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Governing Mass Migration to Dhaka: Revisiting Climate Factors[1]

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A major social scientific response to the challenge of climate change centres on the idea of displacement. The complex chemistry of rising temperature that syncs unruly weather, sea level rise (SLR) and various forms of natural disasters have led social scientists to focus on the displacement of the significant number of the global population from their habitats and consequent migration elsewhere, in most cases to burgeoning urban spaces. Such concern for human displacement and sordid mobility is nowhere more salient than in Bangladesh. Locating Dhaka in the emerging debates on climate change is important for a number of reasons. Almost 40 per cent of Bangladesh's gross domestic product (GDP) originates in Dhaka and its peri-urban areas. By 2025, with a population of 22 million, Dhaka is expected to overtake Shanghai, New York and Karachi to secure the fourth place among the megacities. The current population growth rate of more than 4 per cent is way above the national average and more than 18 million or roughly one-tenth of the country's population live in this city. This makes Dhaka one of the world's most densely populated cities, with more than 45,000 people inhabiting per square kilometre. By any measure, Dhaka represents the maximum demographic volatility of a megacity.

This massive population crescendo is largely the result of constant flow of internal migrants from across the country. About half a million new migrants settle in Dhaka annually, making the city a destination for

an unending exodus. Why is such a huge number heading for Dhaka? An exploration of the recent academic literature and media representtations show a growing consensus on the reasons for Dhaka-bound migrations: climate change. The debates that emerged a couple of decades ago around more nuanced environmental and social factors of migration have more recently been bundled into one master narrative of climate change, with the concurrent message that migrants of Dhaka are climate refugees.[2]

However, good governance of Dhaka is not just about adapting to climate change, but also about containing the massive inflow of population into its cramped urban spaces. Climate change is certainly a major concern for Bangladesh, but it must not be conflated with the more immediate manmade ecological challenges with roots in specific political and social contexts across the country.

Macroeconomic contexts

Over the past two decades, the industrial and service sectors in Bangladesh have seen remarkable growth, while the agricultural sector has shrunk. Accordingly, the percentage of employment in agriculture has steadily declined, from 69.51 per cent in 1991 to 40.15 per cent in 2018 (World Bank Group 2018). As far as migration to Dhaka is concerned, there are two implications of this macroeconomic trend. Dhaka is the hub of the country's economy with most facilities associated with the industrial and service sectors thriving inside the city and its peri-urban areas. In the garment sector, the second largest after China, at least 80 per cent of factories are located in the greater Dhaka region. Most of Dhaka's GDP is generated in the more than the 4,000 garments industrial units in and around the city, employing about 5 million workers and staff. This sector is still showing signs of growth, with annual earnings of more than 32 billion dollars in 2018 (Akter 2019). Healthcare, education and other employment opportunities are constantly evolving around the garment and service sectors. So, the decline of the agricultural sector in terms of both the range of employment and share in GDP and the growth in industrial and service sectors need to be considered in any discussion on migration into Dhaka.

Beyond the city's vibrant industrial and service sectors that have taken millions of people out of the agricultural sector, there are certain social factors that have contributed towards migration to Dhaka. A government report estimates that in 2004 about 38.5 per cent of internal migration in the country took place due to employment and business activities, while in 2011 about 38.7 per cent of internal migration took place due to marriage. For the same year, the share of

migration due to natural calamity, family quarrel and women tortured or deserted by spouse was 2.1 per cent, 1.2 per cent and 0.2 per cent, respectively (Bangladesh Bureau of Statistics 2015: 78f.).

Dhaka is not just a magnetic field of no return. Amid in-migration, there is significant outmigration too, 9 per cent against in-migration of 16.42 per cent. If the countryside or smaller urban areas were non-habitable due to climate change, out-migration would not have taken place at more than 50 per cent of in-migration (Bangladesh Bureau of Statistics 2015: 28). The recognition of the macroeconomic drive for migration into Dhaka cannot, however, conceal the fact that the largest numbers of migrants into the city are those who are affected by some form of environmental challenges. To what extent are these environmental issues climate-induced?

