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Bangladesh's Climate Vulnerability and Overseas Migration: Navigating Challenges and Paving the Way Forward

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ABSTRACT

Bangladesh ranks seventh on the Global Climate Risk Index 2021, which identifies the nations most susceptible to natural catastrophes, demonstrating how sensitive the country is to both climate change and natural disasters. Millions of people are forced to migrate to neighboring cities and urban areas in search of work and a living each year as a result of climate change and natural disasters such as river bank erosion, salinity intrusion, floods, cyclones, and landslides in Bhola, Khulna, Bagerhat, Patuakhali, and Gaibandha. Urban life is strained by this influx, especially in terms of housing, water supply, and sanitation. Many of these individuals also seek overseas employment as a means of survival. While numerous organizations, including government institutions, are working to promote safe and regular international migration and overseas employment, a portion of these individuals fall prey to labor trafficking due to a lack of information, monitoring, and services from the administration. Additionally, communities in climate-risk areas are ultimately forced to choose between internal and international migration due to the sluggish adoption of climate-resilient agricultural methods and technologies, as well as the dearth of technical and vocational education options. For these regions of significant natural disasters and climate change, the government has to provide more secure migration policies and encourage productive remittance investment.

INTRODUCTION

According to the Global Climate Risk Index 2021, Bangladesh is highly susceptible to both disasters and climate change, ranking seventh among the world's most disaster-prone countries. The country is vulnerable to a range of climate-induced hazards, including tropical cyclones, tornadoes, floods, coastal and riverbank erosion, droughts, and landslides. These hazards result in significant damage to infrastructure, loss of life, and disruption of livelihoods for millions of people each year (Wanjara & Ogembo, 2023). For example, around 80% of households in Moheshkhali, Cox's Bazar have experienced climate-induced disasters like Amphan, leading to loss of life, infrastructure damage, and decreased livelihood opportunities (NAWG, IFRC, 2021).

The most recent IPCC report (AR6) argues that the global sea level will elevate 0.44-0.76m by 2100 under the intermediate GHG emissions scenario. Therefore, It is predicted for Bangladesh that a 45 cm rise in sea level may inundate 10% to 15% of the land by the year 2050. The impacts of climate change are expected to displace an estimated 13.3 million people in Bangladesh by 2051, according to the World Health Organization (WHO). This represents approximately one in seven people in the country and adds to the 7.1 million people who are already suffering as a result of climate change. However, according to the Emergency Events Database (EM-DAT), National Disaster Coordination Centre (NDRCC), Health Crises Management Centre, Director General Health Services (DGHS), International Displacement Management Centre (IDMC),

NIRAPAD Hazard Incidence reports, between 2014 and 2020, more than 9.4 million people has been displaced because of major natural disasters (BBS, 2022). However, the vulnerability of the coastal people of Bangladesh has been characterized in three ways: i.e. poor human settlement in low-lying areas, climate-sensitive livelihood, and scarcity of safe drinking water (Ahmed et al., 2019, Alam et al., 2017; Shahen, 2021).

The World Bank has identified climate change as Bangladesh's number one driver of both internal and international migration (Kazi S., 2020). This creates pressure on capital and large cities and urban areas of the north, forcing people to migrate overseas in search of better opportunities (Asaduzzaman et al., 2013). However, this also increases vulnerability among displaced people, making them more susceptible to forced labor, irregular migration, and human trafficking (Babul, 2022).

Salinity intrusion, cyclones, and storm surges are major negative drivers of migration and displacement in Bangladesh's 710-kilometer-long coastal belt. Districts that have predominantly experienced these disasters have been identified by various national and international organizations, including Satkhira, Khulna, Patuakhali, Borguna, Barishal, Bhola, Noakhali, and Cox's Bazar (Bhowmik et al., 2021). Drought and the depletion of freshwater resources (Brammer, 2014) have forced people to alter their livelihoods and relocate to the north, including the capital Dhaka. Landslides have left people homeless in the hill tracts, while riverbank and coastal erosion have displaced people across the country (Ahmed, 2021).

