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INSIGHTS ON MIGRATION AMID CLIMATE CHANGE

Action Research conducted in the Southwest Coastal Belt of Bangladesh

Throughout its history, Bangladesh has frequently been affected by natural disasters, and its people have often been forced from their homes as a result. In recent years, however, both migration and displacement have become increasingly linked to changes in climate patterns.

To better understand these migration patterns and their impacts on local people's livelihoods, HELVETAS Swiss Intercooperation and Ovibashi Karmi Unnayan Program (OKUP) teamed up to conduct an Action Research in two disaster-prone districts, Khulna and Bagerhat, in the coastal belt of Bangladesh. Consisting of a primary survey in 2018 followed by a secondary survey in 2020, this action research is supplemented by five in-depth case studies that provide insights into the resulting individual struggles of women and men. Taken as a whole, this publication intends to widen the knowledge and evidentiary base surrounding the interrelatedness of climate change and migration¹.

The coastal belt of Bangladesh is one of the country's most disaster-prone areas, experiencing both slow and sudden onset disasters. It is also a densely populated region, with an estimated 14 million inhabitants, which corresponds to roughly 9% of Bangladesh's total population (Population Monograph of Bangladesh, 2015; BBS, 2018). This large population is also highly vulnerable due to their socio-economic situation, and when faced with increasing frequency and intensity of cyclones, storms, floods and salinity intrusion, the risks to people and their livelihoods, the local and national economy is large and growing disproportionately (SREX, 2012).

« Over the last twenty years, temporary migration has become more frequent. »

Recent scientific studies (Bhowmick, Uddin & Rahman, 2016; Haider & Hossain, 2013), substantiate our longstanding experience on the ground that a changing climate has reduced agricultural yields and narrowed the options for land- and water-based economic activities for people in Khulna and Bagerhat over the last 15 years. Two-thirds of those surveyed reported that Cyclones Sidr (2007), Nargis (2008), and /or Aila (2009) critically damaged their homes, crops and livestock, while also compromising their food security and ability to generate income. Increasingly salinized soil and water have had the most devastating long-term impacts, forcing people from all strata of society to look for opportunities outside their villages or districts.

Since 2000 – and especially since Cyclones Sidr (Nov. 2007) and Aila (May 2009) – temporary migration has become one of the only or least bad options for coping. Today, nearly 70% of households surveyed include at least one member who works outside the village. Over the last twenty years, temporary migration² has become **more frequent, longer in duration, and an increasingly recurrent coping strategy for a greater number of households in the two districts.**

Local, national and global policies offering sustainable solutions to the climate-migration nexus to the affected people are weak, in the rare cases that they exist at all. Hardly any measures exist to prepare rural-urban migrants for their new situations and circumstances, and there are no proper channels or support systems in place for domestic or international cross-border labor mobility or migration. This gap is becoming increasingly urgent, as the number of people seeking to migrate is increasing³, triggered by multiple factors, including climate-induced trends and extreme events.

The Action Research

The action research aimed to understand migration dynamics among the people affected by climate-related hazards in three selected Upazilas in the southwest coastal districts of Khulna and Bagerhat in Bangladesh.

The research was conducted by OKUP under the project Panii Jibon, led by HELVETAS Swiss Intercooperation (Water is Life, helvetas.org/panii-jibon), which addresses water-related threats and vulnerabilities of an already impoverished population living in the disaster-prone coastal area. The overall objective of Panii Jibon is to **build resilience and reduce the loss of well-being for climate-affected disadvantaged communities** in the districts of Khulna and Bagerhat.

The action research collected and analyzed information through multiple-stratified sampling from 480 households, including 20 in-depth case studies, covering 70 villages within 14 unions of three sub-districts of Khulna and Bagerhat, namely: Kopilmuni, Raruli, Godaipur and Goriukhali Union of **Paikgachha Upazila**; Koyra Sadar, Moharajpur, Amadi and Bagali of **Koyra Upazila**; and Nishanbaria, Bohorbonia, Khaulia, Jewdhara) of **Morrelganj Upazila**. Key stakeholders in the research areas were also interviewed. This publication presents the results of all the information analyzed including five selected in-depth case studies.

The interviews focused on the 20 years spanning from 2000 to 2019. The survey, conducted in mid-2018, incorporated 480 households, while the in-depth case studies were collected in late 2019. Additional information was collected in September 2020 (2nd survey), and included 392 of the original 480 households, corresponding to approximately 82% of the total.





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Figure 1: Study Area with the two districts Khulna and Bagerhat

Source: Wikimedia, Helvetas

Bangladesh is one of the most flood-prone regions in the world. Communities in the delta have always been vulnerable to extreme events, such as storms and cyclones. **Due to its location and topography,** climate change acts as a **threat multiplier to an already sensitive and vulnerable coastal ecosystem.**

It is well-documented that the coastal regions of south-west Bangladesh are impacted by slow-onset climatic stresses, including rising temperatures, salinity intrusion into agricultural soil and groundwater, and an increase in the occurrence and intensity of sudden shocks like floods, cyclones, storm surges and riverbank erosions⁴ (Rahman & Lateh, 2017; Huq et al., 2015; Shamsuddoha & Chowdhury, 2007; Rahman & Alam, 2003).

In the past century alone, the mean temperature has risen by 1.26° C in Bangladesh, and its sea level by 1.94 mm per year (NASA, 2020; NOAA, 2020). The 2018 World Disaster Report ranked Bangladesh as the eighth most vulnerable to extreme weather conditions amongst

all countries, while the 2019 Climate Risk Index called Bangladesh as one of the world's "top sufferers" from extreme weather events. Between 2008 and 2017, 37 million people were affected by natural hazards in the Bangladeshi coastal districts (World Disaster Report 2018). Cyclone Sidr alone affected almost nine million people, destroying 563,877 households and damaging 939,675 more (Bangladesh Disaster Management Information Center). Reports project that in the next 30 years, Bangladesh will face the biggest risks from global warming in the world (Eckstein, Hutfils & Wings, 2019).

Khulna and Bagerhat belong to the most climate vulnerable districts in all of Bangladesh (Comprehensive Disaster Management Programme, 2014; Climate Change Cell in Bangladesh, 2008). **The field survey, which includes 480 households, shows that on average 90% were seriously affected by several climate hazards.**

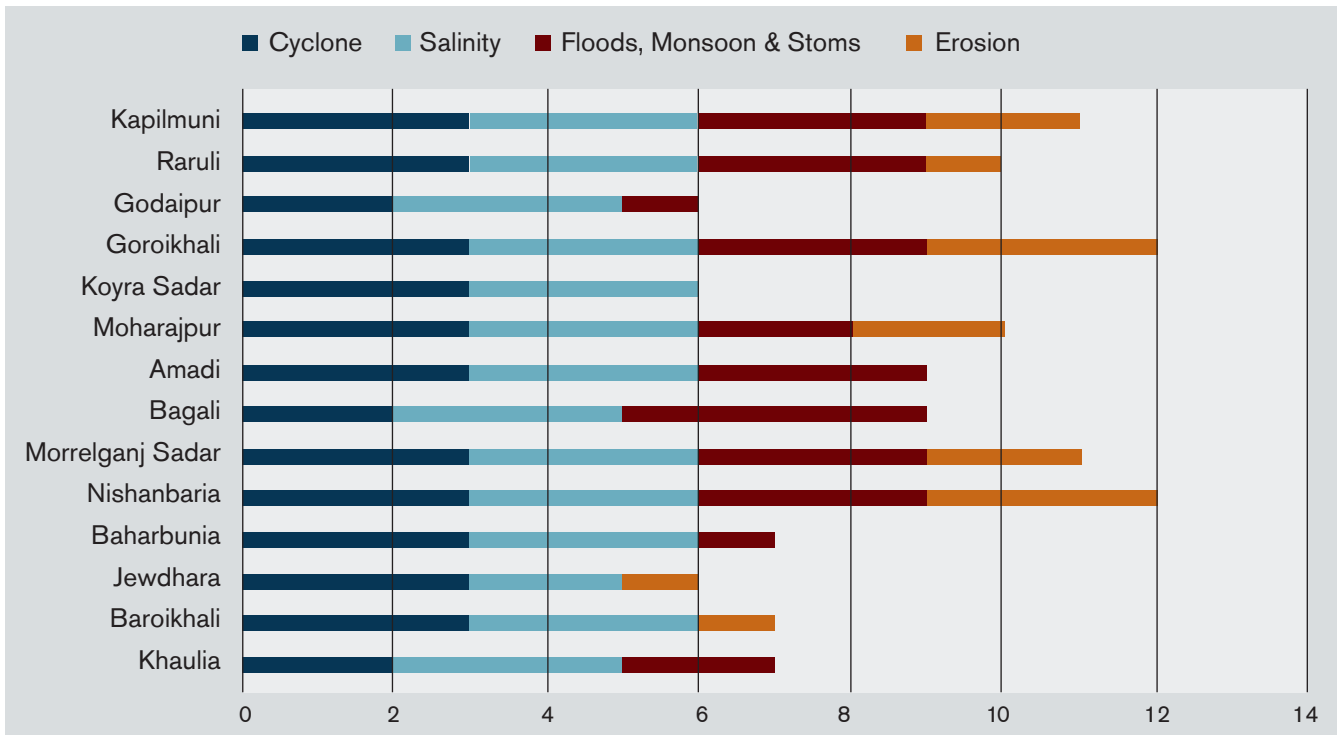


Figure 2: The severity of climate hazards in the study area

Source: Survey 2018, OKUP

The interviewed persons confirmed the severe impacts of climate hazards in the project area. According to focus group discussions, all 14 unions within the Khulna and Bagerhat districts were seriously affected by both cyclones and salinization. Six unions were critically affected by recurring floods due to increased precipitation and high tide, while two unions encountered severe riverbank erosion, caused mainly by intensified tropical storms. All the findings of this research also corroborate the hazard maps at the union level, created by the Comprehensive Disaster Management Programme by the Ministry of Disaster Management and Institute of Water and Flood Management of the Bangladesh University of Engineering and Technology. The mapping stated that an area of 19,146 km² (out of total 47,201 km² coastal areas of Bangladesh) was frequently inundated by more than 1 m water depth per year due to flood, storm surge, and heavy precipitation, as most of the tropical cyclones have their genesis over the Bay of Bengal and hit the coastal belt hard (CDMP II, 2014).

According to our research, between 2000 and 2019 nearly 70% of households suffered complete or partial damage to their homes either by tropical cyclones, storms or by inundation from tidal surges, high rainfall, floods or coastal erosion. Much of this damage can be attributed to the tropical cyclones Sidr, Nargis and Aila between 2007 and 2009. This was confirmed in the second survey, when people were asked to rank hazards according to their severity: more than 90% of those interviewed referred to cyclones as the most devastating, followed by soil salinity⁵ (26%), which was felt most acutely in the aftermath of Cyclone Aila.

The percentage of damaged houses is comparatively higher in Morrelganj Upazila of Bagerhat (90%) than in Koyra (79%) and Paikgachha (51%) of Khulna. Although all three Upazilas are located in low-lying areas exposed to the sea, damage rates are also influenced by factors like wind direction and speed, where cyclones make landfall, and types of houses constructed. Those who live in Morrelganj are exposed to the Pangunchi and Baleswar Rivers to the east, and strong tides in the area have often caused the greatest range of upland flows. Consequently, many houses along the riverbanks were damaged by inundation or lost to erosion. Both Upazilas of Khulna – Paikgachha and Koyra – are bound by the Pasur River to the south, and houses in these areas were severely affected by the high tides brought by the river and the sea.

