Chapter 4
A Methodology for Assessing Patterns of Labour Migration in Mountain Communities Exposed to Water Hazards

Soumyadeep Banerjee, Jean-Yves Gerlitz and Dominic Kniveton

Abstract There is a knowledge gap regarding migration in mountain regions, where exposure to environmental stress is the norm, and any increase in such stresses can be expected to have a marked effect on the lives and livelihood of mountain people. At present, there is little understanding of the process through which the impacts of water hazards influence the choice of household response, including the decision to migrate for work; and the role of remittances in shaping the adaptive capacity of recipient household. In 2010, the International Centre for Integrated Mountain Development (ICIMOD) conducted a regional study to examine the labour migration process in communities exposed to too much water (flash and other floods) and too little water (drought and water shortage) in the Hindu Kush Himalayan region. This study aimed to assess the influence of water hazards on the migration behaviour and the role of remittances on the adaptive capacity of recipient households. This chapter outlines the research design, theoretical framework, and research methods; briefly discusses some of the major findings; and the critically discusses the major challenges that were encountered during the study.

Keywords Hindu Kush Himalayas • Migration • Mountain • Remittances • Water hazard

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4.1 Introduction

Livelihoods are susceptible to numerous economic, social, political and environmental stresses and shocks, some of which are influenced by global transformation processes such as globalisation, demographic changes and climate change. There are several options in a household's portfolio of responses to react to such changes, one of which is labour migration. Sending one or more members to work somewhere else is a significant livelihood strategy for many rural households (Afsar 2003; Deshingkar 2004). A growing consensus suggests that labour migration can be an important strategy for reducing vulnerability to different sources of stress as it helps households diversify their livelihoods. In many cases, labour migration not only increases adaptive capacity but also enables individuals and households to accumulate savings and build assets that help them to deal with both known and unexpected challenges (see Adger et al. 2002; Tacoli 2009). Remittance from urban, mainly non-farm sources of employment have become an important component of rural household income, which influences patterns of household expenditure, living conditions, social security, education and health care (Deshingkar and Start 2003; Haque 2005). Remittance provides a safety net for the recipient household in times of environmental hazard (see Savage and Harvey 2007; World Bank 2009, Tacoli 2009).

Recent research (see McLeman and Smit 2006; Perch-Nielsen et al. 2008; Jäger et al. 2009; Kniveton et al. 2009) indicates that migration will be one of the outcomes of the intensification of environmental stressors by climate change. Over the last decade, within the climate change discourse there has been a gradual recognition of the role that migration can play in adaptation (see GMF 2010a, b).

It is not easy to isolate the impacts of environmental drivers of migration from those of non-environmental drivers such as economic, social, demographic and political. In assessing the relationship between environmental hazards and labour migration, it is important to understand the process through which a household selects the response strategies to the perceived impacts of environmental hazards. These responses are often the outcome of a household's vulnerabilities as well as its adaptive capacity. Differential vulnerability to environmental hazards within or between communities is the consequence of unequal exposure of households to environmental shocks and stresses; the sensitivity of their livelihoods to both environmental and non-environmental shocks and stresses; inequalities among households in terms of adaptive capacity such as access to land, housing, financial resources and social networks; and the prevailing socio-economic and institutional structures (Curson 1989; Cannon 1994; Adger 2006; Kniveton et al. 2008). Based on these factors, households can adopt one or more livelihood strategies from a portfolio of responses, which may include migration, to respond to stress and shocks due to environmental hazards.

The overwhelming focus on vulnerabilities in the current discourse on environmental migration has portrayed migration as a failure to adapt to the impacts of environmental stressors, rather than as a possible way of enhancing adaptation. Migration is

perceived to be a manifestation of the lack of adaptive capacity, or a strategy of last resort. This perception assumes that people are driven mainly by external shocks or stresses and are passive entities that are unable to use available options to improve existing livelihoods or create new ones. In contrast, all types of migrants consistently display initiative to resolve the challenges they confront (Skeldon 2003; Barnett and Webber 2009; Laczko and Aghazarm 2009). However, as migration requires resources, it may not be an option for some households; particularly the poorest and most vulnerable people are often unable to migrate (World Bank 2006; Schade and Faist 2010). Any assessment of the relationship between environmental stressors and migration is, therefore, incomplete without an assessment of the household and societal contexts within which the decision to migrate is taken.

The migratory response to environmental stressors varies depending on the frequency, intensity or magnitude of environmental stimulus, the variation in the contexts and perceptions of environmental threat, and the behaviour of people upon whom they have an impact (United Nations High Commissioner for Refugees 2001; Kniveton et al. 2009). An outcome such as the population displacements induced by the 2010 flood in Pakistan is at one extreme (see International Organisation for Migration 2010). Environmental stressors may even slow down long-distance migration by depriving a potential migrant of the necessary resources (Findley 1994; Henry et al. 2004).

