Climate Change Induced Bangladeshi Migration and its Implications for India

Climate change is increasingly affecting ecosystems and the communities who rely on them. People can adapt and mitigate those problems or can leave the affected areas. Cross border migration is one of the anthropogenic responses to environmental stress, and in this case, the pace of change in the environment plays a significant role on the mode and direction of migration. Bangladesh is one of the most vulnerable countries of South East Asia because of its geographic location, flat and low-lying topography, high population density, riverbank and coastal erosion, water logging, reliance of many livelihoods on climate sensitive sectors, erratic rainfall, increased frequency and intensity of cyclone, storm surge, floods, droughts and salinity. Such environmental problems are forcing people to involve in illegal migration to the nearby areas of India. Large volume of Bangladeshi migration is triggering various socio-economic, security, ethnic and communal problems in India. In this context, this study aims to focus on the past, present and future climate change scenario and resultant migration of Bangladeshi people into India and, Indo-Bangladesh approach to tackle this problem. The concluding section suggests certain practicable policy measures.
Climate Change Induced Bangladeshi Migration and its Implications for India

Sutandra Singha

Introduction

Climate change is the single most important global issue and climate refugees are the human face of this ongoing tragedy. From this point of view, Bangladesh is one of the most vulnerable countries of South East Asia due to its landform and climatic characteristics. This country is bordered on the west, north, and east by India, on the southeast by Myanmar and on the south by the Bay of Bengal (Fig: 1). The land of Bangladesh, covering an area of 148,393 km² is mainly the deltaic plain of the Ganges, Brahmaputra and Meghna River system (Ericksen et al. 1996:205). The alluvial soil is highly fertile and most of the land is exceedingly flat and low-lying. A huge tract of mangrove swamp, the Sundarbans lies along the coast of Bangladesh and West Bengal between the estuaries of the Meghna and Hugli rivers (UNESCO 2015). The prevailing climate is of monsoon type and the agriculture, which is dominating sector of Bangladesh’s economy, is adjusted to its wet and dry seasons (Encyclopaedia 2007).

It is very difficult for Bangladesh to cope with the natural disasters as well as the effects of the climate change with its limited resources. Flashfloods in the flood plain areas, rising sea water levels in coastal areas, riverbank erosion and drought in the interior areas and, landslides in the hilly areas have made the people almost captive. Environmental problems are creating a negative effect upon the total amount of food and fresh water availability in Bangladesh followed by increasing unemployment and poverty. Thus, people are being compelled to migrate northwards into Dhaka and chiefly into the neighboring country of India. Migration is often perceived as a failure to respond or reaction to climate change and growing environmental problems. However, migration should be considered as one of the adaptation strategies to tackle environmental problems. While programmes and policies to manage environmental migration should aim to provide adaptation strategies that allow people to live and work in their current location, this may not be possible in areas where environmental changes are frequent and unpreventable. The migration-environment relationship is complex as environmental factors alone do not lead to migration flows but are also influenced by diverse drivers such as social,
economic, political, and cultural factors. Moreover, migration due to environmental reasons could have significant environmental consequences for areas of origin and areas of destination, especially in the case of population displacement. Without adequate prevention or response, this has potential to create a vicious cycle where environmental migration causes or accelerates environmental degradation in the areas of destination which induces migration of local people. Currently India is facing multiple problems due to constant immigration of Bangladeshi climate refugees. Although Bangladesh Government upholds the idea of finding relocation of climate refugees in foreign countries, it has not yet outlined any policy regarding the mechanics for it. India also seems indifferent to this issue.

**Objectives**

This paper will focus on the past, present and future scenario of the socio-economic impacts of climate change and resultant natural disasters in Bangladesh, causes and consequences of migration from Bangladesh to India and Indo-Bangladesh approach to tackle the overall problem. The concluding section suggests certain practicable policy measures.

