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Short Communication

Post-displacement status of climate migrants in Rajshahi City, Bangladesh

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ABSTRACT

Some big cities in Bangladesh have been experiencing a massive and rapid influx of rural people due to the impacts of climate change, and therefore the urban administration encounters enormous challenges. This study aims to investigate the drivers of climate-induced migration and the post-displacement status of the migrants living in the urban slum of Rajshahi City. Using a semi-structured questionnaire survey, this study conducted interviews with 50 migrants residing in two slums in Rajshahi City. An interpretive phenomenological analysis (IPA) approach was implemented to evaluate the survey data. This study finds that food insecurity and flood are the two significant climate drivers of migration. Among the non-climate drivers, lack of alternative livelihood is the major reason. It should be noticed that the climate migrants in many cases do not get the opportunity to improve their living standards; they are usually occupied with low-pay professions like maid, van and rickshaw puller, and scrap collector. The study also reveals that migrants, especially females and children, need several basic physiological, economic, social, and health services. Most children have no chance to attend school. Compared to males, females have more opportunities for some support and allowances. Overall, an inadequate level of change has taken place in the lives of migrants, which raises the concern if migration is ever a way to resolve a problem or the beginning of many other problems. Further researches may concentrate on the impact of migration on the dynamics of social capital among slum dwellers.

1. Introduction

Climate change has impacted individuals and communities by aggravating existing difficulties that lead to migration (Chen and Mueller, 2018; Pandey et al., 2018; Rana and Ilina, 2021). The urban poor, who are predominantly migrants, are often the most vulnerable to the effects of climate variability (Giri et al., 2021). Although migration, a private affair of migrant, was assumed to be a peaceful penetration for a couple of decades (Park, 1928), very recent evidence does not agree with the phenomenon, for instance, Afghan refugees in Europe and Rohingya refugees in Bangladesh. Besides, many of the mass migrations in recent times are somehow due to the impact of climate change, and more frequent displacements are expected as well (Naser et al., 2019).

In the early 1990s, the Intergovernmental Panel on Climate Change (IPCC) acknowledged human migration as the greatest single

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effect of global warming (IOM, 2008). Numerous scholars estimated the world would see around 200 million environmental refugees in 2050 (Myers, 1993; IOM, 2008; Johnson, 2009). A recent estimation predicted that around 143 million people from the Global South are likely to be subject to forced displacement within the country by 2050 due to climate change (Rigaud et al., 2018). It was also projected that around 3 to 10 million people would move from the north to the east in Bangladesh by 2050 (Hassani-Mahmooei and Parris, 2012; Rana and Ilina, 2021).

Some big cities in Bangladesh have been experiencing a massive and rapid influx of rural people primarily due to poverty and climate change, which creates enormous challenges for urban administration and health care (Afsana and Wahid, 2013; Castellano et al., 2021). The proportion of urban population has increased from around 8% in 1971 to 39% in 2021 in Bangladesh (World Bank, 2021). In 2020, there were more than 64 million people in the urban areas of Bangladesh (World Bank, 2021). Rajshahi City, the third-largest metropolitan city and a major education center of Bangladesh, has hosted migrants from all over the country in many slums scattered throughout the city. Climate change is one of the main reasons for such migration. A recent estimation showed that the migrants who reside in the urban slums are around 35% of the total urban population in Rajshahi City (Hossain, 2021).

Emission potential is high in big cities. Yet, Rajshahi City successfully reduced the PM 10 concentration from 195.0 $\mu g/m^3$ in 2014 to just 63.9 $\mu g/m^3$ in 2016, which made the city champion in the improvement of air particulate pollution in Bangladesh (Hossain, 2021). Community-wide emissions grew by around 11% annually from 2013 to 2018 in Rajshahi City; residential building, manufacturing, construction, transportation, and waste were the key emitters (URBAN LEDS, 2020). In the total residential emissions of a city, slum plays a pivotal role because people are confined to a specific area (Sahu et al., 2015). Inaccessibility to adequate and reasonable sharing of sanitation facilities is among the major problems that slum dwellers have been facing. A sample found that more than half of the slum dwellers in Rajshahi City use community latrines provided by the Urban Partnership for Poverty Reduction Program, one of the most extensive urban development agendas. However, the latrine condition was found unhealthy and unhygienic. Around 30% of households in Rajshahi City have private toilets, and 17% have access to shared latrines (Hossain, 2021). Unhealthy and unhygienic sanitation condition poses health threats for residents, particularly females. In addition, unsustainable sanitation results in odor and the emission of greenhouse gases, and access to fuel for cooking is also limited in urban slums.