The effects of labour migration and remittances on social, economic and gender inequality are still unclear and mixed. The extent to which remittances can be and are used to improve the conditions of the family back home also depends on several factors. The amount remitted clearly plays a role, but so does the existing level of development in the community. Often the poorest households do not have access to income from remittances (United Nations Research Institute for Social Development 2007; Ratha 2007).

There are few studies (see Suleri and Savage 2006; Population Studies Center 2007; Shrestha and Bhandari 2007; Gray 2009) on environmental migration in mountainous regions, where exposure to environmental stress is the norm, and any increase in such stresses can be expected to have a marked effect on the lives and livelihoods of the mountain people. And even fewer studies have been conducted on the role of remittances in shaping the adaptive capacity of recipient households to environmental hazards in this region.

Between 2008 and 2011, the International Centre for Integrated Mountain Development conducted a regional project entitled ‘Too much water, too little water—Adaptation strategies to climate induced water stress and hazards in the greater Himalayan region’ (hereafter referred as ‘the Project’). The primary objective of the first phase of the Project was to improve understanding of the ongoing changes in the Hindu Kush Himalayan region related to climate change and the response strategies adopted by the mountain households to such changes. Diversifying livelihoods through on- and off-farm activities emerged as a central response strategy of the mountain households in communities affected by the impacts of too much (flash and other floods) and too little (drought and water shortage) water. Labour migration was one of the livelihood diversification strategies adopted by some households in

the communities studied (International Centre for Integrated Mountain Development [ICIMOD] 2009). It was still unclear, however, whether the observed labour migration process was in any way related to the impacts of water hazards in the communities studied, and what implications this migration had in the context of the adaptive capacity of affected households. In the second phase of the Project, one of the research themes focused on the patterns of labour migration in communities exposed to water hazards, with an emphasis on quantitative approaches.[1] This thematic study focused on the influence of water hazards on migration behaviour and on the effects of remittance on the adaptive capacity of recipient households. This chapter outlines the research design, theoretical framework and research methods; briefly discusses some of the major findings; and identifies the major challenges that were encountered during the migration study from the second phase of the Project.

4.2 Research objectives and research questions

The overall aim of the study was to understand the process of labour migration in communities exposed to water hazards in the Hindu Kush Himalayan region. The objectives were as follows: First, to understand migration behaviour in communities affected by water hazards; second, to assess the characteristics of those households choosing to partake in labour migration in communities affected by water hazards; third, to assess the potential of labour migration as an adaptation strategy for households in communities exposed to water hazards and fourth, to assess the policy implications of labour migration as a response strategy to water hazards.

A series of research questions were formulated in line with these objectives, as summarised in Table 4.1.

4.3 Scope of the Study

The field assessments were conducted only in origin communities. In these communities, the study covered both migrant and non-migrant households. The following working definition was used to define migrant households and labour migrants:

> If during the past 20 years, any member of the household had lived anywhere other than in the origin community for more than two months at a time for work-related reasons, then the household is a migrant household and the migrant household member is a labour migrant.

Households not conforming to the above definition were referred to as non-migrant households.

[1] The other themes studied during the second phase of the Project were the role of tree crops in local adaptations to climate variability; effectiveness of flood mitigation infrastructure to address water hazards; and role of local governance in strengthening adaptive capacity to water stress.

Table 4.1 Research questions

Research questions	Research objectives 1	2	3	4
In water hazard affected communities, what is the relative importance of the perceived impact of water hazards on the decision to migrate for work?	x	x	x	x
In water hazard affected communities, how does the household context influence the decision to migrate for work? How does local context influence this migration decision?	x	x	x	x
Who are the labour migrants? Where do these migrants go? What occupations do labour migrants have in the destination communities?	x	x	x	x
What impacts do remittances have on household capacity to respond to water hazards?	–	x	x	x
What impacts does labour migration have on gender roles in migrant households?	x	–	–	–

Source Banerjee et al. (2011)

At any time during the past 20 years, if a household had received financial remittance, irrespective of the relationship of the remittance sender to the household, it was categorised as a recipient household. Both migrant and non-migrant households could, therefore, be recognised as recipient households if they received remittance during the study time-frame. For the purpose of this study, water hazards were classified into two categories: First, rapid onset hazards, such as floods and flash floods; and second, slow onset hazards, such as drought and water shortage, which could take months or even years to become a disaster.

