Kushiara has led to loss of livelihood for thousands of boatmen who were completely dependent on the river for their survival.³⁵

Environmental Hazards

Bangladesh is frequently ravaged by large-scale natural disasters such as riverbank erosion, cyclones accompanied by storm surges, floods and droughts. Each year, these extreme natural events hit large areas of the country and cause human casualties and misery. Apart from this, they also cause loss to crops, livestock, forestry and physical infrastructure (see Table-1).

Virtually all of Bangladesh lies within the combined delta of the three major rivers: the Ganges, the Brahmaputra-Jamuna and the Meghna. The low deltaic terrain, extreme rainfall in the nearby hills, and high flows from these large catchments means that over 20 per cent of Bangladesh is inundated in a 'normal' flood year.³⁶ During severe floods, the affected areas exceed 36 per cent of the country and nearly 60 per cent of the net cultivable areas.³⁷ Severe floods affect people in various ways. For example, in the flood of 1998 as many as 918 people lost their lives and about 2,42,500 people became sick. Standing crops in 32,31,721 acres were fully or partially damaged. The domestic animals lost to floods were 3,928 cattle, 7,041 goats and the poultry 3,13,058.³⁸

The country is also prone to recurring tropical cyclones originating from the Bay of Bengal. Cyclones accompanied by heavy rains and tidal waves called storm surges, cause most of the damage. An average of 1 to 3 severe to moderate cyclonic storms hit Bangladesh every year, with storm-surges as much as 13 metres higher than normal, in extreme cases, which can reach as far as 200 kilometres inland.³⁹ Fifteen catastrophic tropical cyclones struck the coastal areas of Bangladesh between 1960 and 1997, causing colossal damage to the country. For example, in the tragic cyclone of 1991, more than 13.7 million people were affected, approximately 139,000 people died, and 139,058 people were injured and the total loss of livestock and poultry was about one million.⁴⁰

Table-1: Major Natural Calamities in Bangladesh: Their Geographical Spread

| <i>Type of Calamity</i> | <i>Geographical Spread</i> |
|----------------------------|--|
| River bank erosion | severe and most recurrent in 35 upzilas of the country |
| Cyclones with storm surges | Severe cyclones with storm surges reach as far as 200 kilometres inland. |
| Floods | On an average, one-fifth of the total area of the country goes under water annually. During severe floods, the affected areas exceed 36 per cent of the country and nearly 60 per cent of the net cultivable area. |

Riverbank erosion has also been a regular natural phenomenon along the major and some minor rivers in Bangladesh adversely affecting the people and their properties. The Riverbank Erosion Impact Study (REIS) shows that, of the 462 upzillas bank erosion is taking place in about 94 and of the 64 zillas it is taking place in about 50 districts. In 35 upzilas bank erosion is severe and recurrent.⁴¹

As mentioned earlier, competition over land, water and other natural resources is acute in the rural areas of the country. The scarcities of natural resources have impelled the poor and the marginalised sections of the society to move into disaster-prone areas and marginal lands, leaving them even more vulnerable to environmental disasters. As a matter of fact, millions of people live in low-lying marshy areas and swampy lands, flood-prone river valleys and plains and in the cyclone-prone coastal belt and offshore islands. The vast majority among them is very poor. These areas are subject to vagaries of recurrent natural disasters which means that these people remain subject to perpetual misery and impoverishment. Given the overwhelming dependence of the rural people on agricultural land and livestock, recurrent crop and livestock losses impoverish many farmers, particularly small and marginal farmers, resulting in food insecurity, indebtedness, land sales (landlessness), asset sales (assetlessness), unemployment and begging. The existing socio-economic and administrative responses to help these people remain lukewarm due to meager resources available to local governments and corruption among administrators.

The REIS shows that river channel migration and severe bankline erosion, often coupled with floods, intensify the risk to human life and cause severe economic dislocation which in turn leads to permanent displacement of more than a million people annually.⁴² Only limited opportunities exist in the urban areas of Bangladesh for rural-urban migration because of very low level industrialisation. At the same time, there is lack of living space in other parts of the country where secured and sustained livelihood can be had. Consequently, in the event of any natural calamity, which makes lives too vulnerable for the affected people to securely stay in the country, they usually migrate to the neighbouring states of India. One study suggests that the number of people crossing over to India increases during periods of environmental disaster.⁴³

Future Prospects

It could be argued strongly that environmental pressure will continue to increase in Bangladesh in the future and that such pressure will increasingly be causing migration of people out of rural areas of the country. There are several developments taking place in Bangladesh, which could exacerbate the existing environmental pressure, and push people out of the rural areas of the country. These include the following: -

