CLIMATE-INDUCED MIGRATION AND DISPLACEMENT IN BANGLADESH

A case study of riverbank erosion from Naria Upazila, Shariatpur

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BCCSAP- Bangladesh Climate Change Strategy and Action Plan
BDT- Bangladeshi taka
BWDB- Bangladesh Water Development Board
CDMP- Comprehensive Disaster Management Programme
CEGIS- Centre for Environmental and Geographic Information Services
CSO- Civil Society Organizations
DDM- Department of Disaster Management
DMA- Disaster Management Act
DSK- Dushthya Shashthya Kendra
EGPP- Employment Generation Programme for the Poorest
FFW-Food for Work (FFW)
FGD- Focused Group Discussion
GDP- Gross Domestic Product
GoB- Government of Bangladesh
GR- Gratuitous Relief
HDI- Human Development Index
HSC- Higher Secondary Certificate
ICCDR B- International Centre for Diarrhoeal Disease Research, Bangladesh
IDI- In-Depth Interviews
IMO- International Organization for Migration
KII- Key Informant Interviews
LGED- Local Government Engineering Department
MFW- Money for Work
MoDMR- Ministry of Disaster Management and Reliefs
NAPA- National Adaptation Programme of Action
NDMC- National Disaster Management Committees
NGO- Non-Government Organizations
NSMDCIID- National Strategy on the Management of Disaster and Climate-Induced Internal Displacement
NUSA- Naria Unnayan Samity
PIO- Project Implementation Officer
PRA- Participatory Research Approach
SDS- Shariatpur Development Society
SOD- Standing Order on Disasters
SNSP- Safety Net Systems for the Poorest
SST-Sea Surface Temperature
TR- Test Relief
UN- United Nations
UNFCCC- United Nations Framework Convention on Climate Change
UNO- Upazilla Nirbahi Officer
UPPR- Urban Partnership for Poverty Reduction
USAID- United States Agency for International Development
USD- United States Dollar
UST- Unnayan Shahojogy Team
VGD - Vulnerable Group Development
VGF- Vulnerable Group Feeding

EXECUTIVE SUMMARY

Bangladesh has a unique topography. Situated on the Bay of Bengal, it forms one of the largest deltas in the world with a dense network of tributaries of the Ganges, Brahmaputra and Meghna (GBM) Rivers. Bangladesh's topography and geographical location make it particularly vulnerable to extreme weather events including floods, cyclones and sea level rise. Its vulnerability is caused not only by its biophysical factors , but also its socio-economic factors such as high dependence on agriculture, population density, and poverty.

In Bangladesh, where riverbank erosion is an endemic and recurring event, climate change is now accelerating the rate of accretion and erosion cycle, displacing thousands of people every year, causing unprecedented damage to agricultural lands, homesteads, and even to some extent resulting in the loss of self-determination of the inhabitants.

Climate change, in the form of heavier rainfall, causes high amounts of sediment to wash into the rivers. Severe storms, higher water levels, and faster stream velocity aggravate the situation, which results in increased suspended sediment (turbidity) in water bodies affecting the normal distribution of sediment along rivers. Frequent heavy rain during monsoon also causes strong waves that loosen the soil of riverbanks.

Naria Upazila (subdivision) in Shariatpur District was selected as the research study area due to the unprecedented riverbank erosion event that occurred here in 2018. **In what is considered the single-worst case scenario in a hundred years, the Padma River ravaged vast swathes of Naria Upazila in 2018. Around 4,000 people lost their homes, and between 4,200 to 5,000 people were displaced.**

This study adopted the participatory research method combining qualitative analysis with some quantitative information to understand climate-induced displacement or migration in a given socio-economic scenario. Due to the limited scope of the study area, the research findings focused on internal migration and displacement only.

Char Atra, Bhumkara, Fateh Jangpur, Bhojeswar, Mukhtarer Char, and Naria Pourashova under Naria Upazila were selected for the study as an origin of riverbank disaster. Several areas in Naria Upazila and Dhaka (Kallaynpur and Beguntila slums) were chosen as the migrant destination sites.

Every year, the Padma River erodes Naria's left bank, but in the last five years it has started eroding its right bank. The people in Naria are worried, as the erosion has reached densely populated and vital business locations.

A total of 117 households in Naria Upazilla were surveyed through structured and semi-structured questionnaires to identify the reasons and consequences of riverbank erosion, livelihood pattern, and displacement or migration both in the places of origin and destination. Thirty-three more households were surveyed in Dhaka, the site of destination of the migrants. These kinds of linkages give the essence of riverbank erosion's overall scenarios and its impacts on livelihoods and displacements, where both the push and pull factors for

the decision-making process of displacement or migration were revealed.

This study finds that 83% of respondents have been directly affected by riverbank erosion, compelling them to shift to other areas for survival. The respondents identified three significant reasons: erratic rainfall, change in the river flow direction, and riverbank erosion that led to the loss of their houses and farmlands, resulting in displacement and migration.

They gave more weighted values on the loss of homestead and agricultural land as major consequences of the riverbank erosion, which forced them to move towards new places. Other reasons like direct loss of life and loss of social identity, to some extent, speed up the displacement or migration pattern.

The study results suggest that displaced people primarily tend to relocate in their adjacent areas, then gradually move to nearest towns, larger cities, and finally to other metropolitan cities to fulfill their vital needs for survival.

38% of respondents fled from their place of origin, Kedarpur, to different unions under Naria Upazila. In comparison, the second-highest number of people from Muktarer Char (16%) relocated to other nearby unions.

Respondents identified job and settlement insecurities were major causes, which attract them to live in their neighbouring areas.

The study also finds that 98% of the respondents had faced displacement multiple times due to riverbank erosion. 13% of the respondents were displaced 5 to 7 times, while 10% of respondents had been displaced 10 times, and a few were displaced 20 to 27 times.

A majority of respondents (80%) did not intend to migrate elsewhere. They did not see it as a better option or were wary of risks at unknown places. The opposite scenario is seen in the place of destination where the majority of respondents (86%) confirmed migration to a new location was a right choice as decent livelihoods and ample job opportunities were available.

There are no concrete policy or judicial guidelines for riverbank erosion induced displacement or migration in Bangladesh. There are some institutional arrangements such as 'Climate Victims Resettlement Project' ('Gucchogram') in khas or char land [3] and National Strategy on the Management of Disaster and Climate-Induced Internal Displacement (NSMDCIID) to take into account the rights and entitlements of individuals and communities who have experienced displacement.[1]

A proactive role and a bottom-up approach from the government is an urgent requirement to protect the human and fundamental rights of displaced or migrant people. Therefore, a policy directive or contingency plan, especially for riverbank erosion displaced or migrant people, will provide a new platform for advocacy and assure the victims' rights and entitlements to reduce the existing disparity through the execution of legal steps.

1 NOTE: Khas land means government-owned fallow land, where nobody has property rights. It is land deemed to be owned by the government and available for allocation according to government priorities. Char Land refers to mid-channel riverine islands formed by accretion in a river course or estuary.

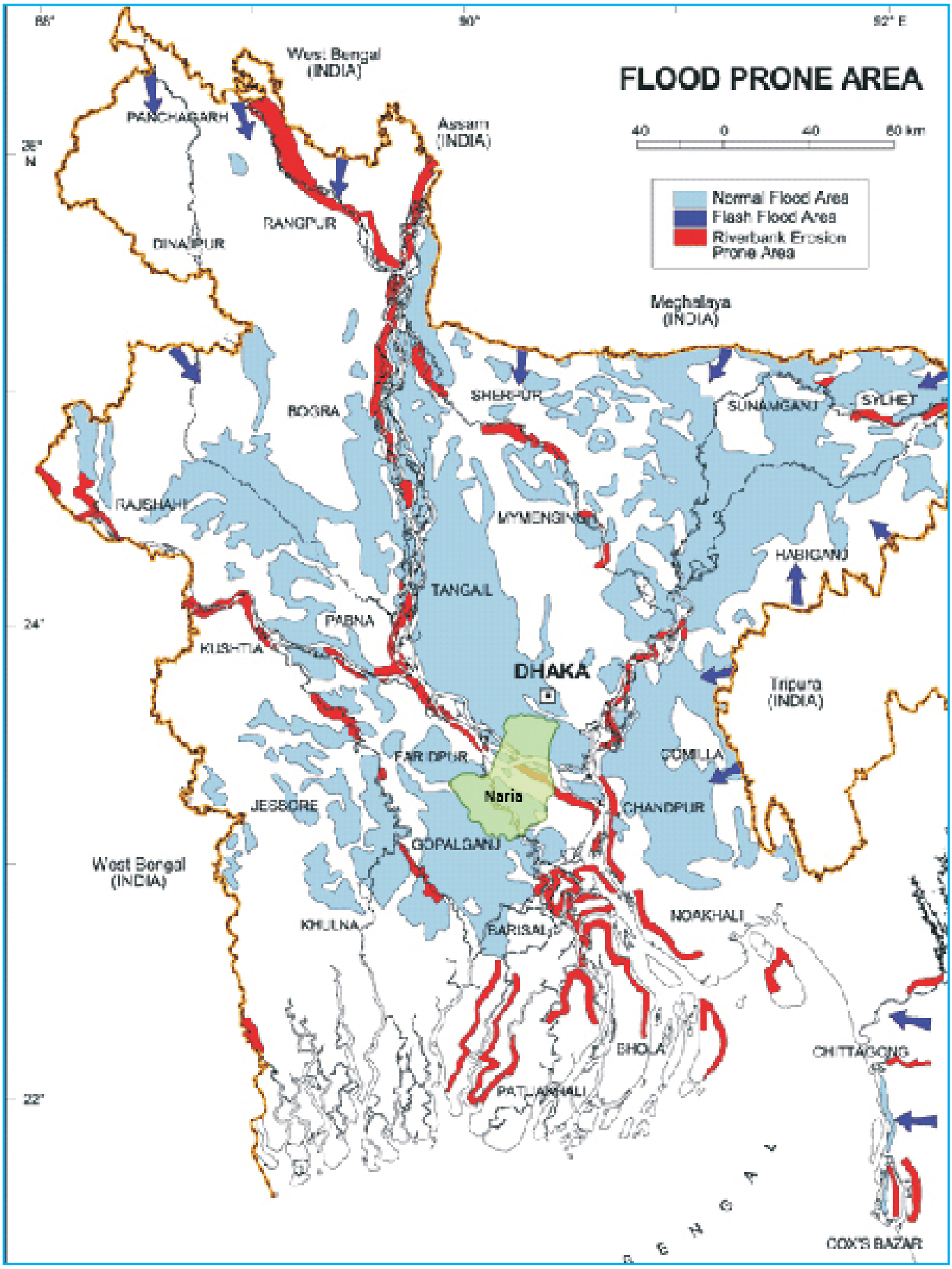


Figure 1: Bangladesh and areas vulnerable to flooding.
(http://www.banglapedia.org/httpdocs/Maps/MF_0103A.GIF)

1 INTRODUCTION

Sand bags being used to prevent erosion on the banks of Padma river at Naria Bazaar. Photo by Mir Mehoraf Sharif

According to the Internal Displacement Monitoring Centre (IDMC) report, 24.9 million people were forced to relocate around the world in 2019 due to extreme weather conditions and as a result of natural disasters.

In Bangladesh, disasters triggered just over 4 million new displacements in 2019, most of them pre-emptive evacuations before cyclones Fani and Bulbul made landfall.[2]

These numbers do not include the **people forced to flee or migrate in search of livelihoods in the face of slow-onset climate change related disasters, such as droughts, river erosion, sea level rise, and salinization.**

Bangladesh is situated on the Bay of Bengal and forms one of the largest deltas in the world witha dense network of tributaries of the Ganges, Brahmaputra, and Meghna (GBM) Rivers. Bangladesh is highly vulnerable to flooding, with 80% of its surface forming a giant floodplain.[3]

Floods originate from precipitation in the whole of the GBM Basin, not just the 7% that lies within Bangladesh, and can therefore be of great magnitude. In an average year, about 25% of the country is inundated. During severe floods, occurring every 4-5 years, over 60% of the country is covered in water. These floods have devastating effects. Riverbank erosion results in the loss of thousands of hectares of agri-

2 https://www.internal-displacement.org/countries/bangladesh
3 Climate Change Profile Bangladesh www.government.nl/foreign-policy-evaluations© Ministry of Foreign Affairs of the Netherlands | April 2018

cultural lands and affects the population for decades. Moreover, floods contribute to further salinization of coastal lands, causing not only loss of harvests but also of productive agricultural land.[4]

Human induced climate change and its unprecedented pace over the past few decades has made Bangladesh one of the most climate-vulnerable countries as it is battered by more frequent and intense disaster events and the limited capacity of its population o adapt to these unpredictable events.

Bangladesh's flat delta lands offer little resistance to the hydraulic forces of its rivers, particularly during periods of high flow. Due to climate change, the rainfall pattern is ever-changing, and it triggers abnormal flooding. Such flooding, in addition to the increased flow of river water from the upper catchment countries, increases the intensity of riverbank erosion. Riverbank erosion can take place, both during flooding and after when the water recedes.[5]

In recent years, the rate of riverbank erosion has drastically increased, resulting in the sudden collapse of riverbanks and devastation of whole Unions and Upazilas (sub-districts).

This study investigates and analyses how climate change accelerates riverbank erosion, displacement, and, thus, migration patterns in terms of the situation, incidence, and prevalence. Naria Upazila (subdivision) in Shariatpur District was selected as the research study area due to the unprecedented riverbank erosion event that occurred here in 2018. **In what is considered the single-worst case scenario in a hundred years, the Padma River ravaged vast swathes of Naria Upazila in 2018. Around 4,000 people lost their homes, and between 4,200 to 5,000 people were displaced.**

The study also presents an analysis of socio-economic scenarios of people displaced due to riverbank erosion and the linkages between livelihoods settings in both places of origin and destination. Finally, it offers a few broad recommendations for institutional, strategic, and contingency plans to tackle the emerging problems.

1.1 Methodology

The study adopted a mix of quantitative and qualitative methods and tools for its major thematic areas - displacement/migration and socio-economic scenarios. The present situation of the study area, parameters, and riverbank erosion scenarios was assessed through a review of available literature. Existing literature, government documents, survey reports, and miscellaneous research reports provided the consequences of riverbank erosion, including changed livelihood patterns of local households and displacement / migration scenarios.

A detailed household survey was conducted to explore the vulnerabilities of riverbank erosion and the decision-making process behind the shifting of livelihood pattern and displacement / migration through following the designed methodology. In addition, the study further facilitated key informant interviews (KII), focused group discussions (FGD), in-depth interviews (IDI), case studies, and brainstorming and sharing sessions at local and national

4 World Bank (2010a): Economics of Adaptation to Climate Change: Bangladesh. https://openknowledge.worldbank.org/bitstream/handle/10986/12837/702660v10ESW0P0IC000EACC0Bangladesh. pdf?sequence=1
5 Startfund Bangladesh, Disaster Summary Sheet, March 2019.

levels. (See Annexure 1 & 2)

These sessions were carried out to validate and finalize the assessment of the riverbank erosion trends and its socio-economic consequences through the disclosure of findings from the vulnerable community. The study would finally provide recommendations and policy directives for strategic or contingency plans to tackle the emerging problems and threats.

