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Climate Change and Uncharted Social Challenge in Existing Urban Setup in Bangladesh

Reazul Ahsan

Abstract

The impact of extreme climate events on human settlements has been startling, demonstrated by events such as Hurricane Katrina in the USA, Cyclone Nargis in Myanmar and Cyclones Sidr and Aila in Bangladesh. People, particularly those living in vulnerable coastal zones, face forced displacement due to such extreme climate events and need to search for alternative livelihoods. In most cases they ended up in nearest cities for income and livelihoods. Bangladesh represents a region where a complex set of climate-driven outcomes is already evident, as land is inundated, and populations migrate in large numbers in search of livelihoods. Using the region as an example, this research examines climate change impacts ranging from the primary impacts on natural systems, through secondary population displacement and migration, to the eventual outcomes of rapid urbanisation and urban poor. Tertiary impacts are defined as social changes in the urban system and deprivation of social justice for those migrants. The scope of this paper is to understand the issues and challenges associated with climate-induced displacement and policy applications to ensure social justice for those migrant communities.

Keywords: climate migration, urbanisation, impact levels, social changes, change of urban system

1. Introduction

The concept of climate change is understood as a gradual change in global physical conditions, encompassing changes in air and sea temperatures, sea level rise, changes in precipitation levels and seasonal climate variations [1]. Such changes, often manifested dramatically as sudden violent storms, are considered long-term processes with added latent risk factors. Their impacts are likely to undermine the essentials of human lives and social systems. These essentials include safe access to food, fresh water, health, home, land and employment. In current world it has been evidenced that human action is the greatest triggering force for global climate change trend. Therefore, onus is on us to identify the likely changes and to deal with the consequences. Expected climate changes are no longer limited within our scientific understanding, such as change of temperature and precipitation levels but also has long term social impacts which could also be addressed as slow-onset impact of climate change. Rising sea levels are believed to further increase the multiple risks from extreme climate events, including cyclones and frequent and prolonged floods, tidal surges and increasing salinity intrusion [2].

Increasing sudden-onset natural hazards will result in substantial human displacement from different parts of the world by 2050, who will be known as climate migrants or climate refugee [3–5]. The IPCC Fourth Assessment Report [6] addresses natural hazards and resulting forced migration, suggesting such development could move migration to a new magnitude. In early 2008, another 15 million people in Sichuan, China, and 2.4 million in Myanmar were displaced because of natural disasters [7–8]. It is widely predicted that this will increase poverty and provoke a crisis in fresh water supply, shelter, food and energy, leading to socioeconomic disparity and playing a pivotal role in significant changes to social justice.

Urban slums are usually the first destination for displaced people. Approximately 1 billion people live in urban slums; another 50 million are likely to be displaced by climate factors and will add to urban slum populations in Asia, Africa and Latin America [9]. Here they have limited access to employment, water, shelter, sanitation and basic amenities. Often, such forced displacement trades physical safety for the basic human rights these people have previously enjoyed – namely, the right to development and the right to live in their own society and culture – until a point where survival is at stake [10].

Among different social and economic adaptation approaches, involuntary migration is notable, especially for vulnerable coastal communities in the developing world [11]. Parvin and Shaw [12] also noted that climate migrants are usually poor, locating themselves in congested inner-city areas for easier access to jobs or on the urban fringes because of lower rents. Such unplanned and largely illegal and certainly perilous land occupancy changes urban land-uses, extending uncontrolled urban peripheral growth and increasing urban poverty and poor quality of living standard. Socioeconomic inequalities are increasing in urban areas. Migrants who have lost almost everything due to climate change can become trapped in a downward spiral of urban poverty in their migration destination and become a social threat.

