FLOODS IN BANGLADESH AND MIGRATION TO INDIA

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INTRODUCTION

At the beginning of the 2000s, the Indian government estimated that over 20 million Bangladeshis were residing illegally in India (*Voice of America,* 2003). The decision to migrate stems from several economic, political and social reasons, but environmental factors also play an underpinning role as they shape the conditions in which migration waves are triggered. Bangladesh is especially prone to flooding, 25% of the territory is inundated during the monsoon and up to 70% is "exposed to intermittent extreme flooding"(Hossain, 2005, 1). Such floods occur in one the most densely populated areas in the world, and more than a million were directly affect 2011 (IRIN Reports, 2011). Environmental crises force Bangladeshis to adapt or to leave as their homes and sources of living are destroyed. This takes place in the context of a larger displacement of population phenomenon and has become a regional issue. Due to important economic discrepancies and political instability in the region, illegal migrants crossing the Indian border are considered by the the Indian government as potential sources of trouble that have to be stopped. (Kumar, 2011)

Thus, migration resulting from annual episodes of flooding in Bangladesh has quickly turned into an important migration issue and a key element of bilateral relationships between India and Bangladesh. This study aims at presenting a specific case of environmental migrations, with a focus on the reports of the 2011 floods in Bangladesh and considerations on the particular context of Indo-Bangladeshi relations. The objective is first to show the complex link between floods and transnational migrations in Bangladesh, then to analyse the 2011 episode and the political response that emerged, and finally to contextualize Bangladeshi flood-induced migrations to India in order to present the specificities of this international issue.

1. FLOODS AND MIGRATION IN BANGLADESH: A STUDY OF PATTERNS

1.1. The threat of environmental disasters and climate change in Bangladesh

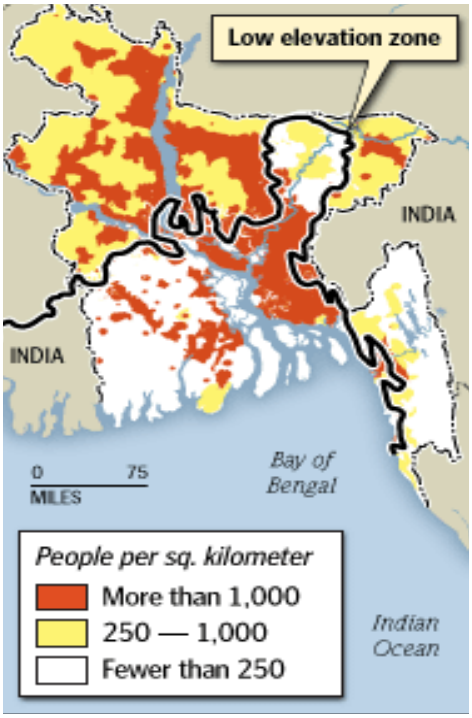
Bangladesh is at present widely considered as one of the most vulnerable countries in the world regarding climate change and environmental degradation. (Panda, 2011) It is threatened by a large range of sudden-onset disasters including storms, earthquakes,tsunamis, and floods as well as long-term processes such as sea-level rise and salt-water intrusion. (IOM Reports, 2010). It is interesting to start by explaining these natural phenomena and analysing the context in which they take place.

1.1.1. Risk profile of Bangladesh

When trying to draw up the risk profile of Bangladesh, one must first look at geographic and demographic factors. The population of Bangladesh was 142 million on a territory of 144 384 km² in 2005. Even more importantly, it is expected to reach 243 million by 2050 (Demeny & McNicoll, 2006, 257). Therefore extremely densely populated, the country is almost entirely located on a gigantic delta of three rivers : "floodplains of the Ganges, Brahmaputra, Meghna and smaller rivers occupy about 80 per cent of the country; hills occupy

12 per cent and uplifted fault blocks (so-called terraces) 8 per cent" (Brammer, 1990, 12). With 230 rivers, of which 57 are international, Bangladesh is in most cases "the lower riparian country", (Hossain, 2005, 1), and almost 70% of the entire national territory is less than one meter above the sea level.

Map 1. Bangladesh's population density



Source: USAID.

Located on the Tropic of Cancer, Bangladesh experiences heavy monsoons, with the most significant precipitation occurring between May and September. Their intensity also varies geographically, since "mean annual rainfall increases from about 1250 mm in the centre-west to over 5000 mm in the extreme north-east". (Brammer, 1990). It is considered that "in an average year, 40% of Bangladesh's total land area is flooded and river erosion washes away 1% of arable land" (Hagerty, 2008, 182), These floods are caused by monsoon rains as well as by rare and extreme storms, but they are also linked to the melting glaciers in the Himalayas, and by 2030 Bangladesh could lose up to 20% of its land (Wax, 2007). Such predictions make even more sense when you consider that "half of Bhola Island, Bangladesh's biggest island, was swallowed by rising sea levels, leaving 500,000 people homeless"(Ibid).

According to the 2008 Census, 88.45 per cent of Bangladeshi households are located in rural areas (Bangladesh Bureau of Statistics, 2008,), and though the level poverty decreased from 59% to 40% between 1991 and 2005 (Government of the People's Republic of Bangladesh, 2008,), more than 50 million people still live in poverty in the most ecologically endangered areas of the territory (IOM reports, 2010). If rapidly adapting to the floodplain environment and developed new sources of living has been necessary, Bangladeshis remain highly dependent on traditional rice production as occupies about 80% of the cropped area (Brammer, 1990, 13).

Bangladesh experiences a multitude of environmental problems, from tsunamis to water scarcity, and their considerable effects, though varying tremendously, are tragically affecting the economic and social development of the country.

Environmental and humanitarian catastrophes often feed off each other feeding themselves, as in 1974 when heavy storms produced a flood that was followed by a famine killing 30,000 people. (Brammer, 1990, 12). In 1989, a tornado killed about 1,000 north-west of Dhaka after a several-month long drought that destroyed most of the crops (Ibid).

The impact of environmental disasters on the population can be calculated, and statistics show the intensity of each catastrophe. Obviously, the consequences of cyclones, floods and drought depend on the characteristics of the region (population concentration, types of habitat, level of development and reactive capacity of public services among other factors) as well as on the seriousness of the natural event.

Table 1 shows the number of people affected and killed by natural disasters between 1980 and 2010. One can already see that floods by far affect the most people, with 45 million and 36 million Bangladeshis affected respectively during the tragic years of 1988 and 2004. Storms, in the most extreme cases, kill more people, but on average are less damaging than floods.