An extensive literature review was carried out in order to understand the existing problems and background context of the study area. The comprehensive studies of CDMP project documents, Bangladesh Trust Fund reports, Reliefweb documents, and other miscellaneous updated literature facilitated to explore research studies on riverbank erosion, livelihood, and displacement / migration nexus. These desk reviews contributed to the develop-ment of the study methodology.

It is very important to state that in the study areas, it was difficult to distinguish between poverty and climate hazards as the main driver of migration. Various push and pull factors influence migration patterns. These can be temporary, seasonal or permanent and depend upon the degree of exposure and the capacity to cope with climate impacts.

Loss of property, employment, income and even life, in some cases, instigates people to move as a consequence of riverbank erosion. Hence, there is a kind of threshold to identify the exact reasons for climate-induced displacement and migration.

2 BANGLADESH & CLIMATE CHANGE IMPACTS

Fishermen mending their fishing nets in NariaUpazila.
Photo by Mir Mehoraf Sharif

Bangladesh is situated on a delta plain at the confluence of several trans-boundary rivers. The country is usually characterized by its geographical settings, the Himalayan range in the North and the Bay of Bengal in the South. These two unique features historically shaped the formation of major habitats and human habitation, socio-economic structures, development priorities. However, its location also made the country vulnerable to water and weather related disasters like tropical cyclones, floods and river bank erosion.

Most of the country is less than 10 m above sea level (and 10% is less than 1 m). Bangladesh is also one of the most densely populated countries globally, with a population of 142 million (Census 2011) inhabiting a landmass of 147,570 sq. Km.

Often referred to as 'ground zero for climate change, Bangladesh is ranked seventh on the 2020 Global Climate Risk Index.[6]

Due to its topography and climate, Bangladesh is subject to devastating cyclones, mostly in April-May and September-November. UNDP has ranked Bangladesh first of all countries in the world in terms of vulnerability to tropical cyclones. The country is hit by a severe cyclone on average every three years.[7]

For per capita Green House Gas (GHG) emissions, Bangladesh ranks 152 out of 188 countries and contributes less than 0.36% of global emissions.[8] Although it makes a negligible contribution to global emissions, Bangladesh is highly vulnerable to climate change.

6 BRIEFING PAPER GLOBAL CLIMATE RISK INDEX 2020 Who Suffers Most from Extreme Weather Events? Weather-Related Loss Events in 2018 and 1999 to 2018 David Eckstein, Vera Künzel, Laura Schäfer, Maik Winges www.germanwatch.org/en/cri

7 MoEF (2009): Bangladesh Climate Change Strategy and Action Plan. Ministry of Environment and Forests, Government of the People's Republic of Bangladesh.h p://cmsdata. iucn.org/downloads/bangladesh_climate_change_strategy_and_ action_plan_2009.pdf

8 WRI CAIT 2.0, 2015, Greenhouse gas emissions in Bangladesh, USAID (April 2016)

Changes have been observed in the climate of Bangladesh. Overall, weather patterns have been erratic and less predictable than before. Total annual rainfall for the country as a whole did not change significantly between 1960 and 2003, but in the last decade or so the rainy season has become shorter, and heavy rainfall occurs within a shorter period. The cool, dry season has also decreased in length. Average temperature shows an increasing trend, especially during the monsoon season (June-August) at 0.07°C per decade and during early winter (September-November) at 0.12°C per decade. According to IPCC figures (2007), higher temperatures and erratic rainfall have in some areas contributed to wetlands drying up and ecosystems degrading.[9]

Adding to typical exposure to weather related disaster events, the implications of human induced climate change and its unprecedented pace over the centuries has made Bangladesh one of the most climate vulnerable countries not only in terms of being affected by more frequent and intense disaster events but also in terms of the number of its population exposed to those disasters and less capacity to adapt with.

In 2007, even as Bangladesh was recovering from monsoon floods that had caused extensive economic loss of nearly 1.1 billion USD, the country was hit hard by a very severe cyclonic storm, Sidr. The number of deaths caused by Sidr is estimated at 3,406, with 1,001 missing, and over 55,000 people sustaining physical injuries. The incurred loss and damage from this single event accounted for 1.5 billion USD which is around 2.6 percent of the country's GDP. The occurrence of two extreme climate events within short succession resulting in massive destruction of productive assets and livelihood opportunities forced thousands of people to migrate .

"Disasters triggered just over 4 million new displacements in 2019, most of them pre-emptive evacuations before cyclones Fani and Bulbul made landfall. At least 1,140,000 have been displaced from 19 to 23 March in 8 Districts as a result of pre-emptive evacuations and evacuations due to Tropical Cyclone Amphan, according to the Needs Assessment Working Group of Internal Displacement Monitoring Center (IDMC)."[10]

According to the Intergovernmental Panel on Climate Change (IPCC)'s Fifth Assessment Report, the likely impacts of climate change that Bangladesh is going to face in the years to come include, too much water during monsoon and too little water during drought, changes in cyclonic behavior, salinity ingression, massive erosion in the sea facing areas[11] and secondary implications such as food and health insecurity, loss of lives and livelihoods, damage to infrastructure, loss of productive assets and damage to the national and local economy.

Higher than average monsoon rainfall has already been observed as an indication of frequent occurrence of high intensity floods over the vast floodplains. Cyclone frequency has also increased. A modelling of the sea surface temperature (SST) over the period from 1985 to 2009 showed that the SST of the Bay of Bengal has increased by 0.30-0.48°C since 1985 at rates between 0.0126° and 0.0203° per year.

9 Al Mamun, A.; Al Pavel, M.A. (2014): Climate Change Adaptation Strategies through Indigenous Knowledge System: Aspect on Agro-Crop Production in the Flood Prone Areas of Bangladesh. Asian Journal of Agriculture and Rural Development 4(1): 42-58. http://ageconsearch.umn.edu/bitstream/198381/2/6-383- AJARD-4%281%292014-42-58.pdf

10 https://www.internal-displacement.org/countries/bangladesh

11 AR5 Synthesis Report: Climate Change,2014https://www.ipcc.ch/report/ar5/syr/

Such a rate of increase implies rise in the frequency tropical cyclone currently from 5 storms per year to 8 storms per year or once every 6.5 weeks by 2050 (Chowdhury, Hossain, Shamsuddoha, & Khan, 2015).

The phenomena of changing climatic conditions and associated disaster events are primarily affecting lives and livelihoods of people and putting subsistence based agriculture at severe risk forcing people to be displaced or migrate. In the accelerated climate change scenario, sea level rise would inundate 18 percent of Bangladesh's total land area by 2050, directly impacting 11% of the country's population. Estimates show that with just a 1 to 2 degree increase in temperature would force physical dislocation of more than 35 million people in Bangladesh.

Migration due to climate induced disasters is a complex scenario because a wide range of social, economic and political factors play a vital role in leading the victims individually or in groups to make the decision to migrate.[12]

Climatic hazards like floods, riverbank erosion, storm surges and sea level rise are exacerbating climate induced displacement and migration patterns in the country. The World Bank's study of 2010 and 2011 estimates that around 16 to 26 million people will migrate from the places of origin by climate induced disasters within the period of 2011 to 2050, while migration due to riverbank erosion accounts for 2 to 5 million alone.[13]

Another estimation from the Bangladesh Climate Change Strategy and Action Plan (BCCSAP) in 2009 reveals that climate induced displacement will be exceeded by 20 million by 2050 while recent studies project that the number is likely to be over 35 million. In fact, riverbank erosion left more than one million people homeless whereas 70 percent of them became displaced by this climatic hazard.[14]

Hence, building resilience against the impacts of climate change is a priority concern for the country. In relation to resilience building Bangladesh prepared its National Adaptation Programme of Action (NAPA) in 2005, although the National Adaptation programme is still in the making.

12 Anwer, S. (2012).Climate Refugees in Bangladesh, Understanding the migration process at the local level. Stuttgart, Germany: Brot für die Weld.

13 The Daily Star. (2020, January 14). Transforming migration from threat to tool of adaptation. Retrieved from www.thedailystar.net: https://www.thedailystar.net/environment-and-climate-action/threat-tool-adaptation-1367098

14 Khatun, Mahmuda, Climate change and Migration in Bangladesh: Golden Bengal to Land of Disasters; Bangladesh e-journal of Sociology Vol. 10 (2013) Pg.64-65

3 CLIMATE CHANGE & RIVER BANK EROSION

Close up of riverbank erosion on the right bank of Padma river in NariaUpazila. Photo by Mir Mehoraf Sharif.

Flood is the most common hazard in the country and it is always associated with riverbank erosion.

A 2013 study by Nazneen Akhter reveals that the rivers of the country discharge a huge volume of water during monsoon time from the upstream catchment area of 1.7 million sq. km, and result in floods that usually submerge 18 to 22 % of total landmass during the monsoon period. The study also predicts that riverbank erosion along the three major rivers of the country; the Ganges, the Jamuna and the Padma on an average will increase by 13% by 2050 and by 18% by 2100. Usually flood and riverbank erosion happens concurrently or flood is followed by riverbank erosion. It is evident that climate change impacts are expected to have influence on riverbank erosion.[15]

Global Climate Models (GCM) that calculate variations in flood discharges, show that in the scenario of temperature rise of 20 deg c, the probable maximum change in precipitation may be 13% and 10.2% respectively in the Ganges and Brahmaputra basin. The mean annual discharge of the respective rivers will increase by 21.1% and 6.4% as a result of increase in precipitation.[16]

A study from Ali et al. represents that monsoon rainfall in the country has increased very gently at 2.65 mm/year and the probability of all types of flood events (low, medium and high) increased while the temporal change of the return period decreased over years. From the study, it can be concluded that the changing phenomena in the rainfall and flooding scenario in Bangladesh is a consequence of climate change.[17]

15 Akhter, Nazneen Impact of climate change on riverbank erosion, International Journal of Sciences, Basic and Applied Research (IJSBAR), 2013

16 Akhter, Nazneen Impact of climate change on riverbank erosion, International Journal of Sciences, Basic and Applied Research (IJSBAR), 2013, Pg. 36-48

17 Ali, Md. Shahjahan; Mahajabin, Tanizha; Ho, Takashi; Impact of Climate Change on floods of Bangladesh and introducing Flood Intensity Index to characterize the flooding scenario; 1st International conference on civil engineering for Sustainable Development, Khulna University of Engineering and Technology (KUET) 2012; Pg.169-170.

Increased exposure and vulnerability to natural hazards deepens poverty and fuels migration. The rural flood-plain populations become more vulnerable by river encroach-ment and particularly the unpredictable shifting behavior of the rivers with its unstable bank lines. The river Padma is wide with unstable bank lines where acute erosion problems exist along the left bank near Harirampur Upazila of Manikganj district. The right bank of the Padma River has become unstable in recent years and highly prone to extreme erosion particularly in Naria Upazila of Shariatpur district.[18]

The rate of riverbank erosion varies in decade –scale along the rivers and the variations are due to both natural causes and anthropogenic activities like installation of bank protection measures. Change in river morphology over the years creates fluctuation in bank erosion, such as the phases of meandering bend development and subsequent chute cut-off development determine the annual rate of riverbank erosion. This scenario is seen in the Ganges and partly in the Padma.

As the linkage between river platform and climatic parameters are complicated, peak discharges of rivers can be used to figure out how climatic parameters influence riverbank erosion (Figure 2) directly or indirectly.[19]

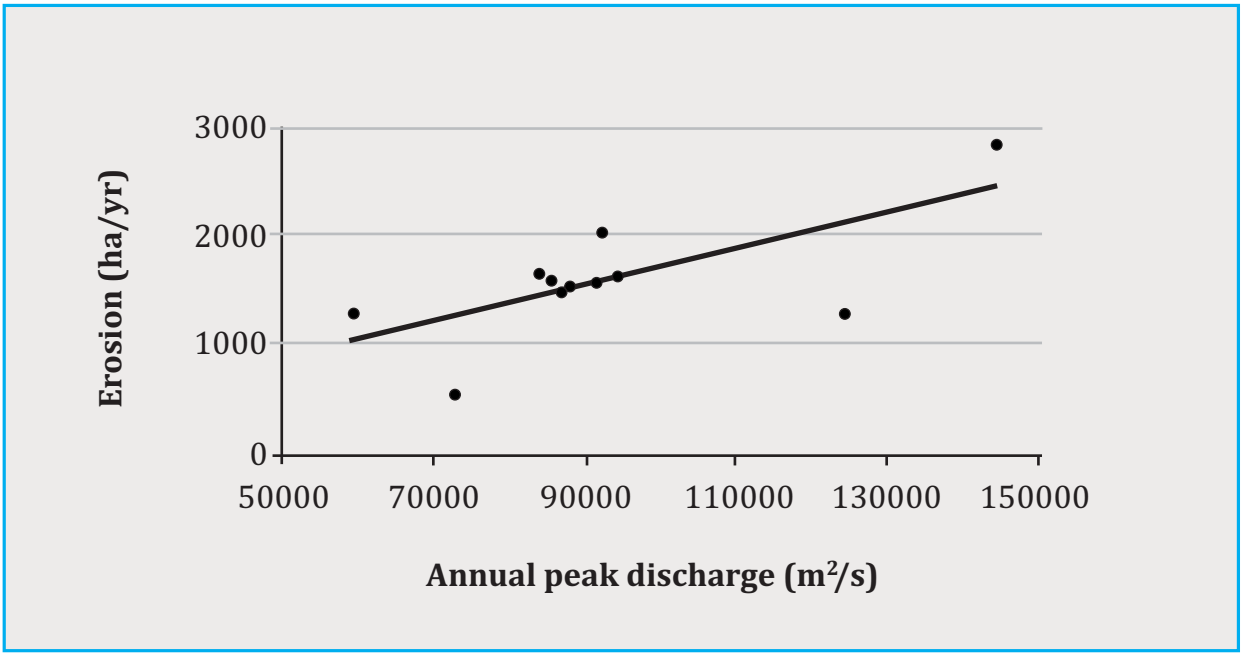


Figure 2: Relationship between annual peak discharge and bank erosion along the Padma River [20]

18 Bangladesh Riverbank Erosion, Disaster Summary Sheet; Start Fund Bangladesh (2019)
19 Akhter, Nazneen Impact of climate change on riverbank erosion, International Journal of Sciences, Basic and Applied Research (IJSBAR), 2013 Pg. 36-48.
20 Akhter, Nazneen Impact of climate change on riverbank erosion, International Journal of Sciences, Basic and Applied Research (IJSBAR), 2013

Erosion is gradually and permanently altering Bangladesh's landscape. From 1973 through 2017, Bangladesh's three major rivers – the Padma, the Meghna, and the Jamuna – have engulfed more than 160,000 hectares of land, according to statistics provided by the UN. That's roughly five times the land mass of the country's capital. And the Centre for Environmental and Geographic Information Services, a government think-tank, forecasts that erosion could eat up another 4,500 hectares by the end of 2020, potentially displacing another 45,000 people.[21]

It is in the nature of large braided rivers to erode banks and at the same time to deposit silt on the riverbed, so that new riverine islands, or char islands, are formed. These char islands, of which many are inhabited, move along the flow of the river and are extremely sensitive to changes in the river conditions.

