Poverty and Vulnerability Assessment –

A survey instrument for the Hindu Kush Himalayas

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Jean-Yves Gerlitz

Soumyadeep Banerjee

Brigitte Hoermann

Kiran Hunzai

Mirjam Macchi

Sabarnee Tuladhar

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Foreword

ICIMOD's Poverty and Vulnerability Assessment (PVA) is a household survey tool designed to capture key elements of poverty, vulnerability, and adaptive capacity in mountain contexts for the Hindu Kush Himalayan (HKH) region. The PVA combines general predictors of poverty with indicators that are particularly relevant in mountain contexts, where factors such as physical accessibility and a lack of access to basic facilities often exacerbate poverty and vulnerability to stresses such as those related to climate variability and change. The inclusion of indicators of adaptive capacity acknowledges that, while mountain households in the HKH region may experience poverty and vulnerability, the communities they represent are also repositories of experience and knowledge that can help people cope with stress and adapt to change.

The PVA decomposes vulnerability into the dimensions of exposure, sensitivity, and adaptive capacity, each of which is represented by a number of sub-dimensions. Each sub-dimension is represented by a number of indicators. The PVA has been applied to more than 13,000 households across the HKH region – in Bhutan, India, Nepal and Pakistan – in order to identify particularly vulnerable communities and to develop a better understanding of the drivers of poverty and vulnerability in different mountain communities.

The PVA is particularly relevant in the context of development interventions aimed at building resilience and facilitating adaptation to climate variability and change. The amount of international finance targeted at such interventions is growing rapidly, as is the interest of national governments in responding and adapting to climate change. Interventions that seek to improve people's capacity to anticipate, plan for, cope with, recover from, and adapt to evolving climate, and other, stresses need to be based on a sound understanding of the drivers of vulnerability and the factors that enable people to cope and adapt to climate and other hazards.

The success of such interventions will be measured in terms of whether they have reduced vulnerability, enhanced adaptive capacity, and secured or enhanced human wellbeing in the face of intensifying climate hazards and other stresses (e.g., those related to changes in global commodity prices). Robust and contextually appropriate indicators of vulnerability and adaptive capacity are essentially for the monitoring and evaluation (M&E) of such interventions. An understanding of exposure is also vital, so that changes in human wellbeing, and in losses and damages from climate-related disasters, can be interpreted in the context of constantly evolving climate hazards and other dynamic stresses.

The data generated by the application of the PVA across the HKH region represent a valuable baseline for the M&E of adaptation-related development interventions, and for future assessments of human wellbeing and of vulnerability to climate-related and non-climate stresses in general. The value of these data cannot be overstated, given the lack of comparable data in other regions, where donors and implementing agencies are struggling to develop meaningful M&E frameworks that go beyond the measurement of project outputs and capture the longer term outcomes and impacts of adaptation-related interventions. The PVA provides a vital foundation for the regular monitoring of poverty and vulnerability that will enable the success of development and adaptation interventions by governments and donors to be evaluated in a robust, empirically grounded manner.

Nick Brooks
Director, Garama 3C Ltd
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Acknowledgements

Acronyms and Abbreviations

AR4	Fourth Assessment Report (of the IPCC)
FAO	Food and Agriculture Organization
HH	household
HKH	Hindu Kush Himalayas/Himalayan
ICIMOD	International Centre for Integrated Mountain Development
IFAD	International Fund for Agricultural Development
IPCC	Intergovernmental Panel on Climate Change
LAT	Livelihood Assessment Tool
LVI	Livelihood Vulnerability Index
MLVF-HKH	Multidimensional Livelihood Vulnerability Framework for the Hindu Kush Himalayas
MPF-HKH	Multidimensional Poverty Framework for the Hindu Kush Himalayas
NDRI	Nepal Development and Research Institute
NPR	Nepali rupee
NTFP	non-timber forest product
PVA	Poverty and Vulnerability Assessment
PVAT	Poverty and Vulnerability Assessment Tool
TAR	Third Assessment Report (of the IPCC)
UNEP-WCMC	United Nations Environment Programme-World Conservation Monitoring Centre
UNICEF	United Nations Children's Fund
VACA	Vulnerability and Adaptive Capacity Assessment
VDC	Village Development Committee
WFP	World Food Programme
WHO	World Health Organization

Part 1: Introduction

Part 1 gives the background to the development of the Poverty and Vulnerability Assessment (PVA) questionnaire including the rationale for a mountain-specific survey instrument and the theoretical basis underpinning the questionnaire.

Background

The Hindu Kush Himalayan (HKH) region extends 3,500 km across all or part of eight countries: Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan (Figure 1). It includes the Karakoram, Pamir and Himalayan ranges, among many others. As the source of ten major Asian river systems – the Amu Darya, Indus, Ganges, Brahmaputra (Yarlungtsanpo), Irrawaddy, Salween (Nu), Mekong (Lancang), Yangtse (Jinsha), Yellow River (Huanghe), and Tarim (Dayan) – the HKH provides water, ecosystem services, and the basis for livelihoods to around 210.53 million people in the region. The basins of these rivers provide water to 1.3 billion people, a fifth of the world's population (ICIMOD 2013).

The HKH region is mostly mountainous. While there is no universally accepted definition of what constitutes a mountain, the United Nations Environment Programme-World Conservation Monitoring Centre (UNEP-WCMC) concept (UNEP-WCMC 2002) identifies six mountain classes based on altitude, slope, or a combination of both factors (Table 1). The concept delineates roughly all areas above 1,000 m in altitude in the subtropics and tropics and above 300 m in altitude in the remaining parts of the world as 'mountainous areas'. According to this definition, the so-called hill areas of Nepal are considered to be mountainous. Correspondingly, 'mountain people' are the people who live in mountainous areas and 'mountain communities' are settlements located in mountainous areas.