Adaptive capacity, the evolutional ability of a system to adapt to climate change or to expand the range of variability it can cope with (IPCC, 2007), of the vulnerable community largely depends on household-level resources and decision-making ability (Pandey et al., 2018). Since planned migration is considered an adaptation strategy (Martin et al., 2013), climate-induced migration to settle in the big cities needs to be investigated from an adaptation perspective. Previous studies investigated migration due to the impact of climate change from many perspectives, including the willingness of the slum dweller to support climate migrants (Castellano et al., 2021), the livelihood sustainability of slum dwellers (Uddin, 2018), the attitude of host community towards climate-induced incoming migrants (Kolstad et al., 2019), the impact of climate-induced migration on society, justice, and human rights (Ahsan, 2019; Naser et al., 2019), the health condition of climate migrants (Rahaman et al., 2018), and the migration prediction due to sea level rise (Davis et al., 2018). Stojanov et al. (2016) studied the factors influencing internal migration in Bangladesh and found that internal migration is influenced by multiple factors, including flood, loss of land and home due to riverbank erosion, search for livelihood, intention to improve the economic condition, etc. These prior studies took cases from various regions in Bangladesh, while Rajshahi City, a drought-prone region in the northwest part (Al Mamun et al., 2021) was not in focus. Therefore, this study aims at investigating the drivers of climate-induced migration and the post-displacement status of the migrants in Rajshahi City.

2. Methodology

This research is based on a semi-structured questionnaire survey. The queries included the reasons for migration, post-migration livelihood, access to basic needs, and the status of women and children migrants. Except for the reasons for migration, i.e., the drivers of climate-induced migration, other questions were open-ended in the study. According to IOM (2008), drivers of forced migration from climate change can be categorized as climate drivers and non-climate drivers. We further classified the climate drivers as climate process and climate event in this study. The climate process represents the slow onset of climate change like drought and water scarcity, while the climate event refers to sudden climate hazard such as flood and hurricane. Non-climate drivers include a lack of adaptive capacity and insufficient preparation for natural hazards.

2.1. Data sources

There is no comprehensive database about the slums in Rajshahi City; however, an earlier estimation showed a total of 15 slums inside Rajshahi City Corporation (RCC) (Alam et al., 2013). Considering the utilization of the slum data of RCC and the acceptability of migrants, we chose two slums inside RCC in this study, i.e., Vodra Lake Basti under Ward 19 and Kharbona Riverbank Basti under Ward 24. Not all slums have climate migrants, while the selected two slums have more climate migrants. The existing information network of the Association for Community Development (ACD), a local non-government organization (NGO), also helped us with the selection of the sample slums.

We conducted a total of 50 interviews, 25 from each slum. The head of each household or the main moneymaker of a household accepted the interview. Within the interview, we explained the climate process and climate event separately to the respondents.

2.2. Data analysis

We implemented an interpretive phenomenological analysis (IPA) approach to evaluate the interview data based on life experiences.

IPA is a qualitative approach that aims to take into account first-hand experience instead of an explanation given or shared by someone else without the specific experience (Smith et al., 2009; Smith and Osborn, 2015). Since migration is a landmark event for an individual or family, the IPA approach, which is used to assess personal experiences of major life events (Smith and Osborn, 2015), has been implemented in this study.

3. Results

The first evidence of migration in the selected slums in Rajshahi City was reported in 1991, and only three families migrated to the slum Vodra Lake Basti. Since 2008, more families have joined the slums. The numbers of male and female household heads were found nearly equal among the slum dwellers. Most people migrate along with their families, and only a few are lone migrants. Major migrants are from the far-north drought-prone districts, including Nilphamari District and Pabna District, particularly Saidpur Upazila Sub-District.