**Data Source and Methodology**

This paper is written on the basis of primary and secondary information. Primary data have been collected from Intergovernmental Panel on Climate Change (IPCC) Assessment Reports, portals of NASA Earth Observatory and United Nations Environment Programme (UNEP), online articles, portals of Government of Bangladesh (GoB) and Census of India 2001. Secondary information has been collected from government reports, e-books, electronic journals, newspapers and newsletters. In this study, a relationship has been shown between Bay of Bengal’s increasing sea surface temperature (SST) and number of cyclones making landfall on Bangladesh, in order to predict the frequency of cyclone and possible mass displacement from cyclone affected areas in future. Individual and combined natural hazard maps have been analyzed in order to represent a detail and better picture of natural hazards in Bangladesh. Outcome of these analyses have been supported and further clarified using information obtained from secondary sources.
Climate Change and Migration in Bangladesh: Past, Present and Future Scenario

Bangladeshis currently facing many climate change related challenges such as sea level rise, drought, floods, river bank erosion, coastal erosion, cyclone, water-logging etc. In Bangladesh, climate change affects as aspects of life and therefore compels population to move to other places. By 2030, as many as 20 million people of Bangladesh will become climate refugees failing to cope with change in the climate (Wax 2007). Consequences of the effect of climate change are presented as follows:

1. **Floods**: Floods are a fact of life for many in Bangladesh. In the last 25 years, frequency of severe floods has intensified and, one fourth of the country gets inundated each year (Siddiqui 2011). Devastating floods have occurred in Bangladesh, especially the years 1842, 1858, 1871, 1875, 1885, 1892, 1951, 1966, 1987, 1988 and 1998 (SADKN 2013). More recent floods include 2004, 2005 2007, 2010, 2011 and 2014. With respect to climate change, the El Niño events have become increasingly frequent and therefore flood events and water logging appear to become more extreme day by day. The contributing factors for causing floods in Bangladesh are: low topography, heavy rainfall, congested river network system, snow melt in the Himalayas, tidal and wind effects on slowing down the river outflow, sea level rise and siltation in river bed due to landslide or human activities i.e. construction, ground water extraction etc. Bangladesh has more than 230 major rivers, their tributaries and distributaries (UNDP: Bangladesh 2012). Each year almost 30-70% of the country’s total land is flooded, out of which some 80% is under river/monsoon flood area and almost 20% area (covering parts of north-east, northwest and south-east Bangladesh) is vulnerable to flash flood (Fig:2).

2. **Cyclones and Tidal Surges**: The entire coastal area is highly vulnerable to tidal surges and cyclones (Fig: 3). Since 1970, 26 major cyclones have hit this country, among which, 18 have occurred in the last 20 years affecting a total of 19 million people (Siddiqui 2011). In the last three years, two high intensity cyclones hit Bangladesh - super cyclone Sidr of 2007 and cyclone Aila of 2009 (Barua 2014). After the Aila cyclone, seasonal migration from affected areas increased manifold, almost 100,000 from Koyra, Paikgacha, Dakope and Batiaghata (Siddiqui 2011). Bangladesh frequently
becomes the landing ground of cyclones originating in the Bay of Bengal due to the funnel shape of its coast and of course because of changing nature of climate. According to IPCC Report 2007, this phenomenon is taking place due to the increasing sea surface temperature in the Bay of Bengal.

The comparative analysis of Fig: 4 and Fig: 5 show that, the number of cyclones making landfall in Bangladesh has increased with increasing SST of Bay of Bengal. Low and flat terrain, high population density and poorly built houses allow the cyclonic storm to cause huge destruction. Damages mainly occur in the coastal areas of Khulna, Barisal, Patuakhali, Chittagong and Noakhali the, offshore islands of Sandwip, Bhola, Hatiya, Manpura, Maheshkhali, Kutubdia, Urir Char, NijhumDwip, and other newly formed islands (Banglapedia 2015). The storm surges accompanying the cyclones cause more casualties in the offshore islands and coastal areas of Bangladesh than the cyclone itself. Such destruction includes the widespread demolition of houses, uprooting of trees, damage of constructions, transport links, and communication networks and, loss of human life and livestock.