Figure 1: **The Hindu Kush Himalayan region**
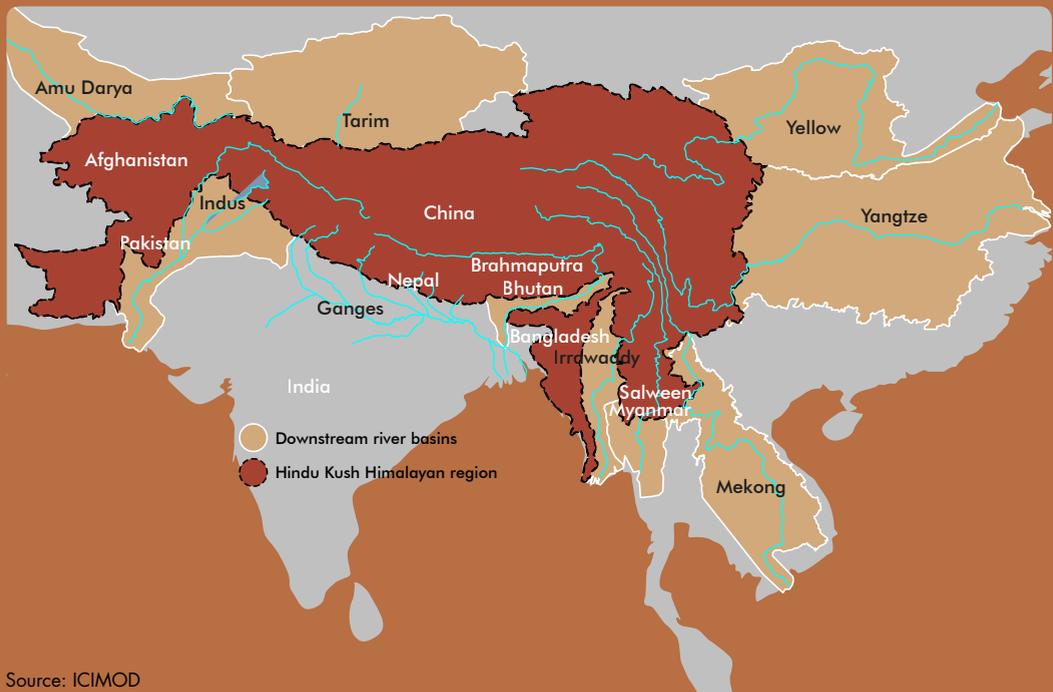
Source: ICIMOD

Table 1: **Definition of mountainous areas**

Class 1	Elevation 300–1,000 m and local elevation range (5 km radius) > 300 m outside 23°N–19°S
Class 2	Elevation 1,000–1,500 m and slope ≥ 5° or local elevation range (5 km radius) > 300 m
Class 3	Elevation 1,500–2,500 m and slope ≥ 2°
Class 4	Elevation 2,500–3,500 m
Class 5	Elevation 3,500–4,500 m
Class 6	Elevation > 4,500 m

Source: Adapted from UNEP-WCMC 2002, p 12–13

While mountain people are a heterogeneous group with diverse socioeconomic and cultural backgrounds, they all face similar challenges caused by the difficult terrain that they live in. A significant proportion of mountain people live in difficult terrain, far from the centres of commerce and power, and exert little influence over the policies and decisions that influence and shape their lives (Khalid and Kaushik 2008).

In addition to the difficulties posed by the terrain, in recent years, the population of the HKH region has been confronted with rapid economic, social, demographic, political, and environmental changes. There is a lack of cohesive information on the vulnerability of livelihoods to change and the responsive behaviour of the around 210 million people who reside in this region. Despite the fact that national living standards surveys (following the Living Standards Measurement Study approach, see Grosh and Glewwe 1995) have been conducted in almost all countries in the HKH, several important indicators are missing or not comparable across countries, for example, indicators of physical accessibility. In general, data on socioeconomic and environmental shocks, as well as on responsive behaviour, are not available. In addition, such surveys cover whole countries and datasets are representative at a relatively high aggregation level.

To fill this gap, the International Centre for Integrated Mountain Development (ICIMOD) has developed the Poverty and Vulnerability Assessment (PVA), a survey instrument to delineate poverty, vulnerability, and adaptive capacity in the HKH region. The PVA questionnaire has been extensively field tested and implemented in the region. From 2011 to 2013, ICIMOD carried out various representative quantitative studies in more than 13,000 households in Bhutan, India, Nepal, and Pakistan. While the location for data collection varied according to the specific project needs, the aim of all of these surveys was identical: to identify vulnerable communities, understand the complex characteristics of mountain poverty and livelihood vulnerability, and assess the adaptive capacity of mountain people.

This report introduces the PVA questionnaire and demonstrates its relevance to assessing poverty and vulnerability to change in the HKH region. This is done by presenting the underlying research frameworks, describing single indicators and questions that measure the dimensions of these frameworks, and giving examples in the form of illustrative findings from the surveys. However, first, the mountain-specific characteristics of the HKH region and the rationale for developing a survey instrument particularly for this region are discussed.

Mountain Specificities

Mountain regions are characterized by a variety of specific features that have to be taken into account if one wants to measure vulnerabilities in the HKH region. Referred to as 'mountain specificities', these characteristics include inaccessibility, fragility, marginality, diversity, niche biological opportunities, and human adaptation mechanisms (Jodha 1992, 2001). These mountain specificities both enable human activity and constrain it (Jodha 1992, 1997, 2001; Körner and Ohsawa et al. 2005). 'Enabling features' include a high diversity of resources, species, and cultures, as well as diverse niches for specific livelihood activities and products, which are associated with a great range of human adaptations. 'Constraining factors' include environmental and social fragility, marginality, and limited accessibility.

Within the mountain specificities framework, inaccessibility captures all elements of distance and mobility as well as the availability of risk management options. Jodha (1992, 1997, 2001) defines marginality as the lack of social and political capital, which often results in difficulties in securing tenancy rights over land and in gaining access to social services such as credit, education, and health services. Fragility is understood as the diminished capacity of a social or ecological system to manage shocks. The social dimensions of fragility in the mountains occur because of scarce, scattered, and periodically unavailable livelihood resources. Ecological fragility is linked to low carrying capacities coupled with the topography (slope and relief).