- Population growth would continue to put pressure on agricultural land even though decline in fertility has occurred in recent years in the country. This would force more and more people to settle in and cultivate marginal lands, making them vulnerable to cyclones, riverbank erosion and floods.
- Apart from the sharp inequality in land ownership, it will be difficult to increase per capita availability of land through land reforms because of rising population density. Even if all croplands were redistributed equally to the rural population, there would only be 0.1 hectare available per person.⁴⁴
- Bangladesh has become self-sufficient in food production largely due to the expansion of the irrigated high-yielding variety *boro* rice during the winter season. But the trend of decreasing returns from such farms has already set in. Due to increase in cropping intensity, land is being exploited disproportionately with the replenishment rates of nutrients and organic matter content in 70 per cent of the cultivated land being below 2 per cent.⁴⁵ Food production across 75 per cent of agricultural

land is being severely affected due to land degradation or erosion by water and wind.⁴⁵

- Continuation of acute poverty means that both the country and individuals will not have resources to initiate environmentally sustainable practices. For the poor, the risks to survival are acute and immediate. They are facing the problems of hunger and malnutrition and lack access to the most basic ingredients of a decent life. They are caught in a vicious circle in which the immediate economic imperatives of survival force them to undermine and destroy the ecological and natural resource systems on which their future depends. In the face of rapid population growth, lack of financial and technological capacity and political will, it will be increasingly difficult to break this vicious circle.
- There is little scope for the growth of agricultural production through the expansion of cultivable areas. There has been very little increase in cultivated area since the early 1950s, and by the end of the 1960s, the saturation point in land use was already reached and there has been very little change thereafter.⁴⁶ The only option to increase agricultural production from this limited resource base is multiple cropping (growing additional crops on the same plot of land) by adopting new 'seed-fertilizer-water' technology (popularly known as the Green Revolution technology). However, the diffusion of the Green Revolution technology is constrained by the environmental costs mentioned above as well as overwhelming proliferation of small and fragmented farms. According to the Bangladesh Census of Agriculture (1996), the small farmholdings (with an average farm size of 0.87 acre) constitute 41.18 per cent of the total farm area. The corresponding figures in the 1983-84 Agricultural Census were 0.93 acre and 28.98 per cent respectively.⁴⁷ More importantly, the average size of all categories of farm holdings has a tendency to decrease over time. Even the bigger ownership units are extremely subdivided and fragmented over a wide area. Land fragmentation over several generations has resulted in uneconomic farming. The proliferation of uneconomic holdings is forcing many small farmers to sell their land and become landless labourers and this trend is likely to continue.
- Global warming and anticipated increase in sea levels will have significant implications for population displacement. The Bangladesh

Centre for Advanced Studies (BCAS) has estimated that about 17.5 per cent of the total land area will be inundated and 11 per cent of the population will be displaced if there is a metre rise in the sea level.⁴⁸

In recent decades, large number of people have moved from rural areas of the country to the urban-industrial centres. The urban areas accounted for 23.1 per cent of the total population in 2001 compared to 8.87 per cent in 1974. As a result, these centres have become overcrowded. At the same time, the slow pace of development in these areas also means that they can no longer absorb migrants from rural Bangladesh.

If these situations continue unabated, the volume of migration from Bangladesh will increase in the future and the sheer diktats of history, geography and economy will encourage them to move to India, Bhutan and Nepal.

Conclusion

The foregoing discussion clearly suggests that rural Bangladesh is faced with severe crisis of land and water, caused by rapid population growth, environmental change and political compulsions in resource distribution and economic development. The situation is further worsened by frequently recurring natural disasters. The social impact of worsening environmental crises is manifested in increasing landlessness, unemployment, declining wages and income, an environment unfit for human habitation and in growing income disparities. The poor, with low and declining standards of living, unable to satisfy their needs and aspirations in the country, often try to move to India where their prospects appear to be reasonably better. They often fail to achieve their goals by regular and legal means. As a result, they cross the border clandestinely often risking their lives. In the face of unprecedented environmental crises and the consequent socio-economic pressures faced by the people and the inadequate measures taken by the state to address the same, it can be concluded that the flow of population from Bangladesh to India will continue unabated, perhaps at an even greater pace.

Acknowledgements

The author thanks Mrs Sudha Mahalingam, Dr S. S. Deora, Dr S. Kalyanaraman, Lt Cdr Atul Bharadwaj, Dr Uttam Sinha, Dr Ashutosh Misra, Mr Sankhya Krishnan and Mr Nilmani Sahoo for comments on previous drafts

of the paper. The author also thanks the two anonymous referees for their comments and suggestions.