Beyond the climate threshold

Salinity: The progressive salinisation of the coastal regions in Bangladesh has affected human health and agriculture as well as fish habitat and the Sundarban's ecosystems. Against the Food and Agricultural Organization's (FAO) prescribed allowable salinity level of 1/2 gram per kilogram (kg) of water, in some coastal regions, the level ranges from 4 grams per kg in the monsoon season up to 13 grams per kg in the dry season. About 20 million of the 37 million Bangladeshis living in the coastal areas are susceptible to the problem of excessive salinity (Colligan 2011; Dasgupta et al. 2015; Vogl 2011). Agricultural land affected by soil salinity has been found to be 0.83 million hectares (ha), 1.02 million ha and 1.06 million ha in 1973, 2000 and 2009, respectively (General Economics Division 2015: i).

The salinisation process in coastal Bangladesh started as early as the 1960s with the postcolonial development planning of the coastal regions that included the construction of polders. The sluggish water current due to barrages and other water management structures put on the major rivers flowing from India to Bangladesh was another factor that caused salinity. The Farakka barrage on the Ganges across the border, in operation since 1975, significantly slowed the river current, allowing oceanic water to penetrate inside the land (Rahman & Rahman 2015: 99). Salinity in the northern part of the Sundarbans region increased from 7.50 per cent in 1968 to 12.50 per cent in 1976 (March) and to 18.50 per cent (May), reflecting the immediate impact of the barrage (Aziz & Paul 2015: 248). Current structures existing upstream as well as future plans for new dams and diversions in the catchments of the Ganges, Brahmaputra and Meghna rivers will lead to significant changes in river flows and dynamics that would inform the seasonal availability

of freshwater in the coastal zones, leading to further intrusion of saline water from the Bay of Bengal. Since the 1980s, shrimp cultivation and poor drainage associated with it in the coastal regions has been another major factor causing salinisation in coastal Bangladesh.

Of all the exportable fish in Bangladesh, valued at 437.40 million dollars annually, about 57 per cent comes from shrimp cultivation, on 0.276 million ha of land, inviting the inflow of saline water (Kabir & Iva 2014: 7). This does not downplay the argument that global warming and the consequent SLR lead to salinity in the coastal Bengal Delta, but what it suggests is that SLR is not the only and dominant determinant of salinity in the region. In fact, the historically accumulated structural decadence of the deltaic sweet water regime caused by the immediate impact of human activities has made the delta more vulnerable than it could have been because of SLR itself. One may also note that the Inter-governmental Panel on Climate Change's (IPCC) estimation of SLR along the Bangladesh coast in the past two decades had no similar pattern due to subsidence as well as lack of sedimentation (van Scheltinga 2015).

Cyclones: Bangladesh is cyclone-prone because of its geographical location and exposure to a strong monsoon trail. The extent of damages from cyclones to human life and property in the country depends mostly on the extent of protection provided by what has been historically termed as the "forest belt" of the Sundarbans that protected inhabitants from cyclones arriving across the Bay of Bengal. In the 1850s, a British surveyor warned that the rate at which deforestation was taking place, if not stopped, would lead to the thinning of the forest belt of the Sundarbans leading to greater human causalities. The warning proved tragically true within two decades, in 1876, when more than 200,000 people were killed by a cyclone in Barishal district which had seen deforestation up to the sea (Iqbal 2010: 58-59). The lack of afforestation in the following decades resulted in the decline of natural protection of coastal habitats, culminating in the death of almost half a million people in the cyclone of 1970, which remains the deadliest of all cyclones in recorded history (Ali 1999: 111).