Urban dwellers now face challenges of employment, housing, sanitation, and access to fresh water due to the influx of climate refugees. According to a study by UN Women Bangladesh, over 70% of the migrants in Dhaka originate from coastal regions severely affected by cyclones, floods, saltwater intrusion, and sea-level rise (Rabbani, 2015). Women are more likely to migrate than men due to the loss of livelihoods, food insecurity, and lack of adaptation options in their villages (UNDP 2023). For example, BOMSA (Bangladeshi Ovibashi Mohila Sramik Association)- the leading migrant organization in the country found the origin of local domestic workers in Dhaka city are from climate risk areas such as Bhola, Noakhali, Satkhira, Bagerhat, Gaibandha and Barishal while implementing a project supported by EU and Oxfam in Bangladesh. However, the Ministry of Foreign Affairs (MoFA) asserts (Reliefweb, 2018) that climate change is costing the country 1% of its gross domestic product (GDP) annually. In contrast, the Bangladesh River and Delta Research Centre reports that there were a total of 1,274 rivers in Bangladesh in 1971 when the country gained independence. Since then, 520 have disappeared, forcing the population to alter their livelihoods and migration patterns.

METHODS

This study utilized a mixed-methods approach (Exploratory sequential design) (Edmonds and Kennedy), comprising qualitative interviews, document analysis, and field-level project activities observation, to examine the experiences of climate migrants in two coastal districts and one hill district of Bangladesh affected by frequent flooding, storm surges, landslide, and sea-level rise. The document analysis covered themes related to migration reasons, experiences, coping strategies, social networks, and future plans. Additionally, more than 30 government websites, annual reports, and other documents were analyzed thematically to identify key issues related to migration patterns, causes, coping strategies, social networks, and policy responses. Field-level project activities observation involved observing the implementation of two NGO-led projects aimed at supporting climate migrants in the study areas through field visits and interviews with project staff and beneficiaries. Qualitative data from interviews and documents were analyzed using thematic content analysis with MS Excel, while field-level project activities observation data were analyzed descriptively to identify key findings related to project implementation and impact. Ethical considerations were followed strictly to ensure participant rights and privacy by obtaining informed consent and maintaining confidentiality through pseudonyms in data analysis and reporting.

RESULTS AND DISCUSSION

Climate Vulnerable District and Nature of Crisis

As per the Climate Vulnerability Index (CVI) of the Local Government Initiative on Climate

Change (LoGIC) under the Local Government Division of the Government of Bangladesh (GoB), Patuakhali, Bandarban, Bhola, Barishal, Rangamati, Gaibandha, Khulna, Cox's Bazar, Bagerhat, and Netrokona rank among the most climate-vulnerable districts in the country. Each year, these areas are prone to natural disasters such as cyclones, floods, river erosion, salinity, water logging, and extreme rainfall. However, the specific patterns, likelihoods of natural hazards, and aftermaths of climate-induced natural disasters differ from district to district. The following Figure 01 illustrates the major natural and climate disasters affecting the top ten districts of Bangladesh in accordance with their CVI rankings.

Table 1. List of Climate Vulnerable districts with CVI and INFORM Risk Index

District	CVI* (Climate Vulnerability Index)	Inform Risk Index*** (The model is measured in three risk dimensions: hazard and exposure, vulnerability, and lack of coping capacity)	Major Natural and climate disaster
Patuakhali Galachipa CVI 0.59, Kalapara CVI 0.59, and Patuakhali Sadar CVI 0.57	0.57	5.7	Cyclones, flooding, river erosion, drought, and salinity.
Bandarban (Alikadam CVI 0.57)	0.55	6.3	Heavy rain, Flash floods, Landslides.
Bhola	0.53	5.5	Cyclones, Tidal surge, Flooding, and river erosion.
Barishal	0.53	5.6	Cyclones, Tidal surge, Salinity, Flooding, and river erosion.
Rangamati	0.53	5.7	Heavy rain, Flash floods, Landslides.
Gaibandha	0.53	5.7	Flood, and River bank erosion.
Khulna (Koyra CVI 0.57)	0.52	5.7	Extreme Cyclones, Storm surge, Heavy rain, Flooding/ Water logging, Salinity (limited potable water).
Cox's Bazar (Moheshkhali CVI 0.57)	0.52	6.2	Cyclones, torrential rains, landslides, flash floods, storm surges, and extreme temperatures.
Bagerhat	0.52	5.9	Tidal surges, Extreme rainfall, floods, and cyclones.
Netrokona	0.52	5.6	Torrential rain, floods, lightning and river bank erosion.