4.4 Study Area

The migration study was conducted in 44 villages in the Upper Salween-Mekong sub-basin in the Yunnan province of China; Eastern Brahmaputra sub-basin in Assam province of India; Koshi sub-basin in eastern Nepal; and Upper Indus sub-basin in the Union Council Area of Chitral in Pakistan (Fig. 4.1). The studied villages were located either in the mountains or lowland adjoining the mountains. Four of the case studies on local responses to water stress and hazards during the first phase of the Project were conducted in the aforementioned river sub-basins of the Hindu Kush Himalayan region (see ICIMOD 2009). A general description of the study sites can be found in Su et al. (2009) for Yunnan province, China; Das et al. (2009) for Assam province, India; Dixit et al. (2009) for eastern Nepal; and Nadeem et al. (2009) for Chitral Union Council Area, Pakistan. The communities covered in the migration study during the second phase of the Project were selected in consultation with key informants based on three major criteria: first, the community's having had a history of at least one of the following types of water

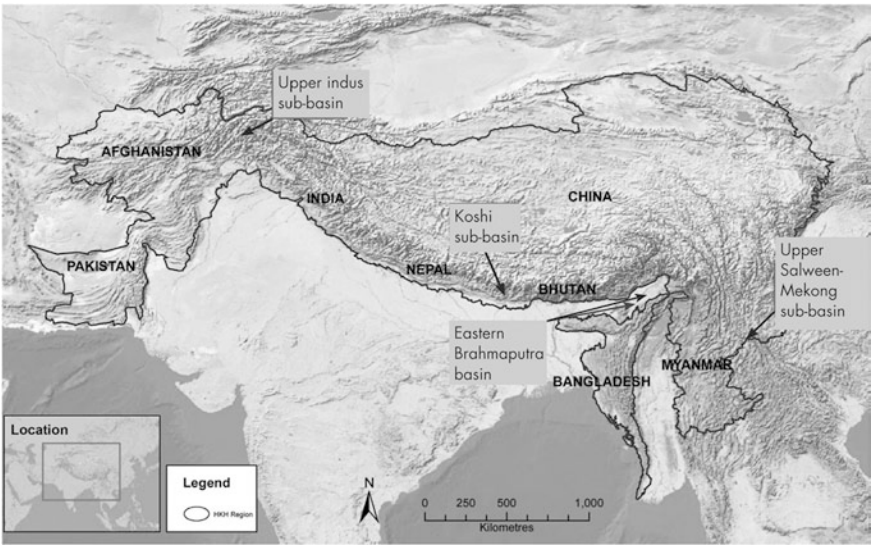

Fig. 4.1 The study sites within the Hindu Kush Himalayan region

hazard: floods, flash floods, drought, or water shortage; second, the perceived intensity and frequency of impacts of the water hazards; and third, the community's having had a history of labour migration. Prior to the commencement of the migration study in the second phase, brief field visits were carried out to observe the frequency and magnitude of water hazards, and the pattern of labour migration.

4.5 Theoretical Background

Overall this study is driven by an understanding of household decisions to migrate from a Sustainable Livelihoods Approach (SLA) and the New Economics of Labour Migration (NELM) perspective. Sustainable Livelihood Approaches attempt to explain the causal linkages between stressors (environmental and non-environmental) and household responses in terms of the household asset base. This asset base is composed of a variety of natural, physical, financial, human and social assets that are complementary to each other. The SLA recognises the extrinsic influence of institutions and policies operating at different levels (international, national and sub-national) and in different sectors (private and public) in shaping livelihoods (Carney 1998; Department of International Development 2000; Kniveton et al. 2008). The NELM approach provides insights into the household decision-making process. The decision to migrate for work is often made at the household level, which involves the migrating and non-migrating members of the household. The household overcomes constraints to spread the risks posed by its limited size by broadening the relevant geographical

space through the migration of one or more household members in search of work. The costs and returns of migration are shared by the migrant and the household, which expects remittances in return for the initial investment in the migration of the household member (Stark and Bloom 1985; Stark and Lucas 1988; Faist 2000). These two theoretical standpoints were used to formulate the design of the quantitative and qualitative data collection in the study and the questions on motivations behind the migration decision, the household assets at disposal for migration, the institutional setting of the household and the role of migration as a household risk management and diversification strategy.

Agriculture, which is the primary source of income in the rural areas of developing countries, is characterised by low and volatile productivity, and disguised unemployment is high. The capacity of agriculture to employ a large proportion of the expanding labour force is limited. Hence, not only income, but sectoral diversification is necessary to maximise the productivity of the labour force (Krishna 2002; Kundu et al. 2003; International Fund for Agricultural Development 2008). Migration provides an opportunity for sectoral diversification of the sending household's livelihoods. Since rural households are dependent on multiple sources of income, the family left behind in the community of origin continues to be engaged in farming (Kreutzmann 1993). The farm sector is highly sensitive to the impacts of environmental hazards (Barnett and Webber 2009). Migration assists vulnerable farm households to address the impacts of environmental hazards, including climate variability (Tacoli 2009). In the destination, rural migrants generally find employment in the non-farm sector (Deshingkar 2004). This sector is comparatively less sensitive to environmental hazards. A geographical diversification of livelihoods occurs when the catchment within which the sources of household livelihoods are located is broadened. Remittance becomes an alternative income stream for the recipient household at the time of natural disasters (World Bank 2009). The primary means of livelihood in the origin community and in the destination community are rarely disrupted by natural disasters simultaneously. Income, sectoral and geographical diversification of livelihoods, in turn, reduces risks posed to household livelihoods by environmental as well as non-environmental stressors. Though income or sectoral diversification may be a positive development, many migrants may still be employed in low-income, informal sector activities in the destination communities, wherein the economic returns are only marginally higher than that from the farm activities in the origin community and access to formal social-protection measures in the destination locale is minimal (see Seddon et al. 1998; Rogaly et al. 2002; Afsar 2003).