Figure 1 confirms that floods are by far the most dangerous disaster for the Bangladeshis, both in terms of security for people and for goods. In terms of the number of citizens potentially affected by floods, Bangladesh ranks first out of 162 countries with economic damages reaching almost 10% of national GDP.

Thus, diverse in nature and in their effects, environmental disasters have an extraordinary effect on the lives of Bangladeshis. They have weakened the development of the country and provoked tragic humanitarian crises several times during the last 30 years. Statistics show that among all of these disasters, floods emerge as the most dangerous for people and the most

Table 1. Bangladesh top 10 natural disasters reported between 1980-2010

Human exposure

Modelled number of people present in hazard zones that are thereby subject to potential losses

Hazard type	Population exposed	Percentage of population (0 5 10 20 40)	Country ranking
Cyclone	4,641,060		6th out of 89
Drought	642,277		63rd out of 184
Flood	19,279,960		1st out of 162
Landslide	3,758		35th out of 162
Earthquake	1,330,958		17th out of 153
Tsunami	1,598,546		3rd out of 76

Legend:

Tropical cyclones (Saffir-Simpson categories)

Cat 1 | Cat 2 | Cat 3 | Cat 4 | Cat 5

Earthquake (modified Mercalli scale classes)

V & VI | VII | VIII | XI to XII

Economic exposure

Modelled amount of GDP (Gross Domestic Product) present in hazard zones that are thereby subject to potential losses

Hazard type	GDP exposed (billions-US$)	Percentage of GDP (0 5 10 20 40)	Country ranking
Cyclone	2.39		12th out of 89
Flood	9.74		3rd out of 162
Landslide	0.16		25th out of 162
Earthquake	6.81		42nd out of 153
Tsunami	0.66		15th out of 76

Source: PreventionWeb.net, based on EM-DAT: International Disasters Database, Université catholique de Louvain, Brussels, Belgium.

frequent. Extreme floods continue to kill people and destroy resources, proving the relevance of this issue and the potential threat it holds for millions of lives. In addition, not all Bangladeshis have shared equally in the growth of the country and many remain entrenched in extreme poverty. These populations remain particularly vulnerable to natural disasters that will grow in frequency and intensity in coming years. In 2010, the IOM stated that this destruction will become more and more important in Bangladeshis' decision to migrating. The core articulation flood-migration remains to be analysed, but the looming danger of the issue is already observed.

"Environmental factors will be an increasingly important component of people's migration decisions over the course of the 21st century. While it remains crucial—morally and practically—to be aware of the long-term threat from climate change, the best way to prepare for the consequences of climate change in 2050 or 2100 is to improve the ability to deal effectively with Bangladesh's existing vulnerabilities now." (Walsham, 2010, X)

1.1.2. Floods: history and explanation of the phenomenon in Bangladesh

According to the IOM, reducing the threat of floods constitutes the first priority for the Bangladeshi government (IOM Report, 2010). As shown before, one must distinguish normal flooding, induced by the monsoon season, and the seasonal melting of Himalayan peaks from their worsening by other factors such as storms and abnormal temperatures.

In his article on the geographical background of the 1987 and 1988 floods, Brammer accurately explains the seasonal flow characteristics of the three great rivers of Bangladesh : the Ganges, Brahmaputra and Meghna. Their seasonal

Figure 1. Bangladesh top 10 natural disasters reported 1980-2010

Affected People

Disaster	Date	Affected (no. of people)
Flood	1988	45,000,000
Flood	2004	36,000,000
Flood	1984	30,000,000
Flood	1987	29,700,000
Drought	1983	20,000,000
Storm	1991	15,438,849
Flood	1998	15,000,050
Flood	2007	13,771,380
Flood	1995	12,656,006
Flood	1993	11,469,537

Killed People

Disaster	Date	Killed (no. of people)
Storm	1991	138,866
Storm	1985	15,000
Storm	2007	4,234
Epidemic	1982	2,696
Flood	1988	2,379
Flood	1987	2,055
Epidemic	1991	1,700
Flood	1984	1,200
Flood	2007	1,110
Flood	1998	1,050

Source: PreventionWeb.net, based on Global Assessment Reports, Last update: 2011-09-21.

fluctuations differ, since" the Brahmaputra and the Meghna begin to rise in March-April as a result of snow-melt in the Himalayas and pre-monsoon rainfall in Assam and the north-east of Bangladesh", whereas "the Ganges starts to rise later, in May, since its catchment is mainly in relatively drier areas where the rains start later" (Brammer, 1990, 14). The three rivers continue to rise in June-July and reach generally their peak level in July-August in the cases of the Brahmaputra and Meghna, while the Ganges reaches its peak a month later. During the months of late September to November, they follow a similar pattern of decrease although some areas remain under waters until December-January because of periodic depressions and congested drainage. (Ibid)

Thus, the cycles of the main rivers in the delta are potentially fluctuating, and early normal flooding can have tragic consequences since farmers do not expect it. Nevertheless, "the flooding is mainly by rainwater and not, as is popularly supposed, by silty river water" (Brammer, 1990, 15) and the physical and human causes of the floods are therefore more complex as they affect other dimensions than the single flow of the river.

These dimensions can be internal to Bangladesh, such as the population pressure and the urbanization that "has resulted in the sinking of many new wells resulting in the lowering of the water table and the subsequent subsidence of land making it even more prone to flooding" (Saifullah, 2009), but they can also be linked to external elements. For example, flooding has been impacted by the construction of dams in India over the streams that feed into these main rivers as it increased the problem of sedimentation in Bangladesh. Similarly, deforestation in Nepal and the Himalayas has increased the risk of floods downstream by changing the geological structure around the trans-boundary river system (Lhaled Saifullah, 2009).

Thus, both socially constructed and taking place in a certain natural context, flooding in Bangladesh is the result of several dynamics that create conditions for disasters to occur. Even if these floods have consequences on the lives of the Bangladeshis that are statistically proven, it remains to be seen if they actually trigger migration from Bangladesh to India.

1.2. Linking floods and migrations : interests and limits of the Bangladeshi example

1.2.1. Methodological issues of searching for correlation

Indeed, this study tries to articulate the link existing between two phenomena : floods in Bangladesh and migration patterns between Bangladesh and India. The most obvious answer would be to assume that they are linked by the pragmatic decision of Bangladeshis to leave the land that is destroyed by recurrent flooding. Human casualties and economic damages explain the departure to less ecologically-fragile territories.

