Policy analysis: Climate change and migration Bangladesh

Maxmillan Martin, Yi hyun Kang, Motasim Billah, Tasneem Siddiqui,

Richard Black and Dominic Kniveton

Working paper 4

About the Authors:

Maxmillan Martin is a Ph.D student at the Department of Geography, School of Global Studies, University of Sussex, UK

Yi hyun Kang recently finished her masters in Climate Change and Development from the University of Sussex, and works as an intern at the International Labour Organization (ILO) Country Office in Jakarta, Indonesia

Motasim Billah is a masters student at the Institute of Development Studies, Brighton, UK and a Junior Research Fellow of the Refugee and Migratory Movements Research Unit (RMMRU), University of Dhaka, Bangladesh

Tasneem Siddiqui is Professor of Political Science and founding Chair of the Refugee and Migratory Movements Research Unit (RMMRU), University of Dhaka, Bangladesh

Richard Black is Professor of Human Geography and Head of the School of Global Studies, University of Sussex, UK

Dominic Kniveton is Professor of Climate Science and Society at the Department of Geography, School of Global Studies, University of Sussex, Email: d.r.kniveton@sussex.ac.uk

Policy analysis: Climate Change and Migration in Bangladesh

1. Introduction

Bangladesh has been identified as one of the most vulnerable countries in the context of climate change (Huq 2001, Huq and Ayers 2008). Its exposure to frequent and extreme climatic events such as floods and cyclones (IPCC 2012) is a concern for policymakers and scientists. Over the years, successive governments, civil society organisations and development partners have come up with innovative approaches to help the affected people adapt to climate change (IPCC 2012, Planning Commission 2012). This paper explores to what extent migration can be an effective way of adaptation to climate change and looks at policy options in this regard.

Traditionally, in global climate change literature migration has been perceived as a major challenge to be addressed (Tickle 1989; Homer-Dixon and Percival 1996, Myers 2001). However, new theoretical and empirical studies as well as international policy papers posit migration as an effective adaptation strategy (Barnett and Webber 2009, Tacoli 2009, Foresight 2011, Black et al. 2011a, ADB 2012, Banerjee et al. 2012). Drawing lessons from the global literature, this paper provides evidence from recent research on how migration works as an adaptation strategy in Bangladesh. It then looks into different policies that try to mainstream climate change into development policies and reduce its impact on people. On the basis of qualitative analysis, the paper suggests a policy reorientation towards reducing the necessity of migration where possible; at the same time providing assistance for people to take part in the broader job market that automatically involve migration (Kang 2012).

The key challenge is to develop a policy that facilitates the adaptive capacity of migration rather than inhibiting it. Such an endeavour and subsequent shift in policy where it is sub-optimal is imperative in a warming globe, in which environmental and climatic features and natural hazard patterns are changing. Such changes may imply different forms of migration – whether proactive or reactive, forced or voluntary, free or restrictive. Anticipated and/or planned migration could be an effective adaptation strategy (Foresight 2011). Adaptation is necessitated by changes in climate observed across the world. Long-term changes that scientists have observed in recent years include widespread shifts in rainfall amounts, ocean salinity, wind patterns and extreme weather, including droughts, heavy rain/ snow, heat waves and the intensity of tropical cyclones (IPCC 2007a). Scientists have also noted that the rate of observed sea level rise has increased in the past century, during which the rise was an estimated 0.17 metres (ibid).

There is concern that climate extremes and even a series of non-extreme events could threaten people's lives and livelihoods in a background of social vulnerabilities and exposure to risks (IPCC 2012). An extreme weather or climate event means "the occurrence of a value of a weather or climate variable above (or below) a threshold value near the upper (or lower) ends of the range of observed values of the variable" (ibid: 5). In response to such events, people often have to change their livelihood strategies and/ or shift to new places, rebuilding viable social groups once again (Oliver-Smith, 2009a)

Bangladesh has been facing gradual onset climate stresses and sudden shocks, including water shortage, cyclone, floods and coastal/ delta erosion (EM-DAT, 2011). During 1991 -2010, Bangladesh was one of the three countries — along with Myanmar and Honduras — most affected by extreme weather events (Harmeling, 2012). A combination of factors, including disasters, environmental changes, shortages and economic pressure, could increase the vulnerability of local people (Piguet, 2008). In effect, climate change works as a global phenomenon that makes existing social, economic, political, and environmental challenges even more serious at a local level (Crate and Nuttall, 2009).

Such changes are expected to almost certainly alter human migration patterns in the coming half a century (Foresight 2011). Global environmental change — of which climate change is a major component — influences drivers of migration across overlapping environmental, demographic, political, social and economic spheres (Black et al. 2011a; Foresight 2011). Projections suggest that a large part of such migration will be in the Global South, within countries or to nearby countries, including to areas of environmental risk (Foresight, 2011). Trends in Bangladesh suggest the same as studies discussed in this paper show. There has already been a rise in internal migration and cities are growing very rapidly.

In such a dynamic situation a major policy challenge could involve communities in vulnerable locations becoming 'trapped' or choosing to stay back despite exposure to climatic and environmental risks (ibid). Still, a large part of academic literature and policy statements appear to be pessimistic about migration triggered by or influenced by climate change (Barnet and Webber, 2009). Such a negative attitude limits policy options and potential development benefits of migration to migrants themselves as well as their home communities and hosts (IOM 2009). Policies that seek to curtail migration rarely succeed and at the same time they unnecessarily hike costs to migrants and the communities at both ends of their trajectories (De Haas 2006; World Bank 2010). Migration may not be a part of the 'problem', but an important 'solution' as the Foresight report (2011: 10) notes. It argues: "Migration can represent a 'transformational' adaptation to environmental change, and in many cases will be an extremely effective way to build long-term resilience." As adaptation becomes part of international and national development agenda, climate negotiations have also

acknowledged migration associated with climate change and called for a better understanding of the issue (UNFCCC 2011).

In the context of Bangladesh, there is growing acknowledgement of migration as an outcome of climatic stresses and shocks – in effect, an adaptation strategy. Some existing policies facilitate international migration as a way to improve livelihoods and put in place norms to ensure good governance. However, internal migration, which turns out to be the adaptation strategy of more people, does not get the public policy attention that it deserves. The movement and settlement of migrants in new places are usually not supported by state agencies, except during emergencies. The migrants often face hurdles from private individuals and groups that compete with them for space, services and resources. A key point of this paper is to reverse such negative attitudes and practices and accept and promote internal migration under appropriate conditions as a positive and effective adaptation strategy.

This paper first looks at why, how, where and when does migration become an effective adaptation strategy. Then it gives a snapshot of the changing migration patterns in Bangladesh. It examines how policies evolve to addresses the issue of climate change and migration in the broader contexts of development and disaster risk reduction. Then draws lessons from the detailed analyses in the above sections and finally suggests a few measures that could mainstream migration as an adaptive strategy into the evolving policies of Bangladesh.

2. Migration as an adaptive strategy

2.1 What? Defining adaptation

Migration works as an adaptation strategy in complex ways. The Intergovernmental Panel on Climate Change (IPCC) defines adaptation as an adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects to moderate harm or exploit beneficial opportunities (McCarthy et al 2001; IPCC 2012). Adaptation includes a set of activities, decisions and attitudes that covers different aspects of life in tune with the existing social norms and processes (Adger et al 2005).

The concept of adaptation has gained international attention within the discourse on climate change, notably in follow ups to the Copenhagen Accord. At Copenhagen, the 15th Conference of the Parties to the UN Framework Convention on Climate Change stated: "Enhanced action and international cooperation on adaptation is urgently required to ensure the implementation of the Convention by enabling and supporting the implementation of adaptation actions aimed at reducing vulnerability and building resilience in

developing countries, especially in those that are particularly vulnerable, especially least developed countries..." (UNFCCC 2011: 2).

Adaptation to climate change requires consideration of a longer time frame as well as larger scale changes (Adger et al. 2009). It is different from adaptation to weather variability. However, it is often difficult to distinguish between the two as climate change and variability could be related. One of the concerns of policymakers is whether climate change will increase climatic variability and/ or the frequency of extreme events, thus adding to migration flows (Black et al. 2011b). So this distinction becomes blurred in the policy-making context.

Adaptive capacity is defined as "the ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damages, to take advantage of opportunities, or to cope with the consequences" (IPCC 2007b:869). Physical components such as infrastructure, food and nutritional insecurity, employment and accessibility of public service are critical determinants of adaptive capacity (Saroar and Routray 2012: 186). In addition, an individual's societal conditions, such as age, sex, education level and social class are also important factors. Past adaptation experience can have a positive effect on perceived adaptive capacity as well (Grothmann and Patt 2005).

2.2. Why? The case for seeing migration as an adaptation strategy

A growing body of scientific evidence posits migration as an effective adaptation strategy that offsets the impacts of environmental shocks and stresses (McLeman and Smit 2006, Barnett and Webber 2009, Tacoli 2009, Foresight 2011, ADB 2012). The argument is that migration could offset the vulnerability of households to the impact of climate change. That could be done by enhancing its adaptive capacity by improving access to resources, livelihood strategies, social networks, and accessibility; and migration could contribute to these factors (Gerlitz et al. forthcoming).

Migration as an adaptation covers a spectrum of motives and outcomes — from moving out of an area of risk exposure (Adger et al. 2005), surviving bad times and helping in disaster recovery (IPCC 2011) and improving and diversifying livelihood when faced with soil degradation and erratic rainfall (Tacoli 2011). When frequent disasters undermine livelihoods, people tend to move out temporarily or permanently. Sometimes only a few members of a family migrate and their remittances could support the community back home (IPCC, 2011). Remittances from migrants could boost adaptive capacity (Guzman et al. 2009, Warner et al. 2009). In Burkina Faso, India and Mexico, remittances were used for investment in agriculture and related activities

such as soil and water conservation (Foresight 2011). Besides, the resources and skills that the migrants bring back home could be important contributions towards adaptation. Migrants also take skill sets to their destinations and could contribute to adaptive measures there.

Adaptation practices could also mean tweaking existing resource management, livelihood enhancement by income diversification, improving disaster preparedness measures or sustainable development programme (Smit and Wendel 2006). Often such practices could include making incremental improvements to existing systems. So climate change adaptation need not necessarily be a stand-alone measure (Huq et al. 2003). It could be a window of opportunity to solve some chronic problems in environment and development (Schipper 2007). Often short-term or long-term migration could contribute to such efforts at individual, household or community levels.