3. River Bank Erosion: Ganges, Yamuna, Padma and Meghna- all are highly susceptible to riverbank erosion and, almost 5% of the total floodplain of Bangladesh is directly affected by river erosion (Fig: 6). The widening of Yamuna in a period of 28 years has resulted in a loss of 70,000 ha of floodplain and the bank-lines of Padma and Meghna are highly unstable (Patwary 2015). During monsoon, extensive overbank spills, bank erosion and bank-line shifts have become typical. The shifting and encroachment behavior of the rivers not only affect the rural floodplain settlements but also the urban areas and infrastructures (The Bangladesh Network 2015). Due to heavy siltation in the south-western part of Bangladesh and newly formed char land, the flows of rivers are getting changed to another direction, creating new stress and expose to erosion (EJWG 2002). Climate change is likely to increase rainfall in the river basins of Bangladesh in the monsoon season followed by increase in both of the volume and velocity of water flow as well as increase in sediment movement. Overall river systems are expected to become more unstable as a result of climate change.
Displacement is the immediate impact of riverbank erosion. Each year about 1 million people are affected by it. People either migrate to greater distances or cross the border to enter India. The displaced people usually move to nearby areas or to distant places. In erosion-prone areas, most families have witnessed a displacement in their lifetime (Banglapedia 2015). Every year riverbank erosion destroys settlements, standing crops, and farm land, covering about 94 upazilas of the country (Banglapedia 2015).

4. **Sea Level Rise**: Climate warming, melting of Himalayan glaciers, resultant sea level rise and submergence of coastal areas will likely to pose new distresses to Bangladesh in near future. Moreover, the collision between downwards current of fresh water and uprising sea level creates strong twirling that cause erosion to the coast (EJWG 2002). With over 60 percent of its land, less than 5m is situated above mean sea level. Most of the people in Bangladesh are dependent on agriculture and the harmful effects of sea level rise on agriculture will cause severe food crisis (Tarik 2012). Saline water intrusion has already reduced the growth of crops in the coastal regions (Haque 2006:1363).

In Bay of Bengal, a sea level rise of just 40cm will possibly put 11 percent of Bangladesh’s coastal area under water leaving 7 to 10 million people homeless (IPCC Report 2007). A sea level rise of 1.0 meters could make Bangladesh lose about 11 percent of its land by 2050, which would affect around 15 million people (Fig: 7). Sea-level rise (SLR) is projected to significantly increase coastal erosion, saline intrusion, flooding and water logging and storm surge. In fact SLR is considered as the biggest cause of mass displacement ranging from 30m to 40m.

5. **Droughts**: The long term erratic behaviour in rainfall pattern along with diversion of water by upper riparian state and over-extraction of ground water cause drought every year in parts of Bangladesh, especially the North-west and South-West part (Abedin et al. 2012: 175). Droughts occurred in Bangladesh 24 times between 1949 and 1991. Bangladesh had been hit by very severe drought in 1951, 1957, 1958, 1961, 1972, 1975, 1979, 1981, 1982, 1984, 1989 and 1995 (SADKN 2013). Every year, Bangladesh experiences two major spells of drought: Kharif (June/July to October) especially in the highlands of the Barind tract and Rabi and Pre Kharif (January to May) due to dry days and low soil moisture (Fig: 8).
About 2.7 million hectares of Bangladesh is severely drought prone and nearly 642,277 are exposed to the direct threat of drought – which has made Bangladesh the 63rd ranking country among the 184 drought prone countries of the world (SADKN 2013). Frequent droughts result in loss of crop production, unemployment and starvation. The lower socio-economic groups suffer the most. About 2.4 million rural wage laborers and 2 million small farmers are vulnerable to very severe drought and, more than 90% perennial streams have lost their flow in the dry monsoon resulting in serious water crisis for hill people (Miyan 2015:14). Water crisis is leading to outbreak of dysentery, diarrhea, cholera and arsenic contamination.

