



Assessing the Disaster Induced Migration and Displacement in the South-west of Bangladesh

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Abstract

Climate change has become a major concern for the international community. It has great impact on human migration and displacement. The objective of this study was to know the number of migrants in coastal districts of Bangladesh. The study was conducted in nine southwest districts of Barishal and Khulna division. The research results are based on field surveys, focus group discussion with local people; data from DC office of the respective districts and secondary data from different sources, which were conducted from February to March, 2020 in selected southwest coastal districts of Bangladesh. The study identified the number of human migration and displacement due to different extreme climatic events like riverbank erosion, cyclone and storm surge, flood and salinity intrusion. The study also found that migration and displacement due to disasters is higher in Barishal division than that of Khulna division.

Key words: Disaster, Displacement, Migration, South-west Bangladesh

Introduction

The phenomenon of climate change and global warming has drawn the attention of all environmental scientists and researchers. Because of the increasing trend of the temperature, the melting of Arctic ice has accelerated the level of sea water and the incidence of flood, heat waves as signs of climate change have caused many economic and social problems (Narimisa, 2018), besides, reduction in precipitation authorized droughts in many parts of the world. Climate change and its adverse consequences are likely to be experienced at global scale but poor and developing countries are particularly vulnerable during this regard due to their lack of technical capacity to adapt with their high dependence on agriculture which is probably going to be most suffering from global climate change (IOM, 2008). Bangladesh is taken into account together of the foremost vulnerable countries in global climate risk index during 1993-2012 (Kreft and Eckstein, 2013). It's also considered the foremost prone to cyclones and also the sixth most susceptible to floods in terms of risk to population (Pelling *et al.*, 2004), and also the third most susceptible to water level rise (Pender, 2008). Among the 64 districts in Bangladesh, 19 are the coastal areas. Moreover, 28 percent of the overall population of Bangladesh (Mallick, 2011) are making Bangladesh one among the highest ten countries in terms of individuals living within the coastal zone (Pender, 2008). Human migration and displacement as a result of climate change is not a new phenomenon. The relation between environmental vulnerabilities and climate change caused by human activities has now been well demonstrated (IPCC, 2007). Thus, the human induced activities on the environment and climate is evolving a new kind of global casualty for the 21st century (Myers, 1997), an arising class of climate migrants (Conisbee and Simms, 2003). The Intergovernmental Panel on Climate Change (IPCC, 2007) has already brought up the effects of climate change on human migration and displacement as one of the greatest ones.

Climate change is a burning issue now-a-days, as the planet's climate has constantly been changing over geological time, with significant fluctuations of global average temperatures. However, this current period of warming is occurring more rapidly than any past events and this rapid rise is a problem because it's changing our climate at a rate that is too fast for living things to adapt to. Climate change involves not only rising temperatures, but also extreme weather events, rising sea levels that work as climatic drivers helping in shifting populations to different places. Sea level rise, flood, drought, cyclone, storm surge, saline intrusion in coastal farmlands, water logging, river and coastal erosion are some of the major environmental challenges that Bangladesh face due to global climate change (Siddiqui *et al.*, 2018). According to the United Nations High Commissioner for Refugees (UNHCR) in 2010 about 42 million people around the world were forced to flee their homes because of natural disasters. In the last three decades, Bangladesh has experienced six devastating floods, when 45 million and 30 million people were displaced respectively due to the floods of 1988 and 1998 (Shamsuddoha *et al.*, 2012). Meanwhile, more than 1,000,000 people are losing their houses due to riverbank erosion each year within the country (RMMRU, 2007). This study presents the real scenario of human migration, displacement in southeast districts of Bangladesh.

Methodology

The research is based on both primary data collected through household survey and secondary data from different sources. Total 285 households have been surveyed from January to February, 2020. After collecting the data, GIS and Microsoft excel have been used to analyze the collected primary data.

Study area

The coastal zone of Bangladesh is regularly affected by different disasters – both natural and man-made. The major disasters that affect coastal regions include

floods, cyclones, storms, drought, river erosion, arsenic contamination of ground water sources and environmental pollution (DMB, 2010). A total of 19 districts out of 64 are defined as coastal districts by the government of Bangladesh. This study focuses on nine of them, namely Khulna, Bagerhat, Satkhira districts from Khulna Division and Barishal, Patuakhali, Bhola, Barguna, Jhalokati and Pirojpur districts from Barishal Division.