The frequency and intensity of riverbank erosion varies from river to river where river dynamics, hydraulic parameters, bed materials and bed profiles are prime factors for fluvial hazards. Thereby, the riverbanks that are loosely packed with recently deposited materials of sand and silt are highly susceptible to erosion. The erosion rate is accelerated by the rapid recession of floods as well, resulting in massive negative impacts on the ecology and economy of the floodplain dwellers.

Around 4.3 million inhabitants living along the major river systems especially in the charland are considered as 'highly exposed' to the risk of riverbank erosion. In a total of 492 Upazilas in Bangladesh, riverbank erosion is taking place several times in around 100 Upazilas; and among them, 35 are massively affected **(Figure 3)**.

Riverbank erosion is an endemic and recurrent natural hazard that leads to millions of people being affected as it results in loss and damage of crops, cattle, housing structures, and farmland. Riverbank erosion mainly occurs due to the braided nature of rivers in Bangladesh, and is further aggravated by heavy rainfall, particularly upstream, and increased water flow.

Analyzing the erosion over the last three decades (1970- 2000), it is observed that the Padma and the Jamuna consumed approximately 180,000 hectares of land. Analyzing the satellite images of Ganges-Brahmaputra-Meghna Rivers between the years of 1982 to 1992, it is estimated that approximately 106,300 hectares of land were consumed along

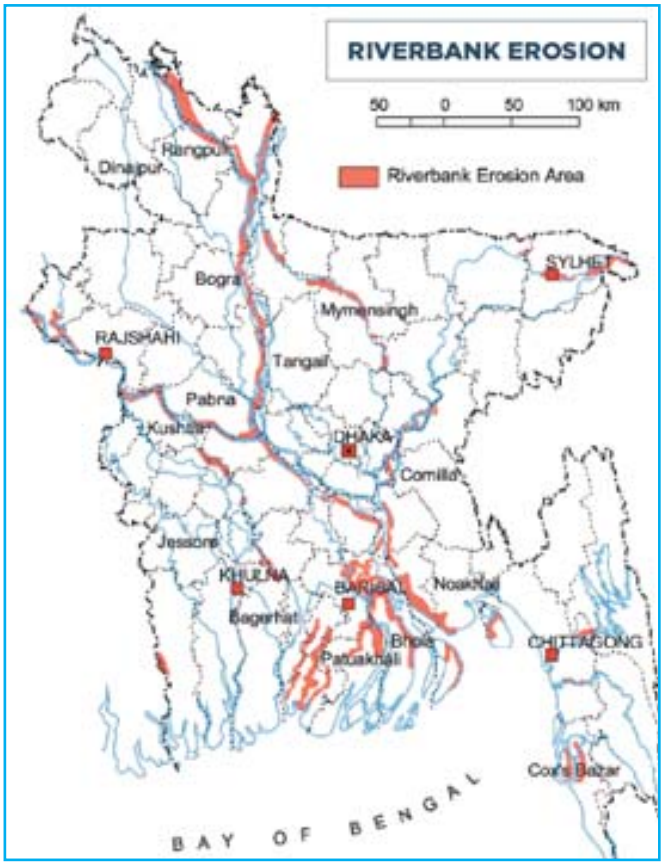


Figure 3: Map of Riverbank Erosion Areas in Bangladesh (Source: BWDB, 2017)

21 AnasAZM, Bangladesh's disappearing river lands, The New Humanitarian,https://www.thenewhumanitarian.org/Bangladesh-river-erosion-engulfs-homes-climate-change-migration

the three rivers. On the contrary, only 19,300 hectares were accreted due to sedimentation. Therefore, the annual net loss during this era was 8,700 hectares along the Ganges-Brahmaputra-Meghna river basin.[22]

CEGIS reported the erosion rate along the three major rivers (Jamuna, Padma and Ganges) of Bangladesh. The net land loss has been estimated by analyzing the erosion-accretion scenario from 1973 through 2017. Since the study is confined to a part of Padma River only, thereby the following graphical presentation **(Figures 4 and 5)** and database **(Table 1)** on the Padma River are shown to make a clear understanding of the erosion-accretion trend.[23] (See Figure 6).

Padma River Erosion:
As both banks of the Padma River (right bank & left bank) are spreading outwards, the river is widening gradually.

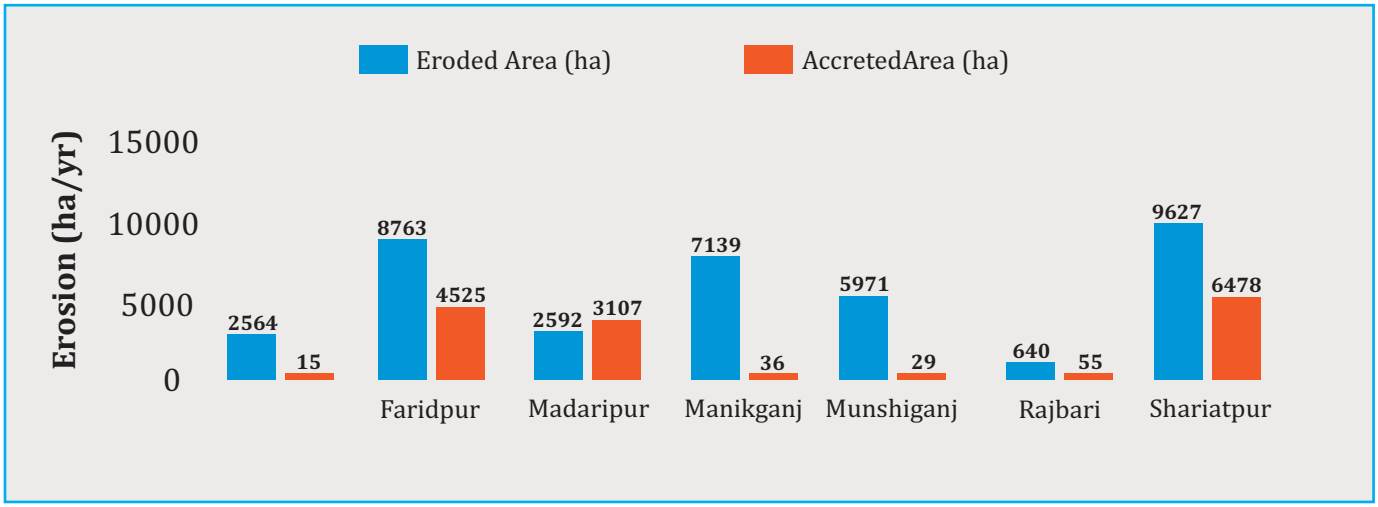


Figure 4: Erosion-Accretion trend along the Padma River from 1973 to 2017[24]

The above data depicts that Shariatpur district is highly affected due to riverbank erosion among the districts situated along the Padma till 2017. According to the Bangladesh Water Development Board (BWDB), the Padma devoured 13 km2 areas in the past seven years in Naria Upazila under Shariatpur District.

It is also estimated that between 2011 and 2015, Naria eradicated an estimate of 0.5 km2 each year. Furthermore, after 2016, the erosion rate is steadily increasing to 1.33 km2 per annum, and approximately 2 km2 of the area has been submerged within two months in 2018 (Start Network, 2018).

In 2017, the most affected area was Madaripur, which lost 517 ha of land. Every year, the incremental loss of sizable land indicates the jeopardized condition of the endemic riverine people.

22 Islam, M. F., & Rashid, A. B. (2011). Riverbank Erosion Displacees In Bangladesh: Need For Institutional Response. Bangladesh Journal of Bioethics, 4-19. Retrieved from https://www.researchgate.net/publication/265077000_Riverbank_erosion_displacees_in_Bangladesh_need_for_institutional_response_and_policy_intervention

23 Hasnat, M. A. (2018, October 12). Over 160,000 hectares lost to Padma, Jamuna in four decades. Dhaka Tribune. Retrieved from https://www.dhakatribune.com/bangladesh/nation/2018/10/12/over-160-000-hectares-lost-to-padma-jamuna-in-four-decades Hasnat, M. A. (2018, October 12). Over 160,000 hectares lost to Padma, Jamuna in four decades. Dhaka Tribune.

24 Retrieved from https://www.dhakatribune.com/bangladesh/nation/2018/10/12/over-160-000-hectares-lost-to-padma-jamuna-in-four-decades

Time period	Bank	Erosion		Accretion	
		Total area (km^2)	Rate (km^2/year)	Total area (km^2)	Rate (km^2/year)
1973-1977	RB	44.31	11.08	91.66	22.91
	LB	36.82	9.20	25.87	6.47
1977-1980	RB	76.96	25.65	34.73	11.58
	LB	15.74	5.25	41.67	13.89
1980-1984	RB	58.25	14.56	19.39	4.85
	LB	30.33	7.58	16.21	4.05
1984-1989	RB	50.57	10.11	39.13	7.83
	LB	41.92	8.38	6.96	1.39
1989-1995	RB	86.39	14.40	49.99	8.33
	LB	50.67	8.45	8.95	1.49
1995-2000	RB	98.00	19.60	45.60	9.12
	LB	58.82	11.76	51.78	10.36
2000-2005	RB	74.81	12.47	20.81	3.47
	LB	33.48	5.58	41.07	6.84
2005-2011	RB	34.50	5.75	105.71	17.62
	LB	56.90	9.48	18.55	3.09
1973-2011	RB	166.53	4.38	134.45	3.54
	LB	189.40	4.98	23.66	0.62

LB - Left Bank **RB - Right Bank**

Table 1: Erosion-Accretion scenario of both banks of Padma River during 1973 to 2011
Source: (Bhuiyan, Islam, & Azam, 2017)

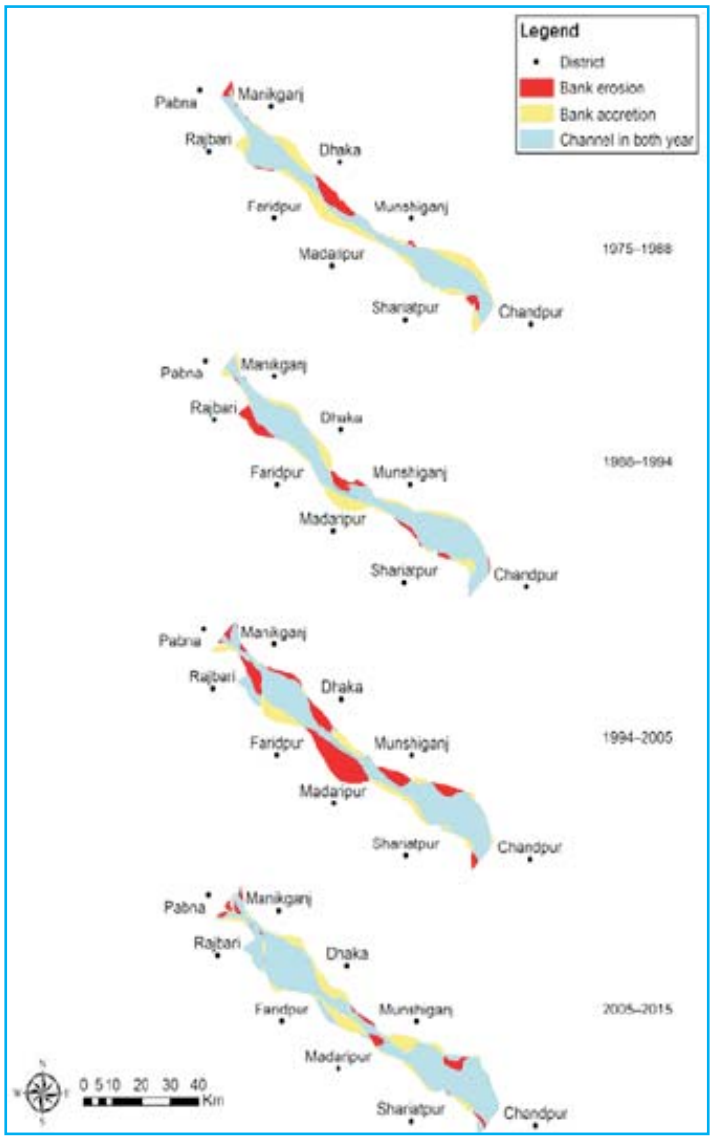
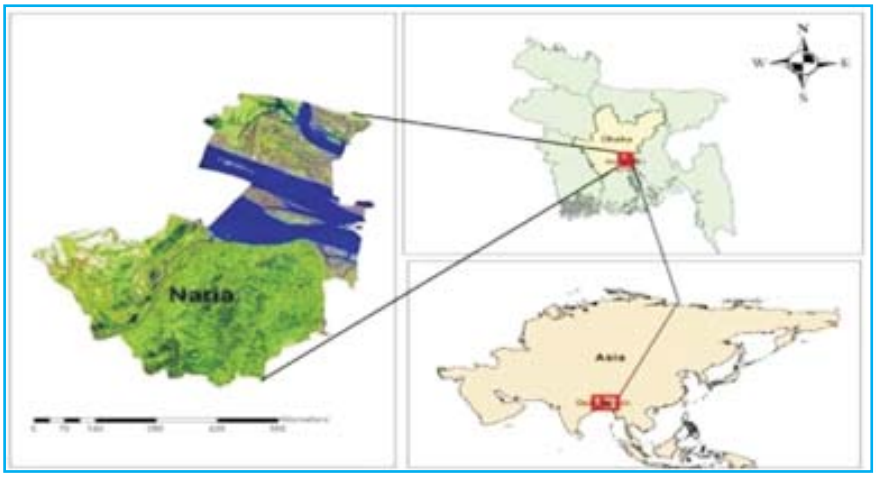


Figure 5: Riverbank erosion-accretion along the Padma River for four periods
Source: (Billah, 2018)

Figure 6: Satellite image of riverbank erosion at Naria Upazila, Shariatpur in 2018

4 RIVERBANK EROSION AND MIGRATION IN NARIA



Naria: At a glance

Total Area: 203.58 sq. km.

Location:
23°14' and 23°25' North latitudes
90°18' and 90°30' East longitudes

Total Population: 231644
(109967 male and female 121677)

Figure 7: Study Area (NARIA Upazila, Shariatpur)

4.1 Impacts of Riverbank erosion

In 2018, in what is considered as the single-worst case of riverbank erosion in a hundred years, the Padma River ravaged vast swathes of NariaUpazila. Historically the river used to erode the left bank, however in the last six years it has started eroding the right bank as well, raising concerns amongst the people of Naria, as it impacts densely populated and important business locations.