* Source: Local Government Initiative on Climate Change (LoGIC), Climate Vulnerability Index (CVI), Local government Division, 2021.
**Shyamnagar (Satkhira) CVI 0.59, Hatiya (Noakhali) CVI 0.59, Gurudaspur (Natore) CVI 0.58, Kalahoo (Bogra) CVI 0.68.
*** https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Subnational-Risk/Bangladesh

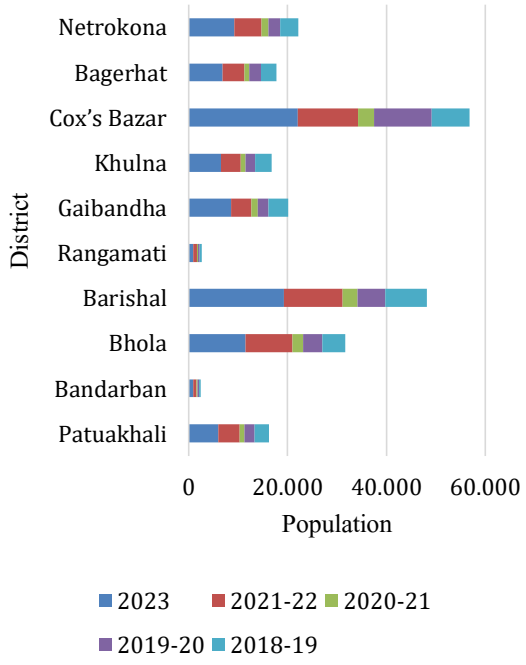
According to data from the Bangladesh Bureau of Statistics (BBS) in 2021, Bangladesh experienced a staggering loss of Taka 1,79,198.8 crore (approximately USD 21.3 billion) as a result of 11 natural disasters between 2015 and 2020. Floods alone accounted for a significant portion of these losses, with a total of 57%. The crop sector has been the most affected by natural disasters, suffering losses of 28.90% during these seven years. Other sectors, such as livestock (3.98%), poultry (1.51%), and fisheries (3.71%), have also experienced losses due to natural calamities. The World Meteorological Organization (WMO) of the United Nations (Mohsin, 2021) estimated that Bangladesh suffered an estimated loss of approximately USD 11.3 billion due to natural disasters in the previous year.

In addition to immediate financial losses, catastrophic natural events in coastal and river erosion zones inflict damage to homes and leave individuals jobless for more than three months each year. Women, adolescents, and girls are disproportionately affected by these disasters (Haque, 2019), as those involved in small-scale enterprises or informal employment are left unemployed and pushed into poverty (Eckstein, 2021). For instance, according to the Children's Climate Risk Index (CCRI) of UNICEF, Bangladesh scored 7.6, which means extremely high-risk country for children. As a consequence, the inadequacy of climate change adaptation measures exacerbates the situation, making it challenging for people to engage in crop cultivation, animal husbandry, and fish farming (Irfanullah, 2021). This predicament is compounded by the burden of existing unemployment in these districts and increased social conflicts which force people to migrate both internally and internationally.