References/End Notes

- 1 *The Hindustan Times*, January 9, 2003.
- 2 Recommendations of the Group of Ministers, Reforming the National Security System. Feb. 2001. Government of India; New Delhi. p. 13.
- 3 However, it has been documented by some scholars that many of the Bangladeshi Hindus are being forced to steadily emigrate from Bangladesh to India, owing to, primarily, discriminatory practice against them and, secondly, fear of persecution by the state and the majority community of Bangladesh. For details, see Malik, Shahdeen, Refugees and Migrants of Bangladesh: Looking through a Historical Prism. In Chowdhury R. Abrar, Ed. On the Margin: Refugees, Migrants and Minorities. 2000. Refugee and Migratory Movements Research Unit, Dhaka. pp. 11-40; Abul Barkat and Shafique uz Zaman, Forced Outmigration of Hindu Minority: Human Deprivation due to Vested Property Act. In Chowdhury R. Abrar, Ibid. pp. 113-144.
- 4 For researchers' views see El-Hinnavi, Environmental Refugees. 1985. United Nations Environmental Programme; Kenya; Judi L. Jacobson, Environmental Refugees: A Yardstick of Habitability. 1989. Worldwatch Paper 86. Worldwatch Institute; Washington; Judi L. Jacobson, Environmental Refugees: Nature's Warning System. *POPULI*, 1989, **16** (1) 29-38; Suhkre A., Environmental Degradation, and Population Flow. *Journal of International Affairs*, 1994, **47** (2) 475-496; Graeme Hugo, Environmental Concerns and International Migration. In Vaughan Robinson, Ed. Migration and Public Policy. 1999. An Edward Elgar Collection. UK. pp. 575-601. For policy makers' views see Kimberly A. Hamilton, Europe, Africa, and International Migration: An Uncomfortable Triangle of Interests. In Vaughan Robinson, Ibid, pp. 330-35. Mike King, The Impact of Western European Border Policies on the Control of "Refugees" in Eastern and Central Europe. In Vaughan Robinson, Ibid, pp. 352-368. Jagdish Bhagwati, Borders Beyond Control. *Foreign Affairs*. Jan/Feb 2003, **82** (1) 98-104.
- 5 Homer-Dixon, Thomas F., Environmental Scarcities and Violent Conflict. *International Security*. 1994, **19** (1) 8.
- 6 Bryant, Raymond L., Political Ecology: An Emerging Research Agenda in Third-World Studies. *Political Geography*. 1992, **11** (1) 26.
- 7 Homer-Dixon, Thomas F., no.5, pp. 10-11.
- 8 B. Shenton and M. Watts (1979) quoted in Bryant, Raymond L., no.7, p. 26.
- 9 Maddock, Rowland T., Environmental Security. In M. Jane Davis, Ed. Security Issues in the Post-Cold War World. 1996. Edward Elger; Cheltenham, U.K., p. 177.
- 10 Swain, Ashok., The Farakka Barrage: A Double Edged Sword, *Theoretical Perspective*, 1996. **3** (4) 143.
- 11 *Statistical Pocketbook Bangladesh 1999*. 1999. Bangladesh Bureau of Statistics; Dhaka.
- 12 Hazarika, Sanjoy, Strangers of the Mist. 1994. Penguin Books; New Delhi. p. 10.