The combined Hazard Map of Bangladesh (Fig: 9) shows that, except some districts of North-East and North-West Bangladesh, others are highly vulnerable to climate change induced natural hazards. Around 45% of its total geographical area is under flood prone zone. Another 40% to 45% area is under the threat of drought. However, a significant portion of migrants originate from the north-west region which is affected by the Farrakka Dam (Siddiqui 2011). Some districts are under the threat of both flood and drought. Intense river bank erosion is there along the major rivers of this country. The entire coastal areas and off shore islands are vulnerable to rising sea level, salt water intrusion, cyclones and associated storm surges. Bangladesh is not able to accommodate internal migration on such a large scale; therefore, India will be the obvious choice for many climate migrants because it has already absorbed millions of Bangladeshi migrants - both legal and illegal, since Bangladesh first came into being in 1971 (Vaid and Maini 2013). Due to close proximity of Eastern and North-Eastern Indian through good transport network (Fig: 10) and porous border, the Bangladeshi climate refugees easily enter India in search of safer habitable palace and earning opportunity. The 2001 Indian Census shows that, out of the 5.1 million documented migrants living in India at the time, around 3 million were from Bangladesh (Census of India 2001). From this point of view, the final census of 2011 (yet to publish) is likely to reflect more large-scale climate migration to India.

**Impact of Bangladeshi Migration on India**

Environmental changes and migration is a challenge to human security and this may be especially the case for developing regions with high exposure to physical impacts of climate change and high rates of population growth. On the other hand, in the recipient country,
increasing number of outsiders creates pressure on the available resource base and employment opportunity. India is facing similar situation. Bangladeshi immigrants are semi-skilled or unskilled people and therefore compete with Indian workers in the employment market. Because of the supply of cheap labour from Bangladesh, political parties in the Indian Border States encourage this illegal infiltration (Bose 2014). India is already an overcrowded country, therefore climate-induced migration will likely lead to congestion, pollution and unplanned growth in Indian megacities and suburbs (DePaul 2012:151). All of these situations are leading to conflict. It is expected that due to climate change, many millions of Bangladeshis will flee to India in near future, exacerbating further the ongoing disputes between India and Bangladesh.

Bangladeshi immigrants in Assam and Tripura often mention natural disasters, land scarcity, degradation and poverty as reasons for migration (Rauveny 2005:10, 11). The visit to India from Bangladesh is easy and very cheap. Bangladeshis are culturally very close to the Bengali people of India. They take this cultural similarity as an opportunity to prepare false documentation and pass, which enables them to enter and settle down in any part of India, especially in eastern India (Fig:11)to establish a future by expending little money (Naik 2015). Conflicts between the native people and the new comers are not a new story. The Assamese accuse the new comers of stealing their lands (Reuveny2008:6). In 1978, the names of an estimated 45,000 Bangladeshi illegal immigrants were noticed on the electoral rolls in Assam which led to Assam Movement - a popular movement against undocumented immigrants (Sadiq 2010: 241). Toward the end of 1982 again the Assam Movement boycotted immigrants in election, which culminated into 1983 Nellie massacre, in which at least 2,191 people were died(Chatterji 2013: 476). In Tripura, the native Buddhist and Christian people became the minority and faced crisis of resources due to the Bangladeshi immigration, which ultimately turned the native people violent. Although the then Government of India (GoI) tried to calm the local outrage in the 1990s by returning land to Tripuris owners and by tightening the controls over migration, both of the migration and the violence continued at a lower intensity (Rauveny 2005: 11, 12).

In Bangladesh, extremist militant groups like Jamaat-ul-Mujahideen, Harkat-ul Jihad al Islami and Ansarullah Bangla Team are jointly working with India-based United Liberation Front of Assom and National Front of Boroland to build up a new incubation ground of
international terrorism (Rath 2015). Drug mafias and human traffickers also take advantage of this situation and easily enter India through porous borders (Rai 2011).

