

Chapter 2

Rainfall Variability, Hunger, and Social Inequality, and Their Relative Influences on Migration: Evidence from Bangladesh

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Abstract Research on climate change and migration usually assesses the effects of natural hazards and/or creeping environmental degradation on people's livelihoods and their migration. This chapter looks at changing rainfall patterns, local perception of these changes, and the decision to migrate, or not, to cope with rainfall variability and hunger. Based on empirical evidence from a case study undertaken in Kurigram District in northern Bangladesh, this chapter addresses four key questions: (1) Is the rural population sensitive to rainfall variability? (2) How is rainfall variability related to food security? (3) Which labour-migration systems can be used by the local people to cope with environmental shocks and adapt to change? and (4) Do people migrate for work to cope with and adapt to the effects of

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rainfall variability or because of food insecurity and social inequality? Although rainfall variability can play an important role in people's decisions to migrate, we argue that migration from the region is not driven so much by climate changes as it is by the persistent local patterns of social inequality and food insecurity coupled with the structural economic disparities that exist in Bangladesh.

Keywords Climate change adaptation • Food security • Social inequality • Labour migration • Seasonal migration • Bangladesh migration

2.1 Rainfall Variability and Migration in Bangladesh

Changing rainfall patterns such as an early or late start of the monsoon, an increasing variability of rainfall with altering periods of too much and too little rain, and a general shift in seasonal patterns are an important dimension of climate change and have considerable impact on the people in South Asia (IPCC 2007). In the academic debate about climate change, migration is often discussed as a coping strategy of people who flee before or after rapid-onset natural hazards, such as cyclones or floods, and as a way to adapt to slow-onset environmental changes, such as degradation or sea-level rise (see McLeman and Smit 2006; Warner et al. 2010; Piguet et al. 2011 for an introduction to the terminology). Much of the existing literature on climate and migration in Bangladesh has focused on these two relationships (see Warner et al. 2009; IOM 2010; Poncelet et al. 2010; Piguet et al. 2011; Penning-Rowsell et al. 2011; Mallick and Etzold 2015). While shifting seasons and increasing variability of rainfall can impact people's livelihoods substantially, there has been little study of these in Bangladesh, possibly because changes in seasonal rainfall rhythms can be slight and difficult to assess. It may also be because the impacts on rural livelihoods and food security, and their consequent links to migration and displacement, are not easily established.

Previous research shows that due to the highly contrasting spatial and temporal distribution of rainfall, Bangladeshis often face too much or too little water. An abundance of water during the monsoon leads to seasonal flooding. While in the dry season, high temperatures and little or no rain leads to low water levels in the rivers, causing saline ingress along the coastal rivers, low soil moisture levels, and often creating agricultural drought conditions (Selvaraju et al. 2006). Given the normal seasonal hydrological complexity, a good harvest or a crop loss depends largely on the availability of water in the right quantity and quality, and also at the right time. If farmers are unable to manage the variability in rainfall through adaptations such as irrigation, they risk losing some or all of their production. However, poor subsistence farmers often cannot afford irrigation. Too little water during the critical growing period of their crops increases their food insecurity. If no other employment opportunities are available in the immediate vicinity, migration becomes an

option households use to sustain their livelihoods in the long run, and to secure access to food in the short- and mid-term (Findlay and Geddes 2011; IOM 2010; Poncelet et al. 2010). Studies by Gray and Mueller (2012) show a positive and significant relationship between crop failures (primarily driven by rainfall variability) and long-term mobility in Bangladesh. However, the propensity to migrate permanently due to crop loss and food insecurity differs significantly among rural households. In the case of a severe drought, landless labourers, for instance, do not lose their own agricultural production, but rather their work. They are thus more likely to migrate permanently in search of alternative employment opportunities than members from households who have lost a large share of their harvest, but hope to recover at home (Gray and Mueller 2012). Such studies point to hunger or food insecurity as a key variable that helps explain the complex relationship between environmental changes and human mobility.

In order to understand migration in the larger context of climate change, Findlay and Geddes (2011) suggest a need to first investigate pre-existing mobility patterns and livelihood systems, and then assess the *additional burden* that climate-related risks pose for people. In this context, food (in)security presents three additional considerations. First, it should be recognized that what and how much people (can) eat is a reflection of broader social inequalities within a given society. Second, in rural communities in the global south most people depend directly on environmental resources. They either rely on their own agricultural production for food or they earn their income and food by providing labour on other people's fields. Third, the occurrence of hunger is often an immediate consequence of an adverse environmental event or crisis.