3.1. Drivers of migration

According to the results of the semi-structured questionnaire survey, we have found that people usually migrate for more than one reason. It should be noted that the reasons for migration, as categorized in this study, are not mutually exclusive, because the migration decision of a family or an individual is a combination of many factors.

Food insecurity, one of the consequences due to climate process, is the principal reason for migration (Table 1). Decades back, the northern districts were suffering from seasonal food insecurity, locally named monga. Frequent monga resulted in migrations in many cases. Another climate process reason for migration is riverbank erosion, which mainly caused by heavy rainfall and monsoon flooding. As a climate event, flood is the primary reason for people to move to Rajshahi City.

Among the non-climatic drivers of climate-induced migration, lack of alternative livelihood is identified as the most influential factor, while the search for new job opportunities to improve the standard of living is another crucial reason.

3.2. Post-displacement livelihood

Most of the respondents are found to be involved in more than one occupation, and the migrant families are engaged in various jobs. Mainly, the migrants are involved in a wide range of low-income professions. Scrap collection, driving three-wheeler and rickshaw, maid service, and begging are among the top professions for migrants (Table 2). Most females are found to work as maidservants in a neighboring residential area, while males are engaged in rickshaw and van driving.

3.3. Access to basic needs

Financial hardship hampers the access of the slum dwellers to their basic needs. Lack of toilet facilities, unavailability of safe drinking water, and poor housing conditions are identified as the core problems for slum dwellers. Besides, lack of access to utilities and bad drainage systems also hinder the coming of better life of the slum dweller.

Vodra Lake Basti, one of the sample slums in this study, is located on government land owned by Bangladesh Railway. Since the land is not involved in any operations related to railway services, Bangladesh Railway allows the dwellers to stay. However, no permanent construction is allowed on this land. As a result, the sanitation system of this slum has not been improved yet, even the NGOs, for instance, ACD, are willing to support the construction of toilets.

3.4. Status of women and children migrants

Women and children migrants living in the slums are subject to differential services. While females have access to some forms of financial and technical support from various NGOs, males do not have access to such facilities. A limited number of women also have access to microcredit and old-age allowances. Children of slums are barely enrolled in the formal education system. Also, the informal education supported by NGOs is very limited. Many of them were scrap collectors.

Table 1
Reasons for climate-induced migration of slum dwellers in Rajshahi City.

Reason for migration			Number of respondents (*n*)
Climate driver	Climate process	Food insecurity	43
		Riverbank erosion	6
	Climate event	Flood	20
Non-climate driver	Lack of alternative livelihood		39
	Intension to improve the standard of living		7

Table 2
Profession of the climate migrants of Rajshahi City.

Profession	Number of respondents (*n*)
Scrap collector	12
Van and rickshaw puller	12
Maid	11
Beggar	9
Day labor	6
Small vendor	5
Farm labor	5
Other occupations	8
The unemployed	1

4. Discussion

Moving to cities brings some benefits to the internal migrants in the form of colorful city life, though not easy to survive compared to the apparent dull rural living. Climate migrants in Rajshahi started to search for alternative residences in the early 1990s; and at the beginning of the new millennia, the number of climate migrants increased. Non-climate drivers like financial and social capital insufficiency have been identified among the drivers of climate-induced migration in general, along with the pull factors like better pay (Martin et al., 2013). In addition to this argument, our investigation identified the lack of alternative livelihood and intention to improve the living standard as non-climate drivers of migration; this finding also supports the arguments of Martin et al. (2013) and Stojanov et al. (2016). With regard to the climate process, riverbank erosion is historically observed in Bangladesh, and for many years people migrated due to loss of land and residence. However, in the earlier time, it was not attributed to the climate process. The same is true for food insecurity, at least for the north and northwestern drought-prone areas in Bangladesh, and flood.