2.3.   Who? Identifying environmental migrants

As the above section shows migration is one among a wide spectrum of responses to changes in the environment that complement one another (Kniveton et al. 2008). People migrate individually, as a family or part of a family, or as a community. It could be long-term or short-term. Migration could be within the district, division, nation or the subcontinent — or to a faraway land. Migration or changed migration pattern could be an immediate response by people exposed to disasters (IOM 2009). There is medium agreement among scientists that disasters associated with climate extremes influence population mobility and relocation, affecting host and origin communities (IPCC 2012). The details of this connection are rather nuanced, complex and dynamic.

So it is hard to define environmental migrants and indeed differentiate who among them are affected by climate change. For want of a clear classification in this regard, a working definition of IOM (2009: 13) describes 'environmental migrants' as: "persons or groups of persons who, for compelling reasons of sudden or progressive change in the environment that adversely affects their lives or living conditions, are obliged to leave their habitual homes, or choose to do so, either temporarily or permanently, and who move either within their country or abroad."

However, environmental migration, especially in the context of climate change has remained a topic of academic debate. Apocalyptic projections of climate change led researchers to propose staggering figures of migration (Tickle 1989; Homer-Dixon and Percival 1996; Myers 2001). Yet a counterpoint is a more nuanced

explanation of migration as a 'survival strategy' (Black 2001, McGregor 1993) with a broad spectrum of causes and consequences, influenced by a set of socio-economic and political factors.

A new thinking that gains currency is that environmental change influences drivers of migration in the overlapping social, political, economic, environmental and demographic spheres (Foresight 2011, Black et al. 2011b). Understanding these drivers will help deal with migration on a policy level more meaningfully. Different factors in these five spheres, including disasters, development projects, environmental degradation, shortages and monetary compulsions and market changes, can often act together. They increase the vulnerabilities of local people and work as triggers for migration (Stal and Warner 2009, Piguet 2008). Taken together, they also suggest the notion of 'environmental migration' is itself problematic: Foresight (2011) argues instead for the phrase 'migration influenced by environmental change', recognising that even when this influence is strong, other factors are also often at play.

2.4 When and Where? Circumstances that make migration an effective adaptation strategy

Climate change could affect migration in a range of ways. As in the case of Bangladesh, more intense disasters like cyclones and extreme rain events could lead to destruction of habitats, livelihoods and infrastructure — floods and salinisation of fields could make their impacts linger on (Rahman et al. 2007). Yet at the same time, erratic or decreased rain could cause water shortages and reduce crop yields. Rising sea level and increased river flow could lead to more erosion or coastal flooding (Brown 2008). Being vulnerable to or experiencing climate processes and climate events, including extreme events, could drive migration (ibid). The temporal and spatial scale of migration differ, depending on the level of exposure to the disaster, its continuing impacts, resources at hand for the migrants and other factors that facilitate of deter mobility (IPCC 2011).

The linkages between climatic stresses and shocks and migration, however are not linear. As Kniveton et al. (2009: 72) notes, international migration could increase or decrease as a response to such stimuli: "International migration increased with loss of harvest and livestock, but decreased following a severe earthquake in El Salvador (Halliday 2006); decreased in drought years in Burkina Faso (Henry et al. 2004) and Mali (Findley 1994); both increased and decreased with declining rainfall in Mexico (Munshi 2003; Kniveton et al. 2008)." In Sub-Saharan Africa deteriorating rainfall conditions tend to increase urban migration; in Mali, however, during the 1983-85 drought people affected could not afford to migrate to cities (Foresight 2011).

Disaster-related migration is often short-term and involves short distances. For example, 88 per cent of migrant agricultural communities in Bangladesh were found to remain within two miles of their previous

residence following the erosion of land and loss of homes due to flooding (Zaman 1989). Similar trends were found on cyclone response too. Such rapid-onset disasters lead to temporary displacement to nearby areas as people lack resources to move farther, and many return and reconstruct their homes (Piguet 2011). Besides people prefer to stay with family and friends, linked to social networks (Barnet and Weber 2009), and continue to live in ways familiar to them (Perch-Nielson et al. 2008). However, it may be noted that migration is not always a primary response to a disaster, especially when emergency aid compensates for damage (Kniveton et al. 2009). Often seasonal and circular migration is an important livelihood option that helps communities gather resources from their destination while offsetting the resource pressure back home. Movement induced by climate change is likely to be short-term and occur internally over short distances, especially in low-income countries (Sward and Codjoe 2012; Gemenne 2011b).

Often rural-rural migration is common within the poor groups that are vulnerable to climate change. Moving to cities often demands different skill sets, and more capital. This could be one more reason for people with less capital to get trapped in their original region, in environmentally vulnerable and degraded settings (Guzman et al. 2009; Foresight 2011). Migration opportunities may be severely limited for poor people in such places. The emerging picture is that internal migration often intensifies following major droughts or famines (Kniveton et al. 2008). Short, temporary migration induced by environmental stresses and shocks, often involve poor people. International migration is not a likely option for the poorest in general (Black et al. 2011a; Kniveton et al. 2008). As such internal migration is a far more widespread phenomenon than external migration. World figures show that there are 214 million international migrants and 740 million internal migrants (IOM 2011).

3. Migration Patterns in Bangladesh

All the above forms of migration have been noticed in Bangladesh. Internal migration to urban areas is showing a sharp increase (Planning Commission 2010b). An estimated half a million people move to cities every year, and they come mainly from coastal and rural areas (Islam 2012). Income diversification is the major driver for this group of migrants. Changing farming patterns is an underlying reason for this kind of migration. The rate of agriculture in income composition of rural households has dropped from 59 to 44 per cent between 1987-1988 and 1999-2000. At the same time the share of services and remittances in income has grown from 35 to 49 per cent (Afsar, 2005). In effect, countryside has become a source of labour force catering to cities (Toufique and Turton 2002).

Such migration helps people deal with poverty. A 1600-household survey in northwest of Bangladesh found that 19% of households of different income levels migrated in the lean farming season (CARE-Bangladesh and

DFID 2002) for a quarter of the chronically poor households, seasonal migration was an important livelihood strategy.

3.1 Drivers of migration

The five factors that Foresight (2011) has listed are at play in the migration scenario of Bangladesh — economic, environmental, social, demographic and political. There is evidence to suggest that climate change and variability influence these drivers. Economic drivers of migration appear to be predominant. Migration and mobility are of 'critical importance' for the rural poor during lean farming seasons and make up an important livelihood strategy (Afsar 2005). Village-to-city is the most prevalent migration route, making up nearly two-thirds of migration, followed by overseas migration that forms a little less than a quarter (24%) and village-to-village a tenth (ibid). Field studies have found more than 80% of incomes in some villages came from outside (Toufique 2002). There is a trend towards families spending part of the year away from home (ibid).

Migrants can secure jobs in urban areas more easily than in rural areas (Afsar 2005). It is reported that about 60% of migrants find work within a week of reaching an urban centre although the income still could be below the poverty line (CUS 2006). Rickshaw pulling and garment industry jobs are common livelihood options for the migrants. As such livelihoods depending on natural resources become less reliable. In many cases, income diversification requires extra skills. Male semi-skilled or unskilled workers who expect to gain skills dominate in the voluntary internal migrant population (Black et al. 2008). Women and young girls also migrate from *monga* (seasonal food scarcity) areas to work as domestic workers and also in the garment factories.

Although in a scale that is much smaller than internal migration, international migration is also increasing. About 400,000 to 500,000 workers migrate abroad to seek jobs yearly (Planning Commission 2011). Yet, international migration is still too costly for most of Bangladeshi families (Black et al. 2011b). At the same time international migration could become a risky option for those who have insufficient capital and institutional or social support. Raillon (2010) has pointed out that many Bangladeshi migrants abroad, particularly in India, risk becoming more vulnerable as they lack social protection in their destinations.

Economic drivers are often closely linked with environmental drivers, especially in rural contexts. Rural-urban migration is often an important coping strategy for rural people, especially after sudden climatic shocks. It could also be a more proactive adaptive strategy. On the other hand, growing water stress and climate variability reduce agricultural productivity, driving rural-urban migration. In the drought-prone northern regions such as Rangpur, Gaibandha, Kurigram, Nilphamari, where local employment options are limited

during the lean season of September through December, the landless people often end up in poverty and hunger. Every year boys and men from these areas migrate to cities and better-off villages for work (Siddiqui 2009).

Besides, riverbank erosion displaces 50,000 to 200,000 people in Bangladesh every year (Mehedi 2010). The erosion takes away not only people's homes but often their farming land also (Zaman 1989). Sometimes communities get displaced several times on account of erosion. A mid-1980s study in Kazipur sub-district showed that two-thirds of the inhabitants of the Jamuna-Brahmaputra floodplain experienced displacement at least once, about 17 per cent three times and 15 per cent 10 times (Hutton and Haque 2003). A survey in Hatia showed 16 per cent households moved to cities to cope with the impacts of riverbank erosion and 22 per cent migrated after tidal surges (Foresight 2011). A study by Abrar and Azad (2004) on northwest Bangladesh found that on average households have been displaced 4.6 times by riverbank erosion. A majority moved essentially within local areas, some households migrated to greater distance.

Frequent cyclones are one of the main drivers of migration. Mehedi (2010) found that after the cyclone Aila in 2009, many people moved to other towns due to lack of working opportunities in the affected areas. More than half the migrants said they had to move out because they had lost houses, belongings and land. Extremely poor people were forced to migrate because they had lost their opportunity for daily income.

The interconnectedness between the drivers could be complex. A recent study by Gray and Mueller (2012), for instance, showed that flooding is not a strong driver of the long-term mobility trend in Bangladesh. Rather, crop failure is. Failures in cropping and shrimp farming due to salinisation could also alter the migration pattern. Fresh water scarcity is yet another factor that makes livelihoods more. The lack of availability and access to safe drinking water is a problem and it has reached a 'crisis level' in the south-west (WARPO 2006, p.6). This is because of reduced inflow of fresh water, over-extraction of groundwater, and prolonged drainage congestion (WARPO 2006). The Farakka barrage that India built over the Ganga river has reduced the river flow, in turn, causing a northward movement of the salinity line, threatening mangroves, farming and livelihoods (ibid). A new paper sums up that after hazards people move to safety and the landless among then move for income recovery (Penning-Rowsell et al. 2013). However, except after erosion and saline intrusion rendering farms uncultivable, there is little permanent migration from hazard-prone areas. In short, families prefer to stay put and migration appears to be the last resort.