Figure 2: **Population below the official poverty line in the HKH (%)**
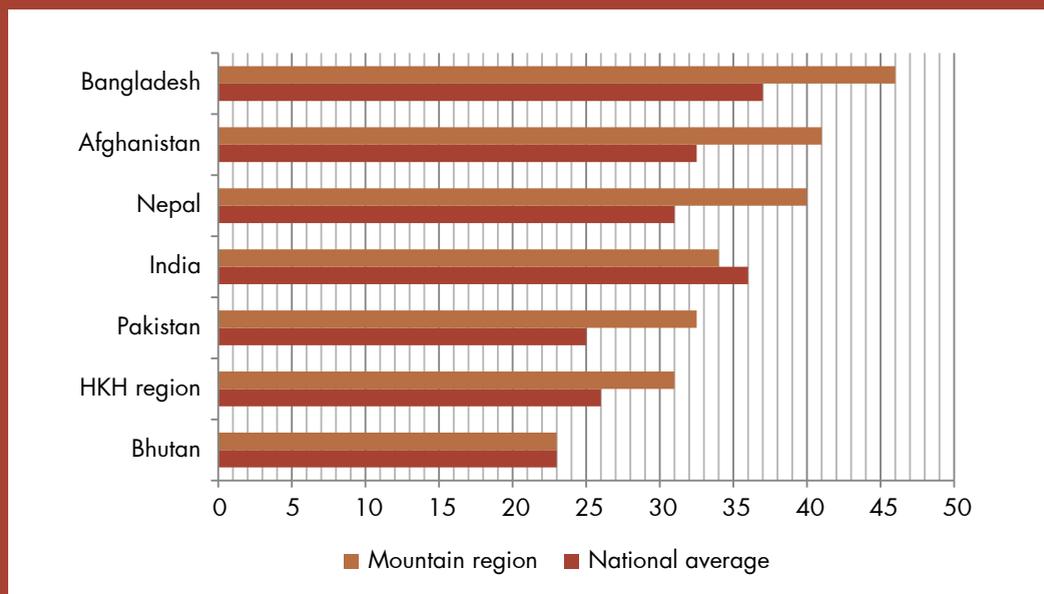
Source: Gerlitz et al. 2012, based on Nepal Living Standards Survey 2003/04, Bhutan National Living Standard Survey 2007, National Sample Survey of India 2003, Pakistan Social and Living Standards Measurement Survey 2005/06, Household Income and Expenditure Survey of Bangladesh 2005/06, National Risk and Vulnerability Assessment of Afghanistan 2007/08.

On the other hand, the concepts of diversity, niche, and adaptive capacity seek to capture the different coping abilities and strategies that emerge from the natural resource management patterns, livelihoods, and cultural practices of a given mountain community.

The Hindu Kush Himalayas is one of the largest mountain systems of the world, but it lies in one of the poorest regions in the world. Unidimensional poverty analysis of national poverty lines using the national living standards surveys of the eight regional member countries of the HKH shows that one-third of the population live in absolute poverty. Within the countries of the HKH, mountain areas are significantly poorer than the plains (Hunzai et al. 2011; Gerlitz et al. 2012; for Nepal, also see His Majesty's Government of Nepal 2005). On average, economic poverty is about 5% more severe in mountain areas. Particularly strong differences are visible between mountain and plain areas in Afghanistan, Pakistan, Nepal, and Bangladesh (Figure 2).

In addition to generic poverty determinants, which apply to all geographic areas, people in the mountains are confronted with lower access to basic facilities, poor physical access to services and institutions, and higher dependency ratios (Hunzai et al. 2011; Gerlitz et al. 2012). Panel analysis on chronic and transient economic poverty for Nepal shows that poor people in the mountains are mainly transient poor and that there is a higher risk of becoming transient poor in the mountains than there is in the plains and urban centres of the hills (Bhatta and Sharma 2011).

Climate and Other Changes

In addition, the HKH region has experienced rapid environmental changes and it is widely believed that the region will be one of the planet's hot spots for future climate change impacts (Maplecroft 2011). Like other mountain regions, the Hindu Kush Himalayas have experienced above average warming (IPCC 2007; Nogues-Bravo et al. 2007), which has led to glacial retreat, area reduction, and negative mass balance (Yao et al. 2012). Glaciers are important sources of water for springs and rivers, particularly during the dry season. The contribution of snowmelt to the runoff of major rivers varies from 10% in the eastern Himalayas to 60% in the western Himalayas (Vohra 1981). A modelling study by Immerzeel et al. (2010) simulated a mean decrease in upstream water supply between 2000–2007 and 2046–2065 of 8.4% for the Upper Indus River, 17.6% for the Ganges River, 19.6% for the Brahmaputra River, and 5.6% for the Yangtze River. The cascading of effects from high to low altitude areas implies that the impacts will be greater at lower elevations, for example, increased runoff at high altitudes could lead to floods and increased sand deposition on agricultural land at lower altitudes (Tse-ring et al. 2010). However, available studies are limited to isolated parts of the HKH region and may not be representative of the region as a whole (for a detailed discussion of changes in temperature pattern for the HKH region see Eriksson et al. 2009; Xu et al. 2009; Shrestha and Devkota 2010).

A lack of notable trends is observed in most precipitation studies in the HKH region (Shrestha et al. 2000; Shrestha 2009; Dimri and Dash 2011). In the eastern Himalayas, climate change impacts are manifested in the loss and fragmentation of habitats, a reduction in forest biodiversity, the degradation of wetland and riverine island ecosystems, a decline in forage and fodder resources, a reduction in agrobiodiversity, an increase in forest fires, soil fertility degradation, changes in land use patterns, and an increased variability in agricultural productivity (Tse-ring et al. 2010). Mountain communities and their livelihoods are sensitive to such changes, which will have a variety of impacts on human wellbeing. Primary sector livelihoods such as agricultural livelihoods have become increasingly uncertain and risky and, because of inadequate resources, poor households have especially limited adaptation options and are rather just coping (Gentle and Maraseni 2012).

Mountain areas are challenging living spaces and mountain communities have a long history of adapting to extreme conditions. Nonetheless, traditional adaptation mechanisms are often insufficient to cope with recent socioeconomic and environmental changes (Jodha 1997), which have considerably increased the challenges for mountain people in securing their livelihoods (O'Brien and Leichenko 2000). In developing countries, economic development in mountain regions already lags behind that in the lowlands, foothills, and urban areas (Tanner 2003; Barrera-Mosquera et al. 2010). Climate change is expected to exacerbate the existing challenges faced by mountain people and their environments, intensify some existing hazards, and result in the emergence of new hazards (Sonesson and Messerli 2002; O'Brien and Leichenko 2000; Macchi and ICIMOD 2010). These processes will intensify the exposure component of vulnerability. The sensitivity component will include environmental

aspects embedded in the biophysical features of a region and social elements that are closely linked to the nature and range of available livelihood options (Jodha 1997) as well as access to resources (Adger and Kelly 1999; Brooks and Adger 2005; Macchi and ICIMOD 2010). Vulnerability is particularly high when poverty intersects with discrimination, be it because of gender, caste, ethnicity or other reasons. This is especially true for women and so-called low caste people (Adger and Kelly 1999; Brooks and Adger 2005; Macchi et al. 2011).