To provide empirical evidence for the complex relationship between environmental changes and migration, a field study was carried out in 2011 in Kurigram District in northern Bangladesh by CARE Bangladesh and the United Nations University Institute for Environment and Human Security (UNU-EHS) as part of the Where the Rain Falls project. The objective of this broad international comparative study—undertaken in eight countries—was to understand the relationship between changing weather patterns, food security, social inequalities, and human mobility (Warner et al. 2012; Warner and Afifi 2014). Our research findings in Bangladesh were documented in a comprehensive case-study report (Ahmed et al. 2012, Etzold et al. 2014). The report addressed four key questions: Is the rural population in Kurigram District sensitive to rainfall variability? How does rainfall variability relate to the people's condition of food security? Which labour-migration systems can be used by the people from Kurigram to cope with shocks and adapt to change? Do people migrate for work to cope with and adapt to the effects of rainfall variability and/or because of the existing patterns of food insecurity and social inequality? Our answers to these questions provide insight into the complexity of the relationship between societal inequality and environmental migration, and contribute to the wider discussion of these issues being considered in this volume.

2.1.1 Study Area and Methodology

Our study focused on the Kurigram District of Rangpur in northern Bangladesh. The majority of the population in Kurigram pursues agricultural livelihoods, meaning that household security is directly dependent on rainfall. The region is known for a high incidence of poverty and seasonal food insecurity during the so-called *monga* period, when rice planted during the rainy season has yet to be harvested. The area is susceptible to monsoon flooding and riverbank erosion and has experienced significant changes in overall rainfall patterns. Within the district, four villages in Kurigram Sadar Upazila were selected because of previous community-adaptation work by CARE. Khanpara, an agricultural-based village of 600 people, was chosen as a base where most interviews and focus-group discussions took place. Three additional satellite villages were selected to generate comparative results: Khamar Holokhana (3800 people), Arazi-Kodomtola (700 people), and Doalipara (1000 people). Most of the people living in these villages are engaged in agriculture—46 % of the working population are farmers on their own land and 30 % are agricultural labourers. The rest are wage labourers or work in commerce and community services (see Ahmed et al. 2012 for more details on the study sites).

Both quantitative as well as qualitative research methods were applied during field research in October 2011 in order to understand under which circumstances households use mobility as an adaptation strategy to rainfall variability. The quantitative data was collected through a structured questionnaire survey involving 150 households. Random sampling was used to select the households for the survey across the four study villages. Qualitative data was collected through 33 focus-group discussions. A variety of Participatory Research Approach (PRA) tools were employed, including a comprehensive well-being analysis, livelihood risks rankings, timelines on agro-ecological changes and migration patterns, seasonal calendars, impact diagrams of rainfall variability, Venn diagrams on food security and migration networks, and mobility maps. In addition, 14 semi-structured interviews were conducted with experts from local and regional organizations involved in agricultural production and socio-economic development (see Rademacher-Schulz et al. 2012 and Ahmed et al. 2012 for more details on the methodology).

Although the triangulation of focus-group discussions, the household survey and expert interviews, as well as previous research and community-adaptation projects by CARE allowed a deeper understanding of the relevant research issues, there were also clear limitations to our study. First, talking about longer climate trends and more recent environmental changes was challenging. For example, the way local people spoke about rainfall variability and their agricultural production seemed to be biased by very recent, negative experiences. Our research took place during the peak of the *monga* season, when many people face acute food insecurity, which may have influenced their responses. Had the interviews taken place after the harvest, it might have yielded different results. In an ideal world, the study would have sampled more sites across northern Bangladesh and included interviews with migrants at their

destinations, not just their family members in the sending communities. However, we were able to include people who had previously migrated and returned.

2.1.2 Findings: Rainfall Variability, Hunger and Migration in Kurigram District

The central purpose of this study was to determine under what circumstances households use migration as a risk-management strategy in response to increasing rainfall variability and food insecurity. In northern Bangladesh, there are several dimensions to this issue. There is a distinct seasonality and thus rainfall dependency of livelihoods, a clear relationship between rainfall variability and food security, and a seasonal rhythm in Bangladesh's internal labour-migration system. Further, it is evident that social inequality and food insecurity in Kurigram combine with structural economic imbalances within Bangladesh to drive migration.