In addition to asset losses, **damages to land, water resources and human health have also led to long-term income losses, forcing communities to constantly adapt their livelihoods and their entrepreneurial activities, as the action research has shown.** Over the last 20 years, 37% of households lost agricultural land, production and yields; 45% lost fishery productivity; and 41% suffered from a loss in livestock farming. Though it is true that climate change cannot be attributed to each and every extreme event (some are natural weather extremes in a deltaic region), the long-term observation of the atmospheric conditions of the coastal region of Bangladesh shows a significant increase in the intensity and frequency of natural hazards (Islam & Amstel, 2018). Different literature and scientific studies also prove that the profile of precipitation and cyclones have changed

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« Cyclone Aila flooded the whole area with seawater. The soil became infertile, and all my Coconut and Areca Palm trees were damaged. Now it is almost impossible to grow crops without fertilizer and pesticides. »

Kalam (57), Purbasharalia, Morrelganj Union, Morrelganj Upazila, Bagerhat

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and are resulting in more extreme cyclones – now every three years – leaving its catastrophic footsteps (Saha and Khan, 2014; Dastagir, 2015).

As a slow-onset hazard, salinization in particular has long-lasting impacts on people’s lives, forcing men and women to find alternative ways to make a living: According to the survey, 77% of households in the area are severely affected by the salinization of land and water.

Although salinity intrusion is not a recent phenomenon in the area, major cyclones and storms have accelerated its impact: In his study, Dankelman (2008) concluded that within these two districts, salinity in the soil has increased by 45% since 1948. This increase has critically endangered both coastal biodiversity, and the access to potable water and livelihoods of the residents. Several other studies also state that saline intrusion in surface water has severe effects on irrigation systems, while salt accumulation in the root zone of soil affects plant growth, resulting in a significant rate of yield reduction (Shahid, 2011; Yadav et al., 2009). These in-depth studies also indicate that salinization has negative impacts on fish habitats and other wetland-based flora and fauna in the area.

The study also concludes that drinking water for nearly 34% of households in these areas is either in short supply or entirely unavailable as a result of salinization of freshwater sources. This forces women to go a long way to collect – or sometimes even purchase – a small quantity of drinking water for their families. This freshwater scarcity often forces people to become accustomed to drinking saline water, leading to skin diseases, loss of hair, high blood pressure, diarrhea, and other gastrointestinal diseases. Salinity intrusion in soil, water, and sea spray also destroys houses by rusting tins or damaging walls. The altered quality of the water also impacts erosion rates, and congests drainage systems. Rainfall and tidal surges can lead to prolonged waterlogging, which in turn disrupts infrastructure, impacts drinking water availability, and damages arable lands, crop yields and aquaculture. In addition, prolonged waterlog-

ging can soak the land in many villages, making it impossible to grow fodder for livestock.

Surveyed participants also highlighted their concerns surrounding water-borne diseases like cholera, diarrhoea, jaundice and skin problems. According to a study by Basu (Basu et al., 2002), erratic weather and high temperatures in the coastal areas often lead to heat stroke, cardiovascular problems, and respiratory issues. In our survey, many people reported illness due to summer heatwaves, echoing these findings.

In summary, salinization increases in land and water, paired with prolonged waterlogging, have significantly reduced agricultural opportunities in the area – most notably for small-scale farmers – leading to an overall decrease in food security (Gain et al., 2012; Huq et al., 2012; Karin et al., 2012; Thomas et al., 2013).

The changing climate conditions have multi-dimensional impacts: Environmental degradation leads to decreased entrepreneurial activities, and fewer opportunities to generate income. The majority of households in the area are forced to seek alternative employment outside their villages. Considering current climatic trends and projections for Bangladesh, the situation for these coastal villages will be increasingly difficult in the future.

The increase in frequency and intensity of climate related hazards has led local residents towards a generalized state of stress and coping. This is making longer term efforts to build back better and develop adaptation strategies less of a priority for people who are in survival mode.

Although people living in coastal areas are increasingly vulnerable to climate conditions, our research has shown that the majority seem to prefer working and living in their ancestral communities. Past research posits that **coping strategies can be categorized into three response types:**

(i) Stay and try to mitigate adverse effects by pursuing different livelihood options; (ii) stay and accept a lower quality of life, and to some extent the unavailability of alternative livelihood opportunities, or (iii) migrate domestically or abroad in search of opportunity. Household response varies and depends on economic positions, political and social connections, and personal losses caused directly by climate events (Aryal et al., 2020; International Organization for Migration, 2009; Paul, 1998; Emel & Peet, 1989).

Many farmers have incorporated **climate-resilient practices**. Adapted practices – including embankment cropping, planting mangrove trees, cultivating saline-tolerant grass, using flood- and saline-tolerant rice – have increased resiliency for farmers in recent years despite the occurrence of annual extreme events (Evaluation Panii Jibon Project, Nov. 2020). So, adapting their livelihoods is an important step towards building up local resilience and goes beyond a coping strategy respectively absorbing and responding ad-hoc to an external shock.

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« The mix of human movement is difficult to dissect but there appears to be far more ‘push’ than ‘pull’, i.e., migrants are more typically forced by necessity rather than impelled by opportunity. Patience and tolerance levels naturally vary from respondent to respondent, with some of those interviewed trying longer and harder to stay in the degraded, destroyed, salinized and often eroding regions before eventually concluding that to go is better than to stay. »

Luetz, 2018

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In addition to adapting current agricultural practices, farmers have also incorporated new ones: **farming of shrimp or other salt-tolerant fish** has become a popular response to saline intrusion, as the practice is possible in saline ponds and other saltwater bodies. This solution is not an option for everyone, though, as it requires substantial investment. Fish farms also require less labor than growing crops: this is beneficial for owners, but it does not create much opportunity for employment for poorer community members.

Our research also shows that **this problem cannot be solved by simply adding additional options for occupation:** Nearly 32% of households have at least one



Rojina Khatun (30) is pollinating vegetable pumpkin.

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member who is underemployed; and about 11 % of people became unemployed even after transitioning from an agricultural job to one in aquaculture, day-labor or small-trade.

Affected individuals frequently respond by taking loans (Case Study of Riazul gives insight into his constant struggle to pay back loans). The case studies illustrated the reasons for loans – mainly to rebuild houses damaged by extreme climatic events or slow-onset hazards. Oftentimes, before the loans are payed back, the rebuilt houses are damaged or destroyed again by another event. People also take loans to invest in opportunities to make a living, like raising fowl, cultivating fish, crabs or shrimp, or agricultural production.

Our observations fall in line with recent conclusions drawn from other studies on adaptation measures in Bangladesh, including Siddiqui's 2018 study, in which she writes:

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« Use of loan is one of the most important adaptation tools among different adaptation measures used by the households to adapt to climate change. A large number of households have taken loans in the last five years. The survey finds that 71 % of the households have taken loans. »

Siddiqui T. et al., 2018

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Riazul's constant struggle for resilience

« My father started fish cultivation in addition to his regular work as a tenant farmer. The income we generated allowed us to manage family expenses until Cyclone Sidr hit our village in 2007. The cyclone damaged our house and washed away our fish pond. It was a huge loss.

After Sidr, we took a loan to rebuild the house and start cultivating fish again. However, we couldn't continue, because the pond's mud and water were contaminated, killing the fish.

Then I started pulling a rickshaw van in our village to support the family. The income was bad because people stopped using rickshaws after Sidr to save money. So, I started day labor, but the income still wasn't enough. I moved to another district to work during the crop season, where I got BDT 500 per day (US\$ 5). After a couple of weeks, I returned home with a good amount of money. I continued to go to other districts for several weeks

The case study of Riazul also illustrates the different dimensions of resilience: **to absorb** (taking loans), **to adapt** (changing livelihoods) and **to transform** (moving to the city, job with a regular income) (c.f. HELVETAS, 2018)⁶.

Despite the frequency of extreme weather events, **nearly 33% of households continue with agricultural or aquaculture activities** today, either as tenant farmers or as laborers. These **livelihoods, however, often become too expensive**. The stresses on the production system lead to maladaptation such as increased use of chemical fertilizers which in turn increase the production costs, further deplete soil and water quality pushing people further into poverty. As a result, people have pursued livelihood options unrelated to agriculture, including pulling rickshaws, working as street vendors or pursuing small trades. Even those who find successful employment outside of agriculture must look for alternative options when the rainy season hits, as incessant rainfall, tidal surges, and prolonged waterlogging can render activities like rickshaw-pulling impossible.

Many households are thus forced to take on additional loans to mitigate immediate crises, and end up in tremendous debt. People then find themselves in a constant state of coping, which makes building up local resilience incredibly challenging and the communities fall into a constant 'coping cycle'. It also forces people to look for work outside their village – especially after a major extreme event – first seeking job opportunities as close to their homes as possible. Taken in sum, these factors **cause migration to be reactive rather than proactive** (see Figure 5).



during seeding and harvesting seasons and then I decided to move to a big city to find a better option. In Chittagong, I started doing construction work as a day laborer. There, I earned more than BDT 15,000 (US\$ 180) every month. I continued working there for several years until I was able to pay back the loan we took after Cyclone Sidr. »

Riazul (37), Bhasandaal, Gulishakhali Union, Morrelganj Upazila, Bagerhat

Our research also shows that **women are engaged in different kinds of income generating-activities from men**, but local job opportunities for women are limited. Our in-depth case studies paint a picture of women engaging in irregular work, like cleaning algae from fish-ponds or collecting dry paddy roots, which are then sold as fuel. Some women also work as domestic help in the homes of others, although such work is poorly paid and can be demeaning. Unfortunately, this is often the only work available to them, and they are compelled to accept it to mitigate economic hardship.

The research also found that after a sudden extreme event, **governments or NGOs sometimes provided temporary jobs in the construction sector**, like fixing roads, leveling soil or repairing embankments. But humanitarian relief and reconstruction efforts rarely aim to address losses in livelihood opportunities or social well-being, so many victims of the climate event are still forced to search for new income-generating opportunities beyond their villages. Hence, additional social safety net programs are required for climate vulnerable communities.

And lastly, though several **skills and vocational trainings** were identified in these Upazilas, no system exists to give priority to those impacted by a climate change event. Even if such a system existed, people in remote areas would struggle to arrive at trainings like this via poor transportation systems.

Migration is not generally the preferred option for people impacted by climate events (Synthesis German Environment Agency & IOM, 2020; Luetz, 2018), and the OKUP/HELVETAS survey reaches this same conclusion: **most people try to stay local and rely on opportunities in their villages to cope**. But given a decrease in economic opportunities, men and women are increasingly forced to look for jobs elsewhere. As time goes on, they are forced to move further away, corresponding with the **stepping-stone pattern** from smaller, nearby towns to larger, more distant cities (German Environment Agency & IOM, 2020). And that applies only to those with the ability to move: the most vulnerable in a community may be trapped in a prolonged crisis. Our in-depth case studies show that migration is not feasible for everyone, which is substantiated by other research (IOM, 2013 and 2009), but further research is necessary to prove this on a quantitative scale.