National Efforts Targeting Mountains

Solid efforts are being made by both national and international stakeholders to address mountain poverty and vulnerability. Most of the Hindu Kush Himalayan nations show concern for their mountain systems and communities in their climate change adaptation and poverty reduction policies (Kumar 2011). A review of the national development policies and climate change adaptation plans of ICIMOD's regional member countries – Afghanistan, Bangladesh, Bhutan, China, Myanmar, Nepal, and Pakistan – reveals that several countries have recognized the need to design mountain-specific interventions to address mountain poverty and vulnerability. Bangladesh has a very limited mountainous area – the Chittagong Hill Tracts – but the national Bangladesh Climate Change Strategy and Action Plan 2008 (Government of the People's Republic of Bangladesh 2008) and the National Strategy for Accelerated Poverty Reduction II (Government of the People's Republic of Bangladesh 2009) recognize the Chittagong Hill Tracts as an ecosystem that is sensitive to climate change and has targeted programmes to reduce exposure and sensitivity and build the adaptive capacity of the indigenous people in the long term.

The Eleventh Five Year Plan of India recognizes the mountain states of India as backward states and accordingly provides access to increased funding from the central government. These programmes take a holistic approach and address physical, social, and economic factors, but it is evident that there is an emphasis on infrastructure development (Government of India 2008). Additionally, India has its National Mission for Sustaining the Himalayan Ecosystem to address the effects of climate change in mountain areas (Government of India 2010). This mission is supported by others working to reduce livelihood vulnerabilities, such as the Water Mission, Sustainable Agriculture Mission, and Green India Mission.

It is difficult to evaluate how the different mission activities are likely to impact the Himalayas as it is dependent on the specific projects undertaken within each mission. However, the Water Mission is likely to have an impact, especially in terms of watershed management and river flows and basin management. The Himalayan glaciers feed a number of perennial rivers that flow through north India and South Asia. These glaciers are likely to be a major part of the study of the management of surface water and upgrading storage structures for freshwater and the drainage system for wastewater. The Sustainable Agriculture Mission is also likely to impact the Himalayan ecosystem through activities under risk management and access to information. The Green India Mission will play a key role in the Himalayan ecosystem as the Himalayas provide vital forest cover and are the focus of afforestation projects through the participatory or joint management of forest and biodiversity conservation.

Nepal recognizes the need to address livelihood and climate change concerns, especially in mountain areas. The Government's Three Year Interim Plan (2007–2010) has certain programmes for mountain areas that take into account mountain specificities, as evident in a number of the sectoral and inclusive development policies (Government of Nepal 2007). Nepal's National Adaptation Programme of Action (NAPA) aims to reduce exposure and sensitivity to mountain-specific concerns, such as glacial lake outburst floods, along with broader projects targeting ecosystem management, water conservation and usage, and increasing the adaptive capacity of livelihoods to climate change (Government of Nepal 2010).

Pakistan's Poverty Reduction Strategy Paper II recognizes that there are higher levels of poverty and lower levels of development in mountain areas and the five mountain provinces than in other geographical areas. Despite the high levels of insecurity in Pakistan's mountain provinces, there are a number of programmes and projects that take into account mountain systems and communities including social protection and human development projects that are extensions of mainstream programmes and are specific to mountain areas. These programmes include the Benazir Income Support Programme, which is targeted at remote mountain areas such as Baluchistan, Chitral, North and South Waziristan, Kohistan, and Tharpakar (Government of Pakistan 2008). In addition, bilateral and multilateral development actors are also targeting rural poverty in the mountainous areas of Pakistan.

However, although concern is expressed, poverty and vulnerability reduction among mountain communities shows less progress than among communities of other geographic areas (see Gerlitz et al. 2012). One explanation is that mountain communities experience additional and rapidly changing stressors on their livelihoods, while at the same time they have less access to support mechanisms or alternative livelihood options than communities in more accessible areas. Another important explanation is that development interventions in mountainous areas do not sufficiently consider the mountain-specific context or may have insufficient information to design their policies or development interventions in line with mountain-specific dimensions.
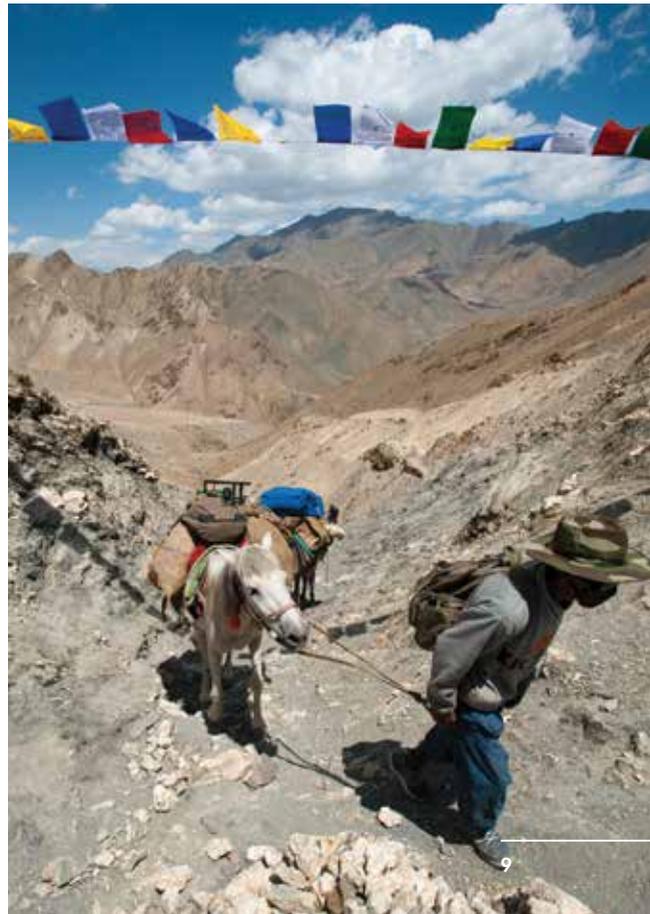
Rationale for a Mountain-specific Survey Instrument

Mountain people are acquainted with the mountain-specific features that shape their vulnerability. Through trial and error over generations mountain people have developed advanced skills to adapt to their challenging environment. They have reduced "bio-physical as well as socio economic vulnerabilities by means of a two way adaptation process: (a) Adjusting their demands to restrictions imposed by mountain circumstances; (b) Adapting mountain conditions to their needs through practices such as terracing to cultivate on fragile slope" (Jodha 1998, 2005). Such autonomous adaptation strategies and capacities are still visible in remote mountainous areas (Jodha 2005) where state interventions have not yet reached. However, in light of the accelerated path of both socioeconomic and environmental change, the challenge has increased considerably (Jodha 1997; O'Brien and Leichenko 2000) and there is a growing need for effective development interventions that support the preparedness and adaptive capacity of mountain communities. Both national and international development actors require evidence-based knowledge to inform their development planning and policy making.