Over the past few years, the Indian government has treated migration solely as a security problem rather than considering it as a problem related to climate change. A recent example is the visit of India’s external affairs minister, Salman Khurshid, to Bangladesh in February 2013 to seek Dhaka’s cooperation in controlling illegal migration and smuggling across Indo-Bangladesh border (Vaid and Maini 2013). The issue of climate-induced migration was only discussed but not given priority. It was evident from Kokrajhar ethnic clashes that, India’s political class was quick to blame immigrants from Bangladesh for the clashes (Talukdar 2012). In order to prevent illegal immigration; the GoI has already sanctioned the construction of border roads and fencing in two phases. As of 31 January 2010, 2,712 kilometers out of 3,436 kilometers of fencing had already been completed. Fencing along another 101-kilometre stretch has completed in 2012 (Vaid and Maini 2013).

**Role of Bangladesh in Controlling Outmigration**

The only way to control outmigration is to control the impact of natural disasters in such a way that, people do not require changing their habitat seasonally and they get a safe and stable life. The National Adaptation Programme of Action (NAPA) and the Bangladesh Climate Change Strategy and Action Plan (BCCSAP) jointly work for capacity and resilience building against climate change effects through localization of problem (MoEF, GoB 2013). The GoB initiated a project Comprehensive Disaster Management Programme (CDMP) with overall goal to reduce the human, economic and environmental costs of disaster in Bangladesh. Dutch hydrologists along with UNICEF are involved in five pilot projects in Bangladesh to build infiltrate wells, so that fresh water becomes available in coastal areas (Water Buffer Foundation 2014). 1960 onwards, Bangladesh has undertaken massive programmes of constructing cyclone shelters in the coastal areas which has successfully reduced cyclone induced mortality and emigration rate (Haque et al. 2012).

However, migration issues are not effectively mainstreamed with Bangladesh’s environmental, disaster management or climate change policy, and there are therefore no policies for climate refugees (Bose 2014). People smuggling is flourishing, with a deeply entrenched
network on both sides of the border. Ongoing disaster management system and policies shows
great deficiencies in the overall process of disaster management system as well as collaboration
and communication gap between different level of government and NGO sector. In reality, the
GoB has undertaken a lot of plans and programs for disaster reduction through disaster
management but treated migration only as an option to avoid or escape natural hazard rather than
as a threat to their human security.

Conclusion and Recommendations

At present, emigration from Bangladesh is the combined result of social, economic,
political and environmental factors. If existing practices for handling climate-migrants continue,
the migration pattern is likely to become unmanageable very soon. Climate change is not only an
“environmental” concern but really a “development” concern for Bangladesh. The study shows
that Bangladesh is highly vulnerable to climate change and there is high possibility of increase in
both of the frequency and intensity of natural hazards e.g. flood, drought, cyclone and storm
surge, riverbank erosion, coastal erosion and, salinity. Increasing occurrence of natural hazards
are destroying the food and cash crops, hindering industrial development and agriculture and,
affecting the human health in terms of lack of proper food, shelter and fresh water. Due to
topographical and climatic characteristics, Bangladesh is such a country where, every part faces
one or more natural hazard every year. Therefore it is not possible for people especially
economically backward groups to frequently change habitat to escape natural hazard and sustain
livelihood. So, people are compelled to fee to India in search of a better and safe life. Such type
of migration is a matter of concern both for India and Bangladesh as, this process or trend is
creating pressure on the available resource and employment opportunities in India. Terrorists,
criminals and drug mafias and human traffickers are also taking opportunities of this illegal
migration and operating in both of the countries through porous border.

Keeping in mind all of the factors, it can be said that its difficult for Bangladesh to cope
with natural phenomena and provide full protection to its people due to its geographical position,
climatological characteristics, shortage of fund, lack of awareness among people and above all
lack of proper communication and transparency between the GoB and NGOs. On the other hand,
India is also in a critical position as it is facing problem to control large volume of illegal
migration and handling the pressure created by them on the land, food and employment opportunity. India and Bangladesh have been negotiating a land swap for years to resolve a long-running border conflict. GoI is trying its level best to restrict the Bangladeshi migration in India, especially in Assam where immigrants are causing religious and ethnic conflict. In the midst of governmental politicking, with the Bangladesh government disowning the environmental refugees as ‘citizens’ of the country and the Indian government calling them ‘illegal migrants’ and taking measures to push them out of India, the victims of environmental disruptions, including (mal)development, end up losing protection from both countries. That is, these victims lose protection of their basic rights and face the constant threat of deportation and abuse from local police and residents.