Nevertheless, this mechanism remains unsatisfactory, as the rationale behind each individual's choice remains unknown and that what may appears as a causality on the statistical tables is in reality barely correlated. To start with, the IOM provides a certain grid to read a potential link between climate change and migrations:

"These changes are expected to affect the movement of people in at least four ways: 1) the intensification of natural disasters—both sudden and slow-onset - leading to increased displacement and migration; 2) the adverse consequences of increased warming, climate variability and of other effects of climate change for livelihoods, public health, food security and water availability; 3) rising sea levels that make coastal areas uninhabitable; and 4) competition over scarce natural resources potentially leading to growing tensions and even conflict and, in turn, displacement ." (Walsham, 2010, 5)

Table 2. Bangladesh migrants present in various States

Numbers in million	States
5,4	West Bengal
4	Assam
0.5	Bihar
1.5	Delhi
0.8	Tripura
0.5	Rajasthan
0.5	Maharashtra

Source: Joyti M. Pathania, 2003.

The official figures of the Government of Bangladesh, quoted by the IOM, give certain answers : "In the last 25 years, Bangladesh has experienced six severe floods, with the 1988 and 1998 floods alone causing 2,000-6,500 and 1,100 deaths respectively and displacing as many as 45 and 30 million people."(Walsham, 2010, 9). Anthropological studies show that these crises are clearly influencing the decision to migrate to other regions, either inside Bangladesh or internationally. For instance, research shows at the level of a village that floods, "are structural forces that have induced and shaped patterns of contract migration" (Rahman, 2010,), and that more generally, "The environmental and economic backdrop of [the village] induced villagers to look for alternatives" (Rahman, 2010, 113). Therefore, if larger collections of data are necessary to conclude on the actual incidence of floods over migration patterns, it is clear that environmental factors—among which floods, as we have seen, are the most important ones—participate in the decision to migrate, at least at the local level.

A closer look to the Bangladeshi migration to India seems to confirm this assumption.

Indian estimations of the number of Bangladeshis that have illegally migrated to North-East India since the independence of the country in 1971 are approximately 12 million (Kumar, 2011, 106). To this number must be added millions of Bangladeshis that have illegally moved to other parts of the country, especially the dynamic economic centres of New Delhi and Mumbai (Ibid). It is considered since the early 2000s that the number of these illegal migrants in India is closed to 20 million, though this remains contested by the Bangladeshi government (Panda, 2011, 9). These migrants have essentially settled in the neighbouring states of West Bengal and Assam. Hundreds of thousands are also said to reside in the main cities of mainland India, especially in Delhi and Mumbai.

Table 2 figures, if they do not inform us of the reason for migration, tend to show that Bangladeshis that have left their country were influenced by the economic pull-factors—which explains the importance of Delhi and Mumbai in the statistics—but that other factors led them to stay in north-eastern states. One hypothesis is that migrants have moved to areas close to them culturally and from where it is easier to be in contact with the country of origin. Another explanation could be that migrants have been forced to leave their homeland because of a direct danger for their security. Similar to migration patterns in the case of armed conflicts, these migrants would have simply fled the most dangerous zones and settled as soon as it is possible. This would confirm the idea that Bangladeshis illegally crossing the Indian border are not only attracted by the opportunities of economic prosperity, but also to escape a situation of great danger for their lives. Floods appear thus as a pertinent answer for this assumption: not only depriving millions of Bangladeshis from their sources of living, they actually kill thousands and create violent humanitarian situations. Migrating becomes a possible response to the brutality of the environmental crisis. The choice of the destination is then made based on family or community ties, economic opportunities and cultural closeness. (TERI, 2009, 4)

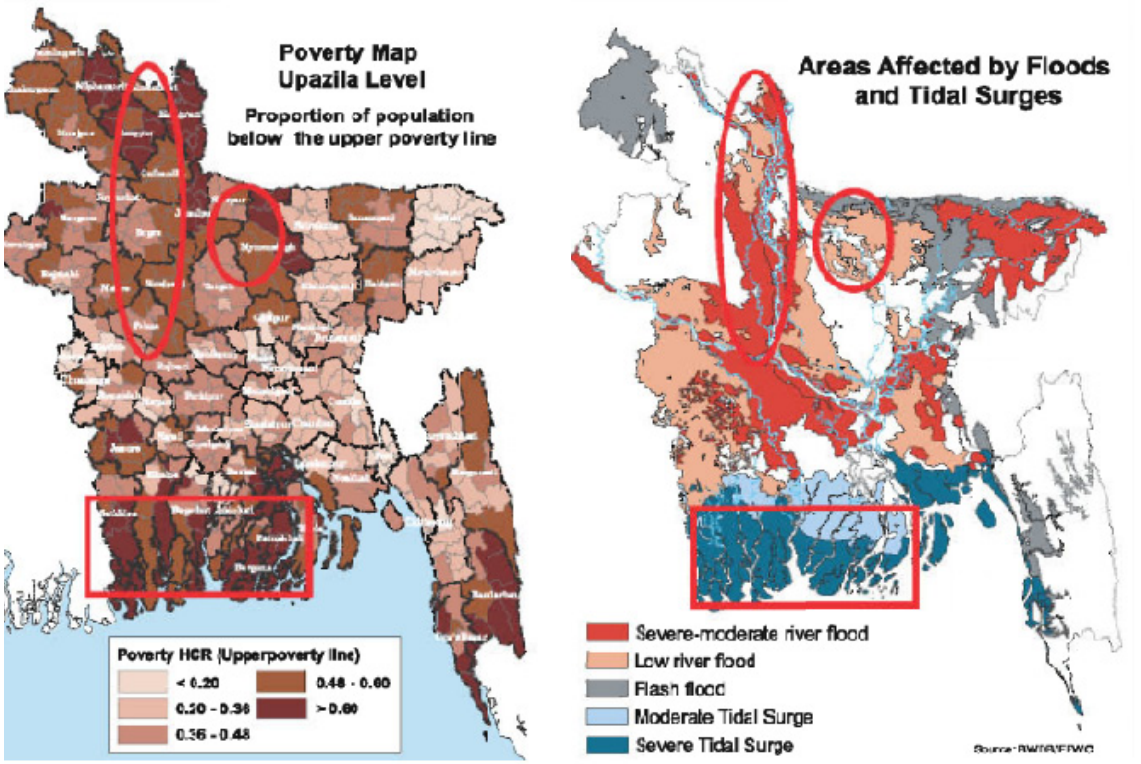
1.2.2. The difficult distinction between migrants

The scientific approach of environmental migrations studies faces the traditional pitfall of making objective phenomenon that cannot be scientifically defined. Indeed Looking at environmental migrations means characterizing complex human situations in rational, closed concepts. The definition of an environmental migrant is problematic in itself, and the case of Bangladesh offers a remarkable insight into the complexity of such phenomena.