Data currently available for mountain areas, in relation to both socioeconomic and environmental change, including that on climate change, is not enough for informed decision making. National livelihood surveys do not and cannot capture the mountain-specific dimensions of vulnerability and poverty (Hunzai et al. 2011). Hydrometeorological data in poor mountain systems is extremely limited and not representative of the climatic conditions because of the striking microclimatic variations in elevation and aspect, requiring a much greater density of sampling stations (Singh et al. 2011). Byg and Salick (2009), who conducted research in eastern Tibetan villages, strongly argue that the impact of climate change depends not only on weather variations, but also on ecological, social, and economic factors in a social-ecological system. Hence, it is necessary to apply a survey instrument that considers both socioeconomic and environment related variables and is able to capture the mountain-specific elements thereof.

The methodology presented in this report provides such an instrument for the collection of evidence-based knowledge on the mountain-specific drivers of vulnerability and poverty. Overall, the methodology identifies the most vulnerable mountain and hill communities, thereby allowing the location- and social group-specific prioritization of interventions (i.e., where to intervene and who needs such interventions). More importantly, the survey instrument provides information on the type and magnitude of mountain-specific drivers of poverty and vulnerability for the design of appropriate intervention packages (i.e., how to intervene). Finally, the survey instrument serves as a monitoring instrument, as it allows the measurement of impact after interventions have taken place (i.e., what did the intervention achieve?).

Theoretical Basis for PVA

Defining poverty

The World Bank (2000, p 15) defines poverty as a "pronounced deprivation in wellbeing". Conventionally, wellbeing is described as command over commodities and is measured in monetary terms in the form of income or consumption. In this sense, those who are not able to afford a certain standard of living are considered to be poor. Poverty can be described in terms of 'relative poverty', having fewer goods than others within a society, or 'absolute poverty', being unable to afford basic human needs such as nutrition (Morduch 2006). Although the concept of relative poverty is more commonly used to measure poverty in developed countries, the concept of absolute poverty was chosen for the PVA as a significant proportion of people in the HKH region are unable to afford basic human necessities (His Majesty's Government of Nepal 2005; Royal Government of Bhutan 2007).

Most national household survey data show significant regional disparities in the incidence of poverty, with greater proportions of poor households living in remote, less-favoured, weakly integrated, or conflict-affected areas (His Majesty's Government of Nepal 2005; Royal Government of Bhutan 2007). Poverty alleviation programmes often use aggregated poverty rates to identify and target the poor in developing countries. However, human development is multi-faceted; a combination of monetary and non-monetary indicators that reflect the specific

dimensions of mountain poverty are needed to measure and monitor poverty in mountain areas. These indicators can also be used to explore the characteristics of mountain poverty. Poverty measures such as the Human Development Index, Human Poverty Index (see Alkire and Santos 2010), and the recent Multidimensional Poverty Index (see UNDP 2010) have succeeded in defining poverty as a multidimensional phenomenon. In contrast to economic poverty, multidimensional poverty measures are based on Sen's (1992) capability approach. From this perspective, poverty is understood to be "the failure of basic capabilities to reach certain minimally acceptable levels" (Sen 1992, p 109), or, as UNDP (1997, p 2) puts it, "a denial of choices and opportunities for living a tolerable life". Multidimensional poverty measures allow us to capture multiple deprivations as well as interconnections among those deprivations and thus are highly relevant in the context of developing countries.

However, as a result of the lack of comparable data across countries, these new approaches do not take into account the geographic implications of different indicators and do not incorporate the specific factors that contribute to mountain poverty (fragility, marginality, limited accessibility, diversity, specific niche resources, and human adaptation), which can generate opportunities and impose constraints. These conditions are not exclusive to mountain regions, neither are they uniform across all mountain areas; however, in combination, and due to their high degree and crucial operational implications, they can be considered specific to mountains and are referred to as "mountain specificities" (Jodha 1992, p 44). Existing poverty indicators, which do not account for these mountain-specific dimensions, may not fully reflect the realities within mountain systems.

Multidimensional Poverty Framework

The Multidimensional Poverty Framework for the Hindu Kush Himalayas (MPF-HKH) is a research framework that has been designed to measure poverty in a region that is predominantly rural, mountainous, and stretches across several of the least developed countries. It was developed with the intention to construct a multidimensional poverty measure based on Alkire and Foster's counting approach, the AF method (see Alkire and Foster 2011). Multidimensional poverty measures based on the AF method allow the measurement and mapping of multiple deprivations, interconnections among deprivations, and the composition of multidimensional poverty and, thus, are highly relevant in developing countries (Alkire and Santos 2010). The MPF-HKH was constructed to complement official poverty measures with a measure that incorporates mountain-specific indicators and shows the level and composition of poverty. It is designed to compare poverty and identify vulnerable and excluded groups in mountain areas, inform policy makers and development planners about the level and composition of poverty, and evaluate the impact of interventions. The unit of analysis is the household, which is the central level on which decisions regarding economy, production, consumption, and exchange are made.

The MPF-HKH is based on the Multidimensional Poverty Index (Alkire and Santos 2010) and the Mountain Specificities Framework (Jodha 1992). The selection of dimensions and

indicators was further supported by an extensive study on the causes of economic poverty in the mountains, which analysed the national living standard surveys of six countries in the HKH region (Hunzai et al. 2011; Gerlitz et al. 2012). This regional poverty study sought to identify general predictors of poverty and combine these with the special socioeconomic and infrastructural conditions that exist in mountain areas to explain the different elements of poverty in mountain and non-mountain areas of a country. Empirical findings showed that, with the exception of India, poverty was higher in mountain areas than other geographic areas within the same country. In relation to India, the 14 different mountain and hill states within the Indian Himalayan region showed a broad variance of poverty levels, with poverty rates ranging from 2% in Nagaland to 56% in Himalayan West Bengal. One explanation for a lower mean poverty rate in the Indian Himalayas is that the Indian Government has invested intensively in the physical infrastructure of this area, because, among other things, most of the states are border states.