Overseas Migration from Climate and Extreme Disaster Prone Areas

Mostly due to floods, river bank erosion, and salinity intrusion, people from coastal areas are often forced to relocate and often end up losing their lands and other possessions (Sammond et al., 2021). Even this incident forces them to try and find work abroad (Masud, 2021). District-wise data from the Bureau of Manpower Employment and Training (BMET) from 2018 to 2023 showed a remarkable increase in overseas employment from climate risk districts apart from the Covid-19 Pandemic period (2020-2021), which indicates the impact of climate change on life and livelihoods. To illustrate, the rate of overseas migration has significantly escalated by 2.04 times in Patuakhali, 2.49 times in Bhola, 2.83 times in Cox's Bazar, and 2.21 times in Bagerhat during the period between 2018 and 2023 (Chart 01). With the exception of Cox's Bazar, which ranked as the 20th source district for overseas employment, the majority of the districts affected by climate risks remain at the bottom of the list for international migration. Additionally, the government's and NGOs' initiatives for skill development and overseas employment are insufficient for these districts.

Chart 01: Overseas Migration (2018-2023) from top ten Climate Change and Disaster affected districts (Source: BMET, GoB)



Agriculture is the primary source of livelihood for all listed districts, however, Bagerhat, Cox's Bazar, Bhola, and Khulna also rely heavily on fisheries, including shrimp and prawn culture and dry fish processing. Betel leaf and crab culture (mud crabs including soft and hard shells) are also significant sources of income (8.73 million USD in 2023) in Cox's Bazar, Patuakhali, Bagerhat, Satkhira and Khulna areas (Islam et al., 2015). However, climate change has significantly impacted

crop cultivation, fisheries, and livestock patterns in these districts over the past two decades. Furthermore, frequent natural disasters have caused damage to households, cattle houses, and fish ponds, resulting in substantial financial losses each year and forcing people to seek alternative means of livelihood (Sultana et al., 2022). While over 20 NGO led projects and government institutions are working in these coastal areas to mitigate climate change-related risks and vulnerabilities, and promote adaptive measures, the local population views the process as slow and inadequate to address their socio-economic needs.

Bangladeshi individuals perceive overseas employment as a logical and swift means of economic survival and brings about significant transformations (Tasneem, 2022). Long-term overseas employment ensures financial stability and enhances social values. Professionals often discover that their earnings abroad provide them with greater purchasing power and financial security. Migrant families can invest more in improving their family's well-being, such as receiving higher education and healthcare. Additionally, Bangladesh's socio-political landscape has, at times, displayed instability and uncertainty, which can disrupt both the business environment and personal lives (Savio, 2023). As a result, people opt for migration and overseas employment as an alternative to cope with climate change.

Challenges Remain So Far: Key Findings

Sensitizing community on safe and regular migration: Government institutions like the Bureau of Manpower Employment and Training (BMET), District Employment and Manpower Office (DEMO), Wage Earners Welfare Board (WEWB), Probashi Kallayan 9Expatriate Welfare) Bank (PKB), and Technical Training Center (TTC) provide services aimed at promoting safe, regular, and orderly labor migration, primarily concentrated in migration-prone districts such as Cumilla, Norsingdi, Chattogram, Brahmanbaria, and Dhaka. Over six non-governmental organizations (NGOs), including WARBE Development Foundation (WARBE DF), Ovibashi Karmi Unnayan Program (OKUP), BRAC, RMMRU, BOMSA, and Prottashi, operate programs and projects in these districts to provide pre-migration or pre-decision, legal aid, financial literacy, skill development, and migrant reintegration direct and referral services. However, none of these organizations are active through any projects or programs in most climate-vulnerable districts such as Bhola, Barishal, Khulna, Patuakhali, and Bagerhat.

Services provided by central and district Administration and Private sectors: Fewer NGOs and donor-funded projects are present in these climate-vulnerable districts to address issues related to internal and international migration i.e. safe migration process, Pre-Employment orientation (PEO), BMET (job seekers) registration, skill training, receiving Pre-Departure Orientation (PDO), counseling support, welfare services from WEWB, insurance coverage, and complaint mechanism. Although some partners of USAID and Swiss Development Cooperation (SDC) have worked in the southern border districts i.e. Jashore, Khulna, Satkhira, and Cox's Bazar to combat human trafficking and climate change adaptation, there have been no significant initiatives taken so far to promote skill overseas migration from these climate-vulnerable districts. Moreover, the digital service providers like Union Digital Centers (UDCs) are also not well trained on the issues, and how to provide services accordingly i.e. Use of the Ami Probashi app, BMET Job Seekers Registration, online visa checking, lodging online complaints at BMET, etc. Regrettably, unscrupulous brokers and intermediaries (so called Dalal in Bengali) of different recruiting agencies or traffickers are active in these areas. Moreover, lack of monitoring from law enforcement agencies including inadequate measures taken by the Vigilance Task Force (VTF) and district administration also leaves the displaced individual assailable to forced labor and trafficking.