Riverbank erosion in 2018 engulfed at least 200 businesses at Sadhur Bazar and 200 shops in the Wapda Bazar area. Four thousand people in Naria Upazila lost their homes, whereas between 4,200 to 5,000 people were displaced (Startfund, Bangladesh, 2018). Riverbank line shifting at the study area over the years is shown in **Figure 8.**

Kedarpur, Bhumkhara, Char Atra, Mukhtarer Char Unions and Naria Pauroshova (Ward no. 1, 4 and 5) under Naria Upazila **(Figure 7)** in Shariatpur District were selected for the study as an origin of riverbank disaster, whereas several areas in Naria Upazila and Dhaka District (Kyallanpur and Beguntila slums) were selected as the destination for those displaced due to erosion. The destination areas were determined from responses of the vulnerable community through household surveys in Naria.

After losing all their belongings due to the riverbank erosion in 2018, most of the people migrated 2-3 kms away from their homes, mostly to Bangla Bazar, Eastern Naria, Chakdha Baza, and Kedarpur Bhuiyan Bari area. There are also significant numbers of people who migrated to the district town and other Upazilas. At least one family, from Mokhtarer Char of Eastern Naria, has migrated abroad to Assam in India, as reported by a respondent named Jarina Khatun, who added that her cousin is living over there in vulnerable conditions with lack of amenities and also under threat of eviction.

This study finds that 83% respondents have personally experienced dire consequences of riverbank erosion, including loss of homes, homestead and agricultural land; loss of crops; damage to standing crops; loss of belongings and property; loss of family members, and psycho-social impacts that compelled them to shift to other areas for survival.

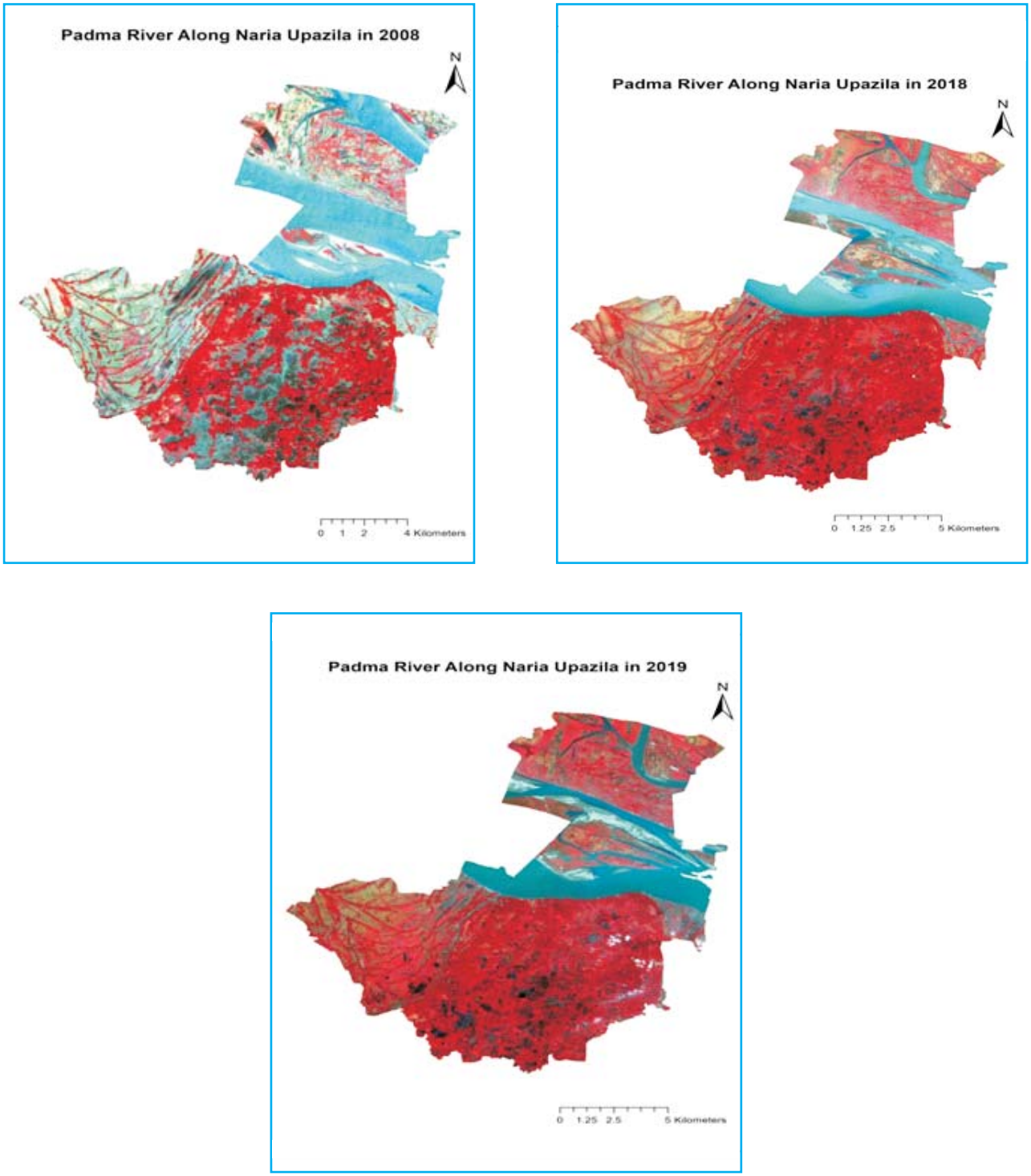


Figure 8: Padma River bank along Naria Upazila through satellite image in 2008, 2018, and 2019

The study findings illustrate erratic rainfall and change in river flow directions are two major causes that amplify riverbank erosion, forcing the inhabitants to flee to nearby places from their place of origin. The socio-economic impacts of the loss of homestead land and agricultural land, damage to standing crops, loss of crops, and the mental shock, push the victims to migrate to other places. A schematic diagram: Problem Tree (Figure 9) illustrates all the causes for climate-induced displacement due to riverbank erosion in the study area where the consequences of such disaster depict the socio-economic impacts on the victims and the reasons behind their choices of displacement and migration.

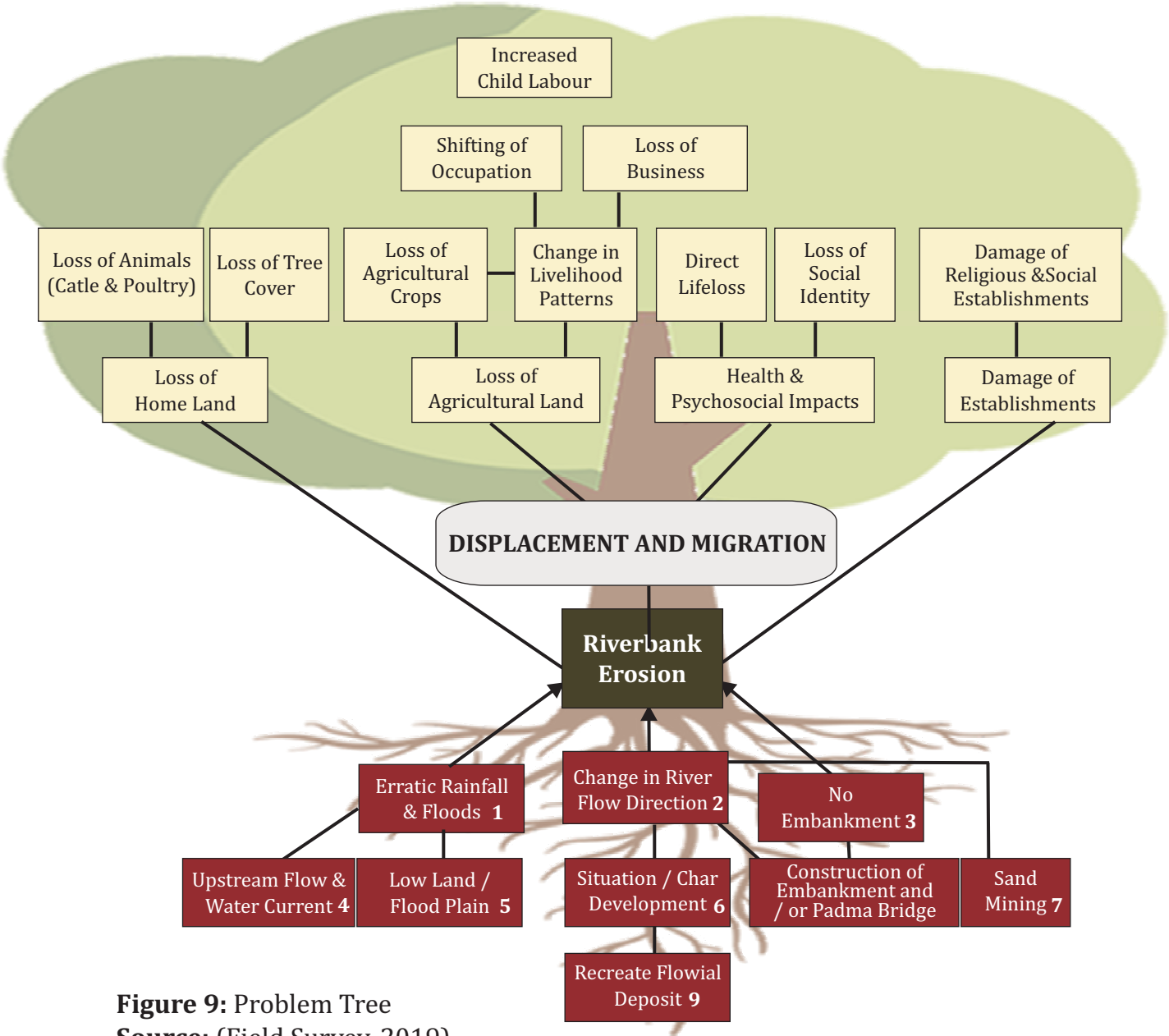


Figure 9: Problem Tree
Source: (Field Survey, 2019)

Further our study finds 55% of respondents identified very high disaster vulnerability to flood and riverbank erosion, the major disaster in their localities.

39.6% experienced the change in timings of riverbank erosion.

48% said that the frequency and intensity of flood and riverbank erosion are also very high.

Our findings reveal that 73% of respondents confirmed that they faced sanitation problems during a disaster, especially women (67%), who are most vulnerable as they are forced to use either their neighbour's toilet or go farther away from their homes, which ultimately imposes threats to their security.

77% of respondents confirmed that they suffered food and water crisis as a result of riverbank erosion.

28% of respondents identified health issues and diseases increase due to riverbank erosion, including stroke, heart attack, physical injuries caused by shifting basic household materials (i.e., tin, furniture, bricks) during the erosion period, despondency, and mental trauma. Besides early marriage, the dropout rate from schools is a major consequence of riverbank erosion. A majority of the respondents (63%) confirmed that their children's education is highly affected due to riverbank erosion disaster.

73% of respondents confirmed that school dropouts eventually lead to increased child labour.

The questionnaire survey results suggest that the rate of education among boys is declining in the study areas while girls' education rate is increasing. Since parents face difficulties in getting their daughters married, they encourage them to continue their education. On the other hand, boys drop out of school and start working to bear family expenditure.

A 12 year old boy named Hridoy is one of them who dropped out of school and now works to help his family, shared his story of sufferings and hardships with the research team.

4.2 Impacts of Migration and Displacement

Displacement/Migration	Socio-economic Vulnerability				
		Destination (50 respondents)		**Origin (100 respondents)**	
	Opinion of Respondents	*Frequency*	*%*	*Frequency*	*%*
Think migration elsewhere is a better option	Yes	43	86	45	45
	No	7	14	50	50
	Not aware	0	0	4	4
	Missing	0	0	1	-
	Total	**50**	**100**	**100**	**100**
Migration to an unknown place is risky	Yes	35	70	58	58
	No	15	30	37	37
	Not aware	0	0	5	5
	Total	**50**	**100**	**100**	**100**
Migration to an unknown place is risky for women, adolescents and children	Yes	11	22	66	66
	No	39	78	31	31
	Not aware	0	0	3	3
	Total	**50**	**100**	**100**	**100**

Table 2: Respondents' perception regarding displacement or migration,
Source: (Field Survey, 2019)

Some of the respondents acknowledged developing an identity crisis in a new place after their displacement or migration. Jahed Ali Molla, a climate-induced migrant from Wapdarghat, Naria, who currently lives in Beguntila, Dhaka, experienced riverbank erosion four times. Now he is maintaining his livelihood as a rickshaw puller in the city. He was suffering from an identity crisis and urged, 'If there is any chance, I would change my current job and do farming. I want to be a farmer again…'.

Respondents who temporarily relocated to the nearby areas and those who permanently migrated to Dhaka city gave mixed statements regarding their security problems. Respondents who had temporarily relocated were reluctant to identify security risks for women, adolescents, and children in the new location. Only 22% positively admitted that there was a security problem. A respondent named Md. Habibullah, who temporarily relocated to a nearby area, said that people in his area are concerned about eve-teasing of their family members. According to him, as it is already more than one year since they shifted to the new location and have successfully adapted with the new community, there are no serious security issues now.

While a different scenario is seen in Dhaka city, migrants, who moved there for a better livelihood, have different opinions and serious security concerns. Ajekjan Begum, currently living in a slum of Kallyanpur mentioned that stealing, child rape, and drug business are typical cases in her slum. They always have a fear of theft as last year, she had a dreadful experience of robbery. The burglars entered her house, forcefully at midnight, and took all her belongings. She added that this type of incident also happens during the day in her slum when somebody is out of his/her home.

4.3 Migration Typologies

Migration types and its causes and consequence vary according to social and ecological perspectives and the origin and destination of the moving occupants. Riverbank erosion induced displacement and migration happen on a large scale, and the pattern is both temporal & permanent.[25]

Riverbank induced migration occurs iteratively because of the erosion-accretion process of the river system. The common phenomenon in the riverine areas is one side of the riverbank faces erosion, whereas the other side of the bank improves by accretion process. It renders hope to the erosion-affected people to take shelter in the newly emerged char area. However, the temporary land is again affected by erosion that forces the inhabitants to migrate back. Some of them dream of getting back their place of origin in the hope of land, but most of the time, the land collapses permanently. This kind of migration is temporary. In case of massive erosion, when the entire lands wash away by erosion, the inhabitants are bound to be displaced permanently in different areas.[26]

Due to riverbank erosion, many of the inhabitants are displaced several times in their lifetime. They have to migrate forcefully from the place of origin to save their lives and goods. The migration pattern circulates either rural to nearby "Charland," "Khasland," or rural areas or rural to urban areas like Dhaka city or other metropolitan districts.[27]

"The study results reveal that a major number of victims usually migrate to nearby areas to fulfill their various vital needs for survival."

The Mobility Map (Figure 10) denotes a scenario of temporal displacement in different Unions or Mouzas (villages) within Naria Upazila (Char Atra, Bhumkara, Fateh Jangpur, Bhojeswar, Mukhtarer Char, Naria Pourashova) and permanent migration to Dhaka (Kellayanpur and Beguntila). 78% of respondents were temporarily displaced in Naria with an expectation to relocate to their land. In comparison, 7% of respondents from Naria Upazila permanently migrated to Dhaka for better livelihood opportunities. The remaining 15% of respondents living in Dhaka have come from the adjacent areas of Naria Upazila in the aftermath of riverbank erosion.