2.2 Rainfall-Dependent Livelihoods and Perceptions of Climate Change

In northern Bangladesh, agricultural production largely depends on natural rainfall because irrigation systems are costly and not common. Therefore, variations in rainfall have a direct effect on food production and household incomes. People are also exposed to increasingly frequent natural hazards which exacerbate the effect of the highly variable rainfall. Erratic rainfall patterns include a bimodal shift of monsoon rains, with two short but sharp rainfall episodes at the beginning (June/July) and at the end of the monsoon (September), and significant dry spells in between (July/August). This shift is made worse by a decline in already scant rainfall throughout the dry season and less reliable occurrences of intensive rainfalls during late-October (the so-called *Kaitan Sato*). For Kurigram District, data shows that while the inter-annual variability of rainfall is increasing, there is conflicting information on the changes in total precipitation. Some data sets show a slight increase of total monsoon rainfall over the past 30 years, others suggest a slight decrease.¹

¹The rainfall data from the Kurigram weather station suggests that monsoon rainfall *decreased* at a rate of about 0.55 mm per year (time series 1979–2010; data provided by the Bangladesh Water Development Board). In contrast, analysis of three different databases (CPC-Unified, CMAP, APHRODITE) shows that the total monsoon rainfall in Kurigram District has slightly *increased* over time (time series 1980–2007; data provided by the Center for International Earth Science Information Network, Columbia University).

The local people are well aware of seasonal weather patterns, extreme events, and changes in rainfall because their livelihoods and food security reflect a seasonal rhythm. Residents have noticed a shifting of the seasons. They remember that 20 years ago there were always six seasons but now they can identify only three or four distinct seasons in the year. Changes in rainfall patterns disrupt agricultural practices that have been learned and applied for generations and are thus perceived as severe livelihood risks. More erratic rainfall patterns have been observed by the local population since the early 1980s. Ninety-six percent of the respondents in the survey noted an increase in dry spells and droughts, and 84 % reported an increase in extreme weather events such as cyclones. Too much rain might result in excessive instead of normal flooding, whereas too little rain leads to more dry spells and prolonged droughts. One woman in Khanpara commented on an unexpected dry spell during the 2011 monsoon season and compared it with her experience of the past: “Back then clouds gathered in the sky and rain dropped, but now we can see clouds in the sky, but no rain falls.”

An increasing variability in rainfall has implications for the vegetative cycle of crops such as Aman rice, Boro rice and wheat, for the abundance of fish in ponds and rivers, and thus for the overall availability of food and the need for labour. Erratic rainfall patterns have brought a different dimension to people’s vulnerability that complicate and exacerbate the livelihood problems of people living in poverty.

2.3 Changing Rainfalls—Increasing Hunger?

In Bangladesh, food production and food imports have increased steadily over the past 30 years. Sufficient amounts of food are *available* on the markets to feed the nation’s growing population, but food insecurity is nonetheless one of Bangladesh’s most pressing problems (GoB and WFP 2004; Zingel et al. 2011; Keck et al. 2013; Keck and Etzold 2013). Food insecurity is a manifestation of economic and social inequality as people in poverty do not have adequate *access* to food (Ingram et al. 2010). In Kurigram District, rice yields have increased substantially due to the implementation of high-yielding technologies. However, many small-scale farmers simply cannot keep up with the rising costs of production. Indeed, these farmers cannot produce enough food to feed themselves and their families throughout the year. As a result, they rely on local labour opportunities to earn extra cash-income to buy food, which exposes them to fluctuations in food market prices. Each year, from mid-September to mid-November, agricultural wage labourers and small-scale farmers face a period of hunger (the *monga* season) as little labour is required on the fields before the actual harvest of Aman rice, the most important crop in the region. During this time of low income, many families are forced to reduce their consumption of food and go hungry (CARE 2005; Zug 2006). In Kurigram District, food insecurity is a chronic problem for people living in extreme poverty, who can go hungry any time of the year. During the *monga* in 2011, three-quarters of the interviewed households faced acute food insecurity.