The study found that there was a higher concentration and combined prevalence of indicators of poverty in mountain areas in all of the study sites. Parameters such as lower access to basic facilities, poor physical access, and higher dependency rates were more prominent in remote mountain areas than in other locations. The two dimensions 'access to basic facilities' and 'physical accessibility' were strong indicators in understanding and explaining economic poverty in the mountains.

At the same time, some causes of poverty in the mountain areas also apply to non-mountainous areas, such as household composition, socioeconomic status, and assets and liabilities. Mountain areas are poorer because of the combination of both the common and the mountain-specific factors, which ultimately leads to higher and more persistent poverty rates than in non-mountain areas. Table 2 shows the indicators that were taken into consideration in the study.

Table 2: **Determinants of economic poverty**

Infrastructure	Household characteristics
Access to basic facilities • Availability of improved sources of drinking water • Availability of electricity • Availability of improved toilet facilities Accessibility • Distance to next paved road • Distance to next market centre • Distance to next bus stop • Distance to next bank • Distance to next cooperative	Socioeconomic status • Education of head of household • % of literate household members >5 years old • Ethnicity Household composition • Female household head • Dependency ratio • % of household members in non-agricultural occupation Assets and liabilities • Area of owned land per head • Number of plots • Number of livestock per head • Loans obtained

Source: Gerlitz et al. 2012.

The Multidimensional Poverty Index consists of ten deprivation indicators that measure three dimensions: education, health, and standard of living. Each indicator is strongly linked to the Millennium Development Goals (see Alkire and Santos 2010, p 17). Within the MPF-HKH, the importance of those three dimensions is acknowledged and indicators are replicated where appropriate and feasible. However, the Multidimensional Poverty Index dimension 'standard of living' was divided into two dimensions 'material wellbeing' and 'basic facilities'. Within the Multidimensional Poverty Index framework, this dimension is very broad and combines a variety of indicators. The findings of the regional poverty study showed that the lack of basic facilities is not only one of the main causes of poverty in the HKH region, but also one of the reasons that mountainous regions are poorer than non-mountainous regions (Hunzai et al. 2011; Gerlitz et al. 2012). Thus, it was decided that 'basic facilities' should be a separate dimension within the mountain-specific MPF-HKH.

The MPF-HKH also takes into account the mountain specificities (inaccessibility, a high degree of marginality, fragility, diversity, specific niche resources, and human adaptation to these conditions) (Jodha 1992). Although these specificities are not always mutually exclusive, they are critical to the wellbeing of mountain communities. Especially inaccessibility and marginality were considered to be relevant to a mountain-specific poverty framework that aims to capture deprivations that can be tackled by policies and development interventions. The MPF-HKH incorporates the mountain specificities of inaccessibility and marginality in the dimensions 'physical accessibility' and 'social capital'. The MPF-HKH consists of 15 sub-dimensions that measure six dimensions: education, health, material wellbeing, basic facilities, social capital, and physical accessibility (Table 3).

Table 3: Multidimensional Poverty Framework for the Hindu Kush Himalayas

Main dimensions	Sub-dimensions
Education	School attendance
	Access to education
	Literacy
Health	Illness
	Healthcare
	Food consumption
	Child mortality
Material wellbeing	Basic goods
	Assets
	Dwelling
Basic facilities	Electricity
	Drinking water
	Sanitation
Social capital	Political voice
	Social networks
Physical accessibility	Services and institutions

Defining vulnerability

While the term 'vulnerability' is used widely in development and adaptation contexts, there is no standard definition of vulnerability and usage varies considerably. Nonetheless, definitions of vulnerability tend to fall into two categories. The first category draws on the natural hazards literature and defines vulnerability as a function of the internal characteristics of a population or system that mediate the extent to which that population or system experiences harm as a result of exposure to an 'external' hazard (Wisner et al. 2004). In this formulation, the risk of an undesirable outcome (e.g., a complex disaster) is a function of, and results from, the interaction of the hazard with vulnerability. While this conceptualization of vulnerability may include local geographical and environmental factors that mediate risks/outcomes, it is strongly rooted in social and political processes and tends to take an actor-oriented approach (Wisner et al. 2004; Cannon and Müller-Mahn 2010; Miller et al. 2010). The vulnerability of a system to hazards associated with environmental change is linked to the wider political economy of resource use (Adger 2006). This approach generally uses a socially-defined scale such as the household, community, or region (Miller et al. 2010).

The second category is associated with the Third and Fourth Assessment Reports (TAR and AR4, respectively) of the Intergovernmental Panel on Climate Change (IPCC 2001, 2007), which define vulnerability in their glossaries as:

> *The degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate variation to which a system is exposed, its sensitivity, and its adaptive capacity (IPCC 2001, p 995; IPCC 2007, p 883).*

Put more simply, the IPCC definition views vulnerability as a function of exposure, sensitivity, and adaptive capacity (Hahn et al. 2009). It differs from the natural hazards approach in that it views vulnerability as a function of both 'internal' factors (sensitivity and adaptive capacity) and 'external' factors. The latter are the various climate hazards associated with climate change and variability to which a system or population is exposed. The IPCC defines exposure as "the nature and degree to which a system is exposed to significant climate variations" (IPCC 2001, p 987) and sensitivity as "the degree to which a system is affected, either adversely or beneficially, by climate related stimuli" (IPCC 2001, p 993). Adaptive capacity is defined as "the ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damages, to take advantage of opportunities, or to cope with the consequences" (IPCC 2001, p 982).

In fact, the IPCC definition of vulnerability is structurally similar to the natural hazards definition of risk; however, the IPCC essentially replaces the term 'risk' with 'vulnerability', and the term 'vulnerability' with 'sensitivity'. The "character, magnitude, and rate of climate variation to which a system is exposed" takes the place of hazard and the concept of adaptive capacity is added to address the fact that many manifestations and impacts of climate change will unfold over timescales that are long enough for people to anticipate, plan for, and respond to these changes.