The highest numbers of respondents (38%) fled from their place of origin, Kedarpur, to different Unions under Naria Upazila while the second-highest numbers of people were from Muktarer Char (16%). According to the key informant from Naria Unnayan Samiti (NUSA), around 5,000 people were displaced to different places like Eastern Naria, Loanshing Bazar Area, Kedarpur, urban centers of Chittagong and Dhaka.

Respondents identified job and settlement insecurities were major causes, which attract

25 Shamsuddoha, M., Khan, S. M., Raihan, S., & Hossain, T. (2012). Displacement and Migration from Climate Hot-spots in Bangladesh: Causes and Consequences. Dhaka: ActionAid Bangladesh. Retrieved from https://unfccc.int/files/adaptation/groups_committees/loss_and_damage_executive_committee/application/pdf/displacement_and_migration_in_bangladesh.pdf

26 Ghosh, B. K., & Mahbub, A. (2017). Riverbank Erosion Induced Migration: A Case Study of Charbhadrasan Upazila, Faridpur . Oriental Geographer, 60-71. Retrieved from http://geoenv.du.ac.bd/wp-content/uploads/2018/04/4.-Riverbank-Erosion_B-K-Ghosh_A-Q-M-Mahbub.pdf

27 Ghosh, B. K., & Mahbub, A. (2017). Riverbank Erosion Induced Migration: A Case Study of Charbhadrasan Upazila, Faridpur . Oriental Geographer, 60-71. Retrieved from http://geoenv.du.ac.bd/wp-content/uploads/2018/04/4.-Riverbank-Erosion_B-K-Ghosh_A-Q-M-Mahbub.pdf

attract them to live in their neighbouring areas. In Focus Group Discussions (FGDs), most of the respondents said that they were more interested in living in the vicinity of their homes because they can continue to be involved in agricultural work, fishing activities, and auto-rickshaw pulling or engine boat driving tasks. These income-generating activities are mostly absent in big cosmopolitan cities, which significantly influence the migration pattern of the entire study region.

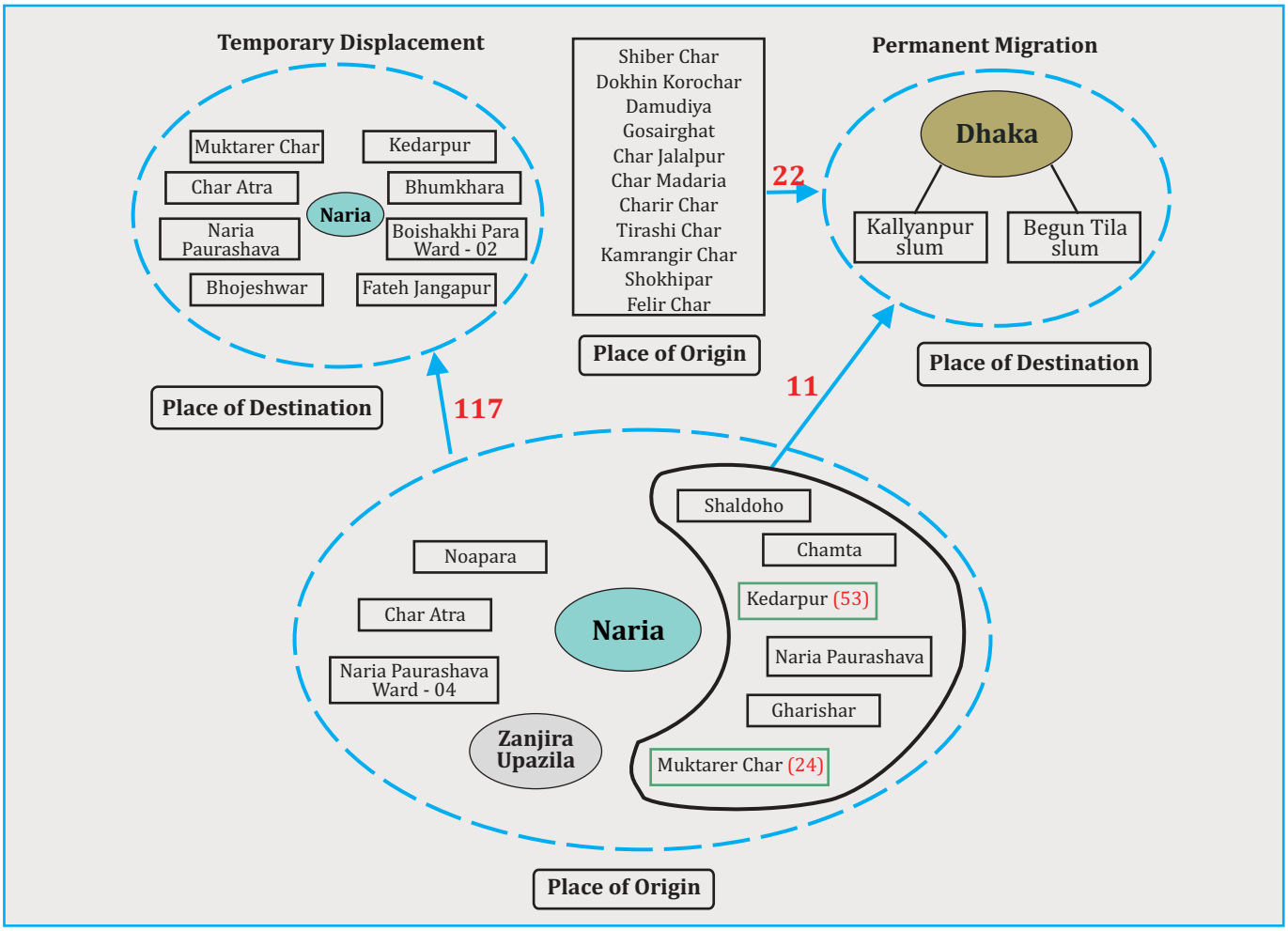


Figure 10: Mobility Map (Place of Origin to Destination)
Source: (Field Survey, 2019)

The study results demonstrate that the primary occupation of the majority is agriculture while only 18% of them have secondary occupation for their subsistence, of which 22% are engaged in small businesses.

73% of the respondents suffered from agricultural loss whereas 51% lost more than 30 decimals (100 decimals equals an acre) agricultural land due to riverbank erosion. A case of Shahidul Islam Tara who lost 595 decimals of land and became landless is incorporated here-to elaborate on the terrible consequences of riverbank erosion.

BOX 1 : NUHU MIAH SHEIKH'S STORY

Nuhu Miah Shekh
Photo by Mir Mehoraf Sharif

"Not long ago I was able to give Zakat (charity) to poor people but the riverbank erosion disaster has now left me so helpless that it is I who has to depend on charity from others for survival."

Nuhu Miah Sheikh lives with his family in Boishakhipara in Naria Upaila. Nuhu Miah used to run a successful fish hatchery business. He also used to harvest about 4000-6000 kg rice from his rice fields. The riverbank erosion incident of 2018 swept away his single storeyed house, 16 decimal homestead land, and inundated his 317decimal (100 decimal per acre) crop land and fish ponds. His combined loss from the 2018 incident is about BDT 1 to 1.5 crore (1 USD = 84. 45BD).

Before the incident, he had loaned BDT 8 lakh to other fishermen to support their fisheries business. Unfortunately all of them lost everything in the riverbank erosion disaster and have been unable to pay back their loans, putting Nuhu Miah under huge financial pressure. Currently he has 5 decimals of land and a shop that is being run by his sons. He hopes to relocate to his own land after he has enough money to rebuild his house.

BOX 2 : SHAHIDUL ISLAM'S STORY

Shahidul Islam of Wapdarhat, Naria is a typical victim of multiple riverbank erosion incidents in his lifetime. In 2016 he lost 595 decimal of agricultural land and 5 decimals of homestead land and house worth BDT 7 to 8 crore (1 USD=84.45 BDT) due to riverbank erosion.

Shahidul Islam
Photo by Mir Mehoraf Sharif

After the disaster in 2016, Shahidul Islam rebuilt his house again at a cost of BDT 60 lakhs, thanks to foreign remittance from his son. He began work as contractor and supplied products to Naria Hospital and also had a mechanic shop of automobile parts. He was earning around BDT 40,000-50,000. But in 2018 riverbank erosion disaster, he once again lost his house and shop with goods worth BDT 10-12 Lakhs. Soon after he lost his mother who had a stroke when she found out that his father's grave was washed off in the floods.

Shahidul has lost everything and now works as a manual labourer and earns BDT 5000 to 6000. He is forced to spend his nights in a rickshaw away from his family who continue to live in Naria Sadar for his children's education.

The study also explores multiple times displacement experiences of the riverbank erosion victims. The study finds that 98%of the population has been displaced more than one time, 13 % of whom were displaced 5 to 7 times, 10 % were displaced 10 times and a few cases of people who have been forced to move 20 to 27 times.

"I have been displaced 15 times from my place since last 20 years, almost every year I had to change my living place. Every time I thought that next year our land wouldn't be eroded but every year due to heavy monsoon our land eroded away. Still I can't believe that I have changed my living place so many times in the last 20 years. Twenty years ago, we lived in Gharisar Union but most of the areas of this Union are under water now. Three years back, we used to live on a tiny piece of land in Moktater Char but I also lost that. Then, finally I migrated to Chadda Bazar, which is quite far away from river"…. Nasima Begum (55 years), Chadda Bazar.

"I have been experiencing riverbank erosion for the last 30 years, and in the mean time our family has been displaced more than 25 times. We used to live in Noahpara Union, which was huge area once upon a time but most of the areas of this Union have been eroded over years. It is a terrible feeling that you have to change your place every year. Finally, I decided to move here (Banglabazar) so that I will not have to migrate any more. But who knows, everything is God's will" …. Karim Sikdar (60 years), Bangla Bazar.

The study results suggest that displaced people primarily tend to relocate in their adjacent areas, then gradually move to nearest towns, largest cities and finally to other metropolitan cities.

Char Juzira (25%), Moktarer Char (13%), Kedarpur and Char Atra (both 10%) are most common nearby places where respondents migrated frequently. All the Key Informants confirmed in KIIs that most of the victims migrated to their neighbouring areas especially Kedarpur and Bhojerwar Unions while some permanently migrated to Dhaka.

The disparity between the perception of respondents about migration to a new place in both places of origin and destination is obvious. A majority of respondents (80%) in the place of origin did not intend to migrate elsewhere and 50% did not consider migration be a better option because 58% believed that risks often involved in an unknown place (Table 2). While 86% respondents in the place of destination positively responded and admitted migration to a new place as a new means of earning opportunities though 70% respondents agreed that they felt frightened to meet new people and live with them as many uncertainties and risks associated in an unknown location.

5 WOMEN – BEARING THE BRUNT

Women are often at the frontline in respect to the impacts of a changing climate. [28]

Climate-induced disasters increase women's vulnerability in terms of health and caloric deficiency, domestic burden and hardships, societal norms, and religious dogmas. During extreme events such as drought, floods, and other climate-related disasters, women face additional risks, due in large part to gender inequities that result in women bearing the disproportional brunt of disaster impacts.

In the aftermath of a disaster, women responsible for water collection admitted that they (36%) experienced harassment by local youth, including teasing, taunting, name-calling, or verbal abuse.

3% of respondents said women face domestic violence during and after the riverbank erosion, such as - physical and mental torture, verbal abuse by the male family members during the disaster time as the men are mentally stressed and in search of food, shelter, work, and other means of subsistence.

One of the respondents had a pregnant daughter who experienced terrible domestic violence by her in-laws after riverbank erosion. The respondent's daughter underwent enormous mental and physical stress during the disaster. Consequently, she gave birth to a dead child, after which her in-laws refused to take responsibility for her care and did not allow her to return to their house.

Interestingly, the study finds that there is no significant increase in the rate of early marriage as a consequence of riverbank erosion. 50% of respondents said that the rate of child marriages increases to some extent due to school dropouts. Only 10% identified a link between child marriages with school dropouts as an indirect consequence of riverbank erosion. The homeless and landless people are afraid that it will be difficult to find suitable grooms for their daughters as, in the words of one respondent, "no man shows any interest in marrying a girl whose family has lost everything."

This scenario is common in the study area, where most of the respondents shared their fears and worries about the difficulties of getting their daughters married after losing everything to disasters.

The case of a young woman, Champa, who is a victim of early marriage, shared her story, of how she was forced into child marriage by her father, who lost all his belongings due to riverbank erosion.

28 [1] Nellemann, C., Verma, R., and Hislop, L. (eds). 2011. Women at the frontline of climate change: Gender risks and hopes. A Rapid Response Assessment.United Nations Environment Programme, GRID-Arendal.

BOX 3 : CHAMPA'S STORY

Champa was born in Basar Char and experienced her fist riverbank erosion disaster at the age of 5. She is 20 years old now but has already been displaced five times due to riverbank erosion.

According to Champa, her parents lost about 397 to 476 decimals agricultural land, worth BDT 12-13 lakh and 198 decimal homestead land, worth BDT 8-10 lakh, due to riverbank erosion. They were well a well to do family but lost everything to the river. The river swallowed even her school, forcing Champa and her younger brother to drop out of school altogether.

Champa was married off at the age of 15. She has been living in Boishakhipara in Naria Pourashova (Ward 2) with her husband and a son since 2017. Her husband is an engine boat driver and earns BDT 5,000-6,000 per month.

At every new location they migrated to, she felt unwelcome and even humiliated, she recollects how her neighbours taunted her,"People who have survived erosion cannot have good relations with others."During the 2018 river bank erosion disaster in Naria, her mother-in-law died due to a heart attack as she watched the river engulf their home and lands.

BOX 4 : MINARA BEGUM'S STORY

45 year old , Minara Begum came with her husband from Char Juzira Narina to Kallyanpur slum in 2019 after the riverbank erosion disaster of Naria in 2018.

She recalls the night of the disaster, ***"We were sleeping, we did not know when the house started crumbling into the river. Before we knew it, we were floating in the water and then we got caught in a fishing net. We were rescued by the fishermen of Naria."***

Minara Begum lost her beloved grandson, 2 decimal homestead land, 139 decimal agricultural land, and poultry farms that night. Minara suffered an injury to her spine, and finds it painful to walk even today. Her husband's chest bone was broken and he has been unemployed and immobile ever since. After the incident, they got some assistance from the Chairman at Naria, where they, along with other victims, stayed a few days in tents.

In 2019 Minara accompanied other victims and came to Dhaka with the hope of finding some work for survival. Unfortunately, as she and her husband are both physically sick, they are unable to find work. They are now dependent on the kindness of her brother and neighbours.

Minara Begum
Photo by
S. M. Saify Iqbal

6 PEOPLE'S SOLUTIONS

Women's Focus Group Discussion at Charatra.
Photo by Mir Mehoraf Sharif.