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« *When Cyclone 'Aila' hit in 2007, my husband had no work in the village. There was a devastating flood, and the seawater washed away all the fish he was cultivating. Though my husband grabbed any day labor he could find, he earned a very small amount. Living off his income alone was difficult for us, so for the first time, I started to work outside the home – I often went to level soil or clean ponds. It was really difficult. My children were very young then and I had to leave them alone at home.* **»**

Salma (35), Kalna, Maharajapur Union, Koyra Upazila, Khulna

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UNDERSTANDING MIGRATION DYNAMICS AND THE RELATIONSHIP

BETWEEN CLIMATE CHANGE AND MIGRATION

Most men and women migrate within Bangladesh: 68% of those surveyed reported that they migrated for work for a particular season or time of the year; 85% migrated more than once. Nearly 82% of households surveyed in the two districts include at least one family member who migrated between 2000 and 2017. Out of those, 96% migrated within the country and only 4% migrated abroad, mainly to India and countries in the Middle East including the United Arab Emirates, Saudi Arabia and Oman.

Our data shows that **'poorly educated respondents' migrate more frequently.** Further, respondents who have a **'medium-quality house'** (tin-made or semi-pucca) **have a higher migration frequency than those with the poorest house type** (kacha)⁷. This hints towards the resources required to migrate, given that house type can be seen as a proxy for physical capital.

Our survey indicates that 65% (254 out of 392 people) of respondents migrated for the first time after the year 2000 (2nd Survey Sept. 2020). According to the respondents, the main reasons were lack of employment (58%), poor income (17%) or the urgent need for house renovation (12%) (see Figure 3).

Residents of Khulna and Bagerhat rarely travel abroad for work because travel costs are prohibitive, and potential workers lack the necessary networks to find work. However, there is a growing trend of cross-border migration to India due to physical proximity, a relatively simple visa system, low displacement costs and an active presence of brokers (dalals) on either side of the border. India is therefore a far more popular destination than countries in the Middle East or Southeast Asia.

* The percentage related to domestic violence is probably higher but rarely openly discussed.

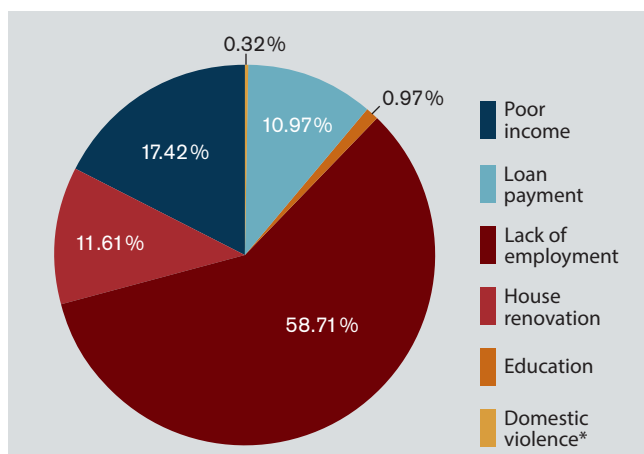


Figure 3: Reasons for Migration

Source: 2nd Survey Sept. 2020

Our research and case studies indicate that over the last two decades, **migration has become more frequent, longer in duration and further in distance** (Case Study of Riazul illustrates how the migration dynamic is changing). This can be partially attributed to **environmental changes**, which have significantly reduced employment opportunities, a **major push factor for migration**.

Internal migrants from Khulna and Bagerhat tend to migrate to **major agricultural districts** (e.g. Gopalganj, Barisal, Faridpur, and Rangpur⁸) during the harvest season between mid-June and mid-November, up until mid-February. Some migrant workers report moving to the sea and swamp areas of the Sundarbans between October and November, staying on to fish until mid-February or the beginning of March. Others set out to work in the brick kilns of various districts for about six months beginning in October or November. Nearly 31% of those interviewed (121 out of 392 persons) returned home after they finished their seasonal work. Another 30% returned only after saving the necessary income to meet their specific needs, like marrying off their daughters or siblings, repaying debt or renovating their homes. The income generated via seasonal labor also helps families to cope with the acute aftermath of climate events, while improving overall living conditions; ensuring housing, education and adequate healthcare; and allowing them to pay off their debts in order to offer a better life for their children (Case Study of Nasima shares insights into how her hard work can help her children have a better future). Another large portion of respondents – 32% (125 out of 392 interviewed) – were forced to return home due to lack of accommodation, irregular salary payments, the end of a job, or family and health issues. Only 16 out of 392 people interviewed, corresponding to 4%, returned because they found suitable economic opportunities back home.

Migrants were able to find better-paying jobs in the garment or construction sectors in **big urban centers** like Dhaka, Khulna or Chattogram. Some interviewees say they migrate to these urban areas for longer periods to work in garment factories, security companies, small-scale industries like bakeries, or in other informal service sectors. These people often settle in congested inner-city areas, or on the outskirts of a city in pursuit of lower accommodation costs.

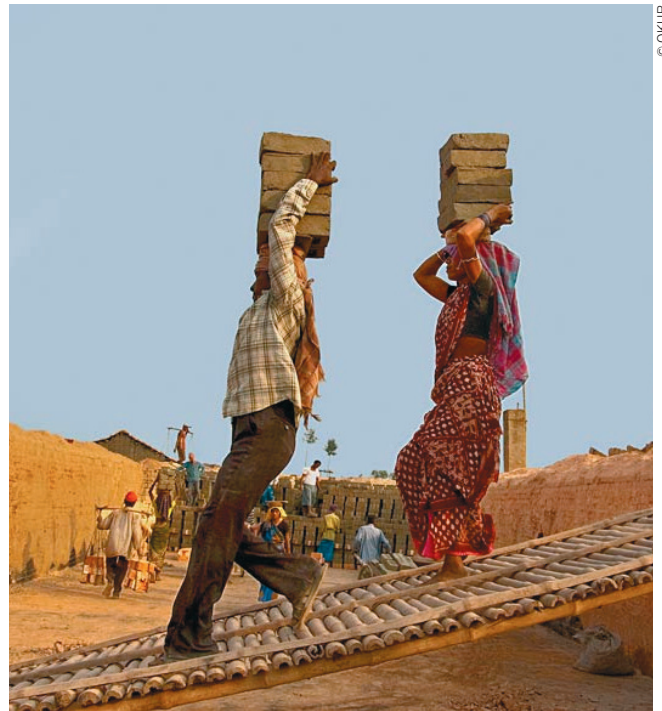
As per our case studies and survey results, people migrate domestically in search of **'seasonal' work within the 'informal' and 3D – dirty, dangerous and degrading –sectors**. Decisions to migrate are often made ad-hoc in response to an unplanned event, and can increase risks for and vulnerabilities of both migrants and families

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◀◀ *Together with my husband I used to work in the brick kilns for half the year. When my daughter turned nine, I stopped working there to enroll her in school. Then I rented a piece of land to grow crops. When my husband would come back from the brick kiln, we worked the land together. We cannot earn enough from our crops, though, as the salinity is too high. So, I have decided to return to the brick kiln again for the sake of my children.* ▶▶

Nasima Begum (31), Shreekantapur, Raruli Union, Paikgachha Upazila, Khulna

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© OKUP

they leave behind. The employment recruitment process can leave those who are unfamiliar with it vulnerable to deceit, fraud or labor exploitation. These migrants often lack the capabilities to adapt to a new location, and return to their place of origin, at times finding themselves in a situation equally difficult or more dire than before they left (Case Studies of Shiuli and Noorjahan).

Out of the 480 households surveyed, only 19 migrated together as a unit. Seasonal migration for the whole family is costly and bears several risks, particularly for children who may drop out of school to accompany their parents to work, or are left at home alone.

Since the 2011 publication of the influential Foresight study (Foresight, 2011), consensus has emerged among researchers that **environmental factors** play an important role in influencing migration. **Migration decisions, however, are triggered by a wide range of ‘drivers’ and factors.** It is generally accepted that **environmental factors exert their influence on human mobility indirectly, by exacerbating economic, social or political ‘drivers’** (see Figure 4).

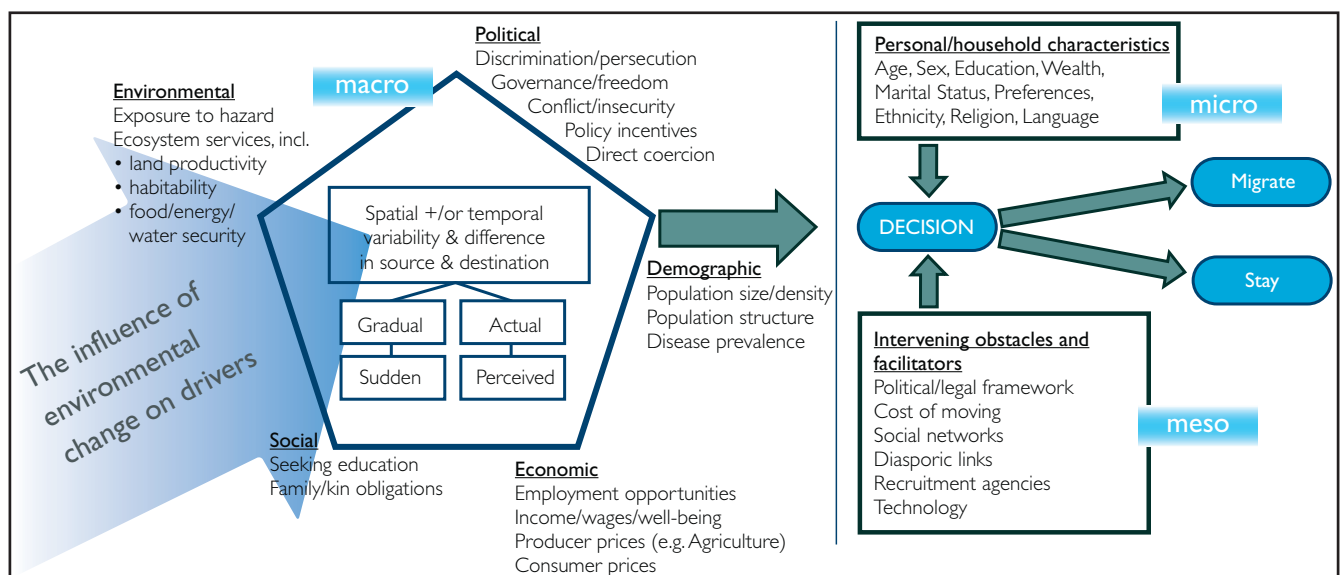


Figure 4: The migration-climate change dynamics

Source: Foresight, 2011

From a **gender perspective**, among all households surveyed, 45 women (10%) migrated together with their husbands, while 19 households (4%) migrated seasonally with their entire families. **The case studies indicate that women who participate in seasonal migration experience negative consequences.** Due to a lack of childcare, women – particularly those who work in the brick kilns – must bring their children with them to work or leave them at home unattended during work hours. Women who work outside their own communities are often subject to sexual harassment, so families arrange early marriages for their adolescent girls in an attempt to protect them ([Case Study of Shiuli shares insights into the challenges of seasonal migration for women](#)). **Male family members generally engage in seasonal migration**, leaving women behind to take care of children, the elderly, and their family's farmlands (Tripathy, 2017). As temporary heads of household, women often lack the protection and social acceptance from their communities. Access to information on available jobs, support programs or subsidies is also more difficult for women to obtain when their husband is working elsewhere. We have also observed that these husbands often file for divorce or otherwise abandon their families when they are away, leaving women in even more precarious situations.

PUSH AND PULL FACTORS FOR MIGRATION

Economic Factors

Our research confirms the importance of economic factors which are pushing and pulling people toward migration in 90% of the cases, **but also indicates that climate change played a role for two out of three households (approx. 60%). Climate change is impacting economic factors and hence influences the push-pull migration dynamics:** land is damaged due to rising sea levels, profits plummet as agricultural land is salinized, and higher precipitation levels or storms lead to losses in agriculture and assets.

