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**Impact of Climate Change:
Migration as one of the adaptation strategies**

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INTRODUCTION

Traditional climate change literature generally treats migration with fear (IOM 2009). It is depicted as manifestation of acute vulnerability of people experiencing climate change. Bangladesh is one of the most vulnerable countries to climate change and climate change induced displacement. So far little research has been conducted to assess the nature and extent of population displacement linked to climate change in the context of Bangladesh. Through survey of secondary information this paper attempts to trace impact of climate change on human security of affected population and provide evidence of climate change induced migration in Bangladesh. This paper accepts the threat perception of climate change literature, however, it argues for transforming temporary migration of few member of the affected household into a logical and legitimate livelihood diversification strategy of the affected household.

The paper is divided into five sections. Section I attempts to settle some of the terminologies used in describing people who are on the move. Section II presents the socio-economic situation of Bangladesh and juxtaposes the speculations of impact of global climate change on the country. Section III concentrates on the sudden and gradual events of environmental change and looks for empirical evidence of migration in Bangladesh. Section IV reviews environmental policies and legal instruments of Government of Bangladesh (GoB) as well as adaptation strategies both at macro and micro levels and identifies migration as the missing element in those initiatives. The concluding section identifies ways through which migration can be used as one of the adaptation techniques in reducing human insecurities of affected people.

SECTION I: TERMINOLOGY

There is no international consensus on how to define people who move in response to climate related factors. 'Climate refugees' or 'environmental refugees' are commonly used terms. However, under international refugee law a refugee is a person who "owing to well founded fear or persecution" flees or crosses international border. This definition does not cover anyone who crosses border solely because of environmental degradation in his/her country of origin.

Hugo (2009) has used the term environmental migrants. It defined them as "Persons or groups of persons who for reasons of sudden or progressive changes in the environment that adversely affect 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 and abroad." This term suits the type of population movement that this paper is covering. While linking migration with environmental events the paper duly recognizes that migration is a multi-dimensional phenomenon. In cases where climate change is a major driver of population movement, it is usually compounded by social, economic, political and structural factors. In case of people who have been affected by slow onset processes some decide to move and others do not. Therefore resource, social network, cultural ability to cope with change, individual's attitude, position in family decision making and gender contributes to decision to migrate or not.

SECTION II: COUNTRY CONTEXT

Bangladesh is a low lying deltaic country of South Asia. Since its independence, Bangladesh experienced significant social and economic growth. Its GDP increased three fold; so did its overall food production.¹ Population growth rate declined from 2.9 percent in 1974 to 1.4 percent in 2006. Percentage of people living under poverty line has declined from 59 percent to 40. Its HDI improved from 0.347 to 0.547 in 2005.² Global climate changes can compromise Bangladesh's hard earned economic and social gains. Bangladesh has been identified as one of the most vulnerable countries of the world in terms of climate change. Some even argue, climate Change is no longer a threat for Bangladesh, it has already affected the country (Rahman 2011). Sea level rise, floods, drought, cyclone, salinity, water logging and unplanned urbanisation are some of the major environmental challenges that the country faces due to global climate change. The Earth Policy Institute predicted that 1m rise in sea level will lead to landlessness of 14.8 million people, 29,846 sq. km. area of land will be lost 40 m people will be displaced.³ Inundation of low land and delta will reduce agricultural production of the country severely. Along with loss of livelihood opportunities thousands of educational and health infrastructure will be lost.⁴

SECTION III: CLIMATE CHANGE AND MIGRATION

In Bangladesh climate change can affect population movement in three ways, firstly the intensification of natural disasters, both sudden and slow onset, may lead to increased displacement and migration, the adverse consequences of increased warming, climate variability for livelihoods, public health, food security and water availability may also lead to migration.

¹ GOB (2007), Economic Survey

² Bangladesh Bureau of Statistics (2006-07)

³ Earth Policy Institute (2004), EDC news

⁴ *Ibid*

Again both sudden environmental events and gradual environment change influence population movement but in different ways.⁵ Sudden onset events such as floods, cyclones and riverbank erosion may cause affected population to leave their homes at least temporarily. These movements are usually large scale. And in most of the cases people return to their place of origin in the long run. Slow onset process such as coastal erosion, sea level rise, salt water intrusion, changing rainfall patterns and drought can produce irreversible results leading to more permanent form of migration. In the following few evidences of people's insecurity due to intensification of harsh environmental events leading to population movements have been presented.