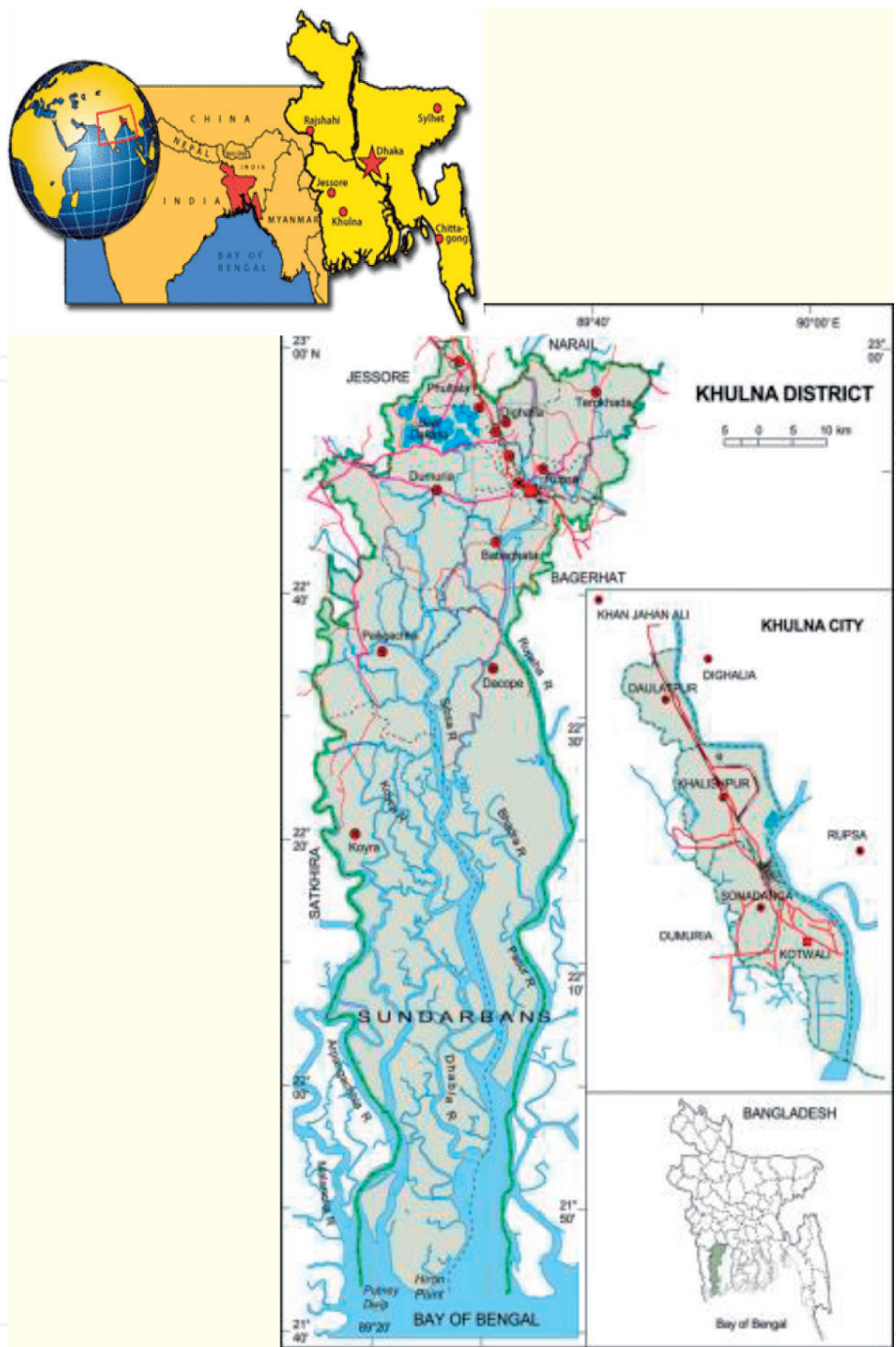
This study explores climate change as a potential trigger of new social challenge in existing urban setup and it is become a challenge for those vulnerable marginal communities, using Bangladesh as a case study. Bangladesh is a low-lying coastal zone, where internal migration has long served as an adaptive strategy, but where climate adaptation is seldom addressed in development policy.

2. Research design

South coast region of Bangladesh is home to 35 million people at a density of 738 persons/km². It is also projected that by 2050 total population would be 40–50 million in the same area [13]. These coastal communities, mainly dependent on subsistence agriculture and fishing on the fertile plains along rivers and the coast, and they are the prime victims of extreme climate events. To gain a deeper understanding of climate migration and human life changes in Bangladesh, this study conducted a field investigation in Khulna, the capital city of south coast, with a jurisdiction of 4394.46 km² and a home for 3 million growing at 3.8% per annum [14].