Despite historical lessons, deforestation has not stopped in Bangladesh. Excepting some occasional spell of afforestation, the more general trend has been towards deforestation. According to an Asian Development Bank (ADB) report of 2016, Bangladesh ranks the third country in Asia with lowest proportion of forests (11 per cent). Without contradicting the scientific data of progressive rise of temperature in the Bay of Bengal region, it may be suggested that human vulnerability and displacement due to storms and cyclones have been more directly caused by loss of natural protection through forests than the cyclone

itself, whether they are increasingly being caused by global warming or a combination of many factors.

Bangladesh is not the only country prone to cyclones. Of the 10 most tropical cyclone-hit regions in the world, China tops the list with 127 typhoon landfalls since 1970. China is followed by the Philippines, Japan, Mexico, the United States, Australia, Taiwan, Vietnam, Madagascar and Cuba (Belles 2016). It is true that a remarkable number of cyclones brew in the Bay of Bengal, but those also affect the Andamans, West Bengal as well as Myanmar, and not just Bangladesh. In terms of actual landfall of cyclones, Bangladesh is not even among the top 10 countries. Since the 1991 cyclone, when about 150,000 people perished, there has been a remarkable decrease in cyclone-related death and injuries. In the most severe cyclone in recent years in 2007, the number of deaths amounted to 4,234, a 100-fold reduction in the death toll compared to the cyclone of 1970. Whereas in Myanmar in 2008, cyclone Nargis killed more than 140,000 people and seriously affected about 2.4 million people (Haque et al. 2012: 151). What has saved lives in Bangladesh in the more recent past is the developed warning system and better preparedness, in the absence of a protective thick forest belt. What can be learned from this is that people are relatively less affected recently and there are fewer reasons to believe that every cyclone is creating and sending "climate refugees" to Dhaka, much less so in the past two decades.

Flooding: Flooding is probably the most recurrent natural disaster in Bangladesh. About 3.48 million people are affected by flooding in the country, second only to India where 4.84 million people are affected by this disaster annually. Bangladesh has the highest percentage of GDP affected by flooding in the Asia Pacific region. The connection of climate change to Bangladesh flooding is still projection-based. The country is historically flood-prone and its location at the receiving end of three major Asian river systems makes it a natural candidate for flooding in the monsoon season. But, the natural setting in which flooding was expected traditionally by the agrarian community has been altered significantly at least in the past one century. These include the impacts from the construction of railways and highways on the embankment in a deltaic plain that often ran against the natural north–south flow of the drainage of the rivers.

A second set of issues relate to deforestation in the higher regions outside of Bangladesh, such as in north-eastern India and Nepal, leading to flash floods. A third set of issues is linked to the construction of barrages, including Farakka in India that withdraws water during lean

season and opens the sluice gates during the monsoon season, contributing to both drought and flooding in Bangladesh. A fourth issue is the embanking or raising of the beds of rivers. When a combination of high precipitation and these material factors act together, a major flood takes place.

Yet, a deeper examination reveals that what is perceived as flood is actually a sustained waterlogging condition. The official reflection of the problems of drainage in the Bengal Delta was first observed in the 1840s, when a panel of colonial experts suggested that all existing embankments in the delta should be removed for allowing the free flow of water. With the emergence of the railways, which were to be built on the embankments, such suggestions were side lined. The problems of waterlogging and flood initially concentrated in the western Bengal moribund delta area, but by the 1920s in the entire Bengal delta, including what constitutes today's Bangladesh, waterlogging rather than flooding became the problem. With the reduction of navigable waters and construction of highways for motorised vehicles, the problems worsened in the following decades.

As of 2015, the total length of national, regional and district level highways in Bangladesh is 22,096 kilometres (km). The length of the railway network is 2,877 km. More than 90 per cent of these roads and railways are built on high embankments across the wetland areas and often against running water, creating many compartments of waterlogged areas. Rural roads are also raised haphazardly across the country causing waterlogging. In addition to transport networks that have blocked natural drainage, there have been many other forms of structures, including unplanned housings and bridges with inadequate space for flow of water, polders, silted riverbeds, near-dead or dead rivers and shrimp *gher* that have made waterlogging worse. Illegal encroachment of riverbanks and unplanned aquaculture are additional problems. Bangladesh is essentially a massive natural basin blocked by manmade structures all over.