The IOM states : "while there is good data on initial displacement as a result of floods there is less evidence on longer-term impacts of floods on migration decisions. Evidence from India suggests that floodplains are characterized by a variety of migration dynamics, including periodic movements to high ground for shelter and temporary work as well as permanent migration where people's livelihoods are more severely affected". (Walsham, 2010, 10)

It is therefore particularly difficult to clearly differentiate the economic and the security elements from the environmental one: floods, per say, press Bangladeshis to migrate as they fear for their lives and see all perspectives of economic prosperity disappear. The mechanisms are by definition highly intertwined. This is one of the most fundamental questions of environmental migrations, but it is all the more important in the case of the Bangladeshi displacement, as reports show the direct link between environmental damages and economic pressure (Black 2001;

Map 2. Bangladesh's map of poverty compared to map of areas affected by floods and tidal surges



Source: Bangladesh Bureau of Statistics, "Updating Poverty Maps of Bangladesh", 2009, p.10.

Castles 2002). Estimations made in 1994 were that up to 17 million Bangladeshi had moved to India since the end of the Second World War due to 'environmental scarcity'(Homer-Dixon, 1994, 22). But these figures hardly create a real model of the link of environmental factors in the more general economic context, and "despite evidences of people migrating from Bangladesh to India the debate is still unsettled as to how climate change will induce large influx of population to India, their extent and magnitude and will be the consequences" (Panda, 2011, 10).

For instance, the maps of floods and poverty in Bangladesh can be read in different ways, since economic problems and environmental crises are highly connected. Indeed, the correlation appears clear while studying the localisation of the most important floods and the regions where the level of poverty is highest. Yet, such statistics do not provide us with a causal link, since the damages yielded by the floods obviously create more poverty, but this poverty is also likely to produce an environment with poor infrastructure and high human density where heavy monsoon and river overflowing are likely to result into important episodes of flooding.

As a result, floods and migrations have to be considered in a more complex relationship than simple causality. However, if they do not create the migrations per say, floods create the conditions for these migrations to develop. They superimpose on social, political and economic factors an environmental crisis that can only strengthen the incentive for departure (Hagerly, 2008). In that sense, a real 'flood-migration nexus' has emerged in Bangladesh, both at the national level with an increasing displacement of rural populations to urban areas (Alam & Rabbani, 2007) and at the international level with important migration to India. Bangladesh is in the front line of countries affected by climate change, and this nexus is likely to gain in importance in the near future.

The 2011 floods constitute an interesting case-study of the development of such environmental catastrophes, and of the political responses that are organized in Bangladesh and by the international community. More than a mere illustration of an annual tragedy, the 2011 floods are remarkable in that they are considered as the symbol of future trends, as political actions try to take form while flood waters attain new areas and create new pressure on the lives of millions.

2. THE 2011 FLOODS

2.1. Describing the phenomenon and the specificities of the 2011 case

The 2011 floods in Bangladesh were not extraordinary in their intensity and the damages they caused. Yet, they present in their development and their consequences a pertinent illustration of flooding cycles in Bangladesh. According to an IFRC report in August, 2011, floods affected more than 1.5 million people and the situation continued to worsen as the monsoon depression kept fostering heavy rains. A million people, including 200,000 children, were left homeless, taking refuge in temporary shelters. (Fuller, 2011)

If, from an historical perspective, this year does not belong to the most tragic episodes of flooding of the last 30 years, as shown below, it nevertheless reveals perfectly what can be considered as the normal destruction that occur from June and July to October each year in most of Bangladesh.

Table 3. Bangladesh's floods and their impacts (1984-2007)

EVENT	IMPACT
1984 Flood	Inundated over 50, 000 sq. km, estimated damage US$ 378 million
1987 Flood	Inundated over 50, 000 sq. km., estimated damage US$ 1 billion, 2,055 deaths
1988 Flood	Inundated 61% of the country, estimated damage US$ 1,2 billion, more than 45 million homeless, between 2,000-6,500 deaths
1998 Flood	Inundated nearly 100, 000 sq. km., rendered 30 million people homeless, damaged 500, 000 homes, heavy loss to infrastructure, estimated damage US$ 2,8 billion, 1,100 deaths
2004 Flood	Inundation 38%, damage US$ 6.6 billion, affected nearly 3,8 million people. Estimated damage over $2 billion, 700 deaths
2007 Flood	Inundated 32, 000 sq. km, 85, 000 houses destroyed and almost 1 million damaged, approximately 1,2 million acres of crops, destroyed or partially damaged, estimated damage over $1 billion, 649 deaths

Source: Government of Bangladesh, 2008, 8.

Yet, in 2011, although the intensity and the length of the monsoon rains were not particularly disastrous, flooding reached new areas previously protected. This change is likely explained by increasing deforestation that causes the soil to loosen and finally accumulate in the rivers and channels that are then more easily overflowed (IRIN, 2011).

The monsoon season lasted five months, from June to October, but flash floods and tropical storms were experienced almost the entire year. The lean seasons of food insecurity in Bangladesh—called Monga—took place from March to April and then again from September to November.

In late May, the glaciers of the Himalayas had only started to melt and the level of the multitude of rivers running through the border between India and Bangladesh were not yet inundating the planes. The Brahmaputra River, clearly visible on the picture, still appears relatively narrow at that moment of the year. The rainy season usually begins during the first weeks of June.

Two months later, the width of the Brahmaputra River increased dramatically, and the delta transformed into a gigantic flooded area. This zone of hundreds of square kilometres was then totally flooded by multiple channels. Crops were submerged and the living became extremely difficult.