Demographic pressures make up another driver. At 1033 people per square kilometre, Bangladesh has one of the highest population densities in the world (UN 2010). For instance, although the population growth rate is expected to decline from 1.36% to 0.71% in the future, the net population growth in coastal areas will

increase population density (WARPO 2004). In consequence, the poor are likely to be forced to live in more marginal low-lying areas that are vulnerable to flooding and storm surges (Paul and Routray 2011). As farming get affected, coastal cities such as Khulna are likely to receive more migrants from villages too (ibid).

Local politics and social dynamics could trigger migration. Many communities in Bangladesh are under the power of local mafias (Raillon 2010). Locally powerful 'talukdars' and 'jotedars' (chieftains) gain control over accretion lands by using violence. They often use violence and confiscation of assets, and this makes resettlement of the poor after natural hazards a socio-political issue (Zaman 1989). Although the Government promotes rehabilitation by moving the landless and the displaced to *char* areas formed of riverine silt, the new settlers are often intimidated by the local powers and many have to go back to their original regions (ibid).

The Government acknowledges that the vested interest groups in rural and urban areas occupy those lands by using unjust power (Planning Commission 2011). Also, public opposition against land grabbing is growing, forcing the Government to take steps for correcting unjust actions (Feldman and Geisler 2011).

4. Policy scenario in Bangladesh

4.1 Institutional mechanism to address adaptation needs

Bangladesh has drawn up a national framework to address challenges posed by climate change. It is a logical outcome of the country's progressive environment and development policies. The Environment Policy of Bangladesh dates back to 1992, before the Earth Summit. Since 2006, the Department of Environment has been developing a National Sustainable Development Strategy (NSDS), with technical support from UNEP and financial aid from Norway (RRCAP 2012). As mandated by the UN Framework Convention on Climate Change for the least developed countries (LDCs), Bangladesh submitted its National Adaption Programme of Action (NAPA) in 2005. Following up, the Climate Change Unit of the Ministry of Environment and Forests (MoEF) brought out the Bangladesh Climate Change Strategy and Action Plan (BCCSAP) in 2008, which was revised in 2009. The NAPA was also updated in 2009.

The government has set up a Climate Change Trust Fund (CCTF) in 2009, which has approved 43 government projects with USD 70 million allocation, besides 32 NGO projects with USD 3.5 million allocation. In addition, Bangladesh Climate Change Resilience Fund (BCCRF) has been put in place with development partners pledging of USD 113.5 million. The resilience fund will be managed and implemented by the Government with

the World Bank's technical assistance. There are also plans to set up a multi-donor Trust Fund (MDTF) for receiving and disbursing adaptation funds (UNFCC 2012)

4.2 Efforts to mainstream climate change into development

There is widespread awareness and a strong political will in the policy circles to acknowledge the impacts of climate change on development and growth. The Sixth Plan document notes: "... climate change will exacerbate the vulnerability of poor people to environmental shocks, with the predicted increase in extreme climate events (Planning Commission 2011: 165). This understanding is part of an effort of the government to mainstream concern regarding climate change into the overall planning process. Climate change is not being treated as merely an environmental issue, but a development issue.

However, critics say there is some concern about a certain lack of co-ordination among different ministries. The Overseas Employment Policy that is pursued by the Expatriates' Welfare and Overseas Employment Ministry does not deal with climate change issue whereas environmental policies pursued by Ministry of Environment do not look into the broader aspect of labour migration that the government is promoting. There is no monitoring and evaluation process built in to the policy (Siddiqui 2010, Siddiqui and Farah 2011). Meanwhile the Ministry of Expatriate Welfare and Overseas Employment has formed an Inter-Ministerial Committee to review relevant laws with contribution from the International Organization for Migration (IOM 2011). Recently IOM has also initiated a policy dialogue on mainstreaming concrete short and long-term migration adaptation strategies in Bangladesh on the basis of emerging evidence (ibid).

4.3 Different strands of policy that touch upon climate change and/or migration

This part of the paper seeks to examine to what extent the policies address migration as an adaptation strategy. The underlying logic is that a proactive approach to various options of migration and mobility could leverage benefits, build resilience and enhance adaptive capacity (Foresight, 2011)

This study analyses four sets of policies:
i) Policies that specifically deal with climate change
ii) Development and poverty reduction policies
iii) Disaster management policies
iv) Migration policies

4.3.1 Policies that specifically deal with climate change

This section covers two policies and a project report that explicitly address challenges posed by climate change. They are Bangladesh's National Adaptation Programme of Action (NAPA), the Bangladesh Climate

Change Strategy and Action Plan (BCCSAP) and the Guchhogram (Climate Victims Rehabilitation Project) project report.

a) National Adaptation Programme of Action (NAPA)

Bangladesh submitted its national adaptation strategy to the UNFCCC in 2005. It followed a process of four sub-national stakeholder workshops, a national workshop and background papers prepared by six sectoral working groups that covered agriculture, fisheries and livestock; forestry, biodiversity and land-use; water, coastal zone, natural disasters and health, livelihood, gender, local governance and food security, industry and infrastructure and policies and institutes. The report recognised that climate change will amplify the impacts of natural hazards and made an urgent call to integrate adaptive measures within the development process (MOEF, 2005). It was a blueprint for urgent action.

Focusing on the effects of climate stimuli, including variability and extreme events, especially in the water sector, the NAPA projected the following problems: fresh water scarcity, drainage congestion, river bank erosion, frequent floods, prolonged drought and salinity in the coastal zone. It acknowledged the enhanced vulnerability of coastal areas, farm yield reduction and the risk of future food-grain insufficiency (MOEF 2005). In response the government listed 15 priority activities, and the first one aimed at coastal vulnerability reduction is already under implementation (UNFCC, 2012). The project will be linked with regional and national programmes, such as the UNDP/Department for International Development (DFID) Comprehensive Disaster Management Programme (CDMP) and other biodiversity and livelihood projects (ibid).

NAPA treated migration as an undesirable outcome of climate change. One figure mentions migration along with crime as an outcome of livelihood impacts of climate change through employment, income and consumption (page 17). Project no 11 promotes adaptation to coastal crop agriculture to combat salinisation. Its long-term outcomes include community adaptation to flood/ tidal surge and sea level rise. And it adds: "Affected community would not migrate to cities for job and livelihood" (p 35); and "Social consequences of mass scale migration to cities would to some extent be halted" (p 36). Project no 12 is concerned with adaptation by farms in the flood-prone North East and Central regions. Its outcome is: "In the long–term people might get a means to continue with farming, instead of migrating to cities after the flood. This would to some extend reduce social problems of migration of the distressed community to cities" (p 37). Such a negative portrayal of migration as a potential security and law and order issue is hardly consistent with new thinking on migration as a potential adaptation.

The updated NAPA of 2009, moved from immediate and urgent needs to cover wider adaptation needs. It focused on four security issues, namely, food, energy, water and livelihood (including right to health), and respect for local community on resource management and extraction (MOEF, 2009). The project list has been

expanded further. The negative references to migration, except the diagram, were deleted. Still, this revised document did not envisage migration as an explicit adaptation strategy.

b) Bangladesh Climate Change Strategy and Action Plan (BCCSAP)

BCCSAP focused on medium and long-term goals while the NAPA mainly listed immediate priorities (Alam et al. 2011). It focused on six key areas — food security, social protection and health, comprehensive disaster management, infrastructure research and knowledge management, mitigation low carbon development and capacity building and institutional strengthening.

The original 2008 version projects a worst case climate scenario: "...unless existing coastal polders are strengthened and new ones built, sea level rise could result in the displacement of millions of people" (MOEF, 2008: 1). It also mentions high floods and riverbank erosion possibly displacing 1000s of people (p 8). At another point it talks of tens of thousands being displaced by erosion, migrating to slums of Dhaka and other big cities (p 13): "If sea level rise is higher than currently expected, and coastal polders are not strengthened and/or new ones built, six to eight million people could be displaced by 2050 and would have to be resettled" (ibid). It included an assessment of climate change and its impacts on out-migration among its action plans.

The document predicts that 'hundreds of thousands of people' will be forced to migrate, especially from coastal zones, because of decreasing livelihood opportunities and lowering agricultural productivity. It estimates 6-8 million people could be displaced by 2050 (MOEF 2008). In addition, slums in big cities have been referred to as a highly possible destination for those who migrate. Considering the fast and unplanned on-going urbanisation in Bangladesh, this poses an impending problem (ibid: 16). Despite the acknowledgement of significant migration due to climate change, a clear policy lines for migrants has not been outlined in BCCSAP, 2008.

The updated 2009 version addresses the issue of migration in more detail. It updates the figures of displacement due to sea level change, salinity, cyclones and storm surges at 20 million and seeks settlement of these 'environmental refugees', possibly abroad. For example, it states that "Migration must be considered as a valid option of the country. Preparations in the meantime will be made to convert this population into trained and useful citizens for any country" (MOEF 2009: 17), suggesting that such displaced people become 'useful citizens' my moving abroad. This broadly reflects the migration policy of Bangladesh spelt out in the Planning Commission documents.

In the Research and Knowledge Management section of the BCCSAP, the Government has included a new research agenda: Monitoring of climate change related internal and external migration and rehabilitation

(MOEF, 2009: 58). The action points included a monitoring mechanism, a protocol to support resettlement, and capacity building (ibid).

c) Guchhogram, Climate Victims Rehabilitation Project

Launched in 2009 Guchhogram project involves a three-year project 'to settle the climate victims, landless, homeless, address-less and river eroded people on khas land or donated land with living accommodation and to make all such rehabilitated families owner of a piece of homestead land' (M0L 2009). It involves rehabilitation of 10,650 landless families by establishing 207 villages. The resettlement projects, however, have been criticised for the lack of transparency and ineffectiveness (Displacement Solutions 2012). In a broader approach a group of local NGOs and support groups are trying to secure tenure for migrants in government land, especially in cities and suburbs. The idea is to prevent land grabbing by vested interest groups and provide dignified accommodation to the migrants instead of slums that often come up on the government land.