Combating human trafficking: As per a recent report by the United Nations (UN), climate refugees, particularly the impoverished ones in Bangladesh, are more susceptible to human trafficking. The individuals residing in the climate-vulnerable regions such as Cox's Bazar (Moheshkhali, Teknaf, Chakaria), Patuakhali, Bhola, Khulna (Koyra), and Bagerhat (Shyamnagar) are at risk of displacement due to climate change, leading many to accept offers made by human traffickers, who promise them a better and prosperous life. The victims, predominantly women and children, are not only trafficked into slavery or forced labor but also used in the illicit organ trade or as sex traders (Daily Star, 2023). The report by

the UN Office on Drugs and Crime (UNODC) highlights that besides Khulna, human trafficking cases have recently increased in the Sylhet region as well. According to the Bangladesh Counter Trafficking-in-Persons (BC/TIP) Program of Winrock International, after Cox's Bazar, Khulna (15%), and Satkhira (17%) have been identified as areas at risk for human trafficking. Cox's Bazar, particularly Teknaf town (IOM 2023), serves as the primary sea route for smuggling Bangladeshis and Rohingyas toward Southeast Asian countries (i.e. Malaysia, Thailand), and this trend continues to persist.

Skill Development: Despite the existence of over 2,540 technical and vocational education and training (TVET) institutions in Bangladesh (UNESCO TVET Country Profile 2023), including 322 public institutions and specialized centers such as 478 polytechnic institutions, 166 Technical Training Centers (TTCs), 183 Agricultural Training Institutes, and 120 Medical Technology institutes; skill migration remains a challenge, particularly in disasters and climate risks areas. For instance, all top disaster and climate risk districts, except Cox's Bazar and Bagerhat (Industrial Training Center), have TTCs under the Bureau of Manpower Employment and Training (BMET) which offers different trade-based short-term and long-term courses. However, women in Bhola, Gaibandha, Cox's Bazar, and Patuakhali districts are deprived of technical training opportunities, limiting their access to better employment prospects within their locations and nearby cities.

Income Generating Activities (IGA): There are insufficient initiatives to educate people on climate change adaptive cultivation and livelihood techniques. Even the Income Generating Activities (IGA) training offered by the Agriculture, Livestock, Fisheries, BITAC, Department of Women Affairs, and Youth departments fails to address issues related to climate change adaptation adequately. For example, crab and Kuchia culture (Mostafiz, 2023) has significant potential in Bagerhat, Khulna, Barishal, and Cox's Bazar districts; however, the Fisheries Department has yet to take any significant initiatives to train people on modern hatchery techniques or produce export-oriented crabs and Kuchia (Bangladesh Export Promotion Bureau). Furthermore, sheep and goat farming are highly suitable alternatives for the vulnerable coastal and char regions that are frequently affected by disasters (Warner K. 2013). Sheep and goats are typically raised on pastureland in sizable herds with minimal requirements for feed, water, and labor compared to larger ruminants such as cattle. These animals exhibit a high tolerance for heat (Surinder et al., 2020), which sets them apart from their larger counterparts. Regrettably, the Livestock Department has taken only preliminary measures to promote these practices and adapt climate-resilient farming (Todd, 2018).