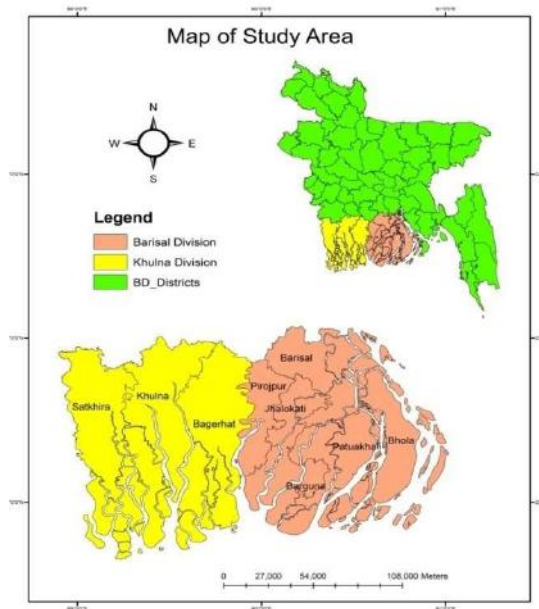


Fig. 1. Study area

Results and Discussion

Bangladesh is additionally among the poorest and most low-lying coastal countries within the world. Higher population density increases vulnerability to global climate change because more people are exposed to risk and opportunities for migration within a rustic are limited. The country consists largely of low lying areas lands but sea-level above water level (World Bank, 2009). Besides, Bay of Bengal is the biggest reason for most of the global climate change impacts in Bangladesh. The Bay of Bengal is the source of storm surges, tropical cyclones, coastal erosion, monsoon wind, rainfall, floods, and droughts (World Bank, 2009). However, movement of population due to climate stresses like drought and floods isn't new. Further, there are several studies available on the relation between drought and migration (Haug, 2002, Meze-Hausken, 2004; Henry, 2004) and cyclones and migration (Smith and McCarthy, 1996) emphasizing the role environmental degradation and natural disasters can play in inducing people to migrate.

Causes of migration in Bangladesh

The process of migration is usually influenced by a combination of push-pull factors. People migrate from one place to other cities and towns because they are attracted by livelihood opportunities. Different diversified livelihood opportunities can be found by the migrated population with various incomes in the towns and cities.

Figure 2 presents different causes of migration in Bangladesh. In 2011 the maximum 38.7% of internal migration took place due to marriage. Migration for natural calamities was only 2.1% in 2011.