4.3.2 Development and poverty reduction policies

Government policies in Bangladesh clearly acknowledge and promote migration as a livelihood and development strategy. This approach is evident from two overarching development plans: The Five Year Plan and Outline Perspective Plan. Meanwhile two other documents, the National Strategy for Accelerated Poverty Reduction and the Millennium Development Goals give a broader perspective and the Coastal Zone Management Plan provide a regional focus on the issue. The problem in these documents is that the climate change-migration link is rather weak, especially the context of internal migration. There is a clear focus on international migration, mainly due to the huge amount of remittances that come from migrant workers and the role it plays in the development of some of the poorer parts of the country. At the same time some of the documents reveal a clear negative tone about internal migration.

a) The Sixth Five Year Plan

The Sixth Plan that charts out the development path for the country from 2011 to 2015 talks very positively about international migration. It welcomes the continued prospects for international labour migration of 400,000 to 500,000 workers a year and permanent labour absorption of about 100,000 workers (Planning Commission 2010). It also notes that special focus on underdeveloped regions, especially Khulna, Rajshahi, and Barisal Divisions, including promoting international labour migration (ibid). Though migration appears prominently — in 15 pages — the focus on the dynamics and outcomes of internal migration has not been addressed in the document.

At the same time the document places a lot of importance on climate change, its outcomes and adaptation measures. The phrase climate change appears 50 times in the 246 page document. An entire chapter is dedicated to environment, disaster management, and climate change and disaster management for sustainable development (ibid: 188 - 215). The stress is on its impact of disaster patterns and subsequent impoverishment of people in vulnerable places. Quoting the Human Development Report, 2007 (UNDP 2007), it notes that 70 million people will be displaced due to 'climate-induced flooding, cyclones and storm surges' (Planning Commission, 2010: 153). It could lead to tremendous pressure on land and natural resources and threaten the gains made in poverty reduction over the past two decades (ibid: 188- 189). One of the key recommendations is to 'mainstream poverty-environment-climate-disaster nexus in the development project design, budgetary process, project implementation and monitoring process' (p. 196).

Outmigration from the affected areas finds brief mention in the section on climate change (p. 188, p. 202). However, the target action points under the themes of food security, social protection, disaster management, infrastructure, research, low-carbon development and capacity building do not include migration or ways to deal with it. In short, internal migration as a climate change adaptation does not find any attention.

b) The Outline Perspective Plan

The Outline Perspective Plan was launched to achieve 'Vision 2021', the national long-term goal for development. Vision 2021 chalks out a development scenario in which citizens will have a higher standard of living, better education, better social justice and a more equitable socio-economic environment. The sustainability of development will be ensured through better protection from climate change and natural disasters (Planning Commission 2010b).

The document acknowledges a sharp rise in rural urban migration, the national rate of population movement being 4.5 per cent and for Dhaka 6 per cent. Slums account for more than 35 per cent of the population in all major Bangladeshi cities (ibid). Coupled with unplanned urbanisation, such migration restricts sustainable economic growth potential for rural areas and creates hazards in urban areas. The rate of urbanisation increased from 5 per cent in 1961 to 25 per cent in 2005, and it is projected to become 38 per cent by 2021, and the government sees it as an alarming trend (p 68). Unplanned growth of urban areas with increasing slum population needs to be reduced through an 'urban renewal strategy' (ibid).

On the one hand the plan welcomes remittances from overseas migrants, but seeks to 'reverse' the trend of migration to cities (p 68). Along with more spread-out urban development and better livelihood opportunities in villages, the document suggests 'migration controls' (p 69). Village development has been suggested as a remedy to 'weaken the forces of pull and push and inhibit rural to urban migration.' (p 69). On the whole the attitude to internal migration looks negative though rural-to-urban migration has been accepted as a reality.

c) National Strategy for Accelerated Poverty Reduction

Poverty Reduction Strategy Papers (PRSPs) were prepared in consultation with development partners, including the World Bank and the IMF. Updated every three years they described the country's macroeconomic, structural, and social policies for growth and poverty reduction as well as major sources of financing. The Sixth Five Year Plan followed up on these findings.

The first document came out in 2005 (IMF 2005). One focus of the report (Planning Commission, 2005) was emerging rural–urban continuum, including the 'dramatic expansion' of all-weather rural infrastructure developed in the 1980s. It notes that migration and remittances have emerged as dominant factors. It acknowledges that 'migration of varying duration to a variety of destinations both rural and urban as well as near and far is increasingly a critical part of the picture' (Planning Commission 2005). 'Initial fears that migration was fuelling an export of poverty from rural to urban areas has now been dispelled by poverty trend statistics; in general urbanisation appears to have been a force for poverty reduction with urban poverty declining much faster than rural poverty' (ibid: xvi).

Still the new policy strategy paper that came out in 2008 (Planning Commission 2008) and its update prepared 'in the light of Election Manifesto of the Bangladesh Awami League 2008' (Planning Commission 2009) did not take the internal migration agenda forward. This latest version stressed on the need to enhance flow of remittances and providing loans to international labour migrants (ibid: 20), bringing transparency in the migration process (p 24), and better training in labour laws of the employing countries (p 134). The section on 'Tackling Climate Change for Poverty Reduction' (p89 - 92) talks about livelihoods, disaster risk reduction, forestry and technology - but not migration.

For the urban poor and slum dwellers, cooperatives, micro credit organisations and health facility improvements have been envisaged in the Poverty Reduction Plan (Planning Commission 2009). And the new National Urbanisation Policy to be released soon is expected to address such concerns even more. However, rising land prices in urban areas would increase the number of migrants that resettle in slums (Begum 2007).

d) Millennium Development Goals (MDG) Bangladesh Progress Report, 2012

In the MDG report the Government emphasised mainstreaming migration into development, climate change and environment policy, and vice versa, for sustainable development. By doing so, the Government expects to

set up plans that will offset the impacts of environmental change and human mobility challenges over the coming years (Planning Commission 2012, 81). This plan also promotes international migration as remittances comprising almost 11 per cent of GDP, has had major beneficial development impacts. It also emphasises on special measures for women international migrants.

The report acknowledged a trend of steady rural-to-urban migration, further stretching and expanding basic services in cities. The population density in slums is 200 times the average population density of Bangladesh, which is already the highest in the world (Planning Commission 2012: 80). "Bangladesh faces a Herculean task in sustainably improving the lives of slum dwellers" (p 81). One of the targets is to achieve a 'significant improvement' in the lives of at least 100 million slum dwellers (p 75). One of the key recommendations is to provide support for legal migration, remittances and exploring labour markets in the context of international movement (pp. 94-96). Recommendations, however, miss the point of internal migration dynamics, except for the welfare of slum-dwellers.

Attributing growth of a few large cities to the lack of secondary cities, the Government has underlined decentralisation and devolution. The report touched upon trans-boundary issues such as upstream withdrawal of water that affects water quality and quantity downstream (p 94). It hoped 'urgent support' from the US$10 billion initial fund pledged by world leaders at the Copenhagen Climate Summit (p 94). The MDG report comes across as document that looks at internal migration favourably, but it still fails to analyse the issue deeply or offer any fresh insight or solutions.

e) Coastal Zone Management Policy
Coastal regions have been marginalised in socio-economic development of Bangladesh. Char land and offshore islands are disproportionately behind in terms of infrastructure and transportation accessibility (WARPO 2004). In the Sixth Plan, the Government pays particular attention to the disadvantaged region of coastal Barisal, which has the highest incidence of poverty, partly owing to the impact of natural disasters (Planning Commission 2011). The Government anticipates that the construction of Padma Bridge at Mawa-Janjira will generate new income sources in coastal areas, especially in Barisal Division (Planning Commission 2011).

A set of policies and plans especially aimed at the coast addresses the regional issues. Water Resources Planning Organization (WARPO) implements the Coastal Zone Policy the government approved in 2005. It gives the framework for and integrated coastal zone management plan and a development process (WARPO, 2006). The Coastal Development Strategy (CDS) tells how to implement the coastal zone policy. tidal waters, salinity intrusion and cyclones/storm surges.

The Coastal Zone Policy (MoWR, 2005) called for an Integrated Coastal Zone Management (ICZM). Its main principles included adoption of an integrated process approach, co-management and participatory decision, decentralisation and development of the private sector (p 2). The policy aimed at poverty reduction and sustainable livelihoods and the integration of the coastal zone into national processes (p 3).

One of the main concerns addressed in the policy is disaster management. A rationale for the policy is 'disasters and gradual deterioration of the environment, (p 1). The policy acknowledges that 19 districts are affected directly or indirectly by tidal waters, salinity intrusion, cyclones and storm surges (p 2). It notes: "Reduction to vulnerability to natural disasters would be an integral aspect of the national strategies for poverty reduction" (p 4). It suggests effective early warning measures, dykes, protection against erosion and rehabilitation of people affected (ibid). The policy details measures aimed at management of natural resources, sustainable livelihoods and promotion of renewable energy. It outlines conditions under which 'the coastal people are able to pursue their life and livelihoods within secure and conducive environment' (p 3). However, there is no single mention of the word migration.

Government documents that paved the way for the policy and later spelt out its provisions in detail addressed the issue of natural resource depletion and the need for a shift towards non-farm activities and a movement of rural populations to urban areas (WARPO, 2004). The rationale offered is that non-farm employment can absorb labour from agriculture when farming becomes less labour-intensive. Apart from coastal agriculture and aquaculture, the Government suggests promotion of tourism in the selected islands as a means of pro-poor economic growth (WARPO, 2006). However, the extent to which tourism can contribute in terms of sustainable livelihoods is doubtful (Chok et al. 2008).

However, there was no effective land distribution strategy for those who lose land due to erosion. The Coastal Development Strategy (WARPO 2006) proposed the establishment of criteria for identification of land that is cultivable and suitable for living. Major activities will include utilising newly accredited land for planting mangroves, and developing necessary infrastructure and facilities for the rehabilitated population. "Urban development and issues cannot be addressed in isolation. There is a need to mainstream these issues in a holistic way, especially in relation to rural-urban migration, market linkages etc." (WARPO 2006: 10). The Guchhogram initiative was an effort to address this issue.