To assess the nexus between environmental stressors and human migration it is necessary to understand the multiple causes of migration. This study envisages that the decision to migrate for work is taken at the household level, and therefore households are the primary unit of analysis. Drivers of migration operate at various levels such as the national level, e.g., policies which facilitate or hinder migration; the community level, e.g., employment opportunities in origin community; the household level, e.g., resources to pay for the costs of migration; and the individual level, e.g., the willingness to migrate. The diverse drivers of migration can be grouped into five categories: economic, social, demographic, environmental and political.

The presence of migration drivers alone does not necessarily ensure that migration will occur. A series of intervening obstacles or facilitators influences the migration outcome in any particular place. Intervening factors may include access to transport and communication infrastructure, border controls, migration cost and recruitment agencies. Drivers of migration and intervening obstacles and facilitators influence the migration decision-making process in combination with one another (Kniveton et al. 2008; Foresight: Migration and Global Environmental Change 2011).

Past research has shown that the economic situation in the origin community is an important determinant of migration; if employment opportunities in the origin community are insufficient, it is more likely that people will migrate elsewhere in search of employment (Ezra 2001). Similarly, the economic status of a household has been shown to influence the migration decision. Increases in wealth raise the return to domestic production, which on the one hand increases the opportunity costs of migration, but on the other hand also relaxes resource constraints that restrict access to costly migration. At the same time, increases in wealth raise the maximum number of migrants a household could afford, but decrease the optimal number. Thus, migration would initially increase and then decrease with the corresponding rise in wealth. In aggregate terms, this is referred as the 'migration hump' (Chan 1995; World Bank 2006). Migration requires social resources. Social networks can facilitate migration by offsetting the disadvantages due to the lack of financial means in various ways such as extending loans at low interest rates, assisting in logistics and arranging jobs in the destination community (Goodall 2004; Thieme 2006). Population structure can influence migration behaviour. The higher the number of male household members of working age, it has been suggested, the higher the probability that one of them will migrate (Gray 2009). The type of environmental stressor, whether rapid or slow onset hazard, and the intensity and magnitude of the environmental stressor have also been suggested as having a significant bearing on the impact on the exposed community, perception of threat from the water hazard, and in turn on the choice of response strategy. Due to the immediacy and explicit nature of the impacts, rapid onset hazards have a stronger influence on the decision to migrate than slow onset hazards, the effects of which are staggered over time (Curson 1989; GMF 2010b). Low income households whose livelihoods depend heavily on natural capital, such as farming, animal husbandry, fishing, forestry and other primary sector-based livelihoods, are most vulnerable to the effects of environmental stressors on the ecosystem goods and services (Reuveny 2007; Barnett and Webber 2009). Vulnerability is even more pronounced when such people live in fragile environments like mountains. Political determinants such as institutional policies and conflicts can also influence migration behaviour. Institutional policies can seek to control (Wang and Zuo 1999; Liang and Ma 2004) or facilitate (International Food Policy Research Institute 2008) migration in an implicit or explicit manner. In addition, conflicts of various kinds such as insurgencies, political instability and religious or ethnic persecution, continue to uproot many across world, including mountainous regions (Baral 2003; The Energy Research Institute 2008; United Nations High Commissioner for Refugees 2010). Intervening factors such as access to information, presence of transport and communication infrastructure, and cost

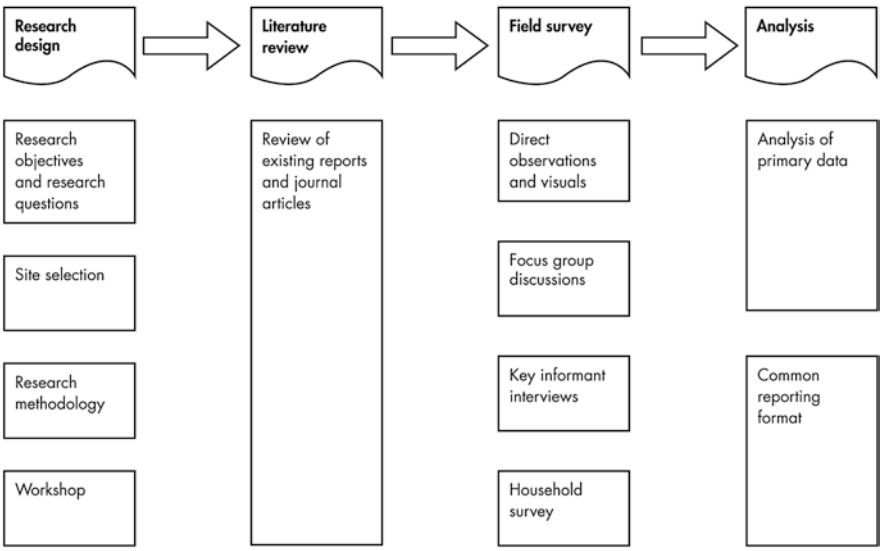

Fig. 4.2 Research schematic for water hazards and labour migration study in the Hindu Kush Himalayas

of migration can also determine whether migration is an available option (Rozelle et al. 1999; Bhandari 2004). The overall research schematic had four components: research design, a literature review, research methods and analysis (Fig. 4.2).