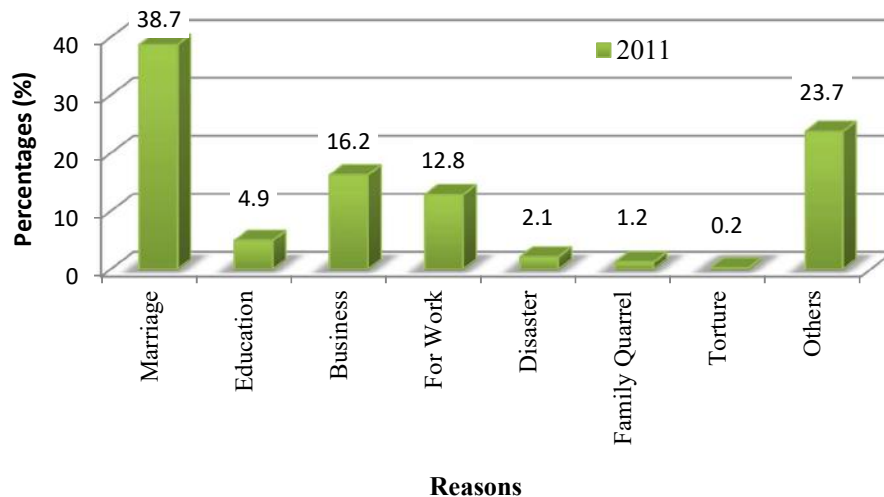


Fig. 2. Different causes of migration in Bangladesh

New displacement in recent years in Bangladesh

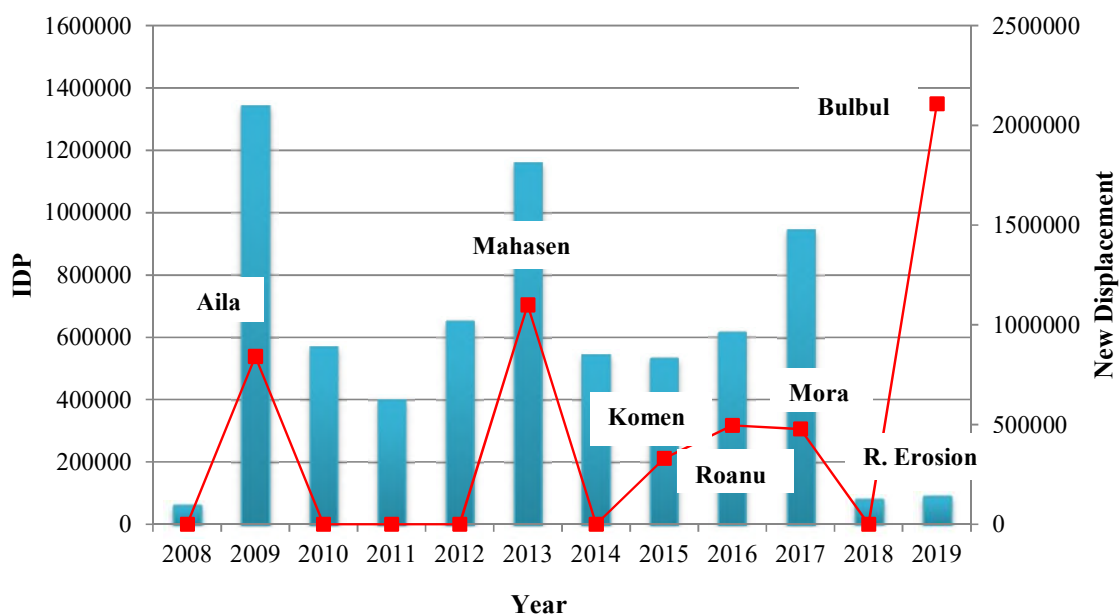


Fig. 3. Disaster induced displacements in recent years in Bangladesh

Figure 3 shows data on internally displaced people (IDP) in Y1 axis and new displacements in Y2 axis in recent years in Bangladesh due to different extreme climatic events. This data has been collected from Internal Displacement Monitoring Center (IDMC) web page, updated in every year after a disaster. According to this figure 2, Bangladesh had most internally displaced people in 2009; whereas, minimum and maximum new displacement took place during Riverbank erosion in Bagerhat in 2018 and cyclone Bulbul in 2019 was 17 and 2106918, respectively. Bangladesh is geologically vulnerable to natural calamities and faces different types of disasters like

cyclone, flash flood, landslide, flood, riverbank erosion etc. Due to its deltaic shape, Bangladesh experiences cyclone every year like Aila (2009), Mahasen (2013), Komen (2015), Roanu (2016), Mora (2017), Bulbul (2019) and Fani (2019) along with storm surge making more people displaced at a time. So, it is clear from this figure that people became displaced more in tropical cyclones than other events.

Beside the official data, household survey in some places were conducted for selected districts to know the climatic events that forced people to migrate, where most of the people were displaced or migrated due to different types of disasters.

Table 1. Migrated and displaced people in the study sites due to different disasters

Place Name with District	Flood (%)	Cyclone (%)	Storm Surge (%)	Salinity (%)	Coastal Erosion (%)
Muradia (Patuakhli)	0	14.3	28.6	0	57.1
Hiran Nagar (Barishal)	0	0	7.8	0	92.8
Stadium Colony (Barishal)	7.1	2.1	12.2	0	78.6
Gabura (Satkhira)	0	13.1	17.4	30.4	39.1
Daulatkhan (Bhola)	0	2.9	0	0	97.1
Railway Slum (Khulna)	9.1	27.3	0	42.4	21.2

Source: Household Survey in Bangladesh, 2020 (Each cell represents percentage of total number of responses)

Table 1 shows area-wise environmental vulnerabilities that influenced migration and displacement of people. In these areas the highest influential disaster was coastal erosion that migrated people, except Railway

slum in Khulna, where salinity affected people were highest in number. Meanwhile, the impacts of flood, cyclone, and storm surge and salinity intrusion on people were different in surveyed areas.