4.3.3 Disaster Management Policies

While the Coastal Development Policy and various planning document address disaster vulnerabilities, a further set of policies and plans specifically address them. Disaster management has received considerable

attention in Bangladesh for much of the past two decades. Between 1991 and 2007, Bangladesh suffered 95 major disasters that claimed 200,000 lives and caused an estimated US $ 5.9 billion in damages especially in farm and infrastructure sectors (MOFDM, 2008). In 2007 super cyclone Sidr killed 4,234 people, and Cyclone Aila of 2009 killed 190 (Roy, 2011). These casualty figures were significantly less than some earlier cyclones thanks to disaster risk reduction programmes including early warning systems. However, more than 400,000 people were displaced in each of these events that caused prolonged damage to agriculture, fisheries, forestry, health, water supply, forcing people to move out (Roy, 2011; OCHA, 2012).

a) Comprehensive Disaster Management Programme

In 2000, the Government favoured a transition from response and relief to comprehensive risk reduction in collaboration with UNDP. The outcome was the Comprehensive Disaster Management Programme (CDMP) that was approved in November 2003. It preceded the Hyogo Framework for Action 2005–2015 that the 2005 World Conference on Disaster Reduction formulated (CDKN, 2011). Its Phase I (2004–2009) was a pilot for long-term disaster risk reduction and climate change adaptation in seven districts. At the national level it created policy and planning mechanisms. The Phase II (2010– 14) builds on these. The achievement includes mapping of hazards, risks and vulnerabilities and setting up an early warning system (ibid).

Some of the key documents that spell out specifics of the policy are the National Plan for Disaster Management, the Disaster Management Act and the draft National Disaster Management Policy. The National Plan for Disaster Management 2010-2015 is the blueprint for action in this field. The operational aspects have been codified in the Bangladesh Disaster Management Act was approved by the Minister for Food and Disaster Management on 12 September 2012 (ECB, 2012). It was first drafted in 2008 and revised in 2012, but still awaits publication. The policy-making process has been undertaken with NGO and community participation in the second phase the country's Comprehensive Disaster Management Programme (CDMP) that runs from 2010 to 2014. The CDMP focuses on risk management and mainstreaming.

b) National Plan for Disaster Management 2010-2015.

The National Plan aims to address disaster risks comprehensively and reduce the vulnerability of poor to the effects of natural, environmental and human-induced hazards. It seeks to "(i) bringing a paradigm shift in disaster management from conventional response and relief practice to a more comprehensive risk reduction culture and (ii) strengthening the capacity of the Bangladesh disaster management system" (Preventionweb, 2012).

The plan document (DMRD, 2010) relates to climate change and development policies of the country discussed above. It also explains how different parts of the country become vulnerable to disasters. It

analyses the socio-economic dimensions of disasters acknowledges, the poverty-disaster interface and the impact of disasters on economic and social activities of the poor. It lists depletion of assets, reduced income due to loss of work, increased indebtedness and out migration as factors that increase the vulnerability of the poor. And the cost to cope is disproportionately higher for the poor (p 36). It acknowledges that floods and riverbank erosion are rendering people homeless. Still it does not address the issue of migration any further as a strategy for poor people to cope with disasters or adapt. Resettlement gets a passing mention: 'Disseminate the information for utilization in development planning and resettlement of vulnerable communities' (p 73).

4.3.4 Migration Policies

There has been migration to the international short-contract labour market from Bangladesh since the mid-1970s. Promulgated at time when Gulf countries welcomed a lot of migrant labourers, the 1982 Emigration Ordinance aimed to monitor and regulate migration, building on the 1922 Act. As the labour dynamics changed and there have been restrictions on migration and exploitation of migrant workers, the country adopted changes in migration law and policy. Still the policy focus is on international migration, and climate-related migration is largely out of its purview (Kang 2012).

a) Foreign Employment Policy, 2006

In South Asian context of overseas migration, this policy is the first of its kind. It ensures the right of male and female workers from Bangladesh to choose overseas employment. It is aimed at regularising migration movements from all parts of the country. It protects the rights, dignity and security of the migrant workers within and outside of the country. It also seeks to ensure social protection of their families that stay back, and commits to strengthen the policy implementation mechanism (Siddiqui and Farah, 2011).

b) Overseas Employment Act, 2011

This Act upholds and protects migrants' rights, based on the principle of non-discrimination. It provides for emergency return of migrants if their host country is in any kind of crisis. It tries to prevent fraudulent practices and enforces accountability of recruiting agencies and their sub-agents. It creates a legal provision for functioning sub-agents. With prior permission from the government, recruiting agencies will be able to appoint subagents and will provide identification to the subagents working for them. The recruiting agency will be liable if the subagents commit misconduct.

In the past migrants could not go directly to court against the misconduct of a recruiting agency. The new draft law allows a migrant to move court if the concerned government official fails to take legal action in time

in such cases. The draft law has gone through civil society consultation, and is now being presented to the Ministry of Law, Justice and Parliamentary Affairs (Siddiqui and Farah, 2011, Siddiqui, 2011).

4.4 Key challenges

As the above section shows, many policies in Bangladesh are progressive and people-friendly. However, they tend to take a silo approach, not accounting for issues addressed in different, but related policy areas. A glaring omission in most of the policies discussed above is a lack of mention of internal migration or its portrayal in negative or, at best, general terms. Policymakers are now trying to bundle climate change concerns — from disasters to gradual deterioration of the environment and loss of livelihoods — and address them in comprehensive policies. Yet another issue is an apparent conflict of interests between the poor people who migrate to cities in search of work in large numbers and industry and business. The utilisation of urban space is a case in point. The Sixth Five Year Plan document, for instance, talks about a tremendous pressure on land and natural resources exerted by the migrants (pp.188- 189). The Outline Perspective Plan seeks the 'reverse' the trend of migration (p.68) and put in place 'migration controls' (p.69).

Surprisingly absent from this discourse is a proper acknowledgement of the economic contribution of the migrants and their role in a growing economy. There is mention about changing farming practices and growth of cities — but this knowledge is not translated into an enabling environment for the migrant workers. There are exceptions such as the Guchhogram Project. However on the whole the contribution of migrants to the economy largely goes unnoticed. Research and policy measures often ignore unorganised temporary migrant workers, their agency and rights (Rogaly 2009). Such obvious gaps make it all the more imperative to combine climate policies with development, urban planning and largely poverty reduction policies. While experts are working on it, a clear focus on how to deal with the habitat, livelihood and social security needs of the migrants is still absent.

Yet another aspect of migration that does not find mention in policies is the irregular migration to India. This appears to be a thorny issue in bilateral relations and human rights regime, especially after India resorted to tough border control measures in recent years (AP 2012). The issue has cropped in several bilateral meetings of security agencies, bureaucrats and at the Home Minister level. A Coordinated Border Management Plan between the two countries aims to curb illegal border crossings and incidents (Rajya Sabha 2012), even as international agencies such as the IOM are trying to use provisions for cooperation under the South Asian Association for Regional Cooperation (SAARC) Convention. The way forward appears to be a rational and pragmatic approach based on a clear and detailed understanding of migration trends. In the context of climate change the trend could be highly dynamic and complex — so policies need to be creative and flexible

enough to take that into account. The following section shows how various patterns of migration could contribute to climate change adaptation in different ways.

5   Mainstreaming migration as an adaptation measure

5.1 The big picture

A close look at the migration patterns in Bangladesh as discussed in the Section 3 shows that more often than not migratory movements are within the country. Often they involve short-term shifts to neighbouring places that are familiar to the migrants.   Village-to-village migration and often urban forays help the migrants supplement their livelihoods and tide over tough phases and lean seasons. Often people move back and forth, following regular patterns. Some do leave their places for good when the livelihood options get too limited or when the environment turns hostile. As such migration is a response to climatic stimuli or their effects and it moderates harm or facilitates beneficial opportunities; so it can be clearly called an adaptive measure (McCarthy et al 2001; IPCC 2012).

A common strand that runs through all these scenarios is mobility. Mobility broadly means the freedom to seek opportunities to improve livelihoods, living standards and services such as health care and education – succinctly put, safer and more productive life in more responsive communities (UNDP 2010). It is a broader concept than migration, a fundamental element of human freedom (UNDP 2009). Migration experts suggest that policies that consider human mobility succeed and those restrict it fail (De Haas, 2009). To promote resilience of climate change affected communities the best way is to give them the choice and resources to move out of their vulnerable circumstances or the 'trap' in which involuntary displacement might occur (Foresight 2011). Planned and facilitated migration can make movement a beneficial experience — to those who move, stay and those who host the migrants.

5.2 Different scenarios of migration/ mobility

Migration in the context of climate change that could involve six 'human mobility outcomes' as the Foresight (2011: 14 - 16) report suggests. All these scenarios are relevant in the Bangladesh context:

i) Migration posing operational challenges:

Major changes in migration numbers and patterns could mean pressure on resources and services. It could also involve disaster risks/ exposure to risks in cities (IPCC, 2011). Data and policy statements analysed above suggest such a trend, especially with regard to migration to major cities like Dhaka, causing concern in the policy circles. Between 1970 and 2011, Dhaka's population grow more than tenfold — 1.4 million to 15.4

million (UN, 2012). It is projected to increase to 22.9 million by 2025 (ibid). There could be increased demands for housing, water, land-use, sanitation, waste disposal and social needs of people.