In a group discussion, community members shared their coping strategies to deal with riverbank erosion disaster from their end. They described several initiatives linked to the following areas:

Advocacy & awareness-raising campaigns: Unnayan Shahojogi Team (UST), a national NGO in Bangladesh, works for women's empowerment in the study area. It gives training to women on climate change and disaster risk reduction. Women are empowered through such training and are well informed about their rights. The community members stated that they raise their voices against the local government if they are deprived of government assistance. Many have participated in a human chain to make awareness among the local community and attract government attention.

Infrastructural improvements to housing and living conditions: Some community members have raised their homestead plinth to prevent damage from flooding, placed sandbags and bamboo fences to protect their houses from erosion.

Livelihood diversification and training initiatives: Shariatpur Development Society (SDS) distributes seeds among the people of Char Atra and provides agricultural training to train the vulnerable community for up-scaling their livelihoods. The study results reveal that only 4% of people from Char Atra are temporarily displaced to Naria Upazila. Such kinds of schemes certainly check the flow of migration. Since all the respondents had experiences of losing land and property due to riverbank erosion, many of them have diversi-

fied their occupations and work as a chef, assistant to a doctor, Imam, fisherman, guard, service holder or work in a straw factory, garage, bag processing industry, brickfield or are involved in the fruit business in order to maintain their subsistence.

Relief provision : The study findings represent that vulnerable people receive some assistance from local NGOs as relief or humanitarian assistance to maintain their livelihoods after the disaster. UST distributes deep tube-well, ring slab latrines among the victims for safe drinking water and sanitation, which improve their living conditions. Other NGOs like Buil-ding Resources Across Communities (BRAC) distribute a 'disability allowance' to their members.

7 SOCIAL PROTECTION

The government of Bangladesh has implemented several schemes under the Safety Net Systems for the Poorest (SNSP) Project with support from the World Bank. Vulnerable Group Feeding [VGF], Gratuitous Relief [GR]) and public works programs (Employment Generation Program for the Poorest [EGPP], Food for Work [FFW]/Money for Work [MFW], Test Relief [TR], Vulnerable Group Development [VGD]) are the main current social schemes, which are executed by the Department of Disaster Management (DDM) under the Ministry of Disaster Management and Relief (MoDMR) (Anwar& Cho, 2019). The Upazila chairmen and members generally handle such social safety programs. All existing present schemes are included in Box 6.

The research study reveals that VGF and VGD schemes are mainly executed in the study area, and the households have minimal access to the TR scheme. Some of the respondents replied that they got rice, a bundle of tin, and BDT 4,000 in cash and dry food aftermath of the disaster as a part of the vulnerable group feeding (VGF) program who have received VGF cards.

Since the study area, Naria Upazila, was massively affected by riverbank erosion in 2018, humanitarian assistance was given to poor people by various agencies. For instance, in FY 2019-2020, MoDMR allotted BDT 2.70 crore for disaster resilience house construction under MFW and TR scheme; 30 kg rice for four months (September to December 2018), 5000 bundle tin sheet, BDT 1.5 crore for climate-resilient house construction, cash BDT 50, 00,000 (USD 1 = 84.45 BDT) as humanitarian relief under VGF program (MoDMR, 2020)

BOX 5 : SOCIAL SAFETY PROGRAMS

Food for Work (FFW):
Since 1975, FFW program has been operating in Bangladesh with a vision to alleviate rural poverty through food- wage employment creating during slack period. Jobs creation by engaging poor and disaster affected people in construction and repairing work on embankments, roads and other infrastructure facilitate the prevention activities of natural disasters like floods, riverbank erosion, cyclone an drought under FFW program. The program ensures food security, reduces loss of lives, and physical damage due to natural disasters, and provide assistance for community based project preparation and implementation.

Test Relief (TR):
TR, one of the oldest social safety net programs, is primarily focused to reduce disaster and climate change related risks through development and maintenance of rural infrastructure, and lessen food insecurity by generating seasonal employ-ment for the poor. TR also works on improvement of environ-mental quality by executing projects like prevention of waterlogging by constructing drains, pond / canal excavation and re-exacavation for irrigation and installing solar energy systems.

Vulnerable Group Feeding (VGF):
Government of Bangladesh in partnership with World Food Program (WFP) launched VGF in 1974. Poor and people in distress in rural areas who are vulnerable to disasters are eligible to receive VGF card under this program. The card is issued for 2 years and card holders receive 10-30 kilos of grains (rice/wheat) per month as a grant.

Vulnerable Group Development (VGD):
In the early 1970s, the VGD program was started with an aim to improve the lives of the ultra-poor households. World Food Program (WFP) assists the program which is exclusively targeted towards poor and vulnerable women to help them graduate out of poverty. Women who are under VGD program receive monthly food rations and a package of development services that include, life skills and income-generation trainings, and access to micro-credit. VGD activities run for two year period and have two different forms, namely Income Generating Vulnerable Group Development (IGVGD) with a monthly ration of 30 Kgs of rice/wheat and Food Security Vulnerable Group Development (FSVGD) with a cash support of 100 BDT and 15 kgs of flour. The recipients of the program can only participate in one cycle.

Gratuitous Relief:
Under this program people affected by disasters get different amounts based on the magnitude of their loss and damage once in ten years, this includes maximum of 7500 BDT as a one time grant and 5000 to 15000 BDT for treatment, 10000 to 25000 BDT for loss of life, a bundle of tin sheet with cash grant of 3000 BDT to build house and 10-30 Kgs of rice.

In 2019-2020, the government allotted BDT 2.70crore for disaster resilience house construction in NariaUpazilla.
Photo by Mir Mehoraf Sharif.

8 INSTITUTIONAL ARRANGEMENTS

The government is implementing a project to install sandbag concrete blocks along 9 kms of the banks of Padma river.
Photo by Mir Mehoraf Sharif.

In 2015, the Government of Bangladesh (GoB) developed National Strategy on the Management of Disaster and Climate-Induced Internal Displacement (NSMDCIID) to take into account the rights and entitlements of individuals and communities who have experience of displacement (MoDRM, 2015).

Besides, in January 2009, the Government launched the 'Guchogram' (Cluster Village) or 'Climate Victims Resettlement Project' to rehabilitate landless, rootless, and riverbank erosion victims on khas or char land. The project was implemented under the Ministry of Land and ended in September 2015. A total of 10703 families were rehabilitated in 254 Guchchhogram under the project Gucchogram Phase 1.

In continuation, to rehabilitate landless destitute families affected by climatic hazards, including riverbank erosion, the Ministry of Land extended the project and is implementing the Guchhogram-2nd Phase (CVRP) Project from October 2015 to June 2020 with a target to establish around 2,550 Guchhograms and rehabilitate 50,000 families of climate victims on government khas land all over the country excluding Chittagong Hill Tracts (Rangamati, Bandarban, and Khagrachari) (MoL, 2020). This resettlement project can relocate climate victims and rootless people with living accommodation and title deeds. Many NGOs collaborated with the Govern-ment in the project and cooperated in land distribution tasks (Rahman, 2017).

The study attempted to figure out the coping strategies from the concerned authorities. The results show that 81% of respondents acknowledged the support from local administrations,

whereas 83% acknowledged the contribution of NGOs and CSOs. A BWDB official stated that the Government takes some protective measures to fill up any pond or water body within a 50-meter periphery of the bank line to prevent seepages; dump sandbags and stones along the bank line to reduce vulnerability.

The Government is also implementing a project worth USD 130 million for riverbank protection (9 km long), including dredging of riverbeds to maintain the flow of waterways and the implementation of sandbags concrete blocks for the protection of riverbank.

The Mayor of Naria Pourashova, Md. Shahidul Islam said that the Government distributed corrugated iron sheets and other housing materials to 300-400 households in Moktatrer Char Union. The key informants recommended several suggestions to minimize potential vulnerabilities due to riverbank erosion. According to them, long-term rehabilitation program from the Government, construction of concrete embankment, dredging of riverbed on a regular basis, coordination among NGOs and the government officials, financial support from NGOs and CSOs, register of most vulnerable people, and disaster risk reduction actions to eventually reduce the vulnerability to riverbank erosion.

At the place of origin, the respondents in group discussion sessions mentioned a list of aid they had received from both Government and other NGOs and CSOs like cash, dry food (rice, lentils, salt, sugar, onion, oil), clothes, blankets, toiletries, house building materials (tin, wire cutter, thread), dry seeds, health service, educational supports, auto-rickshaw and engine boat after the disaster. According to Jaydeb Chandra Kundu of NUSA, the to 20 kg rice with other food items) among 3500 (approx.) households in Kedarpur Union, and cash BDT 8,000- 10,000 among 25 families who had sustained injuries or lost any of their family members during the riverbank erosion in the Shaheber Char area. Ministries and local administrative officials, and other non-government stakeholders like SDS, UST, BRAC, NUSA, Mojid Jorina Foundation, Dhaka University, Red Crescent, USAid distributed relief among the river erosion victims.

After the massive devastation of the riverbank erosion disaster in 2018, SDS responded to the crisis by providing cash as rehabilitation cost, and distributed hygiene kits among 4600 families in 5 Unions of Naria Upazila. Moreover, SDS extended its humanitarian assistance by donating assistive devices to 750 persons with disabilities (PWD) and arranging free treatment for 2150 people from the SDS operated health camps (SDS, 2018). BRAC is running an awareness campaign in Naria for disseminating information about the magnitude of riverbank erosion and its consequent risk of loss to the local people (BRAC, 2017).

In destination places, respondents stated that they had received some training from national and international organizations to diversify their livelihoods. For instance, Dushthya Shashthya Kendra (DSK) and BRAC offers training on sewing and parlor courses; disease awareness training from International Centre for Diarrheal Disease Research, Bangladesh (ICCDR B), Water Aid, Urban Partnership for Poverty Reduction (UPPR), Habitat for Humanity in Bangladesh for improving livelihood and living conditions, and counseling on women rights and feminine issues by UTS stepped towards better subsistence of the riverbank erosion victims. The major activities of a few organizations in the study area are cited in Box 7.

BOX 6 : NGO INTERVENTIONS

Shariatpur Development Society (SDS):
SDS formally started work in 1991 to respond to the humanitarian crisis in Shariatpur following the devastating floods of 1988. Over the last two and a half decades, it has expanded its programs from poverty allevia-tion to Human rights, especially women and child rights. SDS is solely dedicated to working with the underprivileged people to uplift the present situation through establishing and improving their economic, social, cultural, health, educational, political, and environ-mental rights. Disaster management, poverty alleviation, training, education, agriculture, health, nutrition, water, and sanitation are their main thrust areas. Climate change adaptation, microfinance, and women and child rights are the core working fields of SDS.

Unnayan Shahojogy Team (USD):
This non-profit and non-governmental organisation was established in 1986 with a vision to help the poor, disadvantaged women through knowledge enhancement, capacity building, and skill development. USD works in very remote rural areas, and Char lands, where oppressed and vulnerable women get support from USD and become self-reliant, boosting their self-confidence. UST's mission is to ensure women's empowerment and sustainable community development along with poverty alleviation. USD promotes disaster preparedness and management, sustainable development, rights and social justice for disabled people, and protection of child rights and self-help villages.

Bangladesh Rural Advancement Commit-tee (BRAC):
The world's largest non-governmental development organisation was founded in 1972. BRAC works in all 54 districts of Bangladesh and has even expanded its working arena and international territory, including 11 countries in Asia and Africa. Under BRAC's humanitarian program, it works to build the resilience of the most vulnerable communities in Bangladesh and support the most affected people in disaster-prone areas in collaboration with the government, development partners, NGOs, and communities. BRAC is working across the country to strengthen disaster resilience and respond holistically in the aftermath of any disaster. Disaster risk reduction, emergency preparedness and response, strengthening community resilience, gender integration and inclusiveness advocating for vulnerable communities are the core working areas of BRAC for rural and vulnerable people.

Naria Unnayan Samity (NUSA):
NUSA, a non-political, non-government, and non-profit organisation, started development activities in 1979. Since its inception, the organisation is engaged to work in diverse fields, primarily on agriculture, water accessibility, income-generating activities. Health, sanitation, personal hygiene, rural environmental sustainability, disaster risk reduction, conservation of natural resource management, and materials development. NUSA strives to promote Human Rights, poverty alleviation, women empowerment, gender equality, and dignity to ensure the improvement of socio-economic conditions of the local people and congenial society can be attainable.

9 POLICY GAPS & OPPORTUNITIES

The potential role of climate-induced disasters in human displacement and migration has been understood with more certain scientific evidence from across the world. However, the policy and political processes are yet to develop a just solution to the crisis.

The international policy discussions on climate-induced displacement and migration remained in isolation for a long time. In 2007, it was at the COP 13 (Conference of the Parties) held in Bali when nations agreed to discuss climate-induced risk and associated loss and damages, which directly imply addressing climate-induced displacement and migration.

Based on the outcomes of COP 13, the decision text of the COP 16 held in Cancun in 2010 included a standalone paragraph (Para 14/f) on displacement and migration and invited the country parties to undertake measures concerning climate change induced displacement, migration, and planned relocation.

However, negotiation on climate-induced displacement and migration, especially on the Para 14/f of the Cancun Agreement, has not progressed as the issue was merged with the 'Loss and Damage' agenda item and, thereby, lost political attention. Over the years, since the inclusion of displacement and migration to the L&D Work Program at COP 18 in 2012, only some procedural progress has been achieved from the COP process. They include;

- A specific Action Area on displacement and migration (Action Area 6: Enhance the understanding of and expertise on how the impacts of climate change are affecting patterns of migration, displacement, and human mobility; and the application of such
- Establishment of a Task Force on Displacement and Migration at COP 23 in 2017 and assigned to develop recommendations for integrated approaches to avert, minimize and address displacement related to the adverse impacts of climate change (UNFCCC, 2016).
- The five-year work plan of the WIM's ExCom also included a strategic workstream (Workstream D) on displacement and migration to 'enhance cooperation and facilitation in relation to human mobility, including migration, displacement and planned relocation' (UNFCCC, 2016) and identified several priority actions for 2019-2021 under its Strategic Workstream D.

So far, the COP decisions on displacement and migration were just a reiteration of similar issues; knowledge generation, development of technical papers, and strengthening coordination among different actors outside of the UNFCCC, while bypassing to undertake measures on the ground to address the crisis.

Nonetheless, Bangladesh recognizes the climate-induced displacement and migration as one of the unprecedented development challenges. It underscores the importance of undertaking necessary preventive measures to the causes of displacement and migration. For instance, the Bangladesh Climate Change Strategy and Action Plan 2009 (MoEF, 2009) emphasizes strengthening existing coastal defences and building new ones to stop the migration of millions who are at the impending risk due to permanent inundation by the sea level rise. The Strategy also identified several actions e.g., strengthening coastal infrastructures, expanded coverage of social safety nets that will prevent displacement, and support local-level rehabilitation. However, it did not

mention any migration-focused activity and restricted itself to monitoring climate migrants' flows.