Figure 5 shows that local job opportunities within the study area have decreased over the past two decades due to the changing hazard profile – greater exposure, rising risks and impacts of extreme events. People use their traditional and existing knowledge base to cope but there is limited capacity to adapt (adaptation gap). This may lead to maladaptive behaviour (e.g. more intensive and less sustainable agriculture) or force residents to seek out other sources of income outside their villages and hence migration becomes one of the sole options for survival (blurred line from voluntary migration to forced)

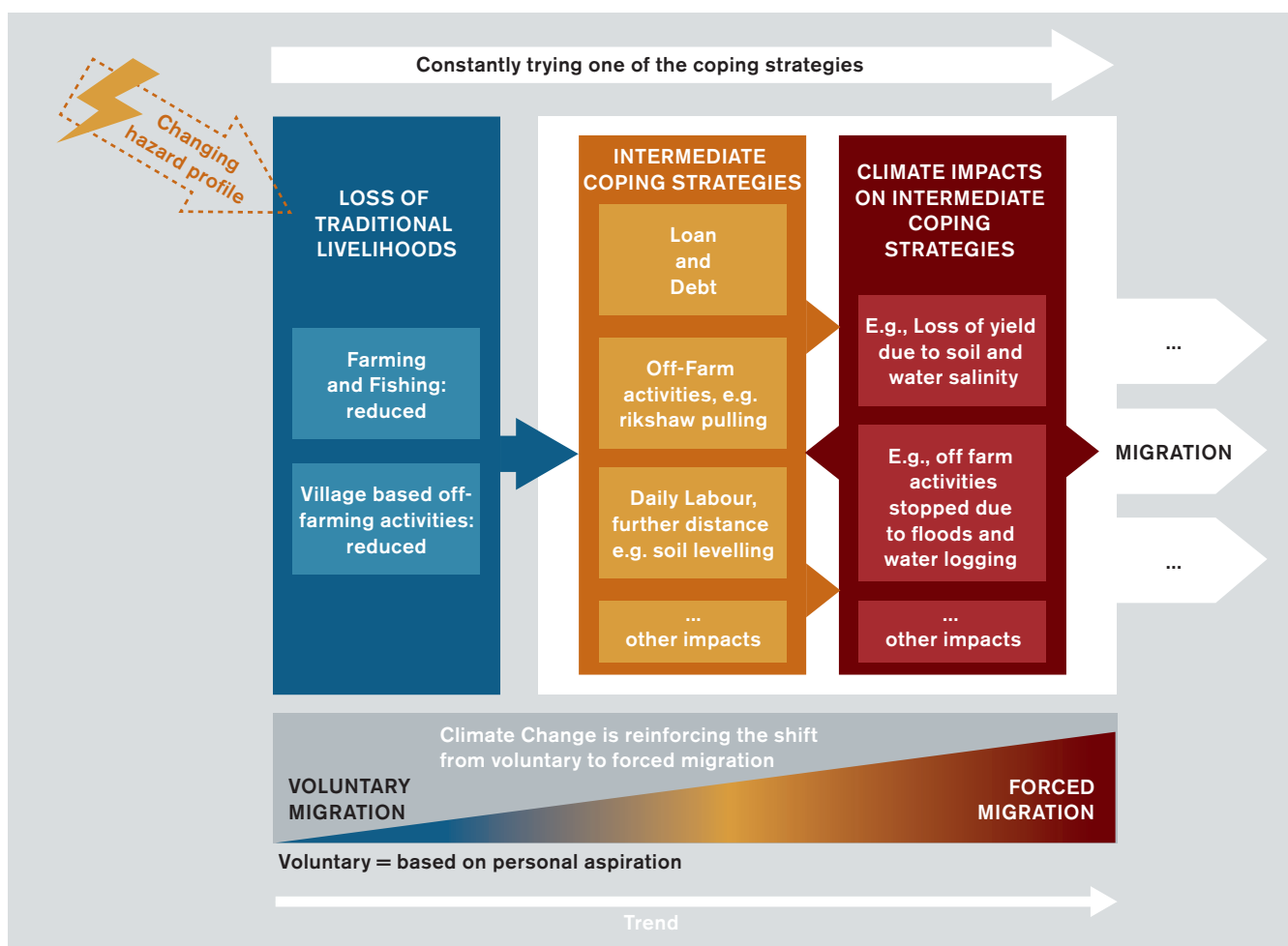


Figure 5: Migration dynamics in the context of climate change in the two districts

Source: Helvetas, 2019

migration). At the same time, economic opportunities pull people elsewhere in search of employment and income. In some cases, this leads to incremental adaptation in others to a loss of well-being. The changing hazard profile is increasingly rendering women and men more vulnerable, sometimes leading to transformation – in this case permanent migration with its related new hazards and risks.

Asses losses due to cyclones and tropical storms influence 40% of the households to migrate. For another 32% of households, flood damage to homesteads, arable lands and crops influence migration. For 58% of households, salinity-induced fishery and agricultural losses are key factors in decisions to migrate, while losses due to coastal erosion pushed another 6% of people toward migratory employment (**Case Studies of Sukumar and Noorjahan illustrate the critical impacts of climate events like cyclones and salinization**).

In the end, as our case studies clearly illustrate, no single factor leads people to make the difficult decision to leave their village, and moving to another place is often a combination of factors which vary from person to person as the selected in-depth cases confirm. It may be the unplanned costs due to a sick family member, or because they have lost their job, due to an extreme climate event or for any combination of these and other factors. A **'tipping point'** seems to exist when livelihoods are compromised beyond reasonable hope of recovery. Once this point is reached, the survey shows that specific social groups within the communities like the 'poorly educated' and 'those with certain physical capital' (c.f. beginning of the chapter 'the migration dynamics') are more likely to migrate.

Environmental Factors

Our research supports the argument that **environmental factors play a key role in influencing migration**. Though migration is not a new phenomenon in this area, a **loss of livelihood opportunities linked to climate-related events has made migration a more frequent means of coping for many families in the region**. Tripathy (2017) found an increase in environmental migration due to extreme climate events, and coastal community members' dependency on the environment for their livelihood. Our project experience – teamed with other reports and studies – leads us to believe that over the past two decades, the decision to migrate has **shifted away from a voluntary, individual choice to one of the only options for seeking employment** (Martin M. et al., 2014; Climate Change, Environment and Migration Alliance, 2010) (see Figure 5 for the blurry lines between forced and voluntary migration).

In coastal areas, the range of economic opportunities and income-generating activities is rather limited. Seasonal workers often return home without substantial savings or concrete employment plans, sometimes still in debt and suffering from protracted family conflicts. After prolonged absences, some even return home to find their land occupied and other resources seized. Without a social safety net, many coastal community members find it difficult to reintegrate in a sustainable way. And despite acquiring new skills in construction sectors or garment factories while they were away, seasonal migrant workers may struggle to use them to their advantage back home, as opportunities and support are lacking.

Other studies on the relationship between migration and extreme events in Bangladesh

In the Bangladeshi context, many studies reveal the close tie between the migration flow and extreme climate events in the coastal communities.

According to a recent report by IOM (2015), one of the biggest motivators for internal migration is the exposure to disaster paired with economic aspiration (Situation Analysis of Migration Context and Policy Framework in Bangladesh, 2015). Bhattacharyya and Werz (2012), for example, reported a relatively larger emigration of people from the affected areas after Cyclone Aila in 2009. And in 2017, Jayawardhan found that increased salinity in agriculture and aquaculture were key driv-

ers of migration. Myers (2002) explained that climate-related hazards trigger migration by affecting water, food, health and economic security, while Rayhan and Grote (2007) outlined how climate-related hazards force people from the coastal area to migrate to other regions. Afifi contends that climate change-related natural hazards act as 'mother driver' for all other drivers, including economic, political, demographic and social factors (Afifi 2010). Kartiki (2011) explained that though migration from coastal Bangladesh can appear to be economic in nature, that in reality is an instinctual reaction to climate shock on a local community.

CONCLUSION: CLIMATE CHANGE AND MIGRATION IN THE TWO DISTRICTS

In response to challenging circumstances **brought on by changing hazard profile and related adverse impacts, people are pushed to look for labor outside their villages to cope with recurring losses, or to establish longer-term solutions.** Migration can be one of those longer-term solutions: moving away from the coast can help a household reduce its vulnerabilities to the impacts of climate change.

For the majority of the surveyed households, quickly evolving environmental impacts combined with extreme events lead to a search for survival that often ends in a series of dynamic decisions surrounding migration. **Migration has become an important coping strategy in the context of a changing climate, but it also bears a number of serious risks.** We have observed that for example seasonal migrants who returned to their villages were confronted with new challenges. Our research and case studies indicate that the already **existing vulnerabilities in the southwestern coastal delta are accen-**

tuated by a changing hazard profile, greater exposure, higher risks and impacts of extreme events result in an increase in vulnerability, and a decrease in available livelihood options, which can lead people to **fall into a downward spiral** (Case Study of Shiuli illustrates the daily struggles and the “hopeless situation” people can face upon returning to their villages).

As we presented, people use their traditional and existing knowledge base to cope, but their options are coming to their limits exposing gaps in **adaptive capacities.** Communities therefore look for alternative livelihood options. Migration, domestically or abroad, is one possible option which has been an important coping strategy in these two coastal districts. These migration patterns, however, are changing along with a changing environment.