The government and the local governance institutions have to get an idea of such dynamic situations and future trends for effective planning. Another issue could be people moving into risk-prone parts of the city and/or living in habitats with inadequate safety and security. Rapid and unplanned urbanisation in hazardous areas could increase disaster risk. Besides there is a need for adaptation of infrastructure to meet potential climate extremes (IPCC, 2012). Hazard-prone city spots and fringes could get occupied and squatters could build informal settlements in flood-prone areas (IPCC, 2012, Huq et al., 2007).

ii) Migration posing geopolitical challenges:

Certain climate change scenarios could involve 'unplanned, unpredictable and concentrated movements of people' and crossing of sensitive borders could pose challenges. (Foresight 2011: 16). In Bangladesh's case migration to India could be a case in point. There have been projections of large-scale cross-border movements, and concern about instances of violence against Bangladeshi migrants in India (Homer-Dixon and Percival 1996). This could be a serious issue considering the legal and political dimensions of cross-border migration and state responses on either side of the border.

iii) Displacement posing operational challenges:

It happens when individuals and communities cannot remain in their home place, in the aftermath of a disaster, for instance. It impacts not only growth and development, but also human security and social protection. Worldwide over 20 million people were displaced or evacuated by climate-related, sudden-onset disasters (OCHA/IDMC 2009). About 26.5 million people were reported affected by drought in 2008 (EMDAT 2011). Such scenarios could involve emergency and humanitarian relief such as food, water, health care and shelter. Longer-term measures could involve building resilience in the place of origin or destination, planned resettlement and/ or better mobility options. There are new scenarios involving loss of land due to erosion and sea level rise. There has been planned resettlement of 2,000 inhabitants of the Tulun (Carteret) and 400 of the Takuu (Mortlock) islands of Papua New Guinea as they were losing land to the sea (OCHA/IDMC, 2009). Riverbank erosion and geological subsidence coupled with sea level rise could pose such scenarios in Bangladesh too.

iv) Displacement posing geopolitical challenges:

Significant permanent displacement could involve border crossing and geopolitical challenges. "The geopolitical challenges associated with displacement revolve partly around issues of legal status and protection, but also issues of human security, social protection, health and development, especially for those displaced internationally" (Foresight 2011: 117). There is no global consensus or frameworks to deal with

people migrating or getting displaced due to climatic stresses and shocks (ADB 2012). In the Bangladesh-India context, the notion of climate-related displacement and tension has been highlighted in previous studies (Homer-Dixon and Percival 1996, Swain 1996, Myers 2001). However, the empirical basis of such studies has been under question as explained above. This is an area that requires a new scientific enquiry.

v) Choosing to stay:

Though staying back is often the least problematic scenario, there could be issues concerning provision of services and protection to potentially vulnerable people. Often people choose to stay back in risky environments on account of their cultural roots, family ties and social pressures (as a result of, say, a local community decision or the community leader's decision). People staying back could mean major policy challenges. It could raise the question whether the government has responded to the operational challenges of migration and enabled people to avail of the opportunities that migration provides. Besides those who stay back risk being vulnerable to environmental change. And some people might choose to stay despite considerable health and security risks (Foresight, 2011). Communities living in some of the low-lying, flood, erosion and storm-prone delta islands of Bangladesh might fall into this category in future.

vi) The challenges of 'trapped' populations unable to leave:

This involves those who remain in vulnerable places because they do not have the resources or ability to move out. This restriction could arise from 'direct force' or an 'implied constraint' — a major policy challenge either way (Foresight, 2011: 119). Such scenarios could be detrimental to human security, development and good governance. An example of a population trapped in a vulnerable place in the region is that of Burmese communities during Cyclone Nargis in 2008. Their inaccessibility to international humanitarian assistance threatened a separate wave of death from lack of food and water and the spread of disease (ibid). Bangladesh's delta population include poor communities and families in risk-prone areas. They require special policy attention so that some of them do not become trapped in the event of extreme climatic events.

5.3 Uncertainties

There are knowledge gaps that make policy making even more challenging. One area that requires attention is with regard to how people deal with uncertainties — with regard to climate and its impacts — and how better communication on risks and alternatives could give more options for people. Another is differential perceptions of risk and cultural considerations that influence migration decisions. Migration decisions involve multiple causes and are mediated through individual agency. Behind each individual decision is a 'unique combination of experiences, biases, assets and perceptions'. That explains the heterogeneity of migration

decisions (Kniveton et al, 2011). In short, there can be no one-size-fits-all policy measure to deal with climate change migration. Situations and adaptive options widely vary across geographies and cultures.

6.   Policy recommendations

6. 1 A more proactive policy

There are clear, but complex and dynamic, linkages between climate change and migration. Migration is one of the several adaptation strategies particularly to diversify and improve livelihood during hard times, especially after climatic stresses and shocks. "But the policies, legal instruments and adaptation strategies related with environment and climate change see migration as a threat and emphasise more on local adaptation programmes" (Siddiqui 2010). However, a growing body of evidence suggest that migration could lead to better adaptation and resilience for people, especially poor people, affected by the adverse impacts of climate change.

While international migration is being promoted as a survival and development strategy the policy focus on internal migration is generally pessimistic. Migration to cities is seen as a failure of the rural system and an added pressure on the urban system. The risk of such a bias could be a point bias in thinking about policy responses (Barnett and Webber, 2009). The negative portrayal of migration can lead to policies and action that restrict its incidence rather than addressing the root causes and the migrants' needs (World Bank, 2010). Further such restrictive practices could lead to especially poor and vulnerable people being trapped in environmentally risky places (Foresight, 2011). Instead, migration should be seen a time-tested coping and adaptation mechanism in response to environmental change (Barnett and Webber, 2009). Carefully managed migration could be an adaptation strategy. It is recommended that a policy shift in this regard may be considered.

6.2 Specific Policy Measures

The framework for policy measures have been recommended in six broad areas identified in the IOM-ADB Policy Dialogues on Climate Induced Migration (IOM 2011):
- i)   Migration as part of a solution
- ii)   Improving data and knowledge
- iii)   Building capacities for governments and affected populations

iv)   Improving governance and cooperation

v)   Mainstreaming urban management and disaster risk management with adaptation policies

vi)   Defining financial mechanisms to address climate-induced migration.

6.2.1 Migration as part of a solution

a) The first step involves a critical look at the pessimistic view on internal migration in different policies. Policies need to discard the view that populations are static and stop promoting interventions that force people to stay where they are.

b) The next step is streamlining of different policies and removal of unnecessary barriers to internal migration and facilitation of migration in situations where it could be an effective adaptation strategy. (This aspect is discussed in detail at section 6.2.5 below

6.2.2 Improving data and knowledge

a) A better understanding current and future movements under climatic stresses and shocks:

This involves the use of climate models and testing the sensitivity of climate to migration under different scenarios.

b) Understanding modes and routes of migration, enabling and disabling factors:

 This could mean real-time data gathering and temporal and spatial analysis of migration patterns with the aid of Geographical Information System (GIS).

c) Scientifically understanding the effectiveness of migration as an adaptation option :

 Future climate patterns and their influence on socio-economic variables are largely uncertain (Hinkel 2008; Hallegate et al 2011). Comparisons between *in situ* adaptation projects and migration-based intervention need to be based on internationally acceptable metrics and take into their account social, economic and environmental consequences

6.2.3 Building capacities for governments and affected populations

a) Put in place rules and regulations that make migration safe, productive and adaptive

b) Ensure safe and secure accommodation and services such as health care, water supply and children's education in migrants' destinations

6.2.4. Improving governance and cooperation

a) At the union, upzilla, district, division and national levels there should be ways to understand and respond proactively to migration, including new and unforeseen flows.

b) At the regional level, the continuing bilateral talks with and SAARC-level discussions should include present and future scenarios of climate change related migration.

c) At the international level, push for expertise and resources under UNFCCC and other frameworks for the benefit of migrants

6.2.5 Mainstreaming urban management and disaster risk management with adaptation policies

a) There is work in this regard in government, UN, bilateral and NGO levels. Such work needs to be strengthened and formalised.

b) Such streamlining would require a review of policies in various sectoral policy sectors:

  i) Development policy: Policies should consider the option of mobility for better livelihoods along with improvement of economic opportunities at the home base. Give priority to the choices of people to move out or stay put.

  ii) Urban planning: Build accessible and inclusive infrastructure in cities where people are migrating to in large numbers or likely to do so. Include migration and the migrant's requirements as an integral factor in planning processes.

  iii) Land-use patterns: Planning process should look into vulnerabilities and changing environmental and climatic factors. Besides using technology, care should be taken to avoid conflicts over land and unintended damage to the environment.

  iv) Facilitating migration: Improve transport, short-stay and long-term accommodation facilities as well as services such as water supply, healthcare and children's education for people who travel for work in cities.

v) Migration policy: As internal migration is the most response to climatic stresses and shocks prioritise it on par with international migration.

vi) Climate Change policy: Place internal migration as an effective adaptation strategy and comparable with in situ adaptation measures. Make available adaptation funding for migration-related activities.

6.2.6 Defining financial mechanisms to address climate-induced migration.

a) The national budget should include funding to facilitate migration. Ways and means need to be explored to source additional international funding. This could include emergency and aid and development cooperation as well as specific funding under UNFCC.

b) Use metrics of the adaptation project outcomes to secure better access to and utilisation of Adaptation Fund under the Kyoto Protocol. Using internationally acceptable metrics will help in efficient allocation and utilisation of their funds (Stadelmann 2011).

c) Facilitate the flow of remittances internally for the benefit of communities back home

REFERENCES

ADB (2012) Addressing Climate Change and Migration in Asia and the Pacific. Mandaluyong City, Philippines: Asian Development Bank.

AP (2012) India pledges zero casualties on Bangladesh border,Dawn.com, World, Urdu Edition, Associated Press, 29 September, available at http://dawn.com/2012/09/29/india-pledges-zero-casualties-on-bangladesh-border/ , (accessed on October 27, 2012).

Adger W N, Arnell N W, Tompkins E L (2005) 'Successful adaptation to climate change across scales.' Global Environmental Change 15: 77–86.

Adger, W.N., Lorenzoni, I. and O'Brien, K. (2009). Adaptation now. In: Adger, W.N., Lorenzoni, I. and O'Brien, K. Adapting to Climate Change: Thresholds, Values, Governance. Cambridge: Cambridge University Press. P1-22.

Afsar, R (2005) in Siddiqui, T (ed) Migration and Development: Pro Poor Policy Choices, Dhaka: University Press LimitedAbrar, C. R and Azad, S.N.(2004) Coping with Displacement: Riverbank Erosion in Northwest Bangladesh, Dhaka: RDRS, NBI and RMMRU.

Alam, K., Shamsuddoha, M., Tanner, T., Sultana, M., Huq, M.J. and Kabir, S. (2011). The Political Economy of Climate Resilient Development Planning in Bangladesh. IDS Bulletin. 42 (3), p52-61.