Many of these problems may be solved if the financial condition of the migrant family improves. Uddin (2018) pointed out that the livelihood options for climate migrants somehow have increased, and migration seems useful in terms of getting food through income-generating activities, but better pay may not be ensured for city slum dwellers. Our investigation has also found that the change in income level is very insignificant and inadequate. In some cases, livelihood has not been improved compared to the pre-migration situation. Financial hardship still hinders children from attending school. Bad sanitation conditions and insufficient safe drinking water are the reasons for different types of illnesses. Women and girls are particularly prone to unhygienic sanitation. The ongoing COVID-19 pandemic has worsened the situation, livelihood has become more challenging for dwellers under the pandemic.

Giri et al. (2021) suggested that livelihood diversification, improved infrastructure, more health facilities and social capital, and support from the local government may facilitate better adaptation of climate migrants in the slums. However, policy development to facilitate the adaptive capacity of migration has been identified as a critical challenge to government (Martin et al., 2013; Ahsan, 2019). Besides arranging places to accommodate migrants in the urban slums, the national policy documents and subsequent implementation plans require substantial improvements to link climate change, migration, and inclusive development. Bangladesh's national development plan has found that it is an arduous challenge to accommodate lots of climate migrants and the uncontrolled pace of population growth in the urban settlements (Park, 1928; Ahsan, 2019). The challenge may be reduced by designing strategies that address slum socio-ecology and the adaptive capacity of slum dwellers (Pandey et al., 2018). City administrations in other countries where slums are common for obvious reasons can take into account the results obtained from this study. Policymakers should take measures including registering the slum dwellers in a central database to ensure their education and healthcare services.

5. Conclusions

Both international and regional migrations have attracted numerous researchers across the globe. Yet, research about internal migration is limited, particularly in the drought-prone area of Bangladesh. This study evaluated climate-induced migration in Rajshahi City based on the responses of 50 residents living in two slums by a semi-structured questionnaire survey. This study has found that people from the north prefer to migrate with family. To the climate drivers of migration, food insecurity is the primary reason for migration, followed by floods. Although people migrate with some hopes, the post-displacement living standard is disappointing due to the lack of sanitation, poor infrastructure, as well as lack of work and education opportunities. Innovative and inclusive policies are expected to address the sustainable living of the climate migrants in urban settlements and slums.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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References

Afsana, K., Wahid, S.S., 2013. Health care for poor people in the urban slums of Bangladesh. Lancet 382 (9910), 2049–2051.

Ahsan, R., 2019. Climate-induced migration: impacts on social structures and justice in Bangladesh. S. Asia Res. 39 (2), 184–201.

Alam, M.Z., Rahman, M.A., Al Firoz, M.A., 2013. Water supply and sanitation facilities in urban slums: a case study of Rajshahi City Corporation slums. Am. J. Civ. Eng. Architect. 1 (1), 1–6.

Al Mamun, M.A., Rahman, S.M., Uddin, M.N., et al., 2021. Rainfall and drought tendencies in Rajshahi division, Bangladesh. Geogr. Environ. Sustain. 14 (1), 209–218.

Castellano, R., Dolšak, N., Prakash, A., 2021. Willingness to help climate migrants: a survey experiment in the Korail slum of Dhaka, Bangladesh. PLoS One 16 (4), e0249315. https://doi.org/10.1371/journal.pone.0249315.

Chen, J., Mueller, V., 2018. Coastal climate change, soil salinity and human migration in Bangladesh. Nat. Clim. Change 8 (11), 981–985.

Davis, K.F., Bhattachan, A., D'Odorico, P., et al., 2018. A universal model for predicting human migration under climate change: examining future sea level rise in Bangladesh. Environ. Res. Lett. 13 (6), 064030. https://doi.org/10.1088/1748-9326/aac4d4.

Giri, M., Bista, G., Singh, P.K., et al., 2021. Climate change vulnerability assessment of urban informal settlers in Nepal, a least developed country. J. Clean. Prod. 307, 127213. https://doi.org/10.1016/j.jclepro.2021.127213.

Hassani-Mahmooei, B., Parris, B.W., 2012. Climate change and internal migration patterns in Bangladesh: an agent-based model. Environ. Dev. Econ. 17 (6), 763–780.