Floods: Floods are a fact of life for many in Bangladesh. A quarter of the country is inundated in a normal year. In the last 25 years frequency of severe floods has intensified. 1988 and 1998 floods have displaced as many as 45 and 30 million people respectively. Cases of protracted water logging following floods have increased. Owing to such events, a large group of people are displaced. Basic human needs of the poorest of the poor are met through providing relief. A recent survey of 595 households shows 28 percent had at least one migrant. 83 percent reported unemployment due to frequent floods was the main reason behind migration. 6 percent went to another village, 89 percent to nearby city and remaining 5 percent migrated internationally. ⁶

Cyclone: Among the nineteen coastal districts in Bangladesh twelve are directly exposed to cyclones and tidal surges. Since 1970, a total 26 major cyclones hit Bangladesh, with 18 of them occurring in last 20 years. About 19 million people were affected by the cyclones. In the last three years two high intensity cyclones hit Bangladesh: one is the super cyclone Sidr of 2007 and the other is cyclone Aila of 2009. Therefore after cyclone, the flood water did not recede and the area became permanently water logged. The embankment that protected the areas from tidal flooding has been destroyed. After one year of occurrence, the communities are still struggling to fulfill their basic human needs, food, shelter, drinking water and sanitation. Water logging has affected agriculture, fisheries and health as well.

Cyclones caused widespread mass displacement of people both during and after the storm. After the most recent cyclone Aila seasonal migration from affected areas increased manifold (100,000 from Koyra, Paikgacha, Dakope and Batiaghata). 100,000 people are still living on embankment. A large number of local people are considering permanent out migration.⁷ (newspaper sources)

⁵ Walshaw Mathew (2010)

⁶ IOM (2010)

Char areas: Each year about 1 million people are affected by riverbank erosion. One study on north-west Bangladesh found on an average households have been displaced 4.46 times. Majority moves essentially within localised areas, some households migrated to greater distances. Another study found that 80 to 95 percent of char households of north-west Bangladesh are migrant households.⁸ Migration from *chars* are mostly temporary, seasonal and circular. 5500 of 30,000 slum dwellers in Sirajganj were found to be riverbank erosion affected displacees.⁹

SLR: Sea level rise (SLR) is projected to significantly increase coastal erosion, saline intrusion, flooding and waterlogging and storm surge. SLR is cited as the most often cause of mass displacement ranging from 30m to 40m. Since the predictions are long term and these do not take into account potential adaptation measures and accretion of land, it is difficult to provide evidence

Drought: Northwest region of Bangladesh faces acute seasonal drought. The long term changes in rainfall pattern, over-pumping of ground water and diversion of water in the upstream by upper riparian state have been identified as major reasons. One study on cross border movement from Bangladesh to India highlighted that a significant section of migrants originated from north-west region affected by the Farrakka Dam (Ashok Swain). Another study highlighted that people of drought prone areas engage in short distance rural to rural and rural to urban seasonal migration.

SECTION IV: ENVIRONMENTAL POLICIES, LEGAL INSTRUMENTS AND ADAPTATION STRATEGY

The idea of environmental protection through national efforts was first recognized and declared with the adoption of the Environmental Policy 1992. This policy document was prepared in collaboration of civil society. The Government of Bangladesh has also adopted a number of supplementary policies where environment and development issues have been addressed. Important policy documents in this respect are the Forest Policy (1994), the Fisheries Policy (1998), the Water Policy (1998), the New Agriculture Extension Policy (1995), The Energy Policy (1995). Besides these sectoral policies, the National Conservation Strategy (NCS) and especially the National Environment Management Action Plan, 1995 (NEMAP) have been formulated to respond to environmental issues and promote sustainable development. Bangladesh Environment Conservation Act (ECA) 1995 specifically deals with environmental issues. It was subsequently amended in 2000. The Environmental Conservation Rules, 1997 were promulgated in furtherance of the objectives of the ECA, 1995.

⁷The daily star weekend Magazine

⁸Abrar and Azad (2003)

⁹Haque and Zaman (1989)

It is interesting to note that none of the policies or action plans deal with the issue of migration. It reflects that migration experts have failed to provide inputs when all these policies were framed. Macro level adaptation strategies have failed to address the movement of people both voluntary and forced from affected areas. Migration as an adaptive option has not been thought of by the policy makers as well as development practitioners. The National Adaptation Programme of Action (NAPA) and the Bangladesh Climate Change Strategy and Action Plan (BCCSAP) both are concerned about building capacity and resilience against climate change effects through localization of problem. None of the instruments talk about the potential of migration as an effective adaptive option particularly to livelihood. It is found that migration of family members in the time of distress provides a much needed economic support to survive the households.