Alam, S. (2012). Population and Housing Census 2011. In 2nd Session of the OIC Statistical Commission. Izmir, Republic of Turkey. 13-15 May 2012. Dhaka: BBS.

Asian Development Bank (2012) Addressing Climate Change and Migration in Asia and the Pacific. Mandaluyong City, Philippines: Asian Development Bank.

Banerjee, S., Black and R. Kniveton, D. (2012) Migration as an effective mode of adaptation to climate change: Policy paper for the European Commission, Brighton: Sussex Centre for Migration Research, University of Sussex.

Barnett, Jon and Michael Webber (2009) Accommodating Migration to Promote Adaptation to Climate Change, Stockholm: Commission on Climate Change and Development.

Begum, A. (2007). Urban Housing as an Issue of Redistribution through Planning? The Case of Dhaka City, Social Policy & Administration, 41, 410-418.

Black, R. (2001) Environmental refugees: myth or reality? New Issues in Refugee Research, Working Paper No.34. University of Sussex, UNHCR Evaluation and Policy Analysis Unit, Geneva.

Black, R., Adger, W. N. Arnell, N. W., Dercon, S., Geddes, A. and Thomas, D. S.G. (2011a). The effect of Environmental Change on Human Migration. Global Environmental Change. 21S, pS3-S11.

Black, R., Kniveton, D. and Schmidt-Verkerk, K.. (2011b) Migration and climate change: towards an integrated assessment of sensitivity. Environment and Planning A. 43, p.431-450.

Brown, O (2008) Migration and Climate Change, Geneva: International Organization for Migration.

CARE-Bangladesh and DFID(2002) The Findings of the Northwest Ruala Livelihoods Baseline – 2002 Livelihood Monitoring Project, Dhaka, Bangladesh quoted in Hossain et al (2003).

CDKN (2011) Bangladesh's Comprehensive Disaster Management Programme, Inside stories on climate compatible development, December, London: Climate and Development Knowledge Network.

Chok, S., Macbeth, J. and Warren, C.. (2007). Tourism as a Tool for Poverty Alleviation: A Critical Analysis of 'Pro-Poor Tourism' and Implications for Sustainability. Current Issues in Tourism. 10 (2-3), p144-165.

Crate, S. A., and Nuttall, M. (2009) "Introduction: Anthropology and Climate Change" in Susan A. Crate and Mark Nutall (Eds.) Anthropology and Climate Change, Walnut Creek: Left Coast Press.

Deshingkar, P (2012) Environmental risk, resilience and migration: implications for natural resource management and agriculture, Environment Research Letters 7.

De Haas, H (2006) Turning the tide? Why 'development instead of migration' policies are bound to fail, Oxford: International Migration Institute, University of Oxford.

De Haas, H. (2009). Mobility and Human Development. Geneva: UNDP.

Displacement Solutions (2012). Climate Displacement in Bangladesh: The Need for Urgent Housing, Land and Property (HLP) Rights Solutions. Geneva, Switzerland: Displacement Solutions.

DMRD (2008) National Plan for Disaster Management 2010-2015, Dhaka Disaster Management Bureau, Disaster Management & Relief Division Government of the People's Republic of Bangladesh.

DMRD (2010) National Plan for Disaster Management 2010-2015, Dhaka Disaster Management Bureau, Disaster Management & Relief Division Government of the People's Republic of Bangladesh.

ECB (2012) 'Bangladesh Passes Disaster Management Act As ECB Bangladesh Maintains Government Lobbying', Emergency Capacity Building Project, 27 September.

http://www.ecbproject.org/news/latest-news-library/post/219-bangladesh-passes-disaster-management-act-as-ecb-bangladesh-maintains-government-pressure accessed on October, 3, 2012.

EM-DAT (2011) EM-DAT: The OFDA/CRED International Disaster Database, Université Catholique de Louvain, Brussels. Available: www.emdat.be.

Feldman, S. and Geisler, C. (2011). Land Grabbing in Bangladesh: In-Situ Displacement of Peasant Holdings. In: Land Deals Politics Initiative (LDPI), the International Conference on Global Land Grabbing. 6-8 April 2011.

Findley, S.E. 1994 "Does drought increase migration? A study of migration from rural Mali during the 1983–1985 Drought", International Migration Review, 28(3): 539–53, cited in Kniveton et al (2009).

Gemenne, F. (2011b). Why the numbers don't add up: A review of estimates and predictions of people displaced by environmental changes. Global Environmental Change. 21S, P.S41-S49.

Gerlitz, JY; Banerjee, S; Hoermann, B; Hunzai, K; Macchi, M (forthcoming) Assessing Poverty, Vulnerability and Adaptive Capacity: Development of a System to Delineate Poverty, Vulnerability, and Adaptive Capacity in the Hindu Kush-Himalayas. ICIMOD: Kathmandu.

Grothmann, T. and Patt, A.. (2005). Adaptive capacity and human cognition: The process of individual adaptation to climate change. Global Environmental Change. 15, p199-213.

Guzman, J.M., Martine, G., McGranahan, G., Schensul, D., Tacoli, C (2009). Population Dynamics and Climate Change. New York and London: UNFPA and IIED.

Halliday, T.J. 2007 Migration, risk and the intra-household allocation of labour in El Salvador, University of Hawaii, Manoa, cited in Kniveton et al (2009).

Hallegatte, S; Lecocq, F. and de Perthuis, C., 2011. Designing Climate Change Adaptation Policies. An Economic Framework. Policy Research Working Paper Series, W. Bank (ed), 5568. World Bank, Washington D.C.

Harmeling, S (2012) Global Climate Risk Index 2012: Who Suffers the Most from extreme weather events? Weather-related loss events in 2010 and 1991 to 2010.

Henry, S. et al. (2003   )"Impacts of environmental conditions on migration in Burkina Faso", Population and Environment, 25(5): 423–460, Population Association of America, Minneapolis, cited in Kniveton et al (2009).

Hinkel, J., 2008. Comparing possible outcomes or describing social learning? Presentation hold at the "Expert Consultation on Adaptation Metrics", 17-18 April 2008, Tokyo.

Homer-Dixon, T and Valerie Percival (1996) Environmental Scarcity and Violent Conflict: Briefing Book. Toronto: University of Toronto.

Hossain, M., I. Khan, I.A. and Seeley, J. (2003), Surviving on their feet: charting the mobile livelihoods of the poor in rural Bangladesh. Paper prepared for the conference 'Staying Poor: Chronic Poverty and Development Policy', University of Manchester, April 7–9.

Huq, S. 2001: Climate change and Bangladesh. Science 294, 1617.

Huq, S., A. Rahman, M. Konate, Y. Sokona, H. Reid (2003) 'Mainstreaming Adaptation to Climate Change in Least Developed Countries' IIED: London.

Huq, S., S. Kovats, H. Reid, and D. Satterthwaite, 2007: Editorial: Reducing risks to cities from disasters and climate change, Environment and Urbanization, 19(1), 3-15.

Hutton, D., Haque, C.E., (2003) Patterns of Coping and Adaptation among Erosion-Induced Displacees in Bangladesh: Implications for Hazard Analysis and Mitigation, Natural Hazards 29, pp.405-421.

IMF (2005), IMF Country Report No. 05/410, Washington: International Monetary Fund http://planipolis.iiep.unesco.org/upload/Bangladesh/PRSP/Bangladesh%20PRSP%202005%20Unlocking%20the%20potential.pdf accessed on October 1, 2012.

IOM (2009) Environment and Climate Change: Assessing the Evidence, Geneva: International Organization for Migration.

IOM (2011) IOM-ADB Policy Dialogues on Climate Induced Migration Geneva (June 9th 2011) and Bangkok (June 16th-17th 2011). http://www.iom.int/jahia/Jahia/iom-adb-policy-dialogues-on-climate-induced-migration/cache/offonce accessed on October 1, 2012

IOM (2012) Bangladesh, Facts and figures, International Organization for Migration

http://www.iom.int/jahia/Jahia/bangladesh accessed on October 4, 2012.

IPCC (2007a) IPCC Fourth Assessment Report: Climate Change 2007 Geneva: Intergovernmental Panel on Climate Change

IPCC (2007b). Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge: Cambridge University Press.

IPCC (2012) Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change, Cambridge, UK, and New York: Cambridge University Press.

Islam, S. (2012). Climate migrants cause baby boom in Bangladesh's urban slums. AlertNet http://www.trust.org/alertnet/news/climate-migrants-cause-baby-boom-in-bangladeshsurban-slums. Last accessed 31th Aug 2012.

Kang, Y. H. (2012) Internal Migration and Adaptation Policy Options in Coastal Bangladesh, Master's Thesis, School of Global Studies, University of Sussex, Brighton.

Kniveton, D, Schmidt-Verkerk, K., Smith, C. and Black, R. (2008) Climate Change and Migration: Improving Methodologies to Estimate Flows. Geneva: International Organization for Migration.

Kniveton,D, Smith C., Black C.,Schmidt-Verkerk, K (2009), Challenges and approaches to measuring the migration– environment nexus, in IOM (2009) pp 41-89.

Kniveton, D., Smith, C. and Wood, S. (2011), Agent based model simulations of future changes in migration flows for Burkina Faso, Global Environmental Change, 21, S34-40.

McCarthy, J; Canziani, O; Leary, N; Dokken D; White, K (Eds.) (2001) Climate change 2001: Impacts, adaptation and vulnerability. Contribution of Working Group II to the Third Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge: Cambridge University Press.

McLeman, R and Smit, B (2006) 'Migration as an adaptation to climate change.' Climatic Change 76: 31–53.

Mehedi, H. (2010) Climate Induced Displacement: Case study of cyclone Aila in the Southwest coastal region of Bangladesh . Khulna: HumanityWatch.

MOEF(2005) National Adaptation Programme of Action,, August, Dhaka: Ministry of Environment and Forests, Government of the People's Republic of Bangladesh.

MOEF(2009) National Adaptation Programme of Action, Updated Version of 2005, August, Dhaka: Ministry of Environment and Forests, Government of the People's Republic of Bangladesh.

MOFDM (2011) Draft Disaster Management Act 2008. Dhaka: Ministry of Food and Disaster Management, Government of the People's Republic of Bangladesh.