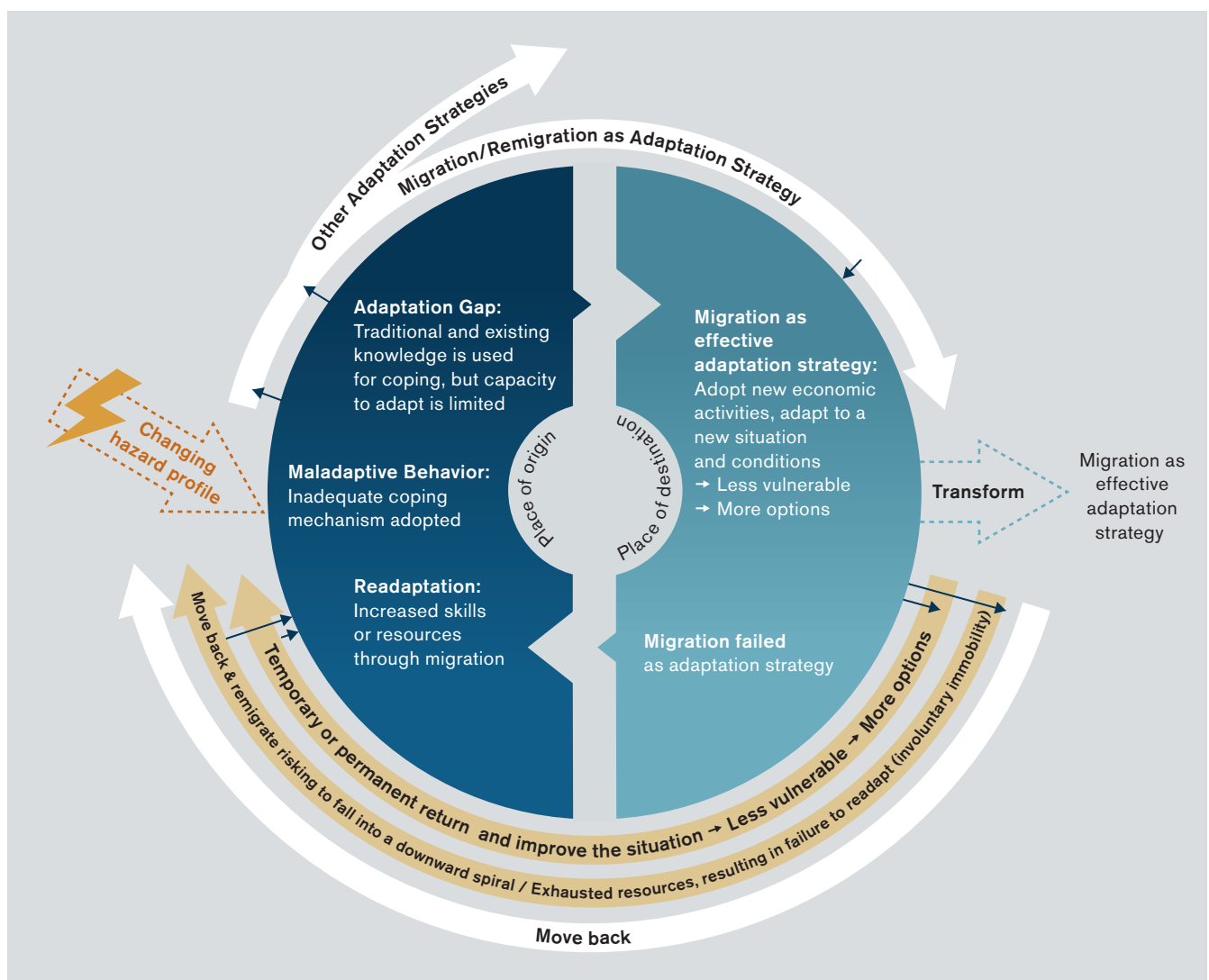


Figure 6: Migration dynamics in the context of climate change in the two districts in Bangladesh

Source: Helvetas, 2020

Main insights into the migration-climate change nexus in the two districts in Bangladesh:

- > Over the past two decades, **migration has become more frequent, longer in duration and further in distance**. This can be partially attributed to environmental changes, which have significantly reduced employment opportunities, a major push factor for migration.
- > Combined **sudden and slow onset disasters reduce livelihood options** by decreasing the availability of vital resources such as drinking water, agricultural yields, livestock and fish. These disasters – cyclones, storms, floods and increasingly salinized soil and water – are changing in frequency and intensity, and in the case of salinized soil and water, are irreversible in the short-to-medium term.
- > The decrease in livelihood options due to **climate change has become the main PUSH factor**, while the search for **increased income is the main PULL factor** for migration. Especially ‘poorly’ educated respondents and respondents who have a medium-quality house (tin-made or semi-pucca) tend to migrate more frequently in the given study area.
- > **Environmental changes function as a direct and indirect aggravating vector**, which acts as a **threat multiplier** for other economic, social and cultural difficulties.
- > **Coping mechanisms are also affected by climate change**, leaving men and women **with fewer viable options**, often forcing them to consider labor migration. Inadequate coping mechanism can also lead to maladaptive behaviour (e.g. unsustainable use fertilizer, intensive shrimp farming).

Given the rising hazard profile in the area and the observations that there are limits to adaptation – people continue losing their assets and quality of life (loss and damage) – it is likely that in the near future migration will further increase. In some cases, migration will be effective and hence instrumental to transform, namely to move out of the system and be economically successful with

new livelihood activities (see Figure 6). Others may be unable to transform which leads to further loss of well-being and decreased equity and hence fall (back) into a vicious cycle of poverty and make the achievements of the Sustainable Development Goals even more challenging (c.f. WB 2015).



Brick kiln workers, often domestic migrants.

Migration linked to climate change takes place in complex contexts. It is difficult to draw direct causal relationships without also considering related economic, social and political drivers.

Migration can be regarded as one possible adaptation strategy to cope with the increasing frequency and intensity of climate extremes in a given region: either in combination with locally adapted livelihood options, or as an alternative solution when local options do not provide reasonable hope for recovery. As an **adaptation strategy**, migration must work for vulnerable, climate-affected communities by offering them **long-term solutions, as opposed to short-term fixes that might disempower them.**

At the international level, there are a number of **global frameworks and initiatives** which recognize the link between migration and climate change / environmental changes. **The Global Compact for Safe, Orderly and Regular Migration** is the most comprehensive intergovernmental framework. It covers migration in all its dimensions, including “climate-induced migration”.

Though migration and climate change play huge roles in Bangladesh, “climate-induced migration” is not properly recognized at the national level, or reflected in current policies.

Considering the increase in climate events worldwide, policy responses will become all the more vital.

Policy Response at the Global Level

- **The United Nations Framework Convention on Climate Change** recognizes migration as a strategy for adapting to climate change. At COP21 in 2015, the Task Force on Displacement was created under the Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts. Its goal was to formulate recommendations for averting, minimizing and addressing the adverse effects of climate change on displacement. The resulting UNHCR 2018 **report on human displacement in the context of climate change and its adverse impacts** is an achievement that provides us with a comprehensive analysis on existing tools and policies.
- **The Sendai Framework for Disaster Risk Reduction (2015–2030)** is a non-binding agreement that seeks to tackle climate change-related disasters, displacement and migration in countries of origin. It aims to do so by minimizing climate and disaster impacts in vulnerable countries. In particular, the Sendai Framework recognizes migrants and displaced persons as key stakeholders in planning disaster risk reduction.
- **The Nansen Initiative and the Platform on Disaster Displacement** are non-binding, state-led international processes. The Nansen Initiative was born from a bottom-up, consultative process involving diverse stakeholders. Together, they developed recommendations to protect those displaced by disasters and climate events across borders. The Platform on Disaster Displacement was the follow-up to the Nansen Initiative, serving a coordinating function in assisting states to tackle knowledge gaps, promote policy coherence and mainstream human mobility within policy formulation.
- **The UN Sustainable Development Goals** also identify the management of displacement as crucial to their achievement. Specifically, SDG 13.1 calls for strengthening resilience and adaptive capacity to climate-related hazards and natural disasters in all countries. Despite its recognition of and calls for safe, orderly and regular migration, there is no explicit reference to climate-related human mobility.
- **The Global Compact for Safe, Orderly and Regular Migration** is rooted in the 2030 Agenda and the New York Declaration for Refugees and Migrants. It is perhaps the most comprehensive intergovernmental framework that holistically covers all dimensions of migration, including climate-induced migration. Although the GCM is not legally binding, its objectives recognize changing socio-economic and environmental conditions, and the implications they may have for migration.

Source: Human mobility in the context of climate change (GIZ, 2019)

Policy Response at the National Level in Bangladesh

- Initiated in 2018, the **Bangladesh Delta Plan 2100** acknowledged internal migration pressures due to disasters and climatic hazards and underscored the need to manage them in an orderly manner through systematic interventions.
- Bangladesh has highlighted its internal migration problems through a **host of national plans and policies**: Integrated Coastal Zone Management Plan (2003), Poverty Reduction Strategy Papers (2005), Sixth Five Year Plan (2011–2015), Seventh Five Year Plan (2016–2020), Ten Year Perspective Plan (2010–2021), and the National Strategy on the Management of Disaster and Climate Induced Internal Displacement 2015. But none of them outlined comprehensive strategies to deal with internal migration of climate-stressed people living in the coastal areas.
- The **2012 Disaster Management Act** makes passing reference to the importance of emergency shelter, resettlement, and planned relocation of climate-stressed people. However, it fails to provide any guidance or institutional arrangements to address these issues head on. The 2013 Standing Orders on Disaster also provided detailed instructions to different actors at the national and sub-national levels. However, it focused almost exclusively on the initial emergency shelter phase, with limited emphasis on measures to prevent migration from occurring in the first place, or to facilitate longer-term solutions to internal migration.
- The **2008 Bangladesh Climate Change Strategy and Action Plan** characterized migration as a problem exclusive to unplanned urbanization. A revised 2009 version highlighted the need to understand the dynamics of climate change-induced migration caused by sea level change, salinity, cyclones and storm surges. However, it did not spell out any specific plans to deal with the vulnerabilities of climate migrants – it simply suggested the possibility of re-settlement for these “environmental refugees”, potentially abroad.
- In 2009, the **Ministry of Land** initiated a three-year project called Guchchhagram “to settle the climate victims, landless, homeless, address-less and river eroded people on ‘khas land’ (government-owned fallow land where nobody has property rights) or donated land with living accommodation and to make all such rehabilitated families owner of a piece of homestead land.” By 2012, the project helped 10,650 climate-stressed and landless families. The resettlement projects, however, were criticized for their lack of transparency and general ineffectiveness, as the land was being grabbed by various interest groups.
- The **2005 National Adaptation Programme of Action (NAPA)** presented migration as a threat of climate change. Various NAPA projects reported to reduce the scope of migration by “promoting adaptation to coastal crop agriculture and combating salinization,” slowing down undesired “social consequences” related to urban migration. However, it did not implement any programs or projects specifically related to the issue of disaster and climate-induced internal migration. And in 2009, an updated NAPA document of 2009 failed to characterize internal migration as an explicit adaptation strategy

Source: Human mobility in the context of climate change (GIZ, 2019)

Migration due to slow- and sudden onset disasters can also be scrutinized from a **Durable Solutions perspective**. Although they may be gradual, environmental and climatic changes can be permanent, requiring longer-term solutions for those displaced.

The implementation of comprehensive, integrated policies is urgently needed to reduce the harsh impacts of climate change on people's wellbeing.

The following policy recommendations are a direct result of our research, in-depth studies and long-standing presence in the two districts through the project Panii Jibon. They highlight the needs and concerns of affected communities, prioritizing the most urgent in the grey sections below.

Challenges	Recommendations	Possible first actions
Lack of market-oriented skills and vocational trainings	<p>1.1 Strengthen skills/vocational training and career counselling on a priority basis for climate change-affected communities to increase resilience and livelihood adaptation strategies.</p> <p>1.2 Improve skills/vocational training quality, build knowledge, and align trainings with domestic and international market needs. The GoB must make appropriate facilities available for both men and women to remove as many barriers to participation as possible. The trainings should be tailor-made and prioritize women's needs related to timing and duration, as well as their choices for desired occupations.</p> <p>1.3 Promote sustainable, local economic development programs to mitigate precarious internal/seasonal migration from occurring in the short-or-long term.</p>	<p>Bring skills and vocational training into the National Technical and Vocational Qualifications (NTVQ) programs for the coastal belt.</p> <p>Evaluate the potential of remote jobs in the IT industry and related training.</p>
Lack of institutional arrangements and regulations (domestic and international)	<p>2.1 The Government of Bangladesh should create employment opportunities for migrants affected by climate disasters by undertaking advocacy efforts with Country of Destinations, including carbon emitting countries for setting up bilateral agreements (MoU/BLA).</p> <p>2.2 Negotiate special quotas and legal pathways with Countries of Destination for people migrating as a result of climate change.</p>	<p>Alignment to the GCM objectives.</p> <p>Acknowledge the interrelationship and discuss suitable measures.</p>
No action plan responding to the nexus CC-migration	<p>3.1 Develop effective and realistic action plans to reduce climate change-induced vulnerabilities and internal migration.</p> <p>3.2 Reorient climate change-related national policies (NAPA, BC-CSAP, Guchchhagram Project, Bangladesh Delta Plan 2100, upcoming 8th Five Year Plan) to promote policy coherence, and effectively focus on the nexus climate-migration.</p> <p>3.3 Recognize climate-induced internal migrants in national policies, and launch social safety net programs and support mechanisms directed at climate migrants and disaster-affected people.</p>	<p>Bangladesh Delta Plan 2100 needs to propose concrete actions.</p>