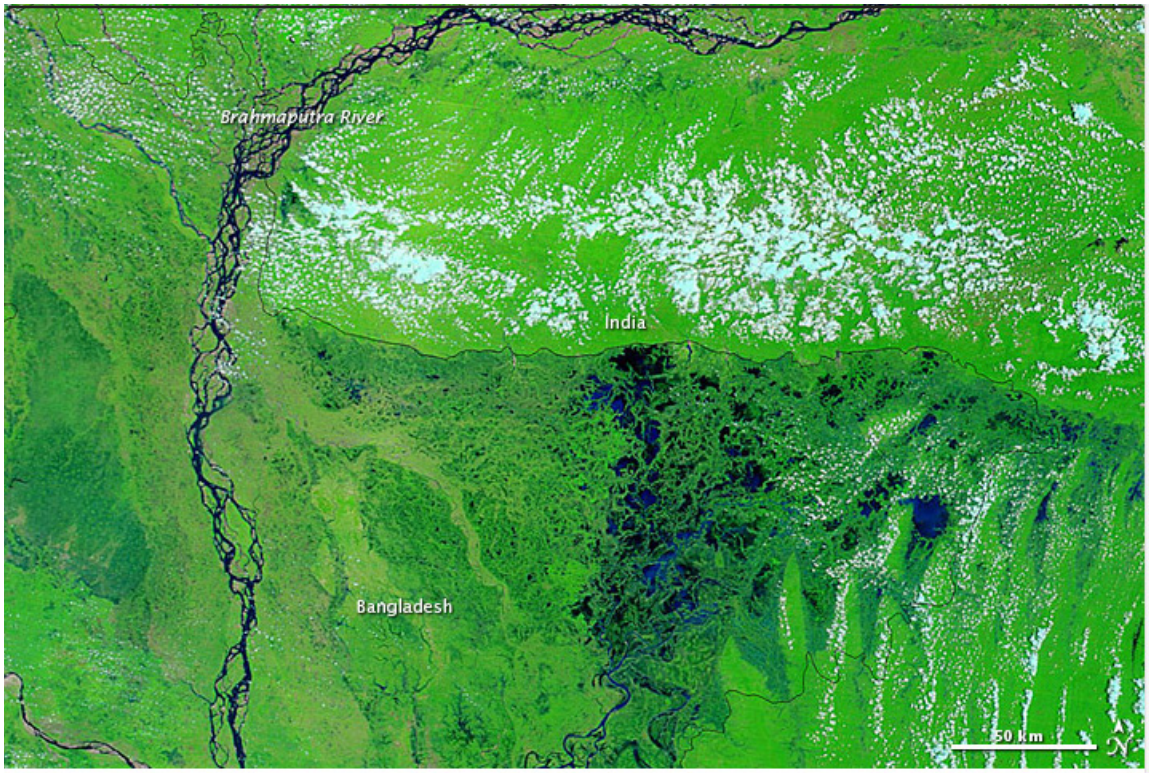
However, Map 3 and Map 4 only show the Northeastern region and the 2011 floods touched the entire country, as the tragic reports from the Cox Bazar district in the extreme south-east of Bangladesh illustrate. Indeed, in late July 2011, more than 20,000 people had been forced to leave their houses in the Upazilas (administrative subdivisions of a district in Bangladesh) of Cox Bazar and Teknaf. In this region prone to such problems, the 2011 floods took many by surprise due to their severity (IRIN, 2011) .

Similarly, in its official report of the flood situation in September 2011, the Government of Bangladesh lists the damages district by district and gives information concerning the expected evolution of the flooding.

The official discourse is revealing of what can be the norm of such an event. For example, in the single district of Naogaon, the situation is considered as 'normal', even if water entered into the upalizas of Manda and Atrai, directly affecting 960 families in the former and 1100 in the latter, after embankment were breached. Agricultural resources were greatly damaged as "according to the Agriculture Department 3300 acre of land and crops went under water in Atrai Upazila". (Government of Bangladesh, 2011)

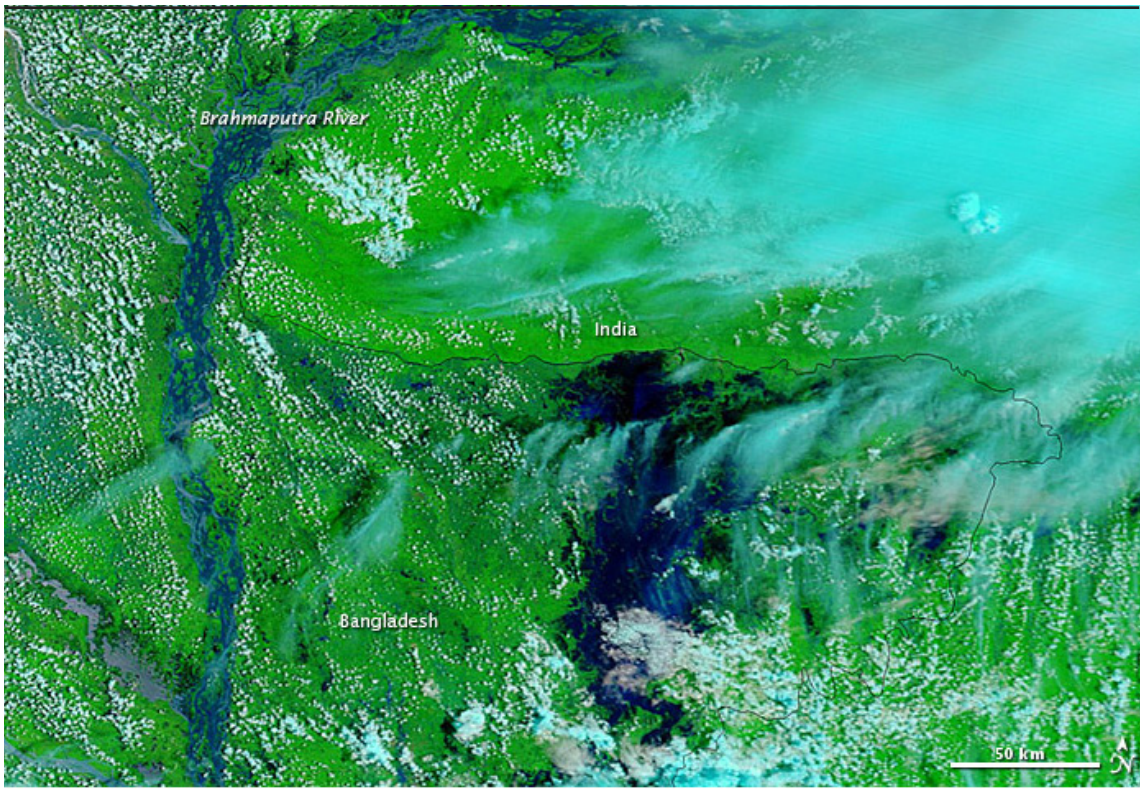
The district of Satkhira, at the extreme southwest of the country has been the most hard hit by the floods. "Around 20,000 houses in 548 villages collapsed completely, and poor farmers and share croppers have lost their investment as over 66,000 acres of standing crops have been either partially or fully damaged by the floods" (Ibid) . At the national level, the south-western districts of Satkhira, Khulna and Jessore faced the worst floods in 2011. Data on the damages of these regions remains scarce. The reports are indeed evolving strongly from month to month, and the situation of the people varies. By the month of August, 2011, in the six most affected Upazilas of Satkhira, more than 68,000 people had been reported to have taken "temporary shelter in school buildings, roadsides