- 13 Khatun, Fahmida Akter, Population and Environment in Bangladesh: Designing a Policy Account for Linkages. 2000. Paper no.12, Centre for Policy Dialogue; Dhaka. p. 2.
- 14 Dean, B. P., and Wit Treygo quoted in S. M. Nurul Alam, Perception of Ecological Problems and its Implications for Bangladesh's Ecological Future. *In* Wolfgang L. Werner, *Ed.* Aspects of Ecological Problems and Environmental Awareness in South Asia. 1993. Manohar; New Delhi. p. 43.
- 15 *State of the Environment Bangladesh 2001*. 2001. The United Nations Environment Programme; Thailand. p.31.
- 16 Karim, Z., and A. Iqbal, quoted in *State of the Environment Bangladesh 2001*, no. 18. pp. 32-33
- 17 Karim, Z. and A. Iqbal, quoted in Fahmida Akter Khatun, no.16. p. 5.
- 18 Karim, Z., S. G. Hussain and M. Ahmad, quoted in *State of the Environment Bangladesh 2001*, no.18. p. 32.
- 19 Saha, Bimal Kumar, Changing Pattern of Agrarian Structure in Bangladesh: 1984-1996. *In* Abu Abdullah, *Ed.* Bangladesh Economy 2000 Selected Issues. 2001. Bangladesh Institute of Development Studies; Dhaka. pp. 73-85.
- 20 *Ibid.* p. 75.
- 21 *Ibid.*
- 22 Hassan, Dr. Mir Muhammad, Land Degradation in Bangladesh. *Bangladesh Observer*. Dhaka. April 30, 2002.
- 23 Saha, Bimal Kumar, no.22, pp. 73-85.
- 24 *Statistical Pocketbook Bangladesh 1999*, no. 12.
- 25 Sen, Binayak, Growth, Poverty and Human Development. *In* Rounaq Jahan, *Ed.* Bangladesh: Promises and Performance. 2000. The University Press Limited; Dhaka. p. 272.
- 26 Sen, Binayak, quoted in Binayak Sen, no.28. p. 300.
- 27 Sen, Binayak, no.28. p. 294.
- 28 Saha, Bimal Kumar, no.22. p. 74.
- 29 Ahmad, Imtiaz, On Rivers and (Environmental) Refugees, *In* Jurgen Axer, *Ed.* The Human Rights Community and Conflict Resolution in South Asia—the Applicability of European Examples. 1995. New Concepts Information Systems Pvt. Ltd; New Delhi. p. 166.
- 30 Gain, Philip, Underlying Causes of Internal Displacement and Economic Dispossession in Bangladesh. *Abstract of the Paper presented in the National Conference on the Internally Displaced Persons in Bangladesh: Towards Developing Research and Policy Agenda*. Dhaka, 1999. Refugee and Migratory Movement Research Unit, Dhaka. Feb 15-16, 1999. p. 15.
- 31 Bangladesh Rice Research Institute, quoted in *State of the Environment Bangladesh 2001*, no.18. p. 51.
- 32 Ahmad, Q. K., et al (1994) quoted in Fahmida Akter Khatun, no.16. p. 7.
- 33 Rahman, Atiur, The Impact of Shrimp Culture on the Coastal Environment *In* A. Atiq Rahman, *Ed.* Environment and Development in Bangladesh, vol. 2. 1994. The University Press Limited; Dhaka. pp. 499-524.

- 34 Chowdhury, Mahmuda, Fisheries. *In* Kelly Haggart *Ed.* Rivers of Life. 1994. Bangladesh Centre for Advanced Studies; Dhaka. pp. 95-120.
- 35 *The Independent* (Dhaka), March 4, 2000.
- 36 *The Daily Star* (Dhaka), July 8, 2000.
- 37 Thompson, Paul M. and Parvin Sultana, Distributional and Social Impacts of Flood Control in Bangladesh. *The Geographical Journal*, March 1996, **162** (1) 1.
- 38 Elahi, K. Maudood, Riverbank Erosion, Flood Hazard and Population Displacement in Bangladesh. *In* K. Maudood Elahi et al, *Eds.* Riverbank Erosion, Flood and Population Displacement in Bangladesh. 1991. Riverbank Erosion Impact Study Dhaka; Dhaka, p. 96.
- 39 Disaster Management Bureau , quoted in *State of the Environment Bangladesh 2001*, no.18. p. 103
- 40 Milliman, J. D., et al, quoted in *State of the Environment Bangladesh 2001*, no.18. p. 99.
- 41 *State of the Environment Bangladesh 2001*, no.18. p. 102.
- 42 Elahi, K Maudood, Impacts of Riverbank Erosion and Flood in Bangladesh: an Introduction *In* K. Maudood Elahi et al, *Eds.* no.46. p. 4.
- 43 Ahmad, Imtiaz quoted in Sanjoy Hazarika, India and its North East: The Challenges of Regionalism and Migration in Kousar J. Azam, *Ed.* Ethnicity, Identity and the State in South Asia. 2001. South Asian Publishers; New Delhi. p. 200.
- 44 McIntire, John, The Prospects of Agricultural Growth. "Bangladesh Agriculture in the 21st Century" atites/bangladesh%20Web.nsf/0704a4348e105b2e462566720023975f/370f3af793c7c41546256711001bb7c1?OpenDocument
- 45 Siddique, AKM Tafsir Uddin, Issues in Agricultural Extension. *Ibid.*
- 46 Saha, Bimal Kumar, Agrarian Structure and Productivity in Bangladesh and West Bengal: A Study in Comparative Perspective. 1997. The University Press Limited; Dhaka. p. 125.
- 47 Saha, Bimal Kumar, no.22, pp. 73-85.
Bangladesh Centre for Advanced Studies, quoted in James M. Broadus, Sea-level rise and the Bangladesh and Nile Delta. *In* Jeanne X. Kasperson and Roger Kasperson, *Ed.* Global environmental risk. 2001. United Nations University Press; Tokyo. pp. 257-258.

Dr Sarfaraz Alam is a Researcher at IDSA. He has a PhD in Political Geography from the Centre for International Politics, Organisation and Disarmament (CIPOD), Jawaharlal Nehru University, New Delhi. His research interests include environmental security, international migration and borderland management related to South Asia.