Table 2. Lifetime migration from district to district

District	Total Population	Living within Zila (%)	Number of Migrants to other Zila	Migration for Natural Calamities (2.1% of total migrants)
Barguna	892129	95.4	40913	860
Barishal	2347223	96.3	86047	1807
Bhola	1822125	99	18280	384
Jhalokati	680589	93.5	44182	928
Patuakhali	1624619	97.6	38681	812
Pirojpur	1122791	95.4	51756	1087
Khulna	2301947	86.2	316454	6645
Bagerhat	1523667	94.2	87634	1850
Satkhira	2018217	97.9	42392	890

*District i.e. study sites have been used as Zila here

Table no 2 presents data on lifetime migration from birth district to another district due to different extreme climatic events in selected study areas based on Socio-Economic and Demographic Report 2011. Data on living within own district have been sorted and calculated the number of migrants to other district. Besides, migration rate for natural calamities 2.1% has been picked to show the disaster induced migration from district to district migration. In this report, zila (district) had been considered as domain. Thus it had been subjected to migration only when people had moved out of their own birth district. According to this report, above 90% people live within their birth district in the most of the study areas. The minimum and maximum number of migrants leaving their own district is in Khulna and Bhola with 316454 and 18280 respectively. A considerable number of people have migrated from most of the selected districts to other places. Among all migrants, only 2.1% became refugees after being affected by natural calamities that was minimal in the comparison with other causes like marriage, education, business has been shown separately in figure 2.

Lifetime migration from their own birth district to other districts has been mapped and represented in figure no 4. In this figure migration density has been classified into six different colored categories with 1100 range each. It is clearly presented that Khulna district had maximum number of climate migrants who left their own district and settled them in other districts, which is 6645 people. On the other hand, Bhola had only 384 migrants. Most of the districts had medium level of life time migration ranging from 1500 to 2600.

District wise migrants in last five years in Bangladesh

For the purpose of this study some secondary data have been derived from Bangladesh Sample Vital Statistics from 2014-2018 by Bangladesh Bureau of Statistics. In-migration and out-migration rate per 1000 along with the overall migration rate due to disaster have been shown in table 3.

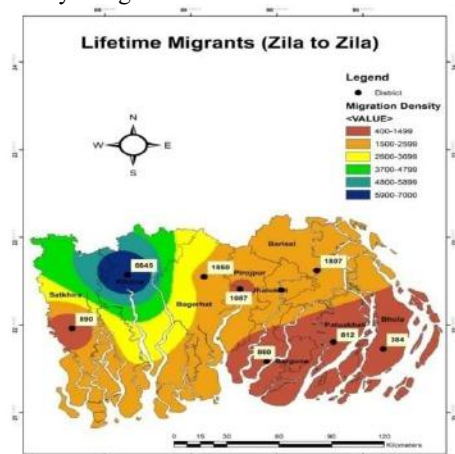


Fig. 4. Map of lifetime migrants from district to district

Table 3. District wise migration rate from 2014 to 2018

Year	Division	Barishal		Khulna		Percentage of disaster induced migrants (%)	
		Migration rate per 1000		Migration rate per 1000			
		In	Out	In	out	In	Out
2014		37.5	34.3	36.0	34.8	3.4	2.8
2015		56.1	55.3	56.0	55.1	1.7	2.0
2016		95.0	93.9	80.9	81.1	1.6	1.8
2017		115.3	109.3	79.6	72.3	1.5	2.0
2018		95.0	76.7	60.9	55.7	1.2	1.4

Table 3 shows the comparison of migration rate from 2014 to 2018. By analyzing the figure, it is clear that there are a lot of differences among the migration rate of Bangladesh Sample Vital Statistics data of last five years. The maximum and minimum in-migration and out-migration rates of Barishal division were in 2017 and 2014, respectively. On the other hand, the

maximum and minimum in-migration and out-migration rates of Khulna division were in 2016 and 2014, respectively. Along with that, the overall maximum and minimum disaster induced percentages of in-migration and out-migration were in 2014 and 2018, accordingly.