Map 3. Flooding in Bangladesh (Late May 2011)



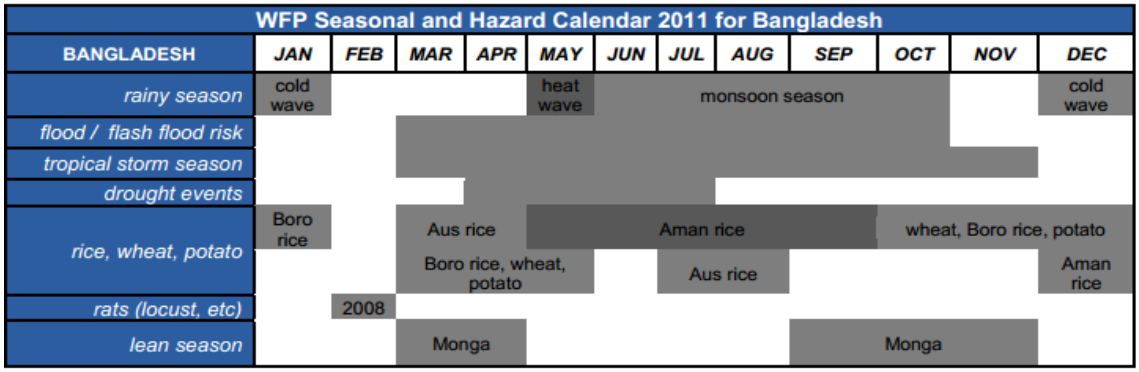
Source: NASA Images, http://earthobservatory.nasa.org/NaturalHazards/view.php?id=51441

Map 4. Flooding in Bangladesh (Late July 2011)



Source: NASA Images, http://earthobservatory.nasa.org/NaturalHazards/view.php?id=51441

Table 4. WFP seasonal and hazard calendar 2011 for Bangladesh



Source: "Bangladesh July-August 2011; Secondary Data review", ACAPS, September 2011, 7. NASA satellite images enable detailed examination of their evolution from late May to late July.

and other buildings which were not affected by flood waters. […] The number of people without shelter is unknown as of the reporting date" (Oxfam, 2011, 2). The 2011 case also showed the risk of crisis spill over from one country to another. The situation experienced in West Bengal of India, with several barrages releasing water to decrease the pressure, has direct implications for the region of the South-Western Bangladesh. The inability of the Indian barrages to resist the rise of water levels during the monsoon season aggravated the situation in the other side of the border (Ibid3).

2.2. Political responses to the crisis

In 2011, an institutional framework existed for both risk prevention and damage reduction. The state of Bangladesh has worked on the limiting flood-induced damage through the Ministry of Food and Disaster Management. It attempts to control the issue via the development of an efficient system of prevision of floods and of quick alerts to the population (Kholiquzzaman, 2006, 82). Thus in 2011, the Bangladeshi state published regular forecasts on the evolution of the floods in each district, and information could be used to warn endangered villages.[1] However, this system could be improved, especially in remote areas where better means of sharing and disseminating information is required. (Ibid, 83). In the case of the 2011 floods, better knowledge of changes in the water levels of rivers coming from India would have enabled authorities to alert the populations of Upazilas of South-Eastern Bangladesh in advance. In practice, the limited agreement between Indian and Bangladeshi's data recollection stations can have tragic consequences for the life of the inhabitants of the border. Indeed, without data coming from upstream, the Bangladeshi authorities are unable to design and implement quick responses to the crisis: the issue here is not related to a lack of infrastructure, as facilities to gather accurate data exist, but to the weakness of sharing of information at the bilateral level (Ibid, 85).

At the national level Bangladesh is "one of the most active countries in terms of planning and action on climate change" (Sterrett, 2011, 28). Several plans have been designed to combat the effects of global warming and environmental crises in general, the National Climate Change Strategy and Action Plan signed in 2008 being the most recent one. Working under the United Nations Framework Convention on Climate Change, several national programs also aim at supporting adaptation policies in Bangladesh. The National Adaptation Program of Actions adopted in 2005 is the best example of the work done at the local level to help the population adapt to crises such as floods and reduce their human and material damages (Ayers, 2011, 64). By 2011, the Bangladeshi government had already tried to push forward a more structural approach to the issue in parallel to mechanisms to answer emergencies (Kholiquzzaman, 2006, 84). It is important to note that these actions do not take into account the flood-migration nexus. Efforts have addressed the primary needs of people directly affected by catastrophe. Thus, long-term programs to alleviate pain and significantly reduce damage caused by floods exist, but there is a lack of mid-term programs to manage displaced populations.[2]

1. The Flood Forecasting and Warning Centre was created in 1972 and release short daily reports on the water level, as well as regular maps of the inundations

2. See for example Bangladesh Center for Advanced Studies, "Scoping Assessment on Climate Change Adaptation in Bangladesh", October 2010

Koyra neighboorhood, South West Bangladesh, Sundarbans region, March, 3rd, 2012.

Crédits : © 2012. Pauline Brücker (IDDRI)

The 2011 crisis triggered international reactions from both NGOs and international organizations. On the 19th September, 2011, the European Union allocated €5 million to "respond to the urgent humanitarian needs of Bangladeshis who recently have been affected by severe monsoon floods". and another €8 million at the end of the year in order to finance the pumping out of flood waters (European Union—Delegation to Bangladesh, 2012, 1). Similarly, NGOs around the world provided better media coverage and alerted the population of the increased risk of such environmental catastrophes in the future.

Nonetheless, the management of the 2011 floods has been criticized for the limited reactivity of authorities. Oxfam reports stated, for example, that "no humanitarian support has been provided to the people in the most affected districts by the government, local, national and international NGOs as of 11 August 2011" (Oxfam, 12 August 2011). Similarly, the lack of coordination structure at the national level resulted "in a response that is prone to ad-hocism, overlaps and gaps" (Oxfam, 2011).