Since rainfall patterns shape local food production, greater variability of rainfall has significant implications for rural communities particularly the food security of poorer families. Almost 90 % of the surveyed respondents reported negative effects of rainfall variability on their livelihoods—whether directly through their own food production or indirectly through higher food prices. Rice is the staple food for millions of people in Bangladesh. Food security can then largely be understood as *cereal security*, which depends on people's own rice harvest (availability of food), the local availability of labour to earn cash income to purchase rice, and the market prices for rice (access to food). Since Aman rice is grown in rain-fed conditions, too much or too little rain during the monsoon and the *Kaitan Sato* period can severely affect Aman production.

About 80 % of farming households in the study cultivate rice for subsistence only. Because the poorest families have only small landholdings and cannot afford irrigation or other investments, a decline in productivity has a direct impact on their food security. In Kurigram, three-quarters of the respondents buy most of the food they consume from local markets. Almost two-thirds of all respondents stated that they had experienced temporary food price increases when production declined unexpectedly due to too little or too much rain. Wage-labour dependent families are hit harder by such temporal increases of food prices than are farming households, who produce more of their own food.

If too much rain falls at an unexpected time and triggers floods, crop damage or temporary disruptions in the labour market, the vast majority of households (69 %) cope by reducing their food consumption. Half of respondents rely on external resources to access food during these critical times. This includes food aid by the government or NGOs. One-third of respondents reduce their expenditure on other goods to reallocate their spending on basic food requirements. One-fifth of households rely on remittances from migrant family members to secure money for food. Others sell assets, such as land or jewellery, and/or seek to increase their income through employment in the local labour market. If people cannot cope (in the short-term) or adapt (in the long-term) to further production loss and food price increases, food insecurity is exacerbated and the annual period of hunger is prolonged.

2.4 Seasonal Labour Migration: Moving Away from Hunger

Migration is used as a way to avoid or reduce food insecurity by 79 % of respondents to our survey and is part of broader income-diversifying activities for 27 % of respondents. Roughly 43 % of the households who responded had members who were not present due to temporary or permanent out-migration. Ninety-seven percent of the migrants were men. Although the number of out-migrants from the four studied villages has increased significantly over the past decades, this should not

obscure the fact that the vast majority of the people in Kurigram District are not mobile. Eighty-eight percent of the interviewed people in our survey have never migrated themselves, especially the elderly, people in extreme poverty, Hindu fishermen, and women.

Why Do People Migrate? According to our survey, the major reasons to migrate can be ranked as follows: poverty and lack of employment opportunities in the home region, food insecurity, rainfall variability, and natural hazards. Rainfall variability or other hazards are not the proximate cause of migration; rather, it is their immediate and mid-term effects, most importantly crop loss, local unemployment or food price hikes (Gray and Mueller 2012; Black et al. 2013; Martin et al. 2013). More than half of the respondents indicated that a sudden decline in crop production after a natural hazard or a dry spell during the monsoon season is an important reason for out-migration. One elderly woman remarked, “In any incidence of hazard, if we lose [food] production we have hardly any alternative but to migrate.” In general, dry spells, shifts in seasonal patterns of rainfall, as well as floods and storms were each seen by around 40 % of respondents as important reasons to migrate. Lack of available land for cultivation, a decline in animal production and fish catch, as well as poor soil quality and generally unreliable harvests—each of these relate to the local availability of food—were also mentioned as important reasons to migrate. Increasing food prices—the key indicator for people’s access to food—was in turn seen as an important migration motive by one-third.

Where Do People Go? Labour migration from the Kurigram District is almost solely in-country migration.² Most studies on migration in Bangladesh focus on rural-to-urban migration, in particular to the megacity of Dhaka. In our study, 49 % of the movements were to urban centres, while rural-to-rural migration accounted for 47 % of all movements (see Fig. 2.1 for a map of the major destinations). Generally, members of more affluent households are less inclined to migrate. If they do, they migrate to urban destinations, either for secure employment in the formal economy or for higher education. Most migrants, however, are people with little or no land to cultivate. In the cities they can find work in the garment industry, the construction sector, or in the urban informal economy if they possess the necessary skills and can adjust to the higher cost of living. Many migrants from Kurigram, however, temporarily move to other rural destinations such as Munshiganj, Feni or Comilla, where they can take advantage of their agricultural skills and benefit from the demand for labour during the sowing and harvesting season of rice or potatoes. Many migrants have established close ties to employers in these agricultural regions. *Sadars* (migration entrepreneurs) help organize these *labour journeys*, negotiate wages with employers, and facilitate transport, accommodation, and food for groups of labour migrants. Access to such networks means a more secure migration, which is an important consideration. As a consequence, an agrarian

²There was only one international migrant in 150 households in the survey, and none among the 118 households in the wealth-ranking in the base village.