One major example of what is discussed above is the south-western coastal region of the country, where about 682 km^2 of land under four districts is under perennial waterlogged condition, affecting about half a million people. Waterlogging in this area started in the mid-1960s, soon after the construction of 37 polders and 282 sluice gates that made natural drainage almost impossible. With the silt raising river beds in the process, this has taken a serious turn since the 1980s. As part of a 20-year master plan, 8,200 km of embankments were constructed along with 4,300 bridges and 9,000 hydraulic structures, irrigation and drainage channels. When the Flood Action Plan (FAP) was taken up in

1989, this region along with other regions continued to be heavily under embankment, with the problem of waterlogging continuing. The FAP added more to the long process of structural damages to the drainage system of the Bengal Delta that started in the 1960s (Custers 1993). Currently, therefore, what is often pictured as flooding due to climate change is in fact a massive condition of waterlogging that has been caused by human and institutional actors.

Land erosion: Loss of land by riverbank erosion is a major factor in the displacement and destitution of a huge number of the Bangladeshi population. Such erosion is taking place mostly along the banks of the major rivers with strong fluvial dynamics. In the last four decades, during 1973–2013, a total of 153,438 ha of lands have been eroded along the Padma (lower Ganges) and Jamuna rivers (General Economics Division 2015a: 52). It is estimated that 283 locations and 85 towns along with 2,400 km of riverbank lines are vulnerable to erosion and that about 130,000 people are displaced annually due to riverbank erosion (Mollah & Ferdaush 2015: 125). Annual economic losses due to erosion are estimated at BDT 1,000 crore (FAO 2010: 3).

Is land erosion taking place due to climate change? This is a moot point which requires further examination, but apparently in some parts of the Sundarbans forest areas, especially in the extreme southern edge, erosion is taking place due to lack of sediment supply, which again is caused by the Farakka and other barrages and dams upstream (Akter et al. 2016: 1217). Another factor causing land erosion is the training of rivers that take place during the construction of major bridges. For example, in Sirajganj district, one of the most erosion-prone regions in Bangladesh, the major channel of Jamuna river has been stressed to shift 315 metre per year eastward. As Rahman and Suzuki (2010: 123-30) suggest, 'the helical flow developed with the interaction of guide bund creates local scours and helps to shift the river bank eastward.'

Distributive justice

If the major environmental problems in Bangladesh are not entirely influenced by climate change, what does this mean for governance of migration into Dhaka city? There is little doubt about the Bangladeshi government's sincere quest for climate justice at a global level or policies for adaptation. The pertinent issue here is the need to locate the political, social and legal context of displacement of a large section of population with particular attention to broader earth-bound ecological challenges that have been largely conflated with climate change and linked with climate refugees in Dhaka.

So far, policy responses to the displacement of people within Bangladesh have been threefold. First, the "compensationist" approach that seeks climate justice in the form of financial assistance to tackle the impact of climate change and the occasional demand for relocation of climate refugees to other developed countries which are largely responsible for the climate crisis. Despite remarkable success in making Bangladesh an important case for climate vulnerability, the country has failed to make the most of the momentum. The recent refunding of 13 million pound, part of a 75-million-pound deal, to the Government of United Kingdom around disputes over the process of disbursement is a contradiction to the global climate justice argument. The Bangladeshi government argued that the fund, promised in 2008, should not be transmitted through the World Bank as it would attach unacceptable strings, including a high interest rate. But this development took place only within a few weeks of a pledge of 2 billion dollars for Climate-smart Development from the World Bank itself. This not only raises questions on the shifting ground of the policy process, it also undermines the global climate justice movement for which Bangladesh itself has been campaigning.