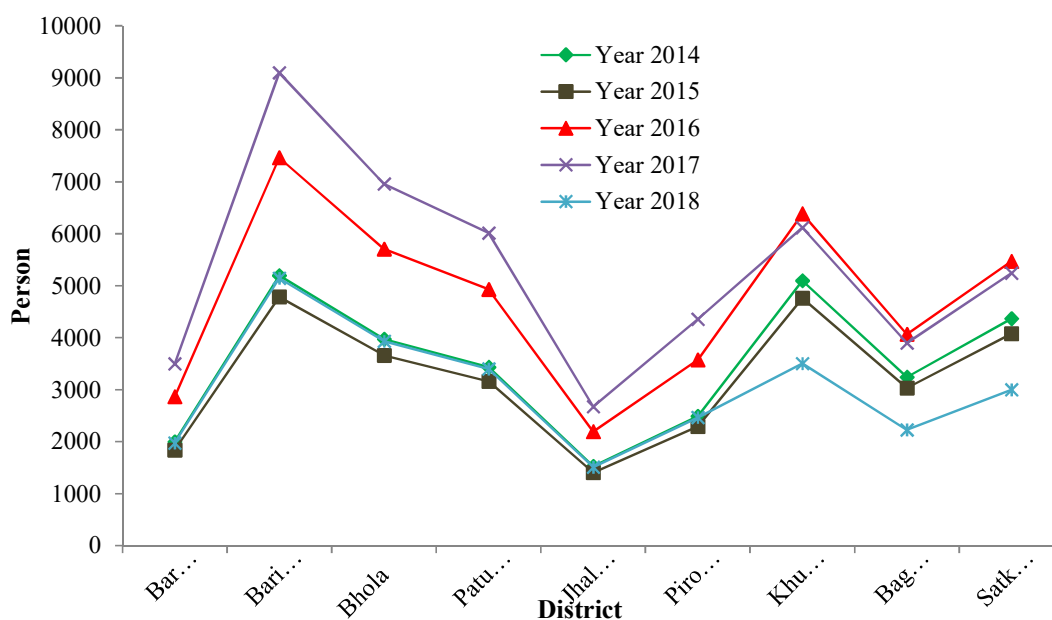


Fig. 5. Year wise disaster induced migrants in Bangladesh

Figure no 5 presents data on the number of migrants in selected districts from 2014 to 2018 according to Bangladesh Sample Vital Statistics and Population and Housing Census, 2011. Yearwise disaster induced migration for all study sites have been calculated as per district wise in-migration and out-migration rates have already been shown in table 3. Maximum migrants among all districts in five years were 9101 in Barishal in 2017 and minimum in Jhalokati with 1406 migrants in 2015. In this figure, the lines have been plotted according to maximum migrants to minimum migrants.

District wise migration in 2020 in south-west of Bangladesh

Beside the secondary data, DC office of the respective districts provided data on ‘Ashrayan’ and ‘Gucchagram’ project that provided shelter for the disaster convinced migrants and displaced people. In Barishal division, about 97105 and in Khulna division about 16000 people were forced by different extreme climatic events to migrate from their own house and land (table 1). Health, hygiene and sanitation facilities in both embankments and urban slums are extremely poor. Young and adolescent girls and children are particularly vulnerable to different forms of harassment. In all these areas government has developed some resettlement sites such as *Ashrayan and Gucchagram* (Siddiqui *et al.*, 2018). In the

resettlement sites the living arrangement is much better compared to that of the embankment. Security

concerns are also less for the family members.

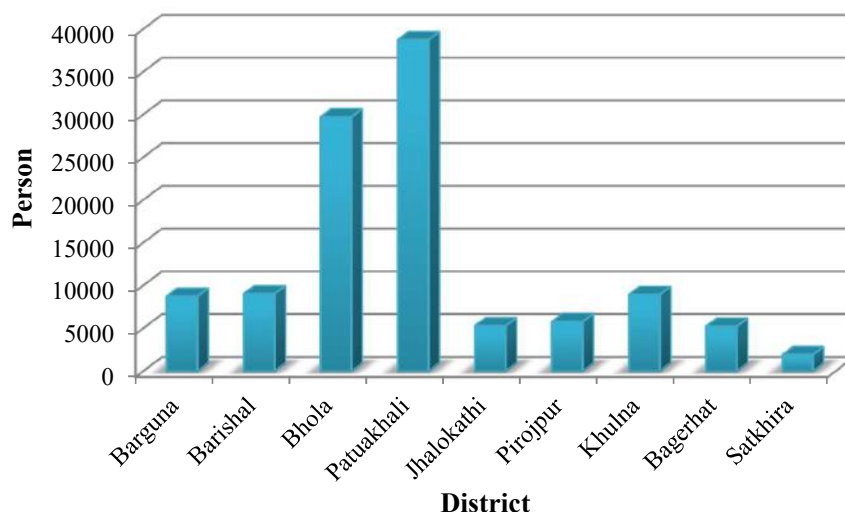


Fig. 6. District wise migrants in Bangladesh (2020)