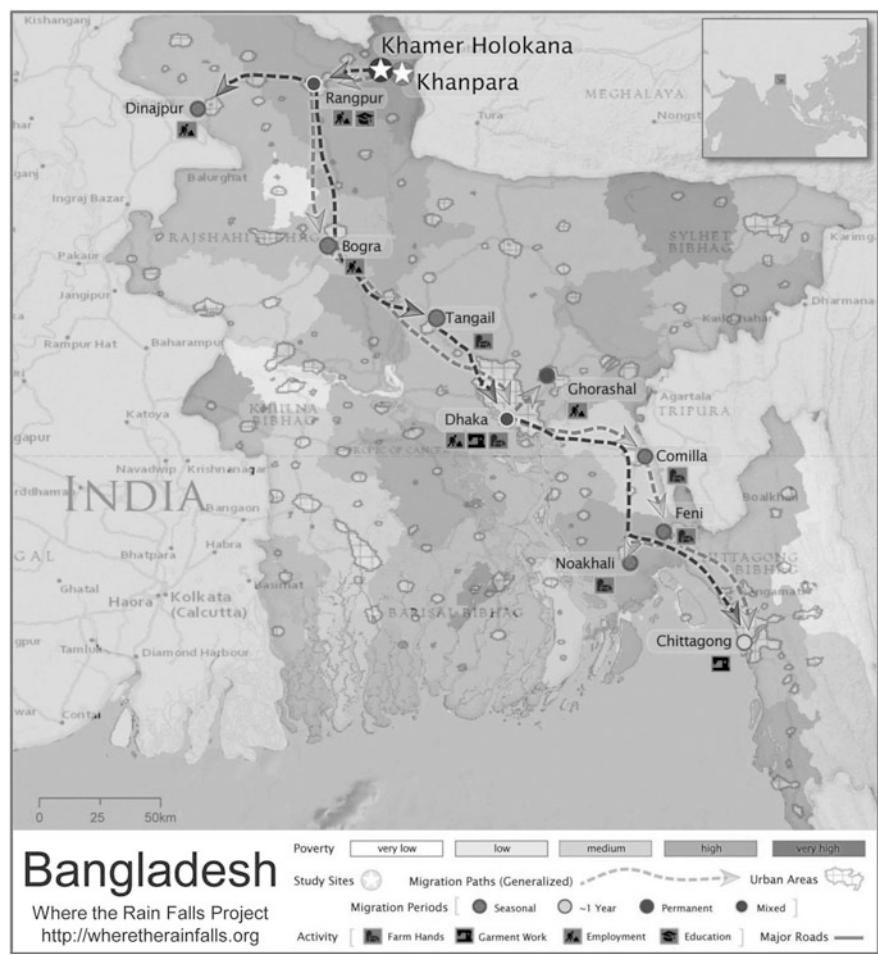


Fig. 2.1 Migration pathways of study sites in Kurigram District and key indicators of rainfall variability in Bangladesh. *Source* Modified from Ahmed et al. (2012, p. 142) (See <http://wheretherainfalls.org/> for an interactive and coloured version of the map with different background information.)

labour-migration system has evolved between Kurigram District and prospering agricultural regions like Munshiganj, near Dhaka, or Feni. Depending on the availability of work and the wages on offer, the labourers move back and forth between these places several times a year. Their livelihoods have thus become *translocal* (Peth and Birtel 2015).