Instead of avoiding the poor helpless climate refugees, Bangladesh and India can individually and jointly adopt the following steps which could provide the natural hazard affected people a better stable life in their home land and also could reduce illegal migration into India:

1. Simple measures, like planting mangrove trees can have great impact in term of controlling the effect of cyclones and storm surges. Afforestation on the hills, along the roads and riverbanks is an important measure to control the soil erosion and restore the moisture content of both of the soil and atmosphere during low rainfall.

2. Construction of embankments in the coastal area is another adaptation and protection measure to obstruct the penetration of surge water. Even if the surge overtops them, the water energy will then be greatly reduced.

3. Natural Hazard monitoring, projection, early warning systems, impact assessment, combat strategy, mitigation action, emergency response and recovery measures need to be formulated properly by the GoB.

4. It is required to build up awareness among the people through NGOs. Communities should be taught practical ways to reduce disaster risk through
training, education and collaboration with national curriculum board and text book of Bangladesh.

5. In order to implement disaster management system properly, Bangladesh should reduce bureaucratic hassle at all levels. The Overseas Employment Policy of the GoB should incorporate provisions for facilitating climate refugees.

6. Instead of treating migration simply as a threat, and viewing it from a narrow security perspective, India should explore the possibility of collaborating with Bangladesh in order to address climate-induced migration both for present and future.

7. Bangladeshis generally do low status jobs in India and contribute to Indian economy through hard work in exchange for low wages whereas, most Indians who are employed in Bangladesh, are in high profile jobs and remit millions of dollars to India. Therefore, India could at least allow legal entry of migrants and provide them with a pass that would enable them to earn livelihood like the Indian labours. Thailand has signed Memoranda of Understanding (MoU) with Burma, Cambodia and Laos that allow migrant workers in Thailand to receive equal wages and benefits. India could borrow this generous and humanitarian idea from Thailand.

8. Using Farakka Barrage, India diverts water from the Ganges River to its Indian tributary, which reduces the flow of water in the Bangladeshi and causes salt water intrusion, decline in land productivity and river fishery, silting and raising of the river-bed followed by floods and erosion. To control out migration, Bangladesh and India should jointly discuss on the issues of Indian barrages and dams on the rivers of Ganges, Barak and Brahmaputra.
Maps and Figures

Figure 1: Location Map of Bangladesh

Image Source: Student Encyclopedia Britannica 2015,
URL: http://kids.britannica.com/comptons/art-143178/Bangladesh
Figure 2: Flood Prone Areas of Bangladesh


Figure 3: Cyclone Prone Areas of Bangladesh

Figure 4: Sea Surface Temperature Trend of Bay of Bengal
Data Source: Kumar et al. 2015: 3 (for data from 1900 to 2010) & NASA Earth Observatory (for data from 2011 to 2015)

Figure 5: Number of Cyclones Making Landfall on Bangladesh from 1900 to 2009
Image Source: Rana et al. 2011: 22
Figure 6: River Bank Erosion Affected Areas of Bangladesh


Figure 7: Future Projection of Sea Level Rise along Coastal Bangladesh


URL: http://www.unep.org/dewa/vitalwater/article146.html
Figure 8: Path of A Bangladeshi Climate Refugee

Image Source: After Swain1996,

URL: http://www1.american.edu/ted/ICE/assam.html
Figure 9: Pre-Monsoon (Kharif) and Post-Monsoon (Rabi) Drought Prone Areas of Bangladesh (Image Source: Banglapedia, 2013. URL: http://en.banglapedia.org/index.php?title=Drought)
Figure 10: Combined Natural Hazard Map of Bangladesh

End Notes
* indicates primary sources