Climate induced migrants are coming from the poor communities along the coastal areas have located themselves in the urban fringe and slums, where they seek cheap accommodation and unstable access to low-paid employment.

With the support of local and national NGOs – namely, ‘Pothikkrreith’ – a mass-scale dialogue session with audio-visual presentation on climate change and displacement was conducted with such residents, around 700 people in Khulna. From that mass-scale dialogue and participant list, 200 respondents were purposely chosen as the targeted community. These targeted people had all migrated or been displaced – due to cyclones, flash floods, river erosion or drought – from different



parts of the coastal districts, so that diversity could be reflected in the sample. Out of the 200 selected people, 100 respondents were then chosen through systematic random sampling, with every alternate person being chosen to provide answers to a questionnaire survey.

This research reflects the migrants' opinions about the challenges they face in an urban setting where they have very limited access to urban facilities and have encountered diminished social justice as an indirect impact of climate change, which has largely been overlooked under social crisis management strategies.

3. Climate change and Bangladesh

Bangladesh is located between 20°34'-26°-38' N and 88°01'-92°41' E. Bangladesh is bordered on the west, north and east by India, on the south-east by Myanmar and on the south by the Bay of Bengal [15]. The country is located at the unique juxtaposition of the composite, which makes Bangladesh highly exposed

and vulnerable to extreme climate events. The impacts of changing temperatures, level of precipitation, more extreme weather events and rising sea level are already felt in Bangladesh and will continue to intensify [16, 17]. For example, hundreds of thousands of lives have been lost in Bangladesh due to recent catastrophic cyclones, notably Cyclone Sidr in November 2007, which caused almost 4000 deaths. Moreover, the frequency of cyclones in Bangladesh has increased more than five times over the last three decades [16]. Following Sidr, Cyclone Aila hit the coast on 25 May 2009 and about half a million people lost their land, homestead and livelihoods and had no option but to sail for a new life to an unknown place. Large areas of productive farmland were rendered useless as a result of inundation and subsequent salinity and in other cases were permanently flooded, forcing residents to migrate.

In their search for alternative livelihoods, displaced communities generally opt for nearby urban destinations where they have opportunities to earn and livelihoods are perceived to be available. Hence, they can be labelled as climate migrants and are really a sub-category of internally displaced persons.

It is estimated that each year between 300,000 and 400,000 people migrate to the country’s capital to improve their economic prospects [18]. The poor internal migrants usually end up in the urban slums. The proportion of internal migration within urban slum areas varies, ranging from 53% in Dhaka (the capital) to 70% in Khulna and Rajshahi districts. The proportion of migrants is higher in the coastal belt districts because of extreme climate events including cyclones and frequent surges [19].

Figure 1 shows the number of natural disasters that have hit Bangladesh since 1993 and the total number of affected people. Concurrent natural disasters at high intensity have forced many victims to consider migration as their only viable adaptive response (data adapted from EM-DAT [20]).

Since 1993, almost every year the country gets affected with different natural disasters including flood, storms and cyclone. With high population density each disaster affects a huge number of population and that act as a natural push for displacement.

Figure 2 shows the migration trend and the underlying reasons for migration, based on results of a field survey of 100 heads of households who were identified as climate migrants.

Based on primary data, the largest numbers of migrants identified themselves as driven out by Cyclone Aila in May 2009, both by the cyclone itself and by subsequent salinity problems.