MOFDM (2008) National Disaster Management Policy, Dhaka: Ministry of Food and Disaster Management, Government of the People's Republic of Bangladesh.

MOL (2009). Guchhogram Project Status, Dhaka: Ministry of Land, Government of the People's Republic of Bangladesh.

MoWR (2005), Coastal Zone Policy 2005, Dhaka: Ministry of Water Resources Government of the People's Republic of Bangladesh.

Munshi, K. 2003   "Networks in the modern economy: Mexican migrants in the US labour market", Quarterly Journal of Economics, 118 (2): 549– 599, cited in Kniveton et al (2009).

Myers, N. (2001), Environmental Refugees: Our Latest Understanding, Philosophical Transactions of the Royal Society B: 356: 16.1-16.5.

OCHA. (2012). Internal Displacement - Overview. Office for the Coordination of Humanitarian Affairs http://www.unocha.org/what-we-do/advocacy/thematic-campaigns/internal-displacement/overview.   Last accessed 2nd Sep 2012.

OCHA/IDMC, 2009: Monitoring Disaster Displacement in the Context of Climate Change. UN Office for the Coordination of Humanitarian Affairs (OCHA) and Internal Displacement Monitoring Center (IDMC), Geneva, Switzerland.

Oliver-Smith, A.(2009a) "Climate Change and Population Displacement: Disasters and Diasporas in the Twenty-first Century" in Susan A Crate, and Mark Nuttall (Eds., 2009).

Paul, S. and Routray, J. (2011). Household response to cyclone and induced surge in coastal Bangladesh: coping strategies and explanatory variables. Natural Hazards. 57, 477-499.

Penning-Rowsell, E.C. , Sultana, P., Thompson, P.M (2013) The 'last resort'? Population movement in response to climate-related hazards in Bangladesh, Environmental Science and Policy 27 (Supplement 1): S44—S59.

Planning Commission (2005) Bangladesh: Unlocking the Potential, National Strategy for Accelerated Poverty Reduction, Dhaka: General Economics Division, Planning Commission Government of People's Republic of Bangladesh.

Planning Commission (2008) Moving Ahead National Strategy for Accelerated Poverty Reduction II(FY 2009 - 11), General Economics Division, Planning Commission Government of the People's Republic of Bangladesh.

Planning Commission (2009) "Steps Towards Change, National Strategy for Accelerated Poverty Reduction 2: (FY 2009-2011). Dhaka: Planning Commission.

Planning Commission (2010) Outline Perspective Plan of Bangladesh 2010-2021 (Vision 2021). Dhaka: Planning Commission.

Planning Commission (2011) 6th five year plan (2011-2015) Accelerating Growth and Reducing Poverty, Part-1 Strategic Directions and Policy Framework. Dhaka: Planning Commission, Government of the People's Republic of Bangladesh.

Planning Commission (2012) The Millennium Development Goals: Bangladesh Progress Report 2011. Dhaka: Planning Commission.

Piguet, E (2008), Climate Change and Forced Migration, New Issues in Refugee Research, Research Paper No. 153, Geneva: UNHCR.

Piguet, E (2011), The Migration/Climate Change Nexus: An Assessment, Paper presented at the International conference on Rethinking Migration: Climate, Resource Conflicts and Migration in Europe, Mendelssohn-Remise Berlin 13 -14 Oct. Available at http://www.network-migration.org/rethinking-migration-2011/2/papers/Piguet.pdf accessed on October 30, 2012.

Preventionweb (2012), Introduction to the link to Bangladesh: National plan for disaster management 2010-2015, Available at http://www.preventionweb.net/english/professional/policies/v.php?id=16676.

Rahman, A. Atiq, Mozaharul Alam, Sarder Shafiqul Alam, Md. Rabi Uzzaman, Mariam Rashid and Golam Rabbani (2007) Risks, Vulnerability and Adaptation in Bangladesh in UNDP, Human Development Report 2007/2008 Fighting climate change: Human solidarity in a divided world, Occasional paper, Human Development Report Office, Paris: UNDP.

Rajya Sabha (2012) Answer by the Indian Minister of External Affairs S M Krishna to question no 130 in Rajya Sabha, the upper house of the Indian Parliament on March 22, 2012.
http://www.idsa.in/resources/parliament/RefusalofillegalmigrationbyBangladesh accessed on October 4, 2012.

Rogaly, B (2009) 'Spaces of Work and Everyday Life: Labour Geographies and the Agency of Unorganised Temporary Migrant Workers', Geography Compass, 3 (6), pp1975-1987.

Roy, D. (2011). Vulnerability and Population Displacements due to Climate-Induced Disasters in Coastal Bangladesh. In: Leighton, M., Shen, X. and Warner, K. Climate Change and Migration: Rethinking Policies for Adaptation and Disaster Risk Reduction. Bonn, Germany: United Nations University Institute for Environment and Human Security (UNU-EHS). p22-31.

RRCAP (2012) Bangladesh NSDS Brief, National Sustainable Development Strategies in Asia & the Pacific, Regional Resource Centre for Asia and the Pacific, Asian Institute of Technology, A UNEP Collaborating Centre. Available at http://www.rrcap.unep.org/nsds/workshop/SA/Bangladesh.pdf accessed on October 27, 2012.

Saroar, M. M and Routray, J.K.. (2012). Impacts of climatic disasters in coastal Bangladesh: why does private adaptive capacity differ? Regional Environmental Change. 12, p169-190.

Siddiqui, T (2009) Climate change and Population Movement: the Bangladesh case, Paper presented at the Conference on Climate Insecurities, Human Security and Social Resilience, The RSIS Centre for Non-traditional Security Studies, Singapore, 27-28 August.

Siddiqui, T (2010) Climate Change and Human Security, Paper presented at the fourth Annual Convention of the Consortium of Non-Traditional Security, Singapore, 25- 26 November.

Siddiqui, T and Makfie Farah (2011) Facing the Challenges of Labour Migration from Bangladesh, Protifolon Policy Brief, 4, Dhaka: Institute of Informatics and Development.

Siddiqui, T (2011), Law Update Rationale of framing new emigration law The Daily Star, Dhaka, June 25 http://www.thedailystar.net/law/2011/06/04/index.htm accessed on October 27, 2012

Stadelmann, M. 2011. Universal metrics to compare the effectiveness of climate change adaptation projects. 7th Meeting of the OECD Joint DAC-EPOC Task Team on Climate Change and Development Co-operation, 20-21 June 2011.

Sward, J. and Codjoe, S. (2012). Human mobility and climate change adaptation policy: a review of migration in National Adaptation Programmes of Action (NAPAs). Brighton: Migrating out of Poverty.

Schipper, ELF (2007), Climate Change Adaptation and Development: Exploring the Linkages, Tyndall Centre Working Paper 107, Norwich: Tyndall Centre for Climate Change Research

Swain, A (1996) Displacing the Conflict: Environmental Destruction in. Bangladesh and Ethnic Conflict in India, Journal of Peace Research 33 (2), pp 189-204

Tacoli, Cecilia (2011) Not only climate change: mobility, vulnerability and socio-economic transformations in environmentally fragile areas in Bolivia, Senegal and Tanzania. London: International Institute for Environmental and Development (IIED).

Tacoli, C. (2009). Crisis or adaptation? Migration and climate change in a context of high mobility. Environment and Urbanization. 21, p513-525.

Tickle, C. (1989), The Human Impact of Climate Change, Natural Environment Research Council Annual Lecture at the Royal Society, London: 5 June 1989.

Toufique, K.A. (2002) Agricultural and non-agricultural livelihoods in rural Bangladesh: A relationship in flux. In: Toufique, K.A. and Turton, C. eds. (2002).

Toufique, K.A. and Turton, C. eds. (2002) Hands Not Land: How Livelihoods are Changing in Rural Bangladesh. Dhaka and London: Bangladesh Institute of Development Studies and DFID.

UN (2010) UN Department of Economic and Social Affairs, Population Division World Population Prospects: The 2010 Revision, Available at http://esa.un.org/unpd/wpp/index.htm accessed on September 28, 2012.

UN (2012) UN Department of Economic and Social Affairs, Population Division, World Urbanization Prospects The 2011 Revision, The Highlights, Available at http://esa.un.org/unup/pdf/WUP2011_Highlights.pdf accessed on October 27, 2012.

UNDP (2009) Human Development Report 2009, Overcoming barriers: Human mobility and development, New York: UNDP.

UNDP (2010) Mobility and Migration, A Guidance Note for Human Development Report Teams, Human Development Report Office, New York: UNDP.

UNFCC (2010) Conference of the Parties, Report of the Conference of the Parties on its fifteenth session, held in Copenhagen from 7 to 19 December 2009, Addendum, Part Two: Action taken by the Conference of the Parties at its fifteenth session.

UNFCC, (2011) Conference of the Parties, Report of the Conference of the Parties on its sixteenth session, held in Cancun from 29 November to 10 December 2010, Addendum, Part Two: Action taken by the Conference of the Parties at its sixteenth session.

UNFCC (2012) Bangladesh experiences with the NAPA process, Bangladesh experiences with the NAPA process, Least Developed Countries Portal,

http://unfccc.int/cooperation_support/least_developed_countries_portal/items/6497txt.php accessed on September 30, 2012.

Warner, K., Ehrhart, C., Sherbinin, A., Adamo, S. and Chai-Onn, T. (2009). In Search of Shelter: Mapping the Effects of Climate Change on Human Migration and Displacement. Geneva: CARE International.

WARPO (2004) Living in the Coast: People and Livelihoods. Dhaka: Water Resources and Planning Organisation, Government of the People's Republic of Bangladesh.

WARPO (2005) Integrated Coastal Zone Management Plan Project: Investment and Financing strategy for Coastal Zone Development in Bangladesh. Dhaka: Water Resources and Planning Organisation, Government of the People's Republic of Bangladesh.

WARPO (2006) Coastal Development Strategy. Dhaka: Water Resources and Planning Organisation, Government of the People's Republic of Bangladesh.

World Bank (2010) World Development Report 2010, Development and Climate Change, Washington DC: The World Bank.

Zaman, M.Q.. (1989). The Social and Political Context of Adjustment to Riverbank Erosion Hazard and Population Resettlement in Bangladesh. Human Organization. 48 (3), p196-205.

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