The revised version of the BCCSAP, which is yet unpublished, also identified climate-induced displacement and migration as one of the looming climate crises and proposed several prevention and rehabilitation measures. Accordingly, the Bangladesh Delta Plan 2100 that aims to build a 'safe, climate-resilient, and prosperous Delta by 2100 emphasizes systematic interventions to manage the future flow of the climate migrants to reduce the pressure on urbanization.

While not explicitly to address climate-induced displacement and migration, several policy instruments of the distribution of Khas Land directs the relevant government agencies to allocate those lands to the victims of river erosion on a priority basis. Khas land is government-owned land, which applies to agricultural, non-agricultural, and water bodies. Bangladesh has an estimated amount of 3.3 million acres Khas land comprising 0.8 million acres of agricultural, 1.7 million acres of non-agricultural, and 0.8 million acres of water bodies (Barkat, Zaman, & Raihan, 2000). The Agricultural Khas Land and Settlement Policy 1997 and the Land Reform Action Program 1987 of the government of Bangladesh consider the erosion driven displaced people as the priority group of having access to the Khas land.

Though Bangladesh is yet to undertake a climate migration focused strategy or plan, the country is dealing with the disaster displacement for many years. The Disaster Management Act (DMA, 2012) (MoDMR, 2012) and the Standing Order on Disasters (SOD 2019) (MoD MR, 2010) provided due consideration on planned evacuation, relocation, and where appropriate 'rehabilitation' of the displacement mainly resulting from the extreme weather events, for instance, the tropical cyclones. However, the proposed measures are short-lived, ad-hoc, and without any guidelines and institutional arrangements for undertaking long-term actions. Such policy spaces neither cover the displacement and migration arising from the multi-category disaster events nor consider the socio-economic and human rights dimension of the crisis.

Given the context, the Ministry of Disaster Management and Relief (MoDMR) of the government of Bangladesh took another initiative of developing a national strategy on the management of disaster and climate-induced disaster displacements. The available draft version of the strategy undertakes a rights-based approach and builds on the contemporary global 'soft laws,' e.g., the 1998 UN Guiding Principles on Internal Displacement and the bilateral imitative e.g., the Nansen Initiative and the 2018 Global Compact on Safe, Orderly and Regular Migration. The Strategy is said to be considered part of an action plan of fulfilling the country's commitment to implementing the Sendai Framework and the Platform on Disaster Displacement.

However, the strategy entirely ignores the main principles of climate justice. It is silent on the causes, i.e historical and ongoing emissions of the developed world. Instead, the strategy requires the country to comply with the existing international and domestic laws and ensure full rights and entitlements to those displaced by climate-induced disasters.

While the strategy could be a useful directive for addressing disaster displacement, it is unclear whether it means to address climate-induced displacement while simultaneously instituting the appropriate global policy and political debate around and with an understanding of climate justice.

10 REVERSE MIGRATION IN THE CONTEXT OF COVID 19

Dhaka, a megacity, is known as the ultimate destination of the rural employment seekers, and displaced people are now experiencing reverse migration. A large number of low-income city dwellers are climate migrants, and most of them are involved in informal job sectors.[29]

People who previously migrated from rural areas to this city due to socio-economic and climate-related challenges are now compelled to return to their villages due to the current COVID-19 pandemic. They can no longer afford to maintain their livelihood in cities, triggering a reverse migration. The immediate impact of COVID-19 induced economic crisis will most certainly result in the collapse of every aspect of development activities. Once the city embraced all and its pull factors attracted the millions to escape from the economic and environmental crisis in their ancestors' places, but this epidemic outbreak has pushed many to that uncertain situation again.[30]

The economic downturn caused by the COVID-19 pandemic outbreak has created a harsh reality that affects the lives of many of the struggling millions. Hundreds of people left the capital and the port city as they had no guarantee of employment or better wages anymore. It is estimated that around 50,000 tenants left Dhaka. More people are expected to leave if the pandemic shows no signs of slowing down. The number of signs displaying 'To-Let' is increasing across the capital's busy points, a very unusual scene for the city and its suburbs after many decades.[31]

Given the context, after the outbreak of COVID 19, blue-collar workers like masons, construction workers, porters, rickshaw and van pullers, workers in hotels and restaurants, parlors, gymnasiums, grocery shops, transports, clinics, garments, and other industries are faced with tragic situations.[32] A dire situation is seen in the garment industry, which employs 4.1 million workers. A large number of them are rural women. The garment industry drives economic growth, contributing 6% to the country's GDP for nearly a decade. COVID crisis has already snatched the jobs of more than one million garment workers, and the rise in numbers is unceasing.[33]

Moreover, the country is facing a high unemployment rate among educated youths. Creating employment opportunities has become complicated due to incessant numbers of jobless people. A recent survey by the Bangladesh Institute of Development Studies (BIDS) conducted between May 5 to May 29, 2020, found that around 13% of people have lost their jobs due to the pandemic.[34] The report further sheds light on the adverse effects on unemployment on income and people's expenditures, particularly low-income groups. The findings of

29 The Business Standard. (2020, August 12). Trapped population: The combined impact of climate change and Covid-19. Retrieved from https://tbsnews.net: https://tbsnews.net/thoughts/trapped-population-combined-impact-climate-change-and-covid-19-118429

30 New Age. (2020, July 11). Dealing with the new poor and reverse migration. Retrieved from www.newagebd.net: https://www.newagebd.net/article/110840/dealing-with-the-new-poor-and-reverse-migration

31 The Financial Express. (2020, July 02). Pandemic hits city's day labourers hard. Retrieved from thefinancialexpress.com.bd: https://thefinancialexpress.com.bd/trade/pandemic-hits-citys-day-labourers-hard-1593664540

32 New Age. (2020, July 11). Dealing with the new poor and reverse migration. Retrieved from www.newagebd.net: https://www.newagebd.net/article/110840/dealing-with-the-new-poor-and-reverse-migration

33 Bain, M. (2020, April 1). More than a million garment workers are out of work because of coronavirus. Retrieved from https://qz.com/1828541/covid-19-leads-to-one-million-garment-workers-unemployed/

34 The Financial Express. (2020, June 27). 13pc people lost jobs due to the Covid-19 pandemic: BIDS survey. Retrieved from https://thefinancialexpress.com.bd: https://thefinancialexpress.com.bd/economy/bangladesh/13pc-people-lost-jobs-due-to-covid-19-pandemic-bids-survey-1593064095

the report illustrate that 19.23% of respondents with monthly income below BDT 5,000 reported their income reduction by 75% while the category of respondents with income between BDT 5,000 to 15,000 confirmed their income reduction by 50% compared to their previous month's income. Another study done by BRAC in May 2020 reveals that people in urban areas have the most significant loss in their incomes (79%) than in the rural areas (75%), while 95% of people across the country underwent a substantial income loss.

The South Asian Network on Economic Modelling (SANEM) has predicted that about 34 million people (20.4%) might fall into poverty due to economic slowdown and reduction in financial stability due to the COVID-19 outbreak. More people will fall into the 'new poor' category if the rapid reduction in the average income of urban and rural poor and informal sector workers grows to more than 25 percent. SANEM also envisages that the overall poverty rate in Bangladesh is likely to reach 40.9% with 20.4% coming up as the 'new poor' while according to the Bangladesh Bureau of Statistics (BBS), 3.40 crore (20.5%) of the population was categorized as poor before the COVID-19 outbreak. Furthermore, 1.64 crore people have already become new poor by the end of June, and more will fall into this category if this situation continues.[35]

Finally, due to unprecedented reverse migration, the rural areas are now disproportionately burdened with internal and international migrants. According to a government estimation, by mid-April 2020, around 2 lakh migrant workers returned to the country. Between February 26 and March 26, 2020, more than half of them were found to be jobless. The people who migrated out from rural to urban areas, especially to megacities, due to economic, environmental, and climate-related challenges, the reverse migration has brought them back to their original situation filled with hazards and risks. (New Age, 2020). The highest number of jobless people are mostly from the private and informal sectors in the cities. They have been making newspaper headlines, triggering criticism against city-centric development and economic growth.[36]

Decentralized policy to offset pressure from the capital city and other megacities could ensure balanced development and much lower economic backlashes. Higher investments over the years in megacities, especially in Dhaka and Chittagong, resulted in unbalanced growth of industries, manufacturing units, and garment factories. Many economists and governance campaigners admit that people would not have experienced such a tragic situation if they had better education and jobs, healthcare facilities, jobs, and basic amenities in their ancestral towns. Now more than ever, it is clear that higher investments in rural areas and small cities could tackle any kind of adverse economic situation.

Nonetheless, the Government of Bangladesh has taken a number of strategic measures in response to COVID-19 pandemic. On 31 March 2020, the government announced a BDT 50 billion stimulus package for export-oriented industries that gives the industry owners two years of funding loan with 2% interest to pay their staff salaries. The Prime Minister declared

35 New Age. (2020, July 11). Dealing with the new poor and reverse migration. Retrieved from www.newagebd.net: https://www.newagebd.net/article/110840/dealing-with-the-new-poor-and-reverse-migration

36 New Age. (2020, July 03). City-centric development backfires: COVID-19 fallouts prompt migrants to go back to village. Retrieved from www.newagebd.net: https://www.newagebd.net/article/110084/city-centric-development-backfires

direct cash assistance of BDT 7.6 billion on 3rd April 2020 as an insurance plan and incentive scheme for health insurance of the workers in informal sectors; and allocated in a total of BDT 7.5 billion fund to keep healthcare professionals motivated, i.e., health insurance of BDT 5 to10 lakh for health workers (doctors, nurses and other) and bank workers in case of infection of COVID-19 and in case of death, one can claim BDT 25 to 50 lakh. Another, BDT 1 billion is allocated as a special honorarium for the public sector health professional serving the COVID-19 patients. The remarkably praiseworthy economic stimulus package was declared in April, i.e., 'refinance schemes' for the agricultural sector, low-income professionals, farmers, and micro businessmen. Bangladesh Bank will finance this scheme from its own source, and it will charge 1% interest to banks and 5% interest for an agricultural loan. The customers can gain extra loan facilities with a very minimal interest rate.[37]

Furthermore, the government launched a special food program for the poor and approved mega purchase plans to supply essential staple goods to the people at affordable prices through the Open Market Sale (OMS). The government has also promised to widen the existing social safety net's coverage to reduce extreme poverty and inequality. An allocation of BDT 955.74 billion for the social safety net is proposed in the budget for the next fiscal year (FY 21), which stands 3.01% of GDP.[38] The Finance Minister has also proposed to allocate BDT 1 billion in FY 21 to keep the rural economy moving through the 'Rural Social Service Programme' and create self-employment opportunities for youths and rural people in the aftermath of this pandemic COVID-19.[39]

One of biggest lessons coming out from the pandemic COVID-19 is that the informal urban settlers who once were forced to migrate to cities for better livelihoods from disaster-prone areas have been compelled to go back to rural areas where they are now trapped in highly climate-vulnerable hotspots. These vulnerable communities with little or no savings who are forced to return to their roots are in more acute crisis as the income-generating opportunities from agricultural sectors or other means have reduced further because of post lockdown impact.

Moreover, the pandemic induced economic stagnation with the consequent climatic hazards in the country in the last few months has made it even harder to confront the disasters for the affected community (Ibid). The people of the country are living with natural disasters over the centuries, but the intensity and frequency of such disasters have become multifold in recent years due to climate change; for instance, Cyclone Amphan in May, Monsoon floods in June wreaked havoc in Bangladesh amidst the COVID-19 situation. The battle of the double whammy of COVID-19 and the climatic disasters are interlinked where long term economic recovery in association with climate change projections and proper execution of the well-prepared plan is required to save the trapped population (Ibid).

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37 The Financial Express. (2020, June 11). Emphasis on the social safety net to minimise the impact of COVID-19. Retrieved from: https://thefinancialexpress.com.bd/economy/bangladesh/emphasis-on-social-safety-net-to-minimise-impact-of-covid-19-1591878141

38 The Financial Express. (2020, May 19). Govt approves a mega purchase plan for TCB. Retrieved from https://thefinancialexpress.com.bd: https://thefinancialexpress.com.bd/trade/govt-approves-mega-purchase-plan-for-tcb-1589864142

39 The Business Standard. (2020, August 12). Trapped population: The combined impact of climate change and Covid-19. Retrieved from https://tbsnews.net: https://tbsnews.net/thoughts/trapped-population-combined-impact-climate-change-and-covid-19-118429

11 CONCLUSIONS AND RECOMMENDATIONS

The study considered riverbank erosion as one of the major causes of displacement and migration in Bangladesh. The study identified the geophysical and climate-induced causes of displacement. It developed a detailed scenario of socio-economic vulnerabilities that families face in the course of displacement and migration.

While displacement is plainly understood by its dominant cause e.g., river erosion, the decision for migration involves several socio-economic factors. Displacement is unplanned and temporary, while migration is planned, sequential, and usually long-term.

In the case of riverbank erosion, the displaced families are found relocating to make-shift houses nearby. They always aspire to get back their physical assets, mainly agricultural land, through the land accretion process. Hence, the pattern of migration caused by riverbank erosion is not similar to those caused by other disasters. However, the socio-economic factors, livelihood vulnerabilities, and social networks have always been the deciding factors for migration. People flee to a new place permanently when the governance mechanism fails to restore their rights to basic services.

It is common in all cases that people consider migration as a new challenge. It is a challenge to migrate to new socio-economic-cultural settings that might not support their traditional way of living.

Most of the community members who have suffered due to river erosion do not consider migration a solution or a viable survival strategy. They wish to have long-term solutions for riverbank erosion through structural and non-structural measures. The study reveals that the respondents demanded mainly for the construction of embankment and livelihood diversification opportunities.

Since there is no specific policy framework for addressing climate-induced displacement or migration both on the national and global level, the study provides the following recommendations to the policy stakeholders both in the national and global level.

- Bangladesh should develop a comprehensive strategy to prevent climate-induced displacement and migration with techno-physical interventions, livelihoods, and social-safety nets support. The strategy should prioritise actions and measures to support planned relocation and rights-based rehabilitation of the migrant people. In doing so, a high-level coordination committee with the participation of the relevant ministries (e.g., Ministry of Disaster Management and Relief, Ministry of Land, Ministry of Water Resources, Ministry of Social Welfare, Ministry of Agriculture, Ministry of Local Government, and their allied agencies) should be established to devise a long-term durable solution of this crisis.

- Bangladesh should identify high-risk areas, restrict new settlements there, and facilitate gradual relocation and resettlement.

- The government should include specific provisions with financial allocation in the national as well and local plans e.g., the Five Year Development Plan, National Adaptation Plan, District Disaster Management Plan (DDMP), Pourshava / City Corporation Disaster Management Plan and local adaptation plan need to address climate change induced displacement and migration.

- The government should establish a national 'climate migration study and monitoring cell' with its strong linkage with the grassroots organizations e.g., UPs, Upazilla and District Administration, and CSOs to get consistent data on the number of displaced and migrated and to track their destination.