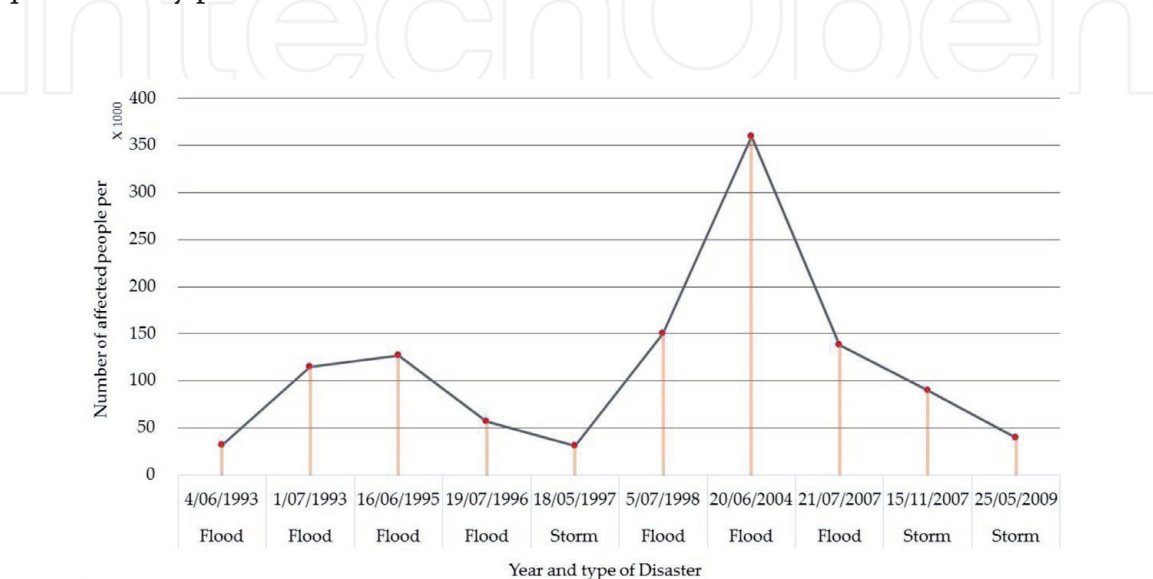


Figure 1.
Number of people affected by different natural disasters in Bangladesh since 1993.

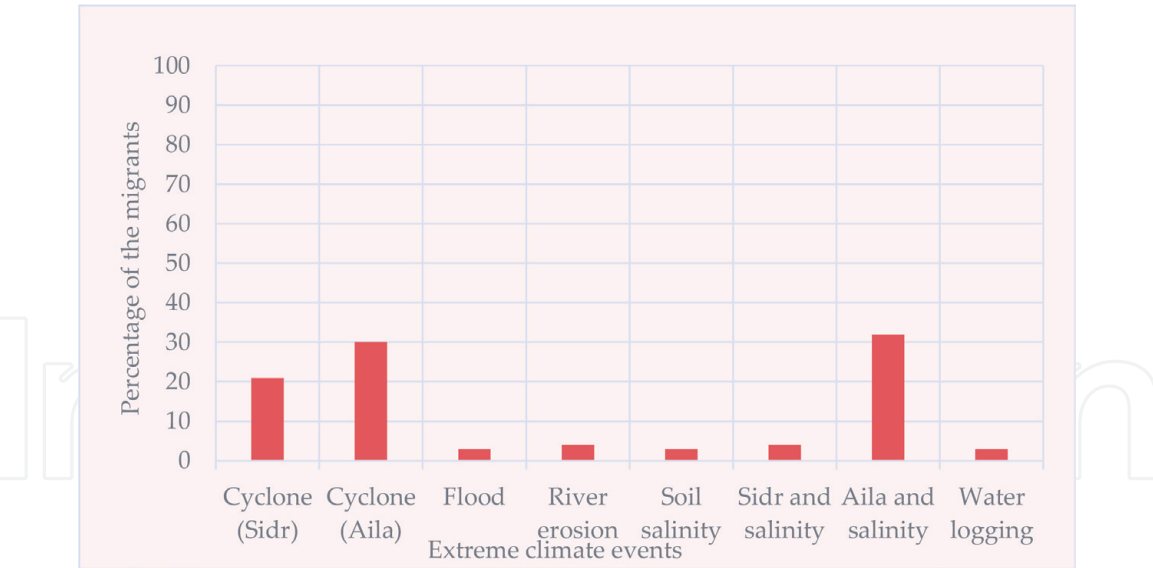


Figure 2.
Migration trend due to extreme climate events from 1980 to 2010 [21].