EXPERIENCES OF COMMUNITY LEVEL ADAPTATION

Bangladesh in COP 15 has emphasized on the importance of adaptation. It claimed for allocation of resources to the global community for national and community level adaptation programmes. Adaptation is defined here as 'helping develop ways to live with the changes that climate change generates'. When affected communities are involved in development, implementation and monitoring of adaptation planning, it is considered as Community Based Adaptation Strategies. Currently a number of community level adaptation strategies are being implemented across the countries that can be broadly categorized into four types. These are, vulnerability assessment exercises, practicing climate change resilient agriculture, the disaster risk reduction strategy, and education and awareness. Vulnerability assessment exercises makes participatory vulnerability assessment as tool for analysing effective links between climate change and local knowledge and practices. Climate change resilient agriculture targets innovation in agricultural production experimenting with flood tolerant housing, floating vegetable cultivation, drought resistant crop production etc. Disaster risk reduction strategies concentrate on experimenting with sustainable disaster risk reduction. Education and awareness strategies focus on enhancing awareness about climate change through education and information campaign.

Like the national ones none of the community level adaptation programme also thought of using migration as adaptation tool rather almost all of their programmes promote local level adaptation.

SECTION V: USE OF MIGRATION AS CLIMATE CHANGE ADAPTATION TOOL

Labour migration is an integral part of current global economy. People migrate both internally and internationally for various reasons. However 80 percent of international migrant are labour migrants. In 2010, 191 million people were living outside their countries of origin. The number of internal migrants is much higher than international migration flow. The migrants contribute immensely to the global economic and social development. In 2009 Human development report of UNDP drew attention to potential human development gains from migration among the migrants, their left behind family members, communities and members of destination societies. The UN Global Forum on Migration and Development (2009) recommendation and the Symposium of Global Migration Group (GMG), (May 2010) gave the highest importance to incorporation of migration into national development strategies. However, it is only recently global initiatives have been taken to link migration with meeting the challenges of climate change.

In case of Bangladesh as well both internal and international labour migration plays an important role in the development process. Each year 400,000-500,000 Bangladeshis officially migrate abroad as contract workers. The number of internal migrants is assumed to be more than double of international migrants. Besides it has a Diaspora population of 1.5 million. In 2009 they sent US\$10.7 billion as remittances. The figure was equivalent to 56.1 percent of the total export earnings of the country. Migrant remittances are 9 times more than the Foreign Direct Investment (FDI) flow and 4 times more than Overseas Development Assistance (ODA). Experts have identified that since the 1980s it is the internal migrants working in the garment manufacturing sector and international migrants mostly working as short term contract workers who have largely contributed to the economic growth of Bangladesh.

In facing the challenges of climate change, organized internal and international migration can play a significant role. Internal migration linked to formal sector employment, and international migration particularly in short term nature mostly takes place from certain pockets of Bangladesh. Climate change affected regions do not belong to those pockets. The government of Bangladesh has its own institutional framework to govern migration. These institutions do not cover environmentally vulnerable regions. The Ministry which manages migration should be linked with the ministries who are in charge of managing environment so that vulnerable groups can benefit from planned migration programmes. Through this the population movement threat of climate change can be transformed into a source of opportunity in the adaptation process of climate induced displaced.

CONCLUSIONS AND RECOMMENDATIONS

The impact of increased climatic hazards associated with environmental change is visible in the context of Bangladesh. These events lead to undermine the basic human needs like, food, shelter, drinking water and livelihood that to a greater extent worsen human insecurities of affected population. Referring to a good number of studies on population movement the paper clearly mentions the linkage between climate change and migration; where migration is considered as one of the many possible adaptation strategies particularly to attain livelihood during hard times. But the policies, legal instruments and adaptation strategies related with environment and climate change see migration as a threat and emphasize more on local adaptation programmes. However, based on the evidences, the paper logically argues to see migration as a livelihood diversification strategy. This could lead to enhance the adaptive capacity and resilience of affected people by increasing household income with diversified livelihood opportunities.

So, Instead of viewing migration as threat the government of Bangladesh as well as global community should incorporate migration as an important adaptation strategy. The government of Bangladesh should mainstream migration and climate change in its upcoming 6th Five Year Plan. National Adaptation Programme of Action of GoB and disaster risk reduction strategies should give adequate consideration to migration.

The Overseas Employment Policy of the GoB should incorporate provisions for facilitating international migration from potential climate change affected areas. It will necessitate: capacity building of Expatriates' Welfare and Labour Ministries and the Bureau of Manpower Employment and Training and DEMOs. The capacity of public and private technical training centres needs to be expanded to produce skilled human resource; more bilateral and multilateral agreements for recruitment needs to be signed; special fund needs to be created to finance migration and migrants' remittances should be linked with environment friendly development ventures.

In order to develop targeted policies and action plan in-depth research needs to be conducted on sudden onset events and slow onset processes of climate change and its impact on migration.

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