Challenges	Recommendations	Possible first actions
<p>Exploitation of natural resources; Lack of transformative capacities; Lack of development of alternative livelihoods options</p>	<p>4.1 Invest in advanced research on habitability and resettlement and comprehensive risk management approaches. Based on this research, develop the knowledge and capacities of coastal community members.</p> <p>4.2 Invest in advanced research on inventing salt or/and water-tolerant rice and vegetable cultivation in coastal areas. Based on this research, develop the knowledge and capacities of coastal communities to adopt these crops and species locally.</p> <p>4.3 Increase the scope of shrimp cultivation in coastal area saline water bodies, so that production can engage the maximum number of people and motivate them to stay local. The encroachment of salt from shrimp pond canals must also be strictly monitored.</p> <p>4.4 Promote sustainable fishing, timbering and agricultural practices.</p>	<p>Make sure that current and upcoming policies respond explicitly to the needs of internal climate migrants and formulate clear policies with concrete actions (e.g. Bangladesh Delta Plan 2020).</p> <p>Pay special attention to effective implementation and the challenges linked to the current fishing ban.</p>
<p>Lack of support to internal and displaced climate migrants</p>	<p>5.1 Arrange resettlement and rehabilitation for those who became landless as a result of river erosion or other climate events on the “khas land”.</p>	<p>Evaluate the Guchchhagram Project (2009), and redesign the program to respond to internal and displaced climate migrants needs.</p>
<p>Poor infrastructure along the coastal belt</p>	<p>6.1 Develop a stronger infrastructure in response to tidal surges, floods and climate change-related disasters in the coastal areas. Improve roads and communication; manage estuaries; reinforce drainage systems, embankments and polders; and build emergency shelters with adequate treatment measures (attention needs to be given to avoid creating a false sense of security).</p> <p>6.2 Conserve and preserve wetlands and mangroves and their ecosystems, and promote their sustainable use.</p> <p>6.3 Develop stronger forecasting mechanisms, as well as risk and vulnerability mapping for displacement, combating storm surges, and salinity inclusion.</p>	<p>Develop concrete action plans, based on the Bangladesh Delta Plan 2100.</p> <p>Review and adjust Disaster Management Act, 2012.</p>
<p>Inadequate financial investment</p>	<p>7.1 Initiate foreign and domestic investments in adaptation programs for climate-affected communities. Ensure that financial resources directly support women, small-scale farmers and vulnerable communities.</p>	<p>Bangladesh Delta Plan 2100, Bangladesh Climate Change Trust Fund (BCCTF).</p>

Policy Priorities

In the coastal belt of Bangladesh – an area affected by a changing climate, where agriculture production is highly vulnerable due to a sensitive and fragile ecosystem – the need for robust **vocational training and skills development is vital. Jobs and skills separate from farm work** are integral for thousands of climate-affected communities. Even when someone is forced to move to another area due to environmental and climatic changes, such **newly acquired skills can be a fundamental asset in facilitating success in a new place.** It is also important to emphasize that, despite annual extreme events, local resilience is increasing if **investing in alternative and adapted livelihoods is happening** (c.f. Evaluation Report of Panii Jibon Project, Nov. 2020).

At the same time, there is an urgent need for **institutional provisions, regulations and support programs** to respond to the pressing needs of internal climate migrants. It is crucial that the Bangladeshi government implements concrete actions to protect these vulnerable communities, and offers them longer-term alternatives.

Bangladesh must **recognize the dire circumstances of these climate-vulnerable communities,** and respond with adequate national and local policies. In the context of climate justice, they must also explore negotiations for compensation schemes with “polluter countries” under the mechanism of Loss and Damage (UNFCCC – United Nations Framework Convention on Climate Change).

BIBLIOGRAPHY

- Afi, T. (2010). *Environment, Forced Migration and Social Vulnerability* (p. 125). Springer.
- Aryal, J.P., Sapkota, T.B., Rahut, D.B. et al. (2020). Major Climate risks and Adaptation Strategies of Smallholder Farmers in Coastal Bangladesh. *Environmental Management*, 66, 105-106. <https://doi.org/10.1007/s00267-020-01291-8>.
- Bangladesh Bureau of Statistics (2018). *Bangladesh Statistics 2018* (p. 8). Retrieved from http://bbs.portal.gov.bd/sites/default/files/files/bbs.portal.gov.bd/page/a1d32f13_8553_44f1_92e6_8ff80a4ff82e/Bangladesh%20%20Statistics-2018.pdf.
- Basu, R., & Samet, J. M. (2002). Relation between Elevated Ambient Temperature and Mortality: A Review of the Epidemiologic Evidence. *Epidemiologic Reviews*, 24(2), 190-202.
- Bhattacharyya, A., & Werz, M. (2012). *Climate Change, Migration, and Conflict in South Asia: Rising Tensions and Policy Options across the Subcontinent*. Center for American Progress.
- Bhowmick, B., Uddin, Z., & Rahman, S. (2016). Salinity Changes in South-West Bangladesh and its Impact on Rural Livelihoods. *Bangl. J. Vet. Med.* (2016). 14 (2): 251-25, 14(2), 251. Retrieved from [http://file:///C:/Users/Dell/Downloads/31405-Article%20Text-112724-1-10-20170203%20\(3\).pdf](http://file:///C:/Users/Dell/Downloads/31405-Article%20Text-112724-1-10-20170203%20(3).pdf).
- Climate Change Cell in Bangladesh. (2008). *Climate Change, Gender and Vulnerable Groups in Bangladesh* (p. 37). Dhaka. Retrieved from <https://core.ac.uk/download/pdf/48024281.pdf>.
- Climate Change, Environment and Migration Alliance (2010). *Climate Change, Environment and Migration* (p. 1).
- Climate Migration Myths. In *Nature Climate Change | VOL 9 | December 2019 | 898–903 | www.nature.com/nature-climatechange*.
- Comprehensive Disaster Management Programme (CDMP II), (2014). *Policy Brief: Local Level Hazard Maps for Flood, Storm Surge & Salinity* Ministry of Disaster Management and Relief, Dhaka.
- Dankelman, I. E. M. (2008). *Gender, Climate Change and Human Security Lessons from Bangladesh, Ghana and Senegal*.
- Dastagir, M. (2015). Modeling recent climate change induced extreme events in Bangladesh: A review. *Weather And Climate Extremes*, 7, 49-50. <https://doi.org/10.1016/j.wace.2014.10.003>.
- Emel, J & Peet, R. (1989). 'Resource management and natural hazards'. In: Peet, R & Thrift, N (eds), *New Models in Geography: The Political Economy Perspective*, (p. 55). Unwin Hyman, London.
- Gain, A. K., Giupponi, C., & Renaud, F. G. (2012). Climate Change Adaptation and Vulnerability Assessment of Water Resources Systems in Developing Countries: A Generalized Framework and a Feasibility Study in Bangladesh. *Water*, 4(2), 345-366.
- German Environment Agency (2020). *Migration, environment and climate change: Literature review*.
- Haider, M., & Hossain, M. (2013). Impact of Salinity on Livelihood Strategies of Farmers. *Journal of Soil Science And Plant Nutrition*, 13(2), 430.
- Huq, N., Hossain, Z., & Hasan, R. (2012). Climate Proofing" Water Resources Development Policy: The Evidence from Bangladesh. In *Climate Change and the Sustainable Use of Water Resources*, pp. 389-400. Springer, Berlin, Heidelberg.
- International Organisation for Migration (2013): *Compendium of IOM's activities in Disaster Risk Reduction and Resilience*.
- International Organization for Migration (2009). *Migration, Environment and Climate Change: Addressing the Evidence* (p. 396). Retrieved from https://publications.iom.int/system/files/pdf/migration_and_environment.pdf
- International Organisation for Migration (2000): *Compendium of IOM's activities in Migration, Climate Change and the Environment*.
- IPCC, 2012: *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change* [Field, C.B., V. Barros, T.F. Stocker, D. Qin, D.J. Dokken, K.L. Ebi, M.D. Mastrandrea, K.J. Mach, G.-K. Plattner, S.K. Allen, M. Tignor, and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 582 pp.
- Islam, N., & Amstel, A. (2018). *Bangladesh I: Climate Change Impacts, Mitigation and Adaptation in Developing Countries* (p. 61). Springer Climate, Switzerland.
- Jayawardhan, S. (2017). Vulnerability and Climate Change Induced Human Displacement. *Consilience: The Journal of Sustainable Development*, 17(1), 106.

- Kabir R., Khan H., Ball E. Caldwell K. (2016). Climate Change Impact: The Experience of the Coastal Areas of Bangladesh Affected by Cyclones Sidr and Aila. *Journal of Environmental and Public Health*, vol., 2016, Article ID 9654753. <https://doi.org/10.1155/2016/9654753>.
- Karin, T., Marguerite de C., & Michael V.D.V. (2012). 'Climate Change, Conflict and Migration: The Water Context', Chapter 1 in M.R. V. D. Valk and P. Keenan (eds.), *Climate Change, Water Stress, Conflict and Migration*, the Hague, the Netherlands.
- Kartiki, K. (2011). Climate Change and Migration: A Case Study from Rural Bangladesh. *Gender & Development*, 19(1), 24. doi: <https://doi.org/10.1080/13552074.2011.554017>.
- Luetz, J.M. (2018). Climate Change and Migration in Bangladesh: Empirically Derived Lessons and Opportunities for Policy Makers and Practitioners. In W. Leal Filho, & J. Nalau (Eds.), *Limits to Climate Change Adaptation* (pp. 59–105). Springer Nature, Switzerland. https://doi.org/10.1007/978-3-319-64599-5_5.
- Martin, M., Billah, M., Siddiqui, T. et al. (2014). Climate-related Migration in Rural Bangladesh: a Behavioural Model. *Population and Environment*. 36, 100. <https://doi.org/10.1007/s11111-014-0207-2>.
- Myers, N. (2002). Environmental Refugees: A Growing Phenomenon of the 21st Century. *Philosophical Transactions: Biological Sciences*, 357(1420), 613. <http://www.jstor.org/stable/3066769>.
- NASA (2020, December 16). Global Temperature: In depth. *Global Climate Change*. <https://climate.nasa.gov/vital-signs/global-temperature/>.
- NOAA (2020, August 14). Climate Change: Global Sea Level. <https://www.climate.gov/news-features/understanding-climate/climate-change-global-sea-level>.
- OKUP Action Research (2019). Climate related Natural hazards: Impact on Local Migration Dynamics in the Disaster Prone Areas of South West Bangladesh. OKUP.
- Paul, B. K. (1998). Coping mechanisms practised by drought victims (1994/5) in North Bengal, Bangladesh. *Applied Geography*, 18(4), 355.
- Rayhan, I. and Grote, U. (2007). Coping with Floods: Does Rural-Urban Migration Play any Role for Survival in rural Bangladesh?. *Journal of Identity and Migration Studies*, [online] 1, p.83. Available at: http://www.e-migration.ro/jims/Vol1_no2_2007/JIMS_vol1_no2_2007_RAYHAN_GROTE.pdf.
- Rahman, M.R., Lateh, H. (2017). Climate Change in Bangladesh: A Spatio-Temporal Analysis and Simulation of Recent Temperature and Rainfall Data Using GIS and Time Series Analysis Model. *Theoretical and Applied Climatology* 128, 27–28. <https://doi.org/10.1007/s00704-015-1688-3>.
- Rajan, S., & Bhagat, R. (2018). *Climate Change, Vulnerability and Migration* (1st ed.). India: Routledge.
- Rigaud, K. K., de Sherbinin A., Jones J. et al. (2018). *Groundswell: Preparing for Internal Climate Migration*. Washington, DC: The World Bank.
- Saha, M., & Khan, N. (2014). Changing Profile of Cyclones in the Context of Climate Change and Adaptation Strategies in Bangladesh. *Journal Of Bangladesh Institute Of Planners*, 7, 65. doi: ISSN 2075-9363.
- Shahid, S. (2011). Impact of Climate Change on Irrigation Water Demand of Dry Season Boro Rice in North-west Bangladesh. *Climatic change*, 105, 433. <https://doi.org/10.1007/s10584-010-9895-5>.
- Shamsuddoha, M., & Chowdhury, R. K. (2007). Climate change impact and disaster vulnerabilities in the coastal areas of Bangladesh. COAST Trust, Dhaka.
- Siddiqui T. et al. (2018). Accommodating Migration in Climate Change Adaptation: a GBM Delta Bangladesh Perspective. *Refugee and Migratory Movements Research Unit (RMMRU)*.
- Thomas, T. S., et al. (2013). Agriculture and Adaptation in Bangladesh: Current and Projected Impacts of Climate Change. IFRI discussion papers [Vol. 1281]. International Food Policy Research Institute.
- Tripathy B. (2017). Migration, Immobility and Climate change: Gender dimensions of poverty in coastal Bangladesh. In: *The Gobeshona Conference for Research on Climate Change in Bangladesh*. [online] Dhaka: IC-CAD, p.2. Available at: http://gobeshona.net/wp-content/uploads/2017/01/1.-Basundhara-Tripathy_PPT.pdf.
- World Disaster Report (2018). *Leaving No One Behind*. International Federation of Red Cross and Red Crescent Societies. Geneva. Retrieved from <https://media.ifrc.org/ifrc/wp-content/uploads/sites/5/2018/10/B-WDR-2018-EN-LR.pdf>.
- Yadav, J. S. P., Sen, H. S., & Bandyopadhyay, B. K. (2009). Coastal Soils-Management for Higher Agricultural Productivity and Livelihood Security with Special Reference to India. *Journal of Soil Salinity & Water Quality*, 1-2, 1-13.