Second, the "adaptationist" approach looks to secure rights and services for climate refugees in their place of refuge. This approach is apparently gaining more ground as a host of organisations and researchers are linking it with issues of human rights, vulnerability and the need for a humane approach towards the displaced people, especially in creating smooth transitions to the new environment they settle in. Yet, this approach seems to be less interested in the fundamental causes of displacement itself or the preventive aspects of the problem.

The third approach could be termed as "distributive justice", which seeks to help vulnerable people with resources from an existing pool. This approach remains the weakest link in the governance mechanism in Bangladesh, although the country is rich in natural resources that are capable of mitigating the impacts of displacement. The sedimental accretion or the *char* land looks to be an important tool for this third category of responses to the challenge of displacement which, in Bangladesh, is generally linked with functional landlessness.

Whatever standard of measurement is used for understanding the level of landlessness, this problem has grown progressively in Bangladesh and now is at its most critical point. The preliminary report of the 2008 Agricultural Census found 3.26 million rural households as landless (11.4 per cent of the total rural households) and 7.9 million rural tenant households (27.8 per cent of all rural households) (FAO 2010: 5). A survey in 2010 found that 89 per cent of landowners in Bangladesh have

less than 2.5 acres of land and 39 per cent of the households own less than 0.5 acres, being functionally landless (Herrera 2016).

The massive loss of land due to river bank erosion and the resultant displacement of people are generally projected as a factor for the increased "climate refugees" in Dhaka. Yet, Bangladesh not only suffers from land erosion, it also benefits from natural accretion or pro-gradation of lands, both on the riverbeds within the mainland and in the estuary, through a complex geological process involving silt, fluvial and tidal flow. The country's estuary receives at least one billion tonnes of sediments with one trillion cubic metres of water across the Himalayas, which is reflected in the fact that the sediment discharge from the lower Meghna river has been the third highest and the water discharge is the fourth highest among river systems in the world (Akter et al. 2016: 1218).

During the four decades between 1973 and 2013, total area of accreted land was 53,000 ha which was less than the land lost, amounting to about a third. But in some regions, especially the Meghna estuary, the accretion of land is greater than the erosion. In the last decade, the net annual accretion in the Meghna estuary has been 13.11 km (General Economics Division 2015a: 54). The lesser degree of accretion of new land in the coastal region is, however, often attributed to the geomorphological changes brought about by the Farakka barrage and other structures upstream of many rivers that flow into Bangladesh.

After decades of ecologically unsustainable development and economic activities that have led to salinity, deforestation, land erosion and flooding, new policy shifts are towards adopting the Dutch experience of progradation of land through the artificial process of silt trapping through cross dams and other processes, what have come to be known as "tidal management". Before the project was formally initiated in 2014, the Bangladesh Water Development Board with support from the Netherlands had already seen the reclamation of about 1,000 km^2 of land on the Noakhali coast through Meghna cross dams. In the next two decades, Bangladesh expects to reclaim about 10,000 km^2 of land (Islam 2015).

This continuing process of land formation is in addition to the already existing land under the government known as *khas* land, comprising mostly of the accreted land or chars. Critics of the land reforms and land governance in Bangladesh are, therefore, not just focusing on the mathematical figures of loss and gain of land through the deltaic geological process, but also on the problem of accessing currently available land resources by the landless (Barkat et al. 2001). There are about 3.5 million acres of khas land in Bangladesh and of these about

1.3 million acres have gone out of government control, being illegally grabbed by politically and financially influential people.

The policy of settlement of granting of char land to the landless and destitute goes back to the precolonial practices of offering entitlement to primary land reclaimers. This policy of the state favouring the enterprising farmers continued until the turn of the twentieth century when, in the context of anti-colonial nationalist politics, the policy of securing entitlement of khas land to enterprising and needy peasants was replaced by a policy of offering these lands to politically and socially influential forces in a view to contain their political ambitions. Despite several reforms in postcolonial Pakistan and independent Bangladesh, this practice of politically calculated redistribution of land resources has continued, although the Policy for Settlement of Agricultural Khas Land of 1997 specifically reiterated that newly emerged land had to be distributed to the landless. The failure of putting a governance strategy into practice is reflected in the fact that currently 'only 7 per cent of char lands are in possession of 77 per cent of the population and 23 per cent of population who are primarily land grabbers, are in possession of 93 per cent of char lands' (Ullah 2016). In a statement in Parliament in 2010, the Bangladesh Minister of Land informed that 1.3 million hectares of government-owned land had been "grabbed" (Anonymous 2010).