Source: DC office of the respective districts

Figure 6 shows data on migration in coastal districts depending on survey conducted in Deputy Commissioner Office in every selected district. In each district data on “Ashrayan Project by Prime Minister” was collected from January to February 2020, where number of migrant families was mentioned. On an average five members have been assumed in every family. Data has been collected and plotted district wise in figure 6. From the collected data, Patuakhali has the highest number of migration among all districts (38715) and Satkhira has the lowest number of migration. Except Bhola rests of the districts have migrants less than 10000. This figure clearly shows

that, Ashrayan Project allocated more shelters in Barishal division than that of the districts of Khulna division.

District wise disaster affected slum dwellers in coastal areas

Migration in slum is an important factor that influences growth and re-distribution of population and resources. Slum dwellers generally came to slums of urban areas because of practical reasons. Among all slums, 5.69% and 3.4% people came in Barishal and Khulna city, respectively after being affected by different disasters.

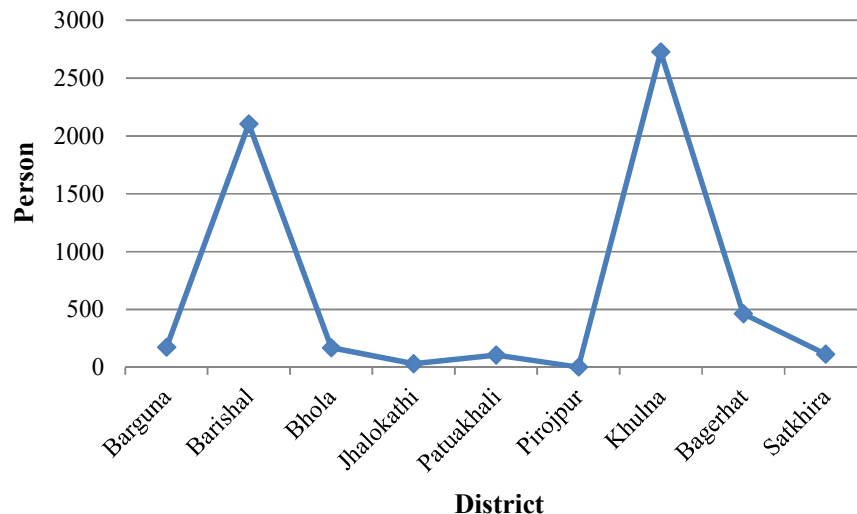


Fig. 7. District wise disaster affected slum dwellers in Bangladesh

Figure 7 shows district-wise number of slum dwellers who came to the slums after being affected by different disasters. This figure was prepared by collecting and analyzing data on “Census of Slum Areas and Floating

Population, 2014” under the instruction of Bangladesh Bureau of Statistics (BBS, 2011). From this figure, it is clear that Khulna and Barishal had maximum number of slum dwellers coming to slums being affected by

natural calamities which was 2726 and 2104 respectively. On the other hand, only 3 and 31 people came to the slums of Pirojpur and Jhalokati as disaster affected victims. Besides, the rest of the districts had population less than 200, except Bagerhat (465).

Conclusions

It is evident that climate change is contributing to increasing the frequency and intensity of natural calamities in Bangladesh that have consequences in terms of human migration and mobility. The study has discussed different natural calamities such as floods, riverbank erosion, tropical cyclones, salinity and storm surge affected people who were forced to migrate. It has been found from household survey that, coastal erosion and flood have forced maximum and minimum number of people to migrate respectively. The study has also assessed the present migration condition using sorted data from primary and secondary sources. Data from 2014 to 2018 were taken from Bangladesh Sample Vital Statistics and analyzed as per objectives of this study. By analyzing data from 2014 to 2018, the highest number of migrants has been found in Barishal in 2017 and the lowest one was in Jhalokati in 2015. On the other hand, maximum and minimum number of people migrated in Patuakhiland Satkhira, respectively in 2020 that is based on onsite collected data. Whereas in case of in-migration in slums, the number of disaster affected slum dwellers in Khulna city is higher than Barishal city, though percentage of disaster affected migrants is higher in Barishal. From this study, it is clear that migration in Barishal division surpassed that of Khulna division.

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