4. Climate migration and social changes

The suffering and hardship of the climate migrants is a never-ending challenge. They faced natural hardships and hazards at their point of origin, and these hardships do not end when they arrive at their urban destination. Here they experience multiple aspects of deprivation, which restrict their efforts to attain a decent standard of living. For example, more than 65% of residents in the urban slums of Khulna do not have any sanitation facilities, 45% of slum dwellers do not have any fixed place to dispose of their garbage, and 35% are outside the garbage collection system [22]. This increased influx of migrants, driven by extreme climate events, poses new burden for the existing urban services.

Concerning climate migration and social challenges, it was found that the migration destination offered them little or no improvement in their housing, as they could not afford the cost of formal housing. Few migrant households could gain access to established urban slums. However, a big number of the migrant communities have no alternatives but to established themselves as squatters in urban fringe areas, on marginal agricultural land, along rail corridors, next to the highway, or even in the natural drainage network, as well as in low-lying flood-prone areas and on river banks, using very informal construction materials. These various forms of informal settlements provided immediate shelter for some of those migrants but failed to ensure social security and justice for them in an urban setup. **Figure 3** shows the different land uses occupied by migrants in Khulna City, offering them some kind of shelter.

About half of the total respondents in Khulna located themselves in urban fringe areas. This urban fringe land has been preserved for further urban expansion or to support landless or homeless communities. **Figure 4** portrays the informal settlements/housing of those migrants in urban fringe.

This research demonstrated that climate actions not only forced migrants to find a new place of residence, but also forced them to accept any kind of low-paid occupation to survive in the urban areas. Migrant communities were forced to become involved with different and often new economic activities to support themselves. Since they often have no experience beyond farming or fishing, the city does not offer them many options. For example, most of the jobs available in urban areas are basic daily service jobs. Migrants lack job security and are particularly vulnerable as they might not get work every day. Migrants also often needed to work longer hours to meet the cost of living in the city.

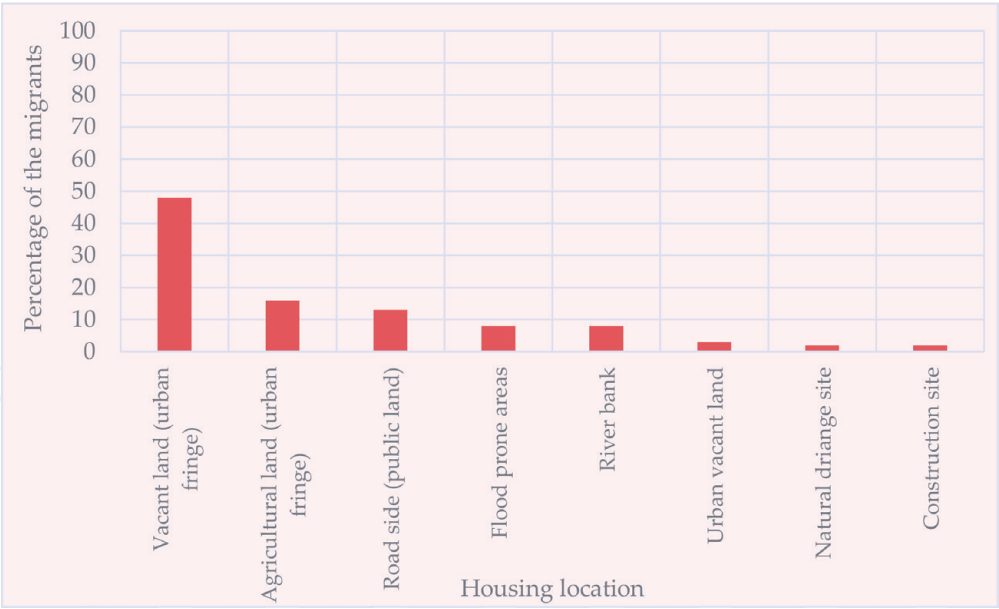


Figure 3.
Location of climate migrants in urban areas [21].

Table 1, showing the migrants’ occupation at their origin and their current occupation in the city since they migrated. Following table, clearly indicates they have little-option but to accept whatever work they can find in the city to survive, and in most cases, those are labor-intensive occupations, even for the women.