Women Empowerment: Women in coastal areas of Bangladesh face several challenges in empowering themselves in the context of climate change. These include limited access to resources such as land, credit, and technology, which hampers their ability to adapt and build resilience. Traditional gender roles and expectations also restrict women's participation in decision-making processes related to climate change adaptation and mitigation (Rahman, 2019). Women are disproportionately affected by the impacts of climate change, particularly in areas such as agriculture, water management, and health. Lack of education and skills further limits their capacity to respond effectively. Cultural barriers and economic constraints in Khula, Bagerhat, Cox's Bazar, and Barishal areas also impede women's empowerment in this regard. Women may have limited access to information about adaptation and mitigation measures, and social norms (Karim, 2017) may discourage their participation in decision-making processes. Financial constraints can even prevent women from investing in climate-smart practices or building more resilient homes during disasters. Addressing these challenges requires addressing systemic inequalities and providing women with the resources, education, and opportunities they need to participate fully in climate change adaptation and mitigation efforts and reduce their vulnerability to internal and international migration.

Urgent Actions Required: Recommendations

Apart from spreading climate resilient and adaptive livelihood methods and educating people on sustainable livelihoods, we should focus on sensitizing communities on safe and skill migration, and provide vocational and trade-based technical training among women and adolescents of at-risk area people. Both the public and private sectors should emphasize on taking joint initiatives.

1. In the face of the growing threat of climate change, safe and skilled migration has emerged as a crucial strategy to mitigate its adverse impacts on vulnerable communities residing in Khulna, Bagerhat, Barishal, Patuakhali, Bhola, Cox's Bazar, and Gaibandha. The government, along with international organizations and development partners, must take proactive measures to promote safe and skilled migration. Firstly, the government should invest in upgrading the vocational and technical training programs to equip aspirants and local youths with the necessary skills and knowledge required for employment in destination countries and at home. These programs should be tailored to meet the demands of the labor market in destination countries as well as at home, and should also focus on providing training in areas such as entrepreneurship, financial management, and language skills. Apart from this, government departments and training centers should provide climate adaptive IGA training (climate resilient and salt tolerant crop cultivation, vegetable cultivation, fisheries, nurseries, hatcheries, poultry, livestock, etc.) that best suit to tackle climate change impacts. More investment should be required in climate-adaptive agricultural practices, livestock, and fisheries. The government is also required to allocate more budget for such activities.
2. The government should establish a comprehensive migration policy that takes into account the needs and rights of aspirants from coastal and climate change districts. This policy should encourage overseas recruiting agencies (RAs) to foster overseas employment from disaster-prone areas on a priority basis and mobilize the private sector to create employment through investment in climate-resilient business. Diaspora policy should focus on expatriate investment in climate-friendly enterprise development.
3. The government is required to strengthen its partnerships with local NGOs, private sectors, and traders associations to practice more climate-adaptive business, farming, and trade to slow down the trends for internal and irregular migration. The expatriate Welfare Ministry's reintegration policy should address the needs of the beneficiaries' origin in climate risk districts and coordinate with other ministries to make an effective reintegration plan.
4. Law enforcement agents should strengthen their monitoring system in a coordinating way with Vigilance Task Force (VTF) and CTCs (Counter Trafficking Committees at the district, Upazila, and Union levels) to combat human trafficking and ensure safe labor migration.
5. The government is required to invest in infrastructure development in climate change-affected areas to provide migrants with alternative livelihood opportunities. This includes improving access to technical and vocational education, healthcare, and other basic services, as well as promoting sustainable agriculture, poultry, and fisheries practices.

CONCLUSION

As the impacts of climate change continue to intensify, the issue of climate-induced migration has become a pressing global concern. The displacement of populations due to environmental factors is expected to increase in frequency and magnitude in the coming decades. The urban areas of Bangladesh are already facing challenges with climate refugees and migrants. This phenomenon not only poses significant challenges for affected communities but also for the countries and regions they migrate to. The social, economic, and political implications of climate-induced migration are complex and multifaceted, requiring a holistic and collaborative response from governments, international organizations, and civil society. As such, it is imperative that policies and strategies are developed to address the adaptive needs, mitigate its impacts, and provide effective support to those displaced by its effects. Failure to do so will exacerbate existing inequalities and further exacerbate the already dire consequences of climate change for vulnerable populations.

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