To conclude, the 2011 floods provide an outstanding example of environmental disasters, their evolution, consequences, and responses designed at different levels. If the damages caused by the floods were terrible, they cannot be considered exceptional relative to recent Bangladeshi history. Hundreds of thousands were forced to move, the management of the Ganges-Brahmaputra-Meghna river system were rapidly overcome by the rains, and the dams built upstream put many lives in dangers. Precise data concerning climate-induced migrations remain extremely scarce and are urgently required in the region (Sterrett, 2011, 6) but reports show that patterns of flood-induced migrations to India are changing and numbers increasing (BCAS, 2011).

The analysis of the political answers to the crisis tend to prove that solutions can only emerge with additional action at the national, regional and international levels. Cooperation between the countries of South Asia is particularly fundamental given the influence of transnational rivers in flooding in Bangladesh. However, it is clear that the construction of effective responses is highly affected by the difficult bilateral relations between India and Bangladesh regarding water management and border control (Kholiquzzaman, 2006). In 2011, new attempts at finding agreement over water issues were observed, but the situation of millions that are directly threatened by seasonal floods in Bangladesh still depends on the ability to increase cooperation between the two countries. It is therefore important to understand the context in which these policies are formed, and how environmental migrations have become a security issue in Bangladesh.

3. CONTEXTUALIZATION: BANGLADESHI ENVIRONMENTAL MIGRATIONS TO INDIA AS A SECURITY ISSUE

As floods in Bangladesh trigger trans-border migrations, it emerged as an international issue that became both cause and consequence of the complex politics of India Bangladesh relations. Indeed, the literature treating the question of Bangladeshi migrants to India and the impact of environmental disasters on the issue insists on the political dimension of the international reaction (Kumar, 2011). In parallel to the 'natural' development of flooding and pressures on the population to migrate, a process of securitization has been happening, informed by the complex history of India-Bangladesh relations and from the geopolitical context of the region The specificity of the flood-induced migrations in Bangladesh has to be considered in terms of national perception and discourse, as they influence the responses to the crisis and frame it as a security issue. (Hossain, 2005)

3.1. Readings of the phenomenon on both side of the border

The official position of Bangladesh is to refuse sole responsibility for the issue, and that Bangladeshis victims of others' behaviours (Friedman, 2009). The question behind climate change enables them to point out the responsibility of industrialized nations in the dramatic increase of flooding and sea-level rise that are destabilizing the country (Government of Bangladesh, 2008). Bangladesh's official discourse therefore stresses the efforts demanded of poor countries whereas the situation is by definition an international concern (Walsham, 2010). Cooperation at the international level is necessary to tackle the issue of climate change, while regional dialogues are the only way to deal with environmental refugees in South Asia.

However, other voices in Bangladesh claim that this position is sheer denial by a government that does not have the capacity to deal with the issue. Floods are, in this perspective, disasters that can be dealt with at a national level and even if Bangladesh is not responsible for climate change it should not use this to justify its lack of responses (Friedman, 2009). The difference of perspective between the two countries is also based on a war of figures between Bangladesh and India. The Bangladeshi government keeps blaming New Delhi for exaggerating the problem by artificially increasing its statistics regarding Bangladeshi immigrants. This struggle has been affecting scientific studies of the issue for decades and the conceptual pitfalls of the definition of 'environmental refugees' can only aggravate the falsification of numbers. According to Homer-Dixon in 1994, "detailed data are scarce, since both India and Bangladesh manipulate their census data for political reasons, and the Bangladeshi government avoids admitting there is large out-migration, because the question causes friction with India" (Homer-Dixon, 1994, 22).

Finally, the discourse of the government of Bangladesh insists on plans that have been designed to mitigate the effects of floods since the late 2000s. Real efforts have indeed been made, and are now showed as evidences of the good will of the Bangladeshi government and its work to improve the situation. For instance, a 'Climate Change Action Plan over 10 years (2009-2018) is implemented in order to "build the capacity and resilience of the country to meet the challenge of climate change". (Government of Bangladesh, 2008, 28) Based on six pillars—food security/health, infrastructures, comprehensive disaster management, research, mitigation, and capacity building—the programme tries to promote an optimistic perception of the future with the idea of a special adaptation capacity of Bangladesh (Ayers, 2011). Nevertheless, concrete consequences remain to be seen, and the 2011 floods tend to show that despite past experiences and the adaptation of Bangladeshis to natural disasters, environmental damages continue to weaken the entire country's development.

On the Indian side, the migration of Bangladeshis is mainly pictured as a threat to internal stability. Again, historical events influence the perception of the issue as shown by statistics analysing the impact of the 1971 war on it (Pant, 2007). Traditionally, the Indian discourse insists on the security issues that are linked to migration. ""If one-third of Bangladesh is flooded, India can soak in some of the refugees, but not all," Retired Air Marshal A.K. Singh, the former commander of India's air force, told a London conference recently. "Low-lying coastal area flooding is a national security issue" (Friedman, 2009). Potentially, climate-induced migrations could accentuate competition for resources and ethnic tension at the border, and the resulting internal instabilities increase the risk of armed conflicts. (TERI, 2009, 3-4)

Lately, in addition to this pragmatic vision has emerged the idea that the Bangladeshi migration was politically driven and used by Dhaka for geopolitical purposes, the existence of a large Bangladeshi diaspora in the region being a source of political influence (Kumar, 2011, 108).

Therefore, environmental migration is seen as the most recent facet of a long-term process that should not be treated differently than any other type of migration, which is to say as a tool for Bangladeshi, or even Pakistani, interests inside Indian. (Kumar, 2011; Pant, 2007, 242)

Nonetheless, knowing that certain perspectives already announce 200 million environmental migrants worldwide due to monsoon rains and floods, the Indian government takes the question very seriously (Panda, 2011). While India does not deny the emergence of an environmental crisis, its discourse blames Bangladesh for using climate change for political purposes. For India sees Bangladesh as ground zero of such migrations. Up to 78 million Bangladeshi are expected to be forced to move because of environmental impacts by 2020 (D'Costa, 2012, 150). Therefore this concern is regularly tackled during bilateral meetings, especially as they are a bargaining tool for India in the question of water sharing. The intense upstream use of the main rivers crossing Bangladesh is considered by New Delhi as the sovereign right of the Indians to dispose of their national resources, but this process directly threatens Bangladesh's agriculture and environmental stability. (Pandev, 2011) The bilateral negotiations for an agreed use of these waters are therefore affecting the India-Bangladeshi relationship and the settlement of the migration issue. In September 2011, Prime Minister M. Singh's visit to Dhaka was the occasion to deal with water sharing as much as border security concerns, though it failed to lead to any agreement (D'Costa, 2012, 152).