In its recent Special Report on 'Managing the risks of extreme events and disasters to advance climate change adaptation' (SREX), the IPCC (2012, p 32) defines vulnerability as "the propensity or predisposition to be adversely affected" and describes exposure and vulnerability as the determinants of risk. While, at the time of writing, the IPCC Fifth Assessment Report (AR5) has not been released, the definition of vulnerability in the Special Report on Extreme Events suggests that the IPCC may be moving away from the definition of vulnerability in the glossaries of the previous two assessment reports towards the more established natural hazards definition of vulnerability as a component of risk.

Nonetheless, this most recent IPCC definition of vulnerability is very vague. This vagueness may signify a desire on the part of the authors to accommodate multiple ways of defining and treating vulnerability, recognizing the diverse ways the concept has been used in the climate change literature, but without contradicting the earlier IPCC glossary definition.

To incorporate the concept of vulnerability into the PVA questionnaire, the definition in the glossaries of the IPCC TAR and AR4 is used. This definition has been widely adopted and used to frame a growing number of studies that range from local studies with the household as the unit of analysis (Eakin and Bojórquez-Tapia 2008; Pandey and Jha 2011; Notenbaert et al. 2012; Sonwa et al. 2012), to global studies that examine the relative vulnerability of individual countries (Yohe et al. 2006a, 2006b; Allison et al. 2009). Other studies apply this approach at the national or sub-national scale to analyse the relative vulnerability of individual states or districts (O'Brien et al. 2004; Brenkert and Malone 2005; Malone and Brenkert 2008). Common to all these definitions are the key concepts of exposure, sensitivity,

and adaptive capacity (Miller et al. 2010). While recognizing the diverse and evolving definitions of vulnerability in the literature, it was decided for the purpose of the survey instrument to use the widely recognized IPCC TAR/AR4 definition, reflecting its widespread adoption by researchers and practitioners in recent years.

Multidimensional Livelihood Vulnerability Framework

A framework based on the established IPCC definition of vulnerability was used, in which vulnerability is defined as a function of exposure, sensitivity, and adaptive capacity (IPCC 2007):

$$\text{Vulnerability} = f \text{ (Exposure + Sensitivity − Adaptive Capacity)}$$

Within this framework, household-level indicators were used to capture key socioeconomic drivers of sensitivity, aspects of adaptive capacity, and the extent to which households have been exposed in recent years to evolving environmental hazards that are likely to be influenced by climate change, as well as socioeconomic hazards. Sensitivity is viewed as a factor that makes people or systems more likely to experience harm when exposed to a hazard or stress (i.e., the negative aspects of sensitivity are focused on, with any 'positive' aspects of sensitivity that allow people to recognize and respond to changes in a timely manner being associated with adaptive capacity). Adaptive capacity is a quality that allows people and systems to increase their ability to cope with external (e.g., climate) stresses and hazards and to expand the range of conditions under which they can sustain themselves and their livelihoods. Adaptive capacity, thus, reduces vulnerability to hazards that recur or unfold over periods of sufficient duration to allow people and systems to respond and adapt to change (Brooks 2003).

To estimate the vulnerability of a 'system' (e.g., an individual, household, community, district, or country), the factors that contribute to the three elements of exposure, sensitivity, and adaptive capacity must be identified and captured using indicators. These indicators can then be combined to create a composite vulnerability index.

Here the authors build on the methodology developed by Hahn et al. (2009), who developed a Livelihood Vulnerability Index (LVI) that focuses on quantifying the strength of current livelihood systems and the capacity of communities to alter livelihood strategies in response to climate-related exposures. The LVI combines the sustainable livelihoods approach (Chambers and Conway 1992; Scoones 1998) with the measurement of vulnerability as defined by the IPCC. Rather than taking a model-driven, impacts-based approach to the measurement of vulnerability, the LVI uses primary data from household surveys. The LVI has eight major components: sociodemographic profile, livelihood strategies, social networks, health, food, water, natural disasters, and climate variability. Each of these major components is comprised of a number of indicators or subcomponents and is associated with one of the elements of vulnerability (i.e., exposure, sensitivity, or adaptive capacity, see Table 4).

Table 4: **The LVI framework approach**

| IPCC contributing factors to vulnerability	Major LVI component	Examples of indicators or sub-components
Exposure	Natural disasters	Number of natural disasters that occurred in a six-year period
	Climate variability	Standard deviation of minimum and maximum monthly temperatures and monthly precipitation over a six-year period
Adaptive capacity	Socio-demographic profile	Percentage of female-headed households
	Livelihood strategies	Percentage of households with family members working in a different community
	Social networks	Strength of social network (e.g., percentage of residents assisting neighbours in chores)
Sensitivity	Health	Average time to health facility
	Food	Average crop diversity index
	Water	Average time to water resource

Source: Adapted from Hahn et al. 2009

The LVI framework has been adapted to a mountain context for application to the HKH region, reflecting the need to address mountain specificities. The resulting Multidimensional Livelihood Vulnerability Framework for the HKH (MLVF-HKH) incorporates indicators that are relevant in mountain contexts, such as physical accessibility, environmental stability, and social networks, which refer to the constraining characteristics of inaccessibility, fragility, and marginality. The MLVF-HKH also addresses the fact that climate change will not act in isolation from other stresses by taking into account economic shocks (e.g., unemployment or the failure of a business). The MLVF-HKH forms the basis of the PVA questionnaire.

To operationalize the MLVF-HKH in the questionnaire, its sub-dimensions were broken down into measurable indicators. These indicators are captured by specific questions within the PVA questionnaires. Figure 3 gives an overview of the main dimensions and sub-dimensions of the MLVF-HKH.