Table 1 indicates that almost half of the respondents working as a day labourer in the city were involved in different occupations at their place of origin. For example, they had been farmers, seasonal workers and small businessmen, but now forced to be a day labourer. Many of them have no experience about city life, earning and living style and standard in a complex urban system. That put them at the edge of vulnerability, when they are already displaced from their origin and vulnerable. Approximately 24 respondents were rickshaw pullers, and almost none of them had any previous experience in such labour-intensive jobs. Even the women who were housewives before migrating now forced to work as day labourers and domestic helpers to support their families to survive in the city. This change



Figure 4.
Typical informal settlements of migrant communities in urban fringe of Khulna [21].

Occupation at place of origin	Occupation at migration destination								
	Day labourer	Rickshaw puller	Petty business	Construction	Office	Van puller	Jobless	Housemaid	Total
Agriculture	11	4		1			2		18
Fisherman	8	2	2	1					13
Fishing business	8	7	4			1			20
Petty business	5	3	2	1	3				14
Land labourer	13	4		1		4			22
Housewife	1			1			1	1	4
Day labourer	3	3		2					8
Student		1							1
Total	49	24	8	7	3	5	3	1	100

Table 1.
Occupation of migrant household heads in urban areas compared to their previous occupation at their place of origin [21].

in economic status also affects social relations and self-esteem. The following case demonstrates how climate migration and occupational change can affect the social and family structures of migrant households.

Mariam is a 32-year-old woman who migrated with her husband and two boys from Kyora to Khulna due to Cyclone Aila. Mariam’s family decided to migrate as they had lost everything, including their home and agricultural land at their place of origin. Her husband was working as a day labourer, her 8-year-old son worked in a shop and her 4-year-old son stayed at home with her. Her husband’s and son’s incomes were not enough to pay rent and buy food in the city, as they did not get work every day. Therefore, her husband forced her to try to earn extra income, but she failed, as she had never been to the city and was not skilled enough to fit into the urban job market. As she failed to support her family, her husband divorced her. Now Mariam is living on the urban fringe with her 4-year-old son and is serving as a housemaid. Forced migration has made her earn an income but has taken away her family.

The lack of job security and opportunity or regular income for climate migrants in the informal sector has direct impacts on their household income.

The housing conditions of migrant are proportionate to their income and their access to urban facilities. They do not have access to established urban slums and minimum standard of life, like fresh water supply, sanitation and waste management. Therefore, they try to build their own place which is very informal in nature, mostly made of mud, hard plastic, cardboard, dry leaves and bamboo. None of these materials are formally used as construction materials. Houses or structures in the existing slums are constructed with similar materials and provide shelter for the urban poor and migrants but have very limited facilities such as access to clean water and toilets. **Figure 5** shows the typical condition of informal settlements of the migrants, which completely fail to meet the minimum standard of life of the residents.

The typical size of a slum house is 14 m² for a family of four. The average size of an individual squatter dwelling on urban public land and in fringe areas is 10 m², and occupants are always under threat of eviction either by the government or local musclemen, if they fail to pay the required tolls.



Figure 5.
Living standard and quality of life of the migrants [21].

In Khulna, climate migrants clustered on the urban fringe are highly exposed and remain vulnerable to floods and waterlogged soil. At the same time, complex urban governance systems have no options or policy strategies to recognise and support them with basic service facilities beyond their service jurisdiction. Therefore, migrants who are living in urban fringe and city coasts are deprived of access to these facilities and consequently are exposed to risks of an unhygienic and unhealthy life.

According to The Daily Star [23], Khulna WASA (Water Supply and Sewerage Authority) provided 90 million litres of water daily to meet the demand of 240 million litres per day – a daily shortage of about 150 million litres. The existing services are limited even to city residents, are uncommon in existing slum areas and are non-existent in the fringe areas. Tube wells are the main source of fresh water supply for migrants. Some migrants also use surface water, such as water from ponds, for everyday use, and obtain their drinking water from tube wells. **Figure 6** presents the various sources of water supply used for both drinking and domestic use by respondents.

More than 85 respondents obtained their drinking water from tube wells. For domestic use, most of the respondents used natural sources such as ponds, rivers and lakes. Those who were far from service facilities and could not afford a tube well had no choice but to drink from the natural sources such as ponds.