The Bangladesh government is attentive to the improvement of livelyhood and market access for char dwellers in some places, but the restoration of entitlements to the char dwellers does not form a part of the broader planning in Bangladesh. There is no discussion on the root causes of landlessness and its remedies in the latest five-year plan of 2016-20 (General Economics Division 2015b). If even thousands of acres of land are accreted as planned in the Bangladesh Delta Plan 2100, the problem of landlessness and the migration of millions to Dhaka city will not be solved without a strong pro-poor policy framework in connection to the alluvial and reclaimed land regime.

Conclusions

Like many low-lying territories across the world, Bangladesh is vulnerable to climate change. But a distinction must be made between climate-induced problems and non-climatic challenges in a view to avoid an epistemic crisis in which knowledge about climate change shows only a 'limited effect on shaping concern about climate change' (Shi 2016: 759-62). Dhaka’s escalating demographic profile lends an easy explanation on the impact of climate change in the form of climate refugees, which is not always supported by empirical evidences from across the country. Although coming late, the literature critiquing climate alarmists

are slowly emerging, which suggest that it is too early to talk about climate change refugees in Bangladesh (Roy et al. 2016). Recent researches are also talking about the need to focus on the problems of "immobility" rather than "mobility" in a given condition of natural disasters (Findlay 2012).

This article is not premised on climate scepticism, neither on denial of climate change's impact on Bangladesh. Neither does it suggest that Bangladesh should stop taking the lead in demanding climate justice or garnering international support in the face of climate change affecting many developing countries. But, there are reasons to contest the notion that all problems, including the unsustainable migration to Dhaka from across the country, are due to climate change. The article suggests that dangers from the four major natural disasters facing Bangladesh, flooding, salinity, land erosion and cyclones, have causes and impacts relating to both climate change and beyond it and that these problems demand a holistic approach. Therefore, while mitigation and adaption approaches must be given continued attention, there is a need for a focused governance of relations between vulnerable people and their access to existing ecological resources.

The question of displacement is a recurrent issue in both the mitigation and adaptation approaches. Why is equal emphasis not given to the need for linking the displacement discourse with distributive justice? Failure to link human displacement to distributive justice will place Dhaka in a precarious situation in two ways. First, the creation of even more new lands, either by artificial means or by natural progradation, will not stop displacement of people if proper and just entitlement to land is not secured to the landless and land-poor. Second, once the current projective impact of climate change takes place in a more direct and expansive manner, Bangladesh will see more real-time climate refugees, who will outnumber refugees created by economic and social opportunities in the cities. In both cases, Dhaka will be the prime spot for a demographic explosion brewing out of displacements in the countryside. In the coming years, therefore, planning and actions need to move beyond the issues of mitigation and adaptation and there is a need to place the question of securing entitlements to ecological resources centrally within the discourse of distributive justice.

Endnotes

[1] Iftekhar Iqbal´s article with the same title was originally published in *Economic and Political Weekly*, vol. 54 (36), 07 Sept 2019, pp. 26-31. The editorial board of the South Asia Chronicle expresses its gratitude for granting the permission to reprint the article.

[2] Links between climate change and migrations to Dhaka are highlighted in such international media headlines as "Dhaka: the city where climate refugees are already a reality;" "Dhaka: climate refugees and a collapsing city"; or "Climate migration drives slum growth in Dhaka." In January 2019, a *National Geographic* report corroborated the World Bank's assessment that climate change, by inducing the displacement of up to 13.3 million by 2050, is Bangladesh's "number one driver of internal migration" mostly affecting Dhaka.

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