Noorjahan thoughtful about the future

Case Study of Noorjahan

LIVING A LIFE ON THE BRINK

“I have been living on the brink for all of my life. I work hard every day so that I can get myself out of this eternal crisis mode,” says Noorjahan Begum.

After Cyclone Sidr hit, Noorjahan and her husband had to rebuild their house as quickly as possible – they weren’t welcome in other people’s homes for long. A year after they finally found some stability, then Cyclone Aila hit, eroding their land, destroying their newly-built home and killing their goat. So they took shelter in a roadside hut.

Noorjahan (30) comes from Gabtola, a riverside village in the Morrelganj Upazila within the Bagerhat district. Her family was poor, so she couldn’t afford to finish her studies. Her father was a fisherman and she used to go fishing with him when she was young. She used to earn some money helping people with their work when they asked her to. Her father married her off at a young age, and she went to live with her husband’s family – they were also struggling in poverty.

.....

“It was very tough for me to go to work, leaving my two small sons alone at home.”

.....

Noorjahan is now back living with her family in their village, without any job prospects. Given her migration experiences, making another attempt to find work elsewhere is not likely. Her life events help illustrate the daily struggle to survive, and the coping mechanisms that emerge in response. Her experience also illustrate how the poorest can become victims of involuntary immobility, despite their best efforts to find work elsewhere.



Noorjahan sitting in front of her makeshift home

.....

« Over the past ten years, I've had to move six times. We're staying at someone else's place now – my husband and I insisted, and the owner eventually relented. We built a home and started living here for free, but we will have to vacate the moment he asks us to. For the last seven years, we have been living on other people's land like this – we can't afford to buy or even rent a house. »

.....

Noorjahan's husband made some money as a fisherman, but the job is sporadic and uncertain. To ensure a more regular income, her husband also worked as a day laborer in the village. He sometimes traveled long distances to repair boats in Amtola or Bishpur. But despite these three jobs, his income was insufficient for their household. The family moved to Dhaka in search of opportunity, and they managed to get hired by a garment company. The city was expensive, though, and they were paid less than they had been promised. So, they quit their jobs and made the journey back to their village: Noorjahan's husband began fishing, and took on other work when he could find it.

When Cyclone Sidr hit, it left Noorjahan in a state of misery: The floodwater washed away her house and all her belongings. Entirely dependent on government food relief with no money of their own, they took shelter in a neighbor's house. Her husband went fishing, but oftentimes he returned empty-handed – Cyclone Sidr's floodwater brought no fish. The small jobs he used to rely on dried up in the cyclone's aftermath, forcing Noorjahan's husband to move from one place to another in frantic search of day labor.

Noorjahan had no choice but to start working as a soil leveler in the village, and started raising ducks. A few months later, Cyclone Aila hit, and a tidal surge flooded her makeshift hut, leaving her with nowhere to go. She asked many people for temporary shelter or help rebuilding her home, but she was refused. Without any other options, she took shelter in another roadside hut, this time without her ducks.

Noorhajan still lives in what was supposed to be a temporary shelter: The Hogla leaves used for fencing have become damp; her tin and polythene roof seeps rainwater. If she had enough money, Noorjahan says that she could make a good home somewhere far away, as this area is prone to erosion.

There isn't much opportunity for Noorjahan to work anymore: "To have the opportunity to do menial jobs in my village, you have to go through a long process. There is a lottery system through which you can be hired for work, but my name did not show up this year. So, these days my husband has to bear all the household costs alone," she says. Her husband works hard to catch fish, but his work repairing boats is rarely in demand – people who have also gone through hardship can't afford to hire him, and are instead trying to fix their own boats. "I do not know how long we can survive like this," says Noorjahan.



Riazul fishing in the river

Case Study of Riazul

TAKING OUT LOANS TO BUILD BACK AFTER CYCLONE DAMAGE AND LOSS

“Sidr hit us more than a decade ago, but we’re still dealing with its effects. If the cyclone hadn’t damaged our fishing pond, my life would be going more smoothly. If I could restart my fish farm, I wouldn’t need to be moving around so frequently to do hard manual labor. By now, I could have a nice home and be making a good living. But even after working tirelessly, I still need to save for two more years to have enough to build a new house. That is, of course, as long as another cyclone doesn’t wipe everything away.”

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 << *Although I now have a regular income source, it’s still not enough to meet the essential needs of my family.* >>

Riazul is a 37 year-old man from Bhasandal, a small village in the Gulishakhali union within the Morrelganj Upazila in the Bagerhat district. In his village, agriculture used to be the primary way of making a living.

Riazul’s family was poor. His father had no land of his own to cultivate, and so he worked as an agricultural laborer for other people. In the early 2000’s, his father leased a piece of land and began cultivating fish. He did his best to provide



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Riazul collecting drinking water for his family

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« Villagers were not rich, but they had enough to live, Riazul remembers. There were plenty of fish in the wetlands; we could catch enough within 10 or 15 minutes of casting our nets. Nowadays, we rarely catch any fish. We also used to have plenty of coconut trees, and could grow many vegetables on our lands. Now, all of our village's farmlands are either inundated, or have turned saline and barren. An easier past is just a distant memory. »

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for the family with the money he earned from these two jobs. Unfortunately, Riazul's father had an accident which left him unable to work. This forced Riazul to abandon his studies and start driving a rickshaw to help support his family.

For the next six years, Riazul continued pulling his rickshaw. Then in 2007, Cyclone Sidr hit. As seawater flooded their village, his family's home was damaged, and their fishing pond washed away. This loss amounted to about BDT 300,000 (US\$ 3,600), forcing the family to take out a loan of BDT 30,000 (US\$ 360) to rebuild their house, and an additional loan to restart the fish farm. Because of the newly-salinized water, the fish could not survive, compelling the family to abandon the endeavor. At this point, they were in huge amounts of debt.

Cyclone Sidr had other compounding effects: families could no longer afford to use rickshaws, so Riazul's business suffered. He started to take on whatever work was available in the village, like cutting mud, but he couldn't make ends meet, driving him to look for work outside the village. Riazul moved to an adjacent district to work as a temporary agricultural laborer, earning a daily wage between BDT 400 and 500 (5.2–6.5 US\$). When the harvesting season concluded, he returned home with a good amount of money. After that first experience, he began traveling to other districts for weeks at a time during the cultivation and harvesting seasons.

Riazul eventually decided to move to a bigger city in search of other opportunities. He moved to Chattagram to work as a day laborer in construction, earning a better living that allowed him to pay off all of his family's loans after just two years. Riazul recently moved back home to care for his parents, and currently charges passengers for rides from his village to other districts on his motorcycle. But not all is well for Riazul: much of his money goes towards medical appointments for his old parents and his young son – Riazul thinks they are all getting sick from drinking salinized water. Though he collects drinking water each day from a recent, NGO-built reservoir tank far away from his home, almost all of the wells in the village have been severely contaminated. When his family runs out of clean water, they are compelled to use whatever is available nearby. Riazul's house is also in urgent need of repair: "My tin roof is rusted, and has several holes, allowing water to enter easily when it rains," Riazul says, "This is because of an increased level of salinity in the air and in the water."

Riazul was able to pay back his family's loans. But increasing medical expenses, the need for home repairs and the constant risk of a major weather event have marked his future back in his village with uncertainty.

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« I don't want to leave my family alone again. But if there is another cyclone or a flood in my village, wandering from one district to another in search of a job may once again become a necessity. »

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Nasima Begum was married off at the age of 15

Case Study of Nasima Begum

DREAMS BUILT WITH BRICKS FOR THE WELLBEING OF THE CHILDREN

“People in my village used to depend on agriculture and fishing, but that work has become increasingly rare. At least they can find work outside the village to earn a living, often by working in the brick kilns. These days, people have more opportunities to work in various sectors across the country.”

Nasima (30) is from a village called Shreekantapur in the Paikgachha Upazila in the Khulna district. She is the second of seven children. Her father was a tenant farmer, and married her off when she was fifteen, like many other local girls.

Nasima’s husband is from the same village, and didn’t have a job before they were married. In 2000, he took out a loan so he could start cultivating fish on rented land. This didn’t work out well: just a couple of months after they were married, his losses already amounted to about BDT 400,000 (US\$ 4,800), pushing the couple into an economic crisis. Nasima’s husband then began working as a tenant farmer in the village, but the income was too low to support them.

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« We need more money so our children can continue their education, and to provide them pure drinking water, medical treatment and a good house to live in. »

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Life has become a little easier for the family once Nasima and her husband began working in the brick kilns, which allowed them to gradually pay off their loans. “Working in the village wouldn’t help us much – we were in too much debt,” Nasima said. “I used to wake up at 3 AM to work in the kilns, and didn’t stop until the next evening.” Although she suffered from back strain and eye fatigue from the workload, she found her daily routine more organized when she worked at the brick kilns. She also enjoyed the break from household chores, instead focusing on income-generating activities.



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« We work in the brick kiln for almost six months of the year. The daily wage is higher than what we would make from agricultural work back home in our village. »

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"Despite poverty, I invest in my children's education so that they can create their own paths forward" – Nasima

According to Nasima, it was once possible to grow paddies biannually, but ever since Cyclone Aila in 2009, they can only grow crops once a year. The cyclone salinized the soil, so even though people have invested more and more in better fertilizer, they simply cannot grow enough. This salinity intrusion has hampered their yields, forcing many to stop crop production altogether.