To conclude, it appears that the Indian discourse is driven by security and political concerns, based on a rather pragmatic approach of the issue, without denying the looming environmental crisis. It is linked to a network of interconnected issues—from illegal trafficking to water sharing—and is both cause and consequence of each of them. Thus, if floods in Bangladesh "depend to large extent on the water sharing agreement between the two countries" (Panda, 2011, 14), such agreements are also dependent on the potential for cooperation over the flood-induced migration question.

3.2. 'Securitization' of the issue : when environmental migrations take place in the highly unstable area of the India-Bangladesh border

The constitution of Bangladeshi migration to India as a security issue stems from several political and historical factors, and the emergence of an environmental crisis is only the most recent layer of a decades-old concern.

3.2.1. The politicization of environmental migrations: between history and electoral use of tensions

This securitization process is articulated according to political rationale, and environmental migrations between Bangladesh and India are to be understood in this larger context, as it frames the antagonism and the potential cooperation between the two countries.

Due to historical reasons, Bangladeshi migration to India has existed since the Partition in 1947. Up to 1 million Hindus living in East Pakistan fled 'Muslim-led Pakistan' in the late 1940s and the independence of Bangladesh in 1971 triggered another wave of departures. (Homer-Dixon, 1994, 22) Thus, this migration has always been highly politicized, and today's security policy at the border is clearly influenced by electoral purposes (Pant, 2007). Nationalist and religious forces tense up the relationship as reports of discrimination towards the other's citizens are released on both sides of the border (IDSA, 2012). The demographic dimension of the migration, especially in the north-eastern states of India, where tensions between Christian, Muslim and Hindu communities are used to enhance political oppositions, is therefore regarded as a very serious menace for the ethnic balance of the region (Pant, 2007).

Bangladeshi migration takes place in a very sensitive area of the India. The north-eastern provinces are the crux of many security concerns for New Delhi, the Naxalites movements and the penetrations of Chinese agents being the most visible (Pant, 2007). Geographically, the north-eastern states are connected to the mainland by the Siliguri corridor, also known as the 'Chicken's Neck', a strip of land of less than 40 km of width and of great geostrategic importance. Any potential troubles are therefore regarded as a serious threat to the internal cohesion of the country.

The instability of the region is also linked to its terrain, which makes any attempt at controlling the border difficult and enables the development of trafficking and political unrest (Pattanaik, 2011). As a result, illegal Bangladeshi migrations are seen as part of the general context of insecurity, and the struggle against migrants has to be understood through this lens (Kumar, 2011).

3.2.2. Fences, violence and potential for cooperation: what expectations for the future?

India's most significant measure to treat this issue as a security concern was taken in the mid 1980s

with the construction of fences along the border. This highly political decision embodied the 'securitization' of the dealing with Bangladeshi migrations. Although it was supposed to be finished by 2007, the work is still ongoing along 2,544 miles of the border. In 2010, India announced that it had completed 70% of the project (Banerjee, 2010).

Nevertheless, the fencing policy is highly symbolic politically, but has yet to prove its efficiency in security terms. The terrain and the length of the border as well as the internal troubles of the north-eastern Indian states make it extremely difficult to control the frontier. The outcomes of the fencing remain to be analysed, but it risks being unsustainable economically and militarily in the case of a strong increase of Bangladeshi migration (Pant, 2007, 242). Besides, the very notion of a border can be questioned in the case of the India-Bangladesh frontier, For people living on both sides of the border traditions of migration in the region track back to centuries before the construction of the two nation-states (Pattanaik, 2011).

Parallel to the very concrete work of fencing the frontier, India has put into place patrols and a series of strict policies regarding illegal Bangladeshi migrants.[3] These policies have been at the centre of controversy as they resulted in violence against and even killing of migrants trying to cross the border. This context of violence is all the more crucial as environmental migrations increase the tensions between the two countries and make each government less disposed to hear the other's rationale : India fearing the displacement of millions of people and Bangladesh insisting on the regional dimension of the issue.

Nonetheless, potential for cooperation exists, and the politicization of the issue can also bring the two parties to discuss and find an alternative strategy to a security issue. Indeed, both Dhaka and New Delhi consider the dealing of the border as unsatisfactory, and the emerging environmental crisis may oblige them to find a solution as early as possible. If environmental migrations are a security issue, then solutions are to be designed as strategies based on rationality and pragmatism. In this context, the last India-Bangladesh meetings over the sharing of water resources can be seen as reasons to be optimistic. The March 2011 Agreement on the non-use of lethal weapons by the Border Security Force, as well as the Coordinated Border Management Plan signed in July, 2011, and the Protocol to the Agreement concerning The Demarcation of Land Boundary signed in September, 2011 are interesting steps in the appeasement of the situation (Das, 2011).

CONCLUSION

Flood-induced migrations from Bangladesh to India are a remarkable expression of the complexity of environmental migrations today. The Ganges Delta has a long history of destructive floods and the populations have had to adapt to regular damages due to environmental crisis, but the current trends are subjected to external phenomena such as global warning and intense use of river water. Besides, the flood-induced migrations take place in a tense regional context and solutions to the humanitarian crisis are highly influenced by security considerations. The 2011 floods have showed the need for international cooperation and highlighted the need of better management of the issue at the bilateral level. Indeed, if actions are taken at the Bangladeshi national level to struggle against environmental crises, India has a great role to play in their resolution. The two countries are bound as they share the waters of the main rivers running through Bangladesh, and a better management of these resources is essential for any attempts at improving the existence of millions. Moreover, India cannot afford to reject the management of migrants fleeing the floods to its neighbour, especially considering the looming consequences of global warming on the Bangladeshi territory. That is why the question of environmental migrations here is highly political and is to be understood in its larger context of Indo-Bangladeshi relations.

This study presents the different aspects of the issue of Bangladeshi flood-induced migrations to India. If the crux of the problem remains the long-term reduction of damages due to floods, mid-term responses have to be designed to deal with the increasing number of migrants that continue to suffer from this phenomenon. From this perspective, bilateral cooperation appears as the only solution to an increasingly important issue.

3. The use of military to deal with environmental crises and especially with migrations that are triggered by such disasters has been particularly studied after the Hurricane Katrina and the controversies in the U.S. (Smith, 2007 ; Wisner & Walker, 2005) Refugees of such catastrophes share with conflict refugees the abruptness of the 'pull-factor' and their displacement becomes therefore a potential danger for the stability of the region of arrival.

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