When Do People Migrate? There is a distinct seasonal rhythm to labour migration from Kurigram. Despite the seasonality of hunger, migration seems to be driven by *pull factors*, rather than *push factors*. Most people do *not* migrate during the peak food-insecurity period since there are few employment opportunities in

agriculture in other places at that time. Soon after, however, the opportunities to migrate to Munshiganj or Feni, for instance, improve as the Aman crop matures there and the harvest requires extra labour (late November and December). Between February and April, migrants do *not* leave because of acute food insecurity in Kurigram, but rather because of the temporary high demand for wage labourers in Dhaka's garment industry or in the wheat and rice fields of Munshiganj and Feni. There is little evidence that migration is used as a planned, long-term adaptation strategy to diversify risks and to raise the family's income level. Instead, migration seems to be an adaptation to the shifting seasonal requirements of a domestic labour market that is structured by the annual monsoon cycle, by capital investments in agriculture elsewhere in the country, and by consumer demands in the global fashion industry that drive production in the garment factories of Dhaka (Kabir and Seely 2008; Ahmed et al. 2012; Peth and Birtel 2015).

What Are the Benefits of Migration? Labour migrants contribute significantly to the economy and to social transformation in Kurigram District. In the focus group discussions, it was often said that without the money sent back by migrants, many households could not maintain a basic supply of food. Three-quarters of all migrants' remittances are spend on food consumption. The migrants—regardless of whether their move is permanent, seasonal or temporal, or whether they move to or circulate between cities, other rural areas or international destinations—work hard for a gradual improvement of their families' lives and their food security. Nonetheless, labour migration also entails distinct social costs for those who are temporarily left behind. Because the men migrate alone in most cases, the women back home shoulder an even greater workload, are often burdened to pay back debts, are even less food secure, and sometimes face social and sexual harassment in their husband's or father's absence (Ahmed et al. 2012).

2.5 Social Inequality, Hunger, and Migration Choices

Labour migration from northern Bangladesh takes place within existing social networks and within established labour-migration systems. But who migrates in the context of rainfall variability and food security? To answer this question, one needs to bear in mind the inherent social inequality in the communities. According to the participants in a wealth-ranking exercise, a household's class or poverty status depends on land ownership, material possessions, sources of income and labour relations, and food security. These factors help to explain the social differentiation in the migration process.

Wealthier families who have large agricultural farms are also exposed to rainfall variability, but they are not as sensitive to the variability because they have alternative sources of income outside of farming. Because they are not subject to food insecurity, they do not need to migrate to sustain their livelihood. But they—or their children—do migrate for education or for formal employment. In Khanpara, 31 % of wealthier households had migrants in their family. All migrants were men and all

were living in cities. For this group, migration contributes to a further diversification of livelihood risks and an attainment of a higher social status.

Members of the *middle class* directly depend on rain-fed agriculture and are exposed and sensitive to rainfall variability. They are not food-secure year round and have to deal with seasonal food insecurity. In Khanpara, 41 % of middle-class households had migrants in their family. Five of the 26 migrants were women—two of them had left for education. Twenty-one of the 26 migrants worked temporarily in urban areas—mostly in the garment industry. An additional three had left temporarily to work in agriculture in order to cope with food shortages. And only two in this group from Khanpara had permanently migrated. Environmental stress such as a dry spell during the monsoon can surpass the adaptive capacity of these middle-class households and push them back into poverty and hunger. Successful migration allows them to diversify their livelihoods and increase their resilience to environmental risks. Either way, if the variability of rainfall increases, migration becomes an even more important risk-management strategy for them.

The *poor class* is most sensitive to rainfall variability because most are agricultural wage labourers. Some families have their own harvest, but the amount is usually too small to meet their food demand. During the pre-harvest *monga* season, the availability of work in the neighbourhood is low and they have trouble earning enough money to buy sufficient food. In Khanpara, 49 % of these poor households had migrants in their family. No women were among the migrants. Eighteen out of 29 migrants, mostly the male heads of their respective households, temporarily worked as wage labourers in other agricultural areas. Seven temporarily worked in cities as rickshaw pullers or garment labourers. Temporary rural-urban or rural-rural migration during or just after the *monga* season helps these poor families cope with food insecurity/scarcity. Their overall situation of dependency and seasonal insecurity, however, remains the same. A further increase in rainfall variability in northern Bangladesh will negatively affect the local labour markets, if no alternatives to agricultural labour are developed. Given a higher demand for labour in other parts of the country, the number of migrants from this group is likely to increase.