After giving birth to two children, Nasima and her husband started to worry: how would they afford their growing family's expenses, or repay the loans they had taken to farm fish? While they were looking for employment in a different district, their questions were answered: the two were offered to jobs in the brick kilns.

They were offered advance payments – a percentage of their daily wages – and they both decided to accept jobs. They moved to the district to begin work, and after six months, they calculated that they could earn more working in the brick kilns than they could through the agricultural work they used to do in their village. The advanced payment was also a huge help, allowing them repay their loans relatively early.

They worked in the brick kilns of Jashore and Magura for about six months per year, bringing their young daughter along, but leaving their older son behind with his grandparents. After a couple of years of work, Nasima was able to build a brick pucca house for her family. When her daughter turned nine and was enrolled in school, Nasima was able to stay back in the village with her children to oversee their education, while her husband continued to work in the brick kilns.

But Nasima still has many needs and desires for her family: she wants to be able to provide her children with a better education; she now needs to purchase drinking water and disinfectant, as the water sources in her village have been contaminated; she needs to pay for medical treatment, as her family members have been getting sick from the local pond water; and she needs money to repair their house, which has become damp due to the moist weather. To meet these needs, Nasima would work on rented agricultural land during the rainy season after her husband returned home from working in the brick kilns. But agricultural work is no longer a viable option: due to salinity intrusion, they need to spend more and more money on fertilizers, and Nasima needs to pay a large amount to rent the land. Considering the circumstances for the wellbeing of her children, Nasima has decided to rejoin her husband and work in the brick kilns once again.

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« While we worked firing clay, our daughter would play in the stacks of coal and dust. Sometimes, she just sat around beside me with empty eyes. »

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Shiuli with uncertainty in her eyes

Case Study of Shiuli

MARRYING OFF THEIR DAUGHTERS TO PROTECT THEM

“My family was poor, so they married me off when I was only 13 years old. In the 17 years since, my husband and I have been struggling to find stability and a regular income – moving from one place to another, grabbing one occupation after another. But we haven’t been successful. This is the main reason why I, too, married off my daughter at a young age. Because of the lack of work in our village, many families do the same thing,” said Shiuli, who is now 30.

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« I am afraid that my daughter will face the same hardships that I do. How can we secure the future of our next generation? »

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Shiuli’s husband was a day laborer with no land of his own. After marrying Shiuli in the early 2000’s, he began pulling a rickshaw during the dry season. When the wetlands were flooded by tidal surges or monsoon rain, he would head to the nearby jungles of the Sundarbans to catch fish and collect timber. New government restrictions on logging and fishing in the region made it difficult for him to make a living, so he began working in other districts during the harvest season, and stayed on afterwards to pull a rickshaw. But life did not stop back home: Shiuli gave birth to a daughter.

In 2008, Cyclone Nargis made landfall in the Sundarbans, flattening Shiuli’s mud hut and damaging everything in its path. Shiuli and her daughter went to join her husband in Jashore, the district where he had been working as a rickshaw puller. They stayed there for a couple of years until Shiuli’s husband decided to move the family to Khulna City in



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Shiuli taking a break on her open veranda

search of more opportunity, but they couldn't keep up with the higher costs of living in the city. So, they were forced to return to their village with all of their belongings.

But the village they left had changed quite a bit. Just ten years earlier, their village had been teeming with lush, green paddy fields. Now, thanks to tidal surges and cyclones, those farms had turned into wetlands; the soils turned salty and barren. Since farming was no longer possible, some people started using these fields to cultivate shrimp, which are more tolerant to salty inland waters. Shrimp farming also requires less labor than growing crops, so fewer people in the village were hired.

Shiuli's husband failed to find suitable work in the village, and spent down all of his savings. Shiuli, meanwhile, became frustrated trying to raise ducks and hens: water was everywhere, and she couldn't even find grass to feed them with. Growing vegetables in her yard was equally difficult due to the salinized soil. So Shiuli and her husband decided to head for a faraway district to work in the brick kilns. For the last three years, they have been working together in various brick kilns across the country. Usually, they leave their daughter with her grandparents for six months so they can work in Magura and Jashore. Last year, they married her off at the age of fifteen because they could not leave her alone in the village, nor could they bring her with to work with them – women often face harassment, bullying, insults, demeaning comments, and other criticism in the workplace. After completing their work in the brick kilns, they come back to their village and stay for the remaining months of the year. During this period, they rarely have opportunities to work, save for the occasional fish pond weeding or other menial labor.

Shiuli and her husband feel that they are starting to get sick from laboring in the brick kilns: they work like machines – their wages depend on how many bricks they produce each day – breathing in smoke and sleeping in unhealthy conditions.

« I can remember, there were lush green paddy fields in our village, even amid the large swath of parched, cracked earth and water-clogged areas. Now, you can only see puddles. Water is everywhere. Nothing can grow. People cultivate shrimp in those fields. Poor people have very few opportunities to earn an income these days. »

Shiuli was born and raised in the village of Bhandarpur within the Koira Upazila in the Khulna district. Her village sits in the lap of the mangrove forest known as the Sundarbans, which once provided agricultural and economic opportunities to village residents, such as collecting timber, wood, honey and fish. After the government restricted timber collection and fishing from the region, many people in the area were boxed out from their traditional occupations. Crop cultivation has also taken a huge hit thanks to high levels of salinity intrusion in the water and soil, and there aren't any other options to generate income within the village. This has provoked a regular trend of migration for low-skilled menial works.

« We do not know how long we can survive under such harsh working conditions. We don't know what will happen in the future if we keep getting sicker. »



Sukumar taking care in his garden

Case Study of Sukumar

SECURING SURVIVAL: A NEW SEASON, A NEW LOCATION

“Staying unemployed in the village means nothing but living half-fed”, Sukumar says. “We need to leave frequently to seek out jobs.”

Sukumar (37) lives in the village of Hatidanga within the Upazila Koyra in Bangladesh’s Khulna district.

In the past, most people living in Sukumar’s village made a living working in agriculture. But in 2009, Cyclone Aila submerged the village in seawater, irreversibly clogging the farmlands with salinized water. Even today, seawater enters the village during high tide, turning parts of the village into wetlands. Poor drainage and waste management systems further contaminate the water. In combination, these issues have decreased available farmlands and fishing ponds, leading to a lack of work within the village.

His village wasn’t always flooded like it is now, but today, the never-ending salinity problems have caused a shortage of agricultural work between November and January. During this non-harvest season, people have to find work outside the village.

When Cyclone Aila hit, destroying his house and his fruit trees, and washing away his cattle, chickens and ducks,

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 << *Life was hard but smoother before Cyclone Aila.* >>

Cyclone Aila has made the soil too harsh, and over the next four years, it was nearly impossible to harvest. Crop production is still minimal today, making agricultural work difficult to find in the village. Fewer rains during the winter season allow soil salinity to build up, making freshwater less available and adversely affecting plant growth. These days, harvesting is only possible in early spring. An increase in salinity has also negatively impacted fish cultivation.

This combination of factors has led Sukumar as well as more and more people to look for seasonal work in different outside districts, towns and cities each year.



he had to take a loan to repair his house and make up for his lost income sources.

He then began working as a fisherman but the water became more salinized, more polluted and less oxygenated, making fishing unsustainable.

Sukumar's agricultural prospects were also very limited, as the grass couldn't tolerate higher levels of salinity either. Facing tremendous pressure to repay his loan with little work available, he traveled to India with the help of a local dalal (middleman) to work in construction. After six months, Sukumar returned home with a good amount of money. In India, he was able to earn twice or even three times more (8,000–10,800 BDT) than he would have been able to earn from a salaried position in his village (3,500 BDT).

After that first experience, he frequently returned to India to work for three months at a time on a "tourist visa", always returning before it expired. Sukumar was then able to pay back the loan he took to repair his house, and was even able to save enough to buy a three-wheeler paddling van.

Sukumar has stopped working in India, instead is content to drive his van inside the village to make money. As a foreigner, he found it quite risky to work in India without a legal work permit. During the rainy season, though, when he can't drive his van due to waterlogging, he continues to seek work in other districts throughout Bangladesh.

When Sukumar gets a good offer in the agriculture or construction sectors, he moves to other districts to take those jobs in an effort to avoid taking out loans (he typically travels to Rangpur and Barishal with others from his neighborhood in search of work). For Sukumar, due to challenges brought about by a changing climate, seasonal migration became the only option to overcome his daily challenges.

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« *Income can stop, but life never stops. I can always earn some money if I look for work in other districts, as opposed to sitting around worthlessly in the village. Who will pay to rebuild my house, whose roof seeps during the rain? Who will pay the educational expenses for my children? My work in India allowed me to buy a van that has helped me make a steadier income. My income from seasonal work in other places helps to cover my family's needs, and allows me to save some money for the future.* »

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Endnotes

1. We use the term “Migration” in the sense of a change of residence beyond administrative borders. See: Castles, S., de Haas, H., & Miller, M. J. (2014). The age of migration: International population movements in the modern world (6th ed.). Guilford Press.
2. Climate induced (seasonal) migration is an income diversification strategy, and a rational decision for many. However, extreme weather events can lead to displacement. In the context of climate change, the lines between internal migration and displacement can be blurred. In this paper, we do not distinguish between displacement and migration (or the shift from voluntary to forced migration, see Figure 5).
3. According to the Groundswell Report by the World Bank, there will be 13.3 million climate migrants by 2050, which translates into 7.5% of the total population (worldwide). By 2050, climate migration will occur more than any other type of migration. It is important to note that many different estimates and figures can be found.
4. Climate change influences pre-existing erosion in this area.
5. In the main survey in 2018, the questionnaire did not distinguish between soil and water salinity, whereas the second survey in 2020 did.
6. From Risk to Resilience. HELVETAS topicsheet_resilience_en.pdf (helvetas.org).
7. There are four main house types in the project area: starting with kacha (dry grass), tin-made, semi-pucca (walls or roof made out of brick) and pucca (walls and roof made out of brick).
8. Khulna to Gopalganj 65km; Khulna to Barishal 145.8 km; Khulna to Faridpur 156 km; Khulna to Rangpur 408 km.

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Our vision is of a just world in which all men and women determine the course of their lives in dignity and security, using environmental resources in a sustainable manner.
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Helvetas is committed to a just world in which all men and women determine the course of their lives in dignity and security, using environmental resources in a sustainable manner.

We are an independent development organization based in Switzerland with affiliated organizations in Germany and the United States. We currently focus our work in 30 developing and transition countries in Africa, Asia, Latin America and Eastern Europe, building on our experience of over six decades of supporting development activities in the Global South.

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Ovibashi Karmi Unnayan Program (OKUP) is a grassroots migrants' organization in Bangladesh, which operates on the principle of human rights priority based on gender justice, substantive equality, and non-discrimination.

Our vision is to create a conducive environment for all migrant workers, irrespective of gender and legal status across borders. Our mission is to raise migrants' voices and perspectives at all levels to formulate migrant-friendly laws and policies, and need-based programs and interventions to ensure rights, justice and dignity for all migrant workers, families, and communities.

Our objectives are to mobilize returnees, families and communities and enhanced knowledge and skills for building resilience against unsafe migration, human trafficking/smuggling, forced labor/slavery, and climate vulnerabilities; extend social, legal and economic support and services to survivors, vulnerable returnee migrant workers and left behind families, including children; conduct research and carry out evidence based advocacy at the local, national, regional and international levels.



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