4.6 Methodology

4.6.1 Qualitative Data Collection

Information on community perception and attitude to the impacts of water hazards on livelihoods and household response strategies, determinants of labour migration, the contribution of remittances to the recipient household's welfare, the community's perception of labour migration, and the impact of migration on gender roles and the community was collected through focus group discussions (FGDs). Guidelines for open-ended questions provided the broad framework within which the FGDs were conducted, and, where required, the FGD facilitator asked follow-up questions. FGDs with different interest groups such as migrants, non-migrants, community elders and various female members of the migrant households were conducted separately. Each FGD comprised 6–8 people.

Knowledgeable individuals from the study area were interviewed in order to document in-depth information on the frequency and impact of water hazards,

local livelihood opportunities, migration behaviour, the role of remittances and the impacts of migration on migrant households, gender roles and origin community. Overall, 300 such individuals were interviewed across the four river sub-basins, which included migrants, non-migrants, female members of the migrant households, community elders, teachers, local public representatives and NGO workers. This information was used to verify the feedback from the focus group discussions and the findings from the household survey. Three separate interview guidelines consisting of open-ended questions provided the broad framework for the interviews with the migrants or male members of the migrant household, the female members of the migrant household and community representatives.

4.6.2 Quantitative Data Collection

A household survey was conducted to collect quantitative data on access to basic amenities and services, local livelihood opportunities, determinants of labour migration, migrant profiles, impacts of remittances and living and working condition of migrants in the destination communities. The household survey covered 1,433 households in 44 villages across the four river sub-basins in the Hindu Kush Himalayas (Table 4.2). The primary aim of the study was to understand the influence of water hazards on migration behaviour and assess the role of remittances in the adaptive capacity of the recipient households. Hence, labour migrants and migrant households were the main focus of the study. The sample design had envisaged that two-thirds of the overall sample would be made up of migrant households and the remaining of non-migrant households. The rationale was to have a substantial control group of non-migrant households. Based on the working definition of a migrant household, and in consultation with the key informants, all the households in each of the communities studied were classified into two major categories: migrant households and non-migrant households. Households within these two categories were then selected at random for the household survey. In the communities studied the percentage of migrant

Table 4.2 Number of surveyed households in different sub-basins/basins

River sub-basin/basins	Province/District/Union Council Area	Surveyed households		
		Total	Migrant (%)	Non-migrant (%)
Upper Salween-Mekong	Yunnan	363	60	40
Eastern Brahmaputra	Assam	336	71	29
Koshi	Dhankuta, Sunsari and Saptari	365	69	31
Upper Indus	Chitral	369	69	31
	Total	1433		

Source Banerjee et al. (2011)

households ranged between 5 and 97 % of the total households, the average was 48 %. In five communities the percentage of migrant households was less than 20 %, in seven communities it was higher than 80 %. Overall, migrant households were oversampled during the household survey. To correct possible errors the oversampling might have caused, design weights were constructed and used for the quantitative analyses.

The instruments for the household survey included a household schedule, a migrant questionnaire and a non-migrant questionnaire. In every surveyed household, depending on whether the household had been classified as a migrant or non-migrant household, information was gathered using a the household schedule and the migrant (or non-migrant) questionnaire

The design of the household survey instruments incorporated some relevant aspects of the Environmental Change and Forced Migration Scenarios (EACH-FOR) project[2] and the National Family Health Survey—3 (NFHS—3) of India.[3] Researchers from the Hindu Kush Himalayan region and in other parts of the world were consulted during the questionnaire development process. These exchanges contributed to an understanding of the physical and socio-economic aspects of the study area. The input from researchers involved in ongoing studies on climate change and migration behaviour in Mexico and Burkina Faso were incorporated to improve the survey instruments.[4] The survey instruments were pre-tested and revised during the first week of field study in each of the four sub-basins studied. Orientation and training sessions were conducted in each of the four sub-basins to explain the objectives of the study and train enumerators on the survey procedure. A field supervisor along with the study coordinator supervised the data collection in each region.

The completed questionnaires were cleaned by the respective enumerators in consultation with other enumerators and the field supervisor. Further verification of the data was conducted in the field through random check, comparison of inter- and intra-community responses and feedback from key informants and focus group discussions. In cases where discrepancies due to human error had been identified during the post-enumeration stage, the enumerator concerned re-visited the particular households to seek clarification.