Hossain, M.S., 2021. Exploring the architectural dimensions of vulnerability: a case of the participatory upgradation in informal settlement at Talaimari, Rajshahi. J. Eng. Sci. 12 (2), 29–46.

IOM (International Organization for Migration), 2008. IOM Migration Research Series No. 31: Migration and Climate Change. IOM., Geneva, Switzerland.

IPCC (Intergovernmental Panel on Climate Change), 2007. Climate Change 2007: Impacts, Adaptation and Vulnerability [2022-02-05]. https://www.globalchange.gov/browse/reports/ipcc-climate-change-2007-impacts-adaptation-and-vulnerability.

Johnson, L.S., 2009. Environment, security and environmental refugees. J. Animal Environ. Law 1, 222–248.

Kolstad, I., Bezu, S., Lujala, P., et al., 2019. Does changing the narrative improve host community attitudes to climate migrants? Experimental evidence from Bangladesh. In: Chr. Michelsen Institute (CMI) Working Paper 2019: 3. CMI. Bergen, Norway.

Martin, M., Kang, Y.H., Billah, M., et al., 2013. Policy Analysis: Climate Change and Migration Bangladesh [2022-09-19]. http://www.migratingoutofpoverty.org/files/file.php?name=wp4-ccrm-b-policy.pdf&site=354.

Myers, N., 1993. Environmental refugees in a globally warmed world. Bioscience 43 (11), 752–761.

Naser, M.M., Swapan, M.S.H., Ahsan, R., et al., 2019. Climate change, migration and human rights in Bangladesh: perspectives on governance. Asia Pac. Viewp. 60 (2), 175–190.

Pandey, R., Alatalo, J.M., Thapliyal, K., et al., 2018. Climate change vulnerability in urban slum communities: investigating household adaptation and decision-making capacity in the Indian Himalaya. Ecol. Indicat. 90, 379–391.

Park, R.E., 1928. Human migration and the marginal man. Am. J. Sociol. 33 (6), 881–893.

Rahaman, M.A., Rahman, M.M., Bahauddin, K.M., et al., 2018. Health disorder of climate migrants in Khulna City: an urban slum perspective. Int. Migrat. 56 (5), 42–55.

Rana, M.M.P., Ilina, I.N., 2021. Climate change and migration impacts on cities: lessons from Bangladesh. Environmental Challenges 5, 100242. https://doi.org/10.1016/j.envc.2021.100242.

Rigaud, K.K., de Sherbinin, A., Jones, B., et al., 2018. Groundswell: Preparing for Internal Climate Migration. World Bank, Washington D.C., pp. 21–25

Sahu, S.K., Beig, G., Parkhi, N., 2015. High resolution emission inventory of NOx and CO for mega city Delhi, India. Aerosol Air Qual. Res. 15 (3), 1137–1144.

Smith, J.A., Flowers, P., Larkin, M., 2009. Interpretative Phenomenological Analysis: Theory, Method and Research. SAGE, London, 2–3.

Smith, J.A., Osborn, M., 2015. Interpretative phenomenological analysis as a useful methodology for research on the lived experience of pain. Brit. J. Pain 9 (1), 41–83.

Stojanov, R., Kelman, I., Ullah, A.K.M.A., et al., 2016. Local expert perceptions of migration as a climate change adaptation in Bangladesh. Sustainability 8 (12), 1223. https://doi.org/10.3390/su8121223.

Uddin, N., 2018. Assessing urban sustainability of slum settlements in Bangladesh: evidence from Chittagong city. J. Urban Manag. 7 (1), 32–42.

URBAN LEDS (Urban Low Emission Development Strategies), 2020. GHG Emissions Baselines Established in Model Cities of Narayanganj and Rajshahi with Urban-LEDS II Support [2022-02-08]. https://urban-leds.org/ghg-emissions-baselines-established-in-model-cities-of-narayanganj-and-rajshahi-with-urban-leds-ii-support/.

World Bank, 2021. Urban Population (% of Total Population)—Bangladesh. United Nations Population Division. World Urbanization Prospects: 2018 Revison. [2022-02-02]. https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS?end=2020&locations=BD&start=1960&view=chart.