Extremely poor families are not as sensitive to changes in rainfall variability, because most of them are not actively involved in agriculture. They do, however, have to live with food insecurity year round and they seldom get three meals a day. During the annual *monga*, their *coping strategies* are stretched to the limits; some face starvation. In Khanpara, only two of these extremely poor households (i.e., 13 %) had migrants in their family. Both migrants were sons, who worked as day labourers in Dhaka. Families living under conditions of extreme poverty do not benefit from migration to cope with hunger or to improve their situation in the longer term. They don't have adult male family members who could work as labour migrants, the necessary resources to facilitate migration, nor the access to migration networks. These *trapped populations* (Poncelet et al. 2010; Black et al. 2013) are forced to adapt to the adverse effects of increasing rainfall variability with the resources that are locally available to them.

2.6 Conclusions: Social Inequality, Food Security, Rainfall Variability and the Role of Migration

Our research fills a gap in the existing literature on environmentally-induced migration in Bangladesh by examining how the variations of normal rainfall patterns affect livelihoods, food security, and migration decisions. The migration outcomes in the study area are influenced by a complex interplay of climate variability, seasonal food insecurity, social inequality, and structural factors beyond the influence of households.

Due to the rainfall dependency of agriculture-based livelihoods, significant changes in the annual monsoon cycle—too much or too little rain at unexpected times—are perceived by the local people as livelihood risks. The rural population is sensitive to rainfall variability patterns, although different social groups depend on agriculture to a different extent. Rainfall variability and food security are closely intertwined. An atypically long dry period during the monsoon season can lead to crop damage and to reduced food production. This will then contribute to an increase in food prices and reduce the demand for agricultural labourers throughout the harvest season. As a consequence, small-scale farmers and dependent wage labourers must reduce their own food consumption to cope with the effects of rainfall variability or seek alternative income sources by migrating for work opportunities.

The ebb and flow of Bangladesh's internal labour-migration system is driven by the demand for agricultural labourers and informal workers, and is influenced by the seasonality of hunger in northern Bangladesh. When rainfall-sensitive livelihoods in Kurigram District are negatively affected by too much or too little rain at the wrong time, some households can make use of existing migration systems to cope with such a temporary crisis. There is, however, a significant lag between the time when people are most food insecure and the time when there is a high demand for their labour. During these critical weeks, it is important that affected families have savings or assets they can sell, access to loans from shop owners or money lenders, or access to food aid and institutional support from the government or NGOs.

Migration is a process of social differentiation. In the study area as elsewhere, people's capital and capacities, as well as their social networks, structure their migration opportunities. The simplistic class analysis we have described shows that persistent local patterns of social inequality and food insecurity have an impact on different social groups' propensity to migrate in response to rainfall variability. The most affluent and food-secure people do not *need* to migrate in order to adapt to the negative effects of rainfall variability, because their livelihoods are resilient. In stark contrast, the poorest and most food-insecure people *cannot* migrate. These most vulnerable *trapped* households are forced to stay and cope with rainfall variability. For the social groups in between these extremes, permanent, seasonal and/or temporary labour migration is a way to adapt to climate risks and environmental change. Some households actually advance socio-economically because of migration, which has led to a diversification of their livelihoods and a reduction of their

sensitivity to rainfall variability. Members of other households migrate to cope with the immediate effects of rainfall variability but are just getting by and can neither get out of poverty nor reduce their sensitivity to rainfall variability. Some households use migration to deal with the worst periods of hunger. But their overall situation and the conditions for those left behind actually deteriorate (see also the household profiles by Warner and Afifi 2014).

There are clear links between rainfall variability, agricultural-based livelihoods, people's food security, and migration, but these links are not straightforward. The four questions we raised in this chapter lead us to the following conclusion: Migration in Kurigram is not caused by rainfall variability. Instead, migration is the product of the combined influences of social inequality and food insecurity in the region; structural economic disparities within the country; and the differential in labour needs between more remote rural areas on the one hand, and the major urban centres and prospering agricultural regions on the other. It is of course important to recognize that existing climate variability and the future impacts of anthropogenic climate change will have significant implications for Bangladesh and the migration processes and patterns that take place there. However, this should not obscure the fact that rural Bangladeshis experience multiple livelihood risks on a daily basis. Their lives are fundamentally shaped by social and economic inequalities, and by the political power-games that are played by powerful elites—sometimes even in the name of climate-change adaptation.

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