In each of the villages studied, community level information on demographic attributes, availability and accessibility to basic amenities and services, socio-economic conditions and occurrence of natural hazards was collected through a village schedule. This information was collected from local public representatives or community elders.

[2] http://www.each-for.eu/index.php?module=project_outline.

[3] http://www.nfhsindia.org/nfhs3_national_report.shtml.

[4] Personal correspondence with Kerstin Schmidt-Verkerk (study in Mexico) and Christopher Smith (study in Burkina Faso).

4.7 Processing of Primary Data

The data collected from the household survey were compiled, analysed and interpreted to prepare the study report. Household survey data were entered in a data entry mask designed with the statistical software package STATA. After entering the data a plausibility check was performed to remove entry errors and inconsistencies. The data analyses were conducted using the statistical software package STATA. Analyses were carried out along two lines of inquiry. First, differences between the impacts of two types of water hazard reported in the study region, i.e. rapid onset and slow onset water hazards, was studied. Second, cross-country analysis as well as country-wide analysis was performed and the findings were compared. The analyses were adjusted with weights based on the proportion of migrant and non-migrant households in the communities studied. The ratio between migrant and non-migrant households was obtained from the village schedule. The qualitative data collected from interviews and FGDs were mainly used to build discussions and explanations.

4.8 Summary of Research Findings

Analyses of the quantitative and qualitative data revealed a number of findings around the nature of labour migration in water hazard prone communities in the Hindu Kush Himalayas. First, as expected from the NELM, labour migration is generally recognized as a livelihood strategy chosen by households of their own accord to diversify income, increase their overall opportunities or create new possibilities for earning a living by using available assets. The majority of migrant households in this study perceived economic reasons to be the most important determinant of labour migration, with non-environmental factors such as inadequate income, unemployment, insufficient land for faming or grazing, and dissatisfaction with livelihoods also noted as significant motives of migration for work. Figure 4.3 summarises the perception of households of different factors influencing their migration behaviour. However, nearly 80 % of the migrant households surveyed also considered water hazards as an important influence on the decision to migrate for work. It should also be noted that many of the non-environmental determinants of labour migration are also sensitive to the impacts of rapid or slow onset water hazards. While recognising the multi-causal nature of migration, it is clear that the impacts of water hazards do influence the decision to migrate for work in the communities studied.

Second, it was found that the option of labour migration was not available in the portfolio of livelihood strategies of some households for economic and non-economic reasons. This finding is in line with the theoretical basis of SLA which argues that livelihood choices result from access to a variety of capitals and assets, and thus conversely a lack of these assets restricts certain households from partaking in a particular livelihood strategy. Among the non-migrant households surveyed, a lack of economic resources prevented 28 % of households from partaking

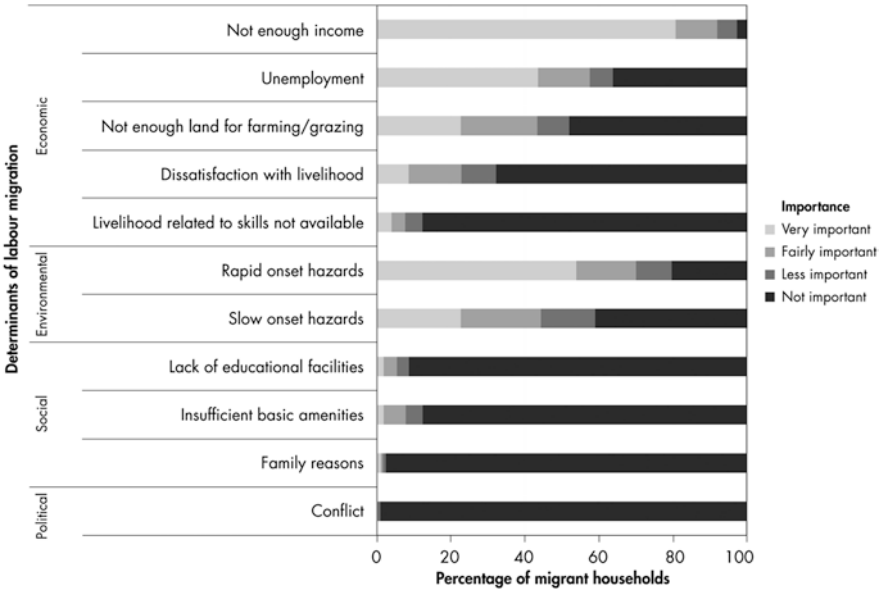

Fig. 4.3 Determinants of labour migration and their perceived importance in the migration decision

in labour migration. Family obligations (12 %), lack of additional household members (13 %) and acceptance of losses due to water hazards as a cost of gaining locational benefits (9 %) were other major reasons for not migrating in search of work. At the same time, some non-migrant households responded to the impacts of water hazards without recourse to labour migration. These households included those that had sources of livelihood that were not completely disrupted by water hazards (9 %); households that were aware of the risk of water hazard but did not expect a disaster (8 %); households that did not anticipate any losses or, at least, not serious ones (7 %); or households that were either planning or had undertaken loss reduction measures in anticipation of serious losses (5 %).