Climate migrants are considered an isolated community; they are not only deprived economically but also socially. They lose their dignity and cannot achieve a minimum standard of living at the migration destination. A ranking model has

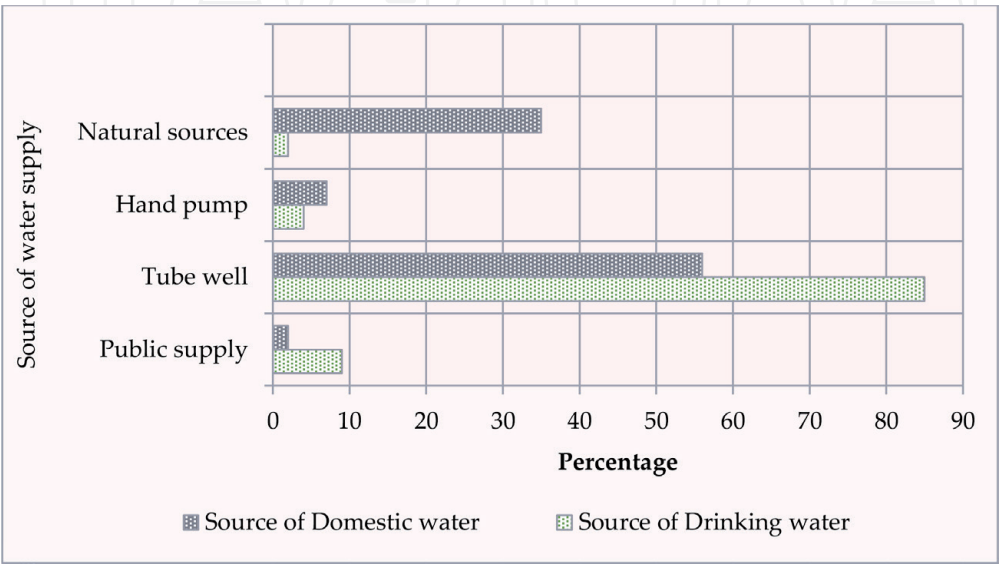


Figure 6.
Water supply facilities for respondents for drinking and domestic use [21].

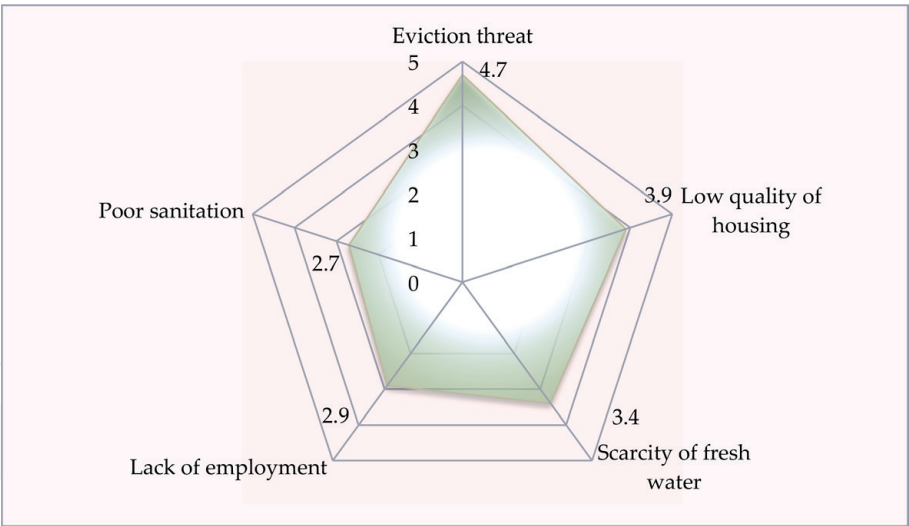


Figure 7.
Social challenges prioritised by the climate migrants in urban areas [21].

been used to understand the key challenges faced by the climate migrants in urban societies. In Khulna, a total of 46 respondents identified five different problems they faced as migrants and a 5-degree ranking model identified the challenges faced by the migrants in this new social context.

$$V = \left\{ \left(\frac{R_o}{R_t} \right) \times D_i \right\}. \tag{1}$$

here, V = value under the 5-degree scale; Ro = number of respondents; Rt = total number of respondents; and Di = 5, a value of common scale.