- The national 'climate migration study and monitoring cell' should also serve as a nodal agency for regional and international level data sharing if migration beyond the political border happens and could advocate /negotiate for human-rights based treatments to climate migrants beyond the boundaries. The Cell also should organize and facilitate dialogue, negotiations in the regional and international forums to address cross border migration jointly and in a non-discriminatory manner.

- Finally, Bangladesh should raise its demand in the global forum of climate negotiation for an independent and stand-alone protocol for a globally agreed legal protocol to ensure comprehensive and rights-based protection of the climate change induced displaced and migrant people with their national jurisdiction and beyond the political boundaries.

BOX 7 : DISPLACEMENT AND MIGRATION STUDY AND MONITORING CELL

Displacement and Migration Study and Monitoring Cell: Context and Justification

Increasing trends of displacement and migration associated with the impact of climate change have already been observed in and from the climate risk exposed areas. Many scholarly articles warned that the flow of migrants from the climate hotspots would be massive by 2050. The projections are predominantly based on sudden-onset events like cyclones or floods and usually ignore the consistent migration trend triggered by the slow onset events like sea level rise, salinization, loss of ecosystem services. Hence, climate migrants' estimation does not provide a clear picture of the number of people who are forced to migrate or are at the risk of displacement in the future. For instance, CEGIS (2007) estimates 50,000 to 2,00,000 displaced annually due to riverbank erosion. ECHO (2009) reported out-migration of 100,000 people from the areas successively affected by Cyclone Sidr in 2007 and Cyclone Aila in 2009. However, there are no figures available on migrants who had to flee due to residual impacts of the sudden onset events, like persistent waterlogging and salinization that followed Cyclone Sidr and Aila.

This approach will leave many climate migrants unaccounted for and would be a major policy challenge while addressing the problem in a comprehensive manner. This is an institutional limitation as currently, there are no dedicated institutions to study, monitor climate-induced migrants, and advocate required policy and programmes at the national and international levels.

The Bureau of Statistics (BBS) of the government of Bangladesh has the institutional mandate for data generation, data validation, and dissemination. However, BBS deals with socio-economic issues, not distinctively climate issues. The Ministry of Environment, Forest and Climate Change (MoEFCC) serves as the focal point/ ministry to the UNFCCC and deals with technical issues.

The MoEFCC has several agencies and departments to implement its mandate of environmental and natural resource management. However, they are not mandated to, and institutionally well placed to deal with the climate migrants' issues, especially monitoring and generating climate migrants' data. The Ministry of Disaster Management and Relief (MoDMR) serves as the focal agency for implementing DRR policies, and its allied department 'Department of Disaster Management - DoDM' is responsible for coordinating national disaster management efforts across all agencies down to the ground.

They also deal with the disaster displaced, especially for relied operation and short-term rehabilitation. Hence, given the mandate and expertise, the DoDM could be the operating agency of hosting the 'Displacement and Migration Study and Monitoring Cell,' which could be technically supported by the BBS and Department of Environment/Climate Change. Figure 11 presents a likely institutional setting of a National Displacement and Migration Study and Monitoring Cell'.

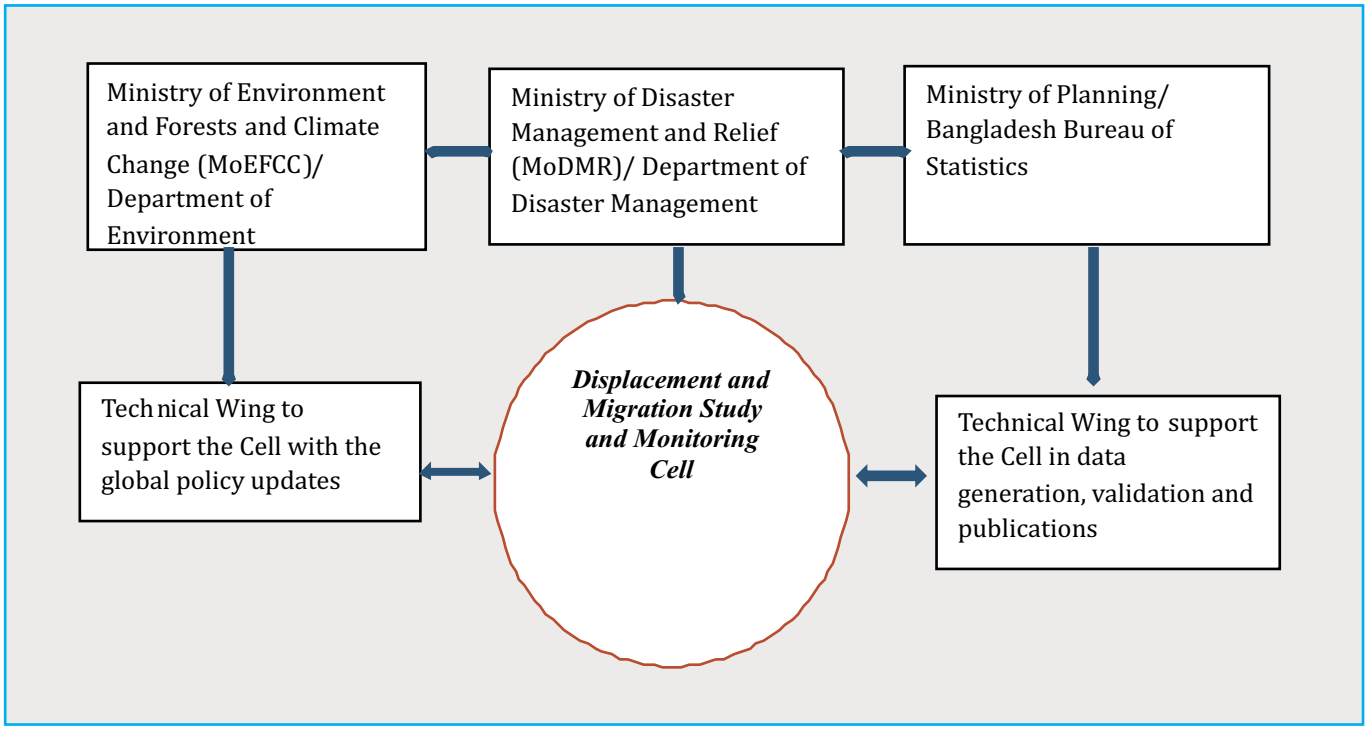

Figure 11: Likely institutional setting of a National Displacement and Migration Study and Monitoring Cell

12 ANNEXURES

ANNEX 1

Table A
Number of Displaced/Migrated Households (Origin to Destination, Origin Survey)

Origin	Destination		Number of Displaced Household
	Mouza	Union/Ward	
Kedarpur	Purba Naria	Ward-04	2
	Banshtala	Ward-04	1
	Kalukati	Ward-05	1
	Chakdha	Bhumkhara	5
	Tapodar Kandi	Muktarer Char	4
	Char Atra	Char Atra	1
Char Atra	Chakdha	Bhumkhara	1
Gharishar	Char Naria (Shuvogram)	Kedarpur	1
	Chakdha	Bhumkhara	1
	Char Atra	Char Atra	1
	Mulpara (Sheher Ali Matborer kandi)	Ward-01	1
Muktarer Char	Chakdha	Bhumkhara	5
	Kalukati	Ward- 05	1
	Banshatola	Ward-04	2
	Char Atra	Char Atra	6
	Char Naria (Shuvogram)	Kedarpur	1
	8 no Muktarer Char	Muktarer Char	2
Noapara	Char Atra	Char Atra	1

Origin	Destination		Number of Displaced Household
	Mouza	Union/Ward	
Char Atra (Babur Char)	Mulpara (Sheher Ali Matborer kandi)	Ward-01	1
	Sabor Ali Matborer Kandi	Muktarer Char	1
Banshtala (Ward-04)	Char Naria (Shuvogram)	Kedarpur	1
Char Juzira (Kedarpur)	Chakdha	Bhumkhara	6
	Baganbari	Kedarpure	1
		Kedarpur	4
	Char Naria (Shuvogram)	Kedarpur	3
	Kalukati	Ward-05	1
	Purba Naria	Ward-04	3
	Tapodar Kandi	Muktarer Char	3
	Char Atra	Char Atra	4
	Cherag Ali Beparir Kandi	Muktarer Char	2
Char Naria (Kedarpur)	Char Naria (Shuvogram)	Kedarpur	2
	Banshtola	Ward-04	3
	Wabda	Kedarpur	1
	Char Atra	Char Atra	3
Cherag Ali Beparir Kandi (Muktarer Char)	Sheher Ali Matborer Kandi	Muktarer Char	1
		Char Atra	3
Ishwarkati (Muktarer Char)	Sheher Ali Matborer Kandi	Muktarer Char	1

Origin	Destination		Number of Displaced Household
	Mouza	Union/Ward	
Kunder Char (Zanjira Upazila)	Tapodar Kandi	Muktarer Char	2
		Char Atra	2
	Sheher Ali Matborer Kandi	Muktarer Char	3
	Sabor Ali Matborer Kandi	Muktarer Char	4
Shaheber Char (Kedarpur)	Chakdha	Bhumkhara	2
		Char Atra	1
	Shuvogram	Kedarpur	1
Shuvogram (Kedarpur)		Char Atra	2
Sreepur (Char Atra)	Sheher Ali Matborer Kandi	Muktarer Char	1
Sureshwar (Gharishar)	Cherag Ali Beparir Kandi	Muktarer Char	1

Table B
Number of Displaced/Migrated Households (Destination from Origin, Destination Survey)

Origin	Destination		Number of Displaced Household
	Mouza	Union/Ward	
Basar Char (Char Atra)	Boishakhi Para	Ward-02, Naria	2
Wabda (Kedarpur)	Boishakhi Para	Ward-02, Naria	1
Char Naria (Kedarpur)	Boishakhi Para	Ward-02, Naria	1

Origin	Destination		Number of Displaced Household
	Mouza	Union/Ward	
Uttar Kedarpur	Masura	Bhojeshwar, Naria	1
Kedarpur	Shilongkor	Bhojeshwar, Naria	1
Mulfotganj (Kedarpur)		Fateh Jangapur, Naria	1
Saheber Char (Kedarpur)	(Chandani) Banglabazar	Bhojeshwar, Naria	1
Ishwarkati (Muktarer Char)	(Chandani) Banglabazar	Bhojeshwar, Naria	1
Kalmir Char (Kunder Char) Zanjira Upazila	Kalika Prasad	Muktarer Char, Naria	1
Kunder Char Zanjira Upazila	Pashchimlangshi (Banglabazar)	Bhojeshwar, Naria	1
Shuvogram (Char Naria), Kedarpur	Pashchimlangshi (Banglabazar)	Bhojeshwar, Naria	1
(Char Naria), Kedarpur	Pashchimlangshi (Banglabazar)	Bhojeshwar, Naria	1
Shuvogram (Char Naria), Kedarpur	Boishakhi Para	Ward-02, Naria	1
(Char Naria), Kedarpur	Boishakhi Para	Ward-02, Naria	3
Goshair hat	Begun Tila slum, Kalshi, Dhaka		2
Char Jalalpur	Begun Tila slum, Kalshi, Dhaka		1
Char Madaria	Begun Tila slum, Kalshi, Dhaka		1
Charir Char	Begun Tila slum, Kalshi, Dhaka		1
Naria	Begun Tila slum, Kalshi, Dhaka		4
Shaldoho	Begun Tila slum, Kalshi, Dhaka		1
Tirashi Char	Begun Tila slum, Kalshi, Dhaka		1

Origin	Destination		Number of Displaced Household
	Mouza	Union/Ward	
Chamta	Begun Tila slum, Kalshi, Dhaka		1
Kamrangir Char	Begun Tila slum, Kalshi, Dhaka		1
Shakhipur	Begun Tila slum, Kalshi, Dhaka		4
Damudiya	Begun Tila slum, Kalshi, Dhaka		1
Char Juzira	Begun Tila slum, Kalshi, Dhaka		1
Sureshwar (Naria)	Begun Tila slum, Kalshi, Dhaka		1
Shiber Char	Begun Tila slum, Kalshi, Dhaka		1
Felir Char	Begun Tila slum, Kalshi, Dhaka		1
Shiber Char	Kallyanpur slum, Dhaka		5
Dokhin Korochar	Kallyanpur slum, Dhaka		1
Muktarer Char	Kallyanpur slum, Dhaka		1
Damudiya	Kallyanpur slum, Dhaka		2
Naria	Kallyanpur slum, Dhaka		1
Char Juzira	Kallyanpur slum, Dhaka		1

Table C
Frequency of Displacement of the Respondents

	Frequency	Percent	Valid Percent	Cumulative
1.00	2	2.0	2.0	2.0
2.00	12	12.0	12.0	14.0
3.00	12	12.0	12.0	26.0
4.00	9	9.0	9.0	35.0

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5.00	13	13.0	13.0	48.0
	6.00	5	5.0	5.0	53.0
	7.00	13	13.0	13.0	66.0
	8.00	8	8.0	8.0	74.0
	9.00	4	4.0	4.0	78.0
	10.00	11	11.0	11.0	89.0
	11.00	1	1.0	1.0	90.0
	12.00	4	4.0	4.0	94.0
	13.00	1	1.0	1.0	95.0
	14.00	2	2.0	2.0	97.0
	15.00	1	1.0	1.0	98.0
	20.00	1	1.0	1.0	99.0
	27.00	1	1.0	1.0	100.0
	Total	100	100.0	100.0	

Table D
Migration to elsewhere be a better option of reducing risks of riverbank erosion

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	45	45.0	45.5	45.5
	No	50	50.0	50.5	96.0
	Not known	4	4.0	4.0	100.0
	Total	99	99.0	100.0	
Missing	99.00	1	1.0		
	Total	100	100.0		

Table E
Number of respondents who intend to migrate

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	20	20.0	20.0	20.0
	No	80	80.0	80.0	100.0
	Total	100	100.0	100.0	

Table F
Respondents' perception about risks involvement to unknown place for migration

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	58	58.0	58.0	58.0
	No	37	37.0	37.0	95.0
	Not known	5	5.0	5.0	100.0
	Total	100	100.0	100.0	

Table G
Insecurity of the respondents to an unknown place due to migration

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	66	66.0	66.0	66.0
	No	31	31.0	31.0	97.0
	Not known	3	3.0	3.0	100.0
	Total	100	100.0	100.0	

ANNEX 2

Table H
List of Key Informant Interviewees (KII)

Name	Organization	Designation	Date of interview taken
Mahbub Alam	Water Development Board (WDB)	Branch Officer	15.12.2019
Ziauddin Ahmed	Naria Pourashava	UNO Officer	12.12.2019
Md. Madadi Hossain	Naria Pourashava	Project Implementation Officer (PIO)	12.12.2019
Md. Alam	LGED	Assistant Engineer	12.12.2019
Jahurul Alam	BRAC	Branch Manager, Microfinance	15.12.2019
Md. Shahidul Islam	Naria Pourashava	Mayor	12.12.2019
Md. Sanaullah	Kedarpur Union	Chairman	15.12.2019
Jaydeb Chandra Kundu	Naria Unnayan Samity (NUSA	Deputy Director	12.12.2019


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