Third, remittance is the most tangible link between labour migration and the capacity of households to adapt to stresses and shocks. In the recipient households surveyed, the volume of remittance was generally low, with workers sending an average of US$214 back to the recipient households at each transaction, and the frequency of remittance transfer was, usually, irregular. Recipient households were predominantly the migrant households but some non-migrant households received remittances from their social networks as well. The average volume of remittance per transfer was US$248 in Yunnan province of China, US$80 in Assam in India, US$350 in east Nepal and US$179 in Chitral in Pakistan. Even these small amounts made a significant difference to the households and their capacity to deal with the impacts of environmental and non-environmental stressors, and had positive effects on the wider community.

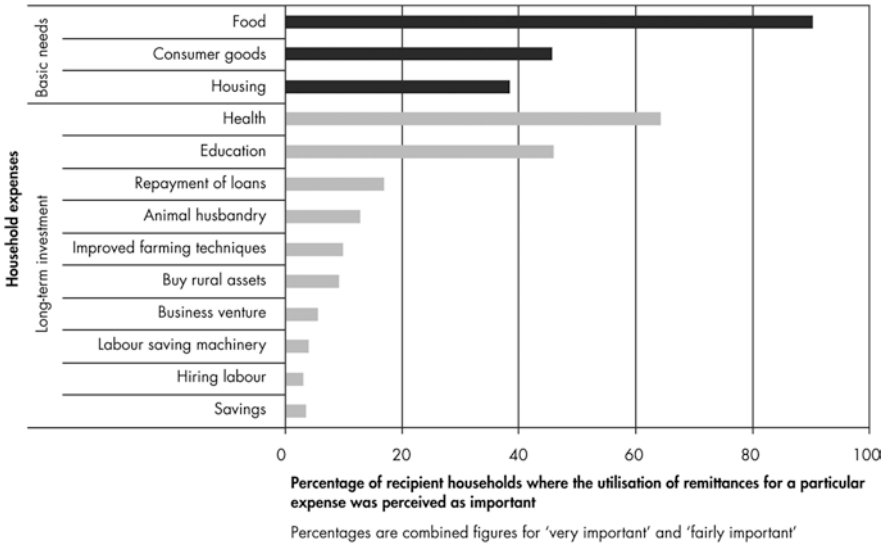

Fig. 4.4 Perceived importance of remittance utilisation for different household expenses

Remittance made a significant contribution to the recipient household's income. On average, more than half of the recipient household's income was contributed by remittance, supplementing income from other sources: agriculture, animal husbandry, daily wage employment, salaried employment and business. Remittance contributed to household welfare by contributing to basic nutritional needs, improving living conditions, and increasing purchasing power for consumer goods (Fig. 4.4). The recipient households were spending a major share of the remittance to procure food, making remittance an important factor in ensuring food security of these households, while the spending on health and education could improve the quality of life and future potential of the recipient households. Actual investment in business and infrastructure was minimal due to the low volume of the remittances, lack of supporting infrastructure or absence of a long-term perspective.

Remittance provides a safety net for households under stress during or in the immediate aftermath of water induced disasters, but also contributes to disaster preparedness. In the recipient households studied, remittance was used to buy food and cover the expenses of other basic needs during emergencies, and to recover after disasters. Remittance cash was also used to rebuild livelihoods, reconstruct houses and pay for basic amenities. Remittance was used to procure irrigation facilities in drought affected households, and to improve housing quality and procure boats in households affected by floods. However, the contribution of remittance to disaster preparedness was still sporadic unlike its role in disaster relief or recovery.

The benefits of remittance are not limited to the recipient families but can also affect the wider community. Most of the recipient households spent a major share

of the remittance cash within the community to procure goods and services, thus benefiting these local service providers. However, examining its impacts among these service providers was beyond the scope of this study.

4.9 Limitations

There are certain limitations to this study. First, the research findings represent a river sub-basin, not the entire area of the countries studied. Research findings from Assam, for example, are representative of areas in the eastern Brahmaputra sub-basin in Northeast India, not of India in general. As the study covered a wide area within the Hindu Kush Himalayan region, the findings are representative of areas within this region that are affected by the same types of water hazard and have similar socio-economic characteristics. Second, current climatic variability is often used as a proxy for future climate change impacts. To a certain extent, the influence of current climatic variability on the decision to migrate is useful in understanding the future impacts of water hazards intensified by climate change. Nevertheless, the future effects of environmental stressors intensified by climate change could be more complex than the impacts of current variability due to their constant nature. Not only will climate change intensify future water hazards, but the impacts of the water hazards will be complicated by changes in demographic, economic, social and political scenarios. Third, most of the surveyed communities had a long history of water hazards. The households in these communities were generally responding to actual hazard experience. Others may have been responding to anticipated future hazards, but the study did not make a distinction between responses to actual hazard experiences or anticipated hazards. Fourth, although this study had a non-migrant household sample as a control group for the migrant household sample, it did not have control sites in the context of water hazards, i.e. communities that did not experience any kind of water hazard. Thus, it is difficult to quantify the net importance of the influence of water hazards on migration behaviour. Instead, the study focused on the differences in migration behaviour and patterns in communities affected by rapid onset and slow onset water hazards.