Figure 7 presents the outcomes of the ranking model. According to the model, ‘eviction threat’ was one of the main problems faced by the migrant communities, hence, it is ranked 4.4 under the 5-degree scale.

Most of the migrants are always afraid of eviction from their home, since they were occupying land without any land right or tenure ship. Though they were paying toll or protection money to the local leaders and muscleman, but that is not a formal land right. They know government could evict them without any notice and they would be on the road again.

Respondents also ranked housing quality as and living standard another key problem. Water supply, employment and sanitation facilities were ranked third, fourth and fifth, respectively, based on the respondents’ opinions under the 5-degree scale, as shown in **Figure 5**. In view of such clear-cut evidence of precarious living conditions, it is important to develop and design innovative and effective rights-based domestic solutions to climate displacement in Bangladesh.

5. Limitation to understand climate migration in urban governance

The Bangladesh Government introduced the first National Adaptation Programme of Action (NAPA) in 2005 to address climate change and a possible adaptation approach. However, NAPA treated migration as an undesirable outcome of climate change. Under the Programme of Action, Project No. 11 states: “Affected community would not migrate to cities for job and livelihood” [24] (p. 36), and “Social consequences of mass scale migration to cities would to some extent be halted” [24] (p. 36). Furthermore, internal migration due to climate change is addressed as a negative impact of livelihood in NAPA 2005 [25].

In 2008, the Bangladesh Climate Change Strategy and Action Plan (BCCSAP) was prepared to focus on long- and mid-term goals of NAPA. The revised BCCSAP 2009 documents predict that “hundreds of thousands of people” will be forced to migrate, especially from coastal zones, because of decreasing livelihood opportunities and lowering agricultural productivity. It estimates that globally 6–8 million people could be displaced by 2050 just because of climate change [25]. The slums in big cities have been referred to as a highly possible destination for those who migrate. Considering the fast and unplanned ongoing urbanisation in Bangladesh, this poses an impending problem [26]. Despite the acknowledgement of significant migration due to climate change, clear policy guidelines for migrants have not been addressed, neither in NAPA nor in BCCSAP. Also, there are no guidelines for the national and local government to face such long-term social consequences of climate change. It could be argued that the limitation of understanding about cumulative impacts of climate change on social and institutional systems and the lack of capacity to respond to cumulative impacts climate change (migration, change of social structure) are the main barriers to incorporating climate change adaptation within the mainstream development process.

According to the Climate Investment Fund [27], adaptation policies that can address all the different impact levels should have three major components: (i) a coordination between local and national levels in order to understand impacts and vulnerabilities, (ii) a participatory approach where a broad range of stakeholders are involved rather than a single line ministry from the national level, and finally, (iii) an ongoing implementation of the adaptation process. Climate migrants have limited options to be noticed by the policy makers. At the same time the policy makers have limited understanding to differentiate the climate migrants from the traditional economic migrants. Stakeholder participation where victims such as climate migrants can also be incorporated, as well as NGOs who can be the voice of the vulnerable communities, is important as it can help to explain how the adaptation process should be implemented case-by-case or at policy level.

The policy gap and lack of understanding of climate migration and its urban impacts is the key limitation of the government to address this emerging social challenge.

6. Conclusions

The Australia and Switzerland based International Organisation called Displacement Solutions [28] indicates “climate displacement in Bangladesh will only worsen as climate change increases the frequency of extreme natural hazards that are already leading to displacement across Bangladesh”. This research provides clear evidences in support of this statement. Climate events in Bangladesh induce forced migration from coastal areas towards urban areas. This research confirms that too little is being done in Bangladesh to address the negative socio-cultural and economic changes of such migration in urban areas. Furthermore, lack of active urban governance very limited initiatives has yet been taken by to ensure quality of life and social justice for those vulnerable communities. Those migrants suffer deprivation of basic rights—not because of some nasty state action, but following from adverse natural conditions, brought about by human actions [3]. TO address this proliferation social challenges and changes it is important to have a details climate risks reduction plan to cover such slow-onset impact of climate change and the rights of climate migrants. Climate migration is not an impossible problem to address, but it needs to be seen as more than increasing numbers of urban poor.

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