4.10 Major Challenges in Research Operationalisation

Certain challenges were encountered during the course of the study: some were resolved while others need to be reflected upon for future studies. Some of the major challenges were as follows. The river sub-basins studied are water hazard prone areas. In the short time frame of this study it was difficult to identify communities that had not been affected by water hazards within the research timeframe, that is, during the past 20 years. In the absence of control sites for water hazards,

this study could not assess the net effect of water hazards on migration behaviour. Identification of control sites for water hazards will be imperative for future studies.

In many parts of the Hindu Kush Himalayan region, affiliation with particular social groups (e.g., caste or ethnicity or religion) influences the social capital of a household. Such affiliation could determine access to natural, physical, human and financial resources, which could have far reaching effect on adaptive capacity of households, including migration behaviour. On the other hand, the same social structure could be exclusionary in nature relative to certain marginalised social groups. While information on the caste, ethnicity and religious affiliations of the households surveyed was collected, these social indicators could not be incorporated in the regional level analyses because of the lack of a comparative framework of social groups across the region. For example, a reference framework does not exist to compare the social capital of a tribal household in India to that in Pakistan. Instead, using a Maximum Likelihood factor analysis a social capital factor based on help received from formal and non-formal institutions as well as membership in social networks was created, which served as a cross country proxy for social capital.

Several factors are instrumental in building trust and confidence of the community. Many of the enumerators and facilitators belonged to the same area as the communities studied or were associated with local institutions (e.g. NGOs, schools and colleges). The field teams were transparent with the communities about the study's objectives and outcomes. Prior to the survey, the field team briefed the village headman in each of the communities studied about the aims and contents of the research. Similar clarifications were provided to any community member who showed interest in learning about the various aspects of the study. Because there are many development organisations active in the Hindu Kush Himalayan region, it is common to conduct surveys prior to development interventions. Thus initially the communities studied expected some forthcoming benefits in return for their participation in this study. The field teams clarified that the study would not lead to any direct development intervention but could precipitate indirect benefits as the findings were to be shared with policy-makers at various levels. The study was presented as a means to bring some issues of the community members to the attention of policy-makers. Without the assistance of local facilitators a replication of the study within a short time frame will not be easy. As trust of respondents and access within communities are important issues.

Due to cultural sensitivities, social norms and general curiosity about the survey in the communities studied, it was difficult to conduct one-on-one interviews with female respondents in some communities. During the household survey and key informant interviews, the female respondent was often surrounded by other women or children from the same household or neighbourhood. In some instances, even the male members of the household were present. In such circumstances the respondents were often reluctant to respond frankly to gender sensitive questions, or onlookers tried to influence the respondent's opinion. In communities studied in Pakistan, the female respondents were accompanied by male household members, who often provided answers for the former. The presence of female enumerators was able to resolve this only to a limited extent.

4.11 Critical Discussion

Communities with a history of labour migration and which are already exposed to water-related hazards provide a useful analogy to what might be expected of communities exposed to increased water hazard stresses and shocks from future climate change. With a shift in perspective on the migration response to climate stress and shocks as failure to adapt, to a view of migration as adaptation strategy, the notion of households being trapped in locations exposed to the impacts of climate change and unable to migrate has started to gain wider recognition within the migration-adaptation discourse (Foresight: Migration and Global Environmental Change 2011). Interestingly the present study found that 28 % of the non-migrant households in communities exposed to water hazards in the four sub-basins sampled reported being prevented from migrating due to a lack of resources. Given that this study also found that, where households had at least one member partaking in labour migration, more than half of the recipient household's income was contributed by remittances, the findings suggest the existence of a vicious circle of increasing vulnerability in households unable to partake in labour migration. Further analysis of the data collected will help identify the characteristics of these trapped households and contribute to the development of policy interventions designed to increase their adaptive capacity. Furthermore the characteristics of the households migrating may be determined from the data collected in order to help develop policies that facilitate the process of migration, increase the levels of remittances and leverage the use of remittances to increase adaptive capacity of the households in origin locations and the community as a whole.

Despite the limitations and challenges, this study is a pioneering research initiative in the Hindu Kush Himalayan region to assess the patterns of labour migration in mountain and lowland communities vulnerable to rapid and slow onset water hazards. The results of the study act as a baseline to assess how changes in water hazard frequencies and magnitudes may contribute to changing patterns of migration. The methodology of the study forms a reference to future research designs for migration studies in general and for those using quantitative methods in particular.

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