PVA Questionnaire

The PVA survey instrument was designed for the efficient collection of relevant information on poverty and livelihood vulnerability in the mountain context. The development of the survey instrument was a collaborative initiative between ICIMOD's national and international implementing partners in the HKH region. The questionnaire was created using various indicators based on the MPF-HKH and the MLVF-HKH. Among others, the Multidimensional Poverty Assessment Tool created by IFAD (see Cohen 2009) was reviewed. Because the Multidimensional Poverty Assessment Tool already contained many relevant indicators, it was refined and adopted as a backbone on which to build the PVA questionnaire. In

Figure 3: **Multidimensional Livelihood Vulnerability Framework for the Hindu Kush Himalayas**
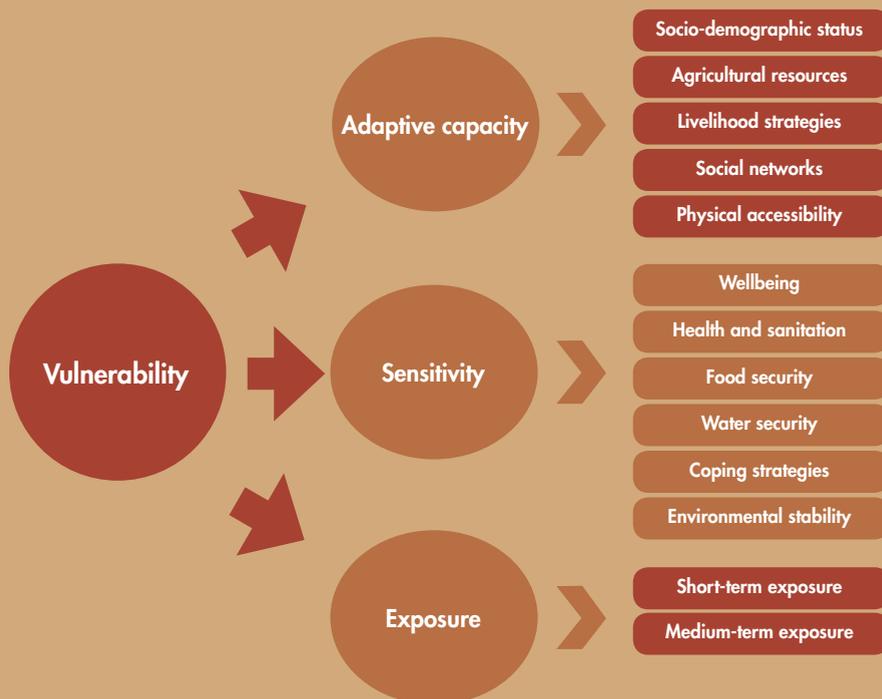
addition, sections on household food and non-food consumption from the Vulnerability Assessment Mapping survey created by the World Food Programme (WFP 2010) were included in the questionnaire. Physical accessibility questions were incorporated from the Nepal Living Standard Survey 2002/03 (His Majesty's Government of Nepal 2004). The final questionnaire was reviewed by international climate change and adaptation experts. Table 5 shows the thematic components incorporated into the PVA questionnaire (also see Annex for PVA questionnaire for PVAT 2012 survey).

Table 5: **PVA questionnaire components**

Household composition	Education
Household consumption	Food security
Water security (domestic and agricultural)	Assets (agricultural and non-agricultural)
Health and healthcare	Basic facilities
Ecosystem services	Physical accessibility
Gender inequality	Exposure to shocks
Exposure to environmental changes	Coping behaviour

The PVA survey instrument has been extensively field tested and implemented across the Hindu Kush Himalayan region through various programme initiatives. Table 6 gives an overview of the areas and sample sizes of surveys that have used the PVA questionnaire. In Nepal, the Poverty and Vulnerability Assessment Tool (PVAT) 2011 and PVAT 2012 surveys focused on poverty and vulnerability. Overall, 6,511 households in 17 districts were surveyed in two studies carried out in 2011 and 2012 (refer to PVAT 2011, available at www.icimod.org/pvat2011). In India, Nepal, and Pakistan, the Vulnerability and Adaptive Capacity Assessment (VACA) 2011/12 survey focused on exposure and adaptive capacity to shocks and medium-term climatic and environmental changes. In total, this dataset represents about 6,100 surveyed households: 1,127 for Pakistan (Chitral, Gilgit, and Hunza); 2,600 for northeast India (Assam and Arunchal Pradesh); and 2,300 for Nepal (Koshi basin) (refer to Gerlitz et al. Forthcoming). In Bhutan and Nepal, the Livelihood Assessment Tool (LAT) 2011 survey focused on the dependency of households on ecosystem services. In total, this dataset contains about 590 surveyed households: 218 households in Bhutan (Phobjikha Valley in Wangdue Phodrang) and 369 households in three districts of Nepal (Sunsari, Saptari and Udayapur).

Table 6: **ICIMOD's poverty and vulnerability assessments**

Survey (project and year)	Country	State/province/ territory/region	District	Sample size (number of households)
PVAT 2011	Nepal	Eastern mountains	Sankhuwasabha	381
		Eastern hills	Terthum	383
		Eastern Terai	Saptari	383
		Central mountains	Sindhupalchok	389
		Western hills	Gorkha	383
		Mid-western mountains	Humla	370
		Mid-western hills	Jajarkot	379
		Far-western mountains	Bajhang	386
		Far-western Terai	Kailali	385
			Total	3,437
PVAT 2012	Nepal	Eastern mountains	Taplejung	385
			Solukhumbu	384
		Eastern hills	Bhojpur	384
		Central hills	Sindhuli	384
		Mid-western mountains	Mugu	384
			Humla	367 (panel)
		Mid-western hills	Rukum	384
			Dailekh	384
		Far-western mountains	Darchula	384
			Total	3,440
VACA 2011/12	India – Eastern Brahmaputra sub-basin	Arunachal Pradesh	East Siang	375
			Lower Dibang	380
			Lohit	330
		Assam	Dhemaji	390
			Lakhimpur	390
			Moregaon	386
			Tinsukia	396
	Pakistan – Upper Indus sub-basin	Khyber Pakhtunkhwa	Chitral	383
		Gilgit Baltistan	Hunzanagar	376
			Gilgit	380
	Nepal – Koshi sub-basin	Eastern hills	Khotang	385
			Udaipur	385
		Eastern Terai	Sunsari	386
			Siraha	384
		Central mountains	Dolakha	385
		Central hills	Kabhrepalanchowk	385
			Total	6,096
LAT 2011	Nepal	Koshi Tappu Wildlife Reserve		369
	Bhutan	Phobjikha Landscape Conservation Area		218
			Total	587

Note: Panel means that the same households were interviewed in 2011 and in 2012.

Part 2: Indicators

Part 2 describes which indicators were implemented in the questionnaire to measure the dimensions of the MPF-HKH and the MLVF-HKH. Where one dimension is relevant to both frameworks (e.g., accessibility) the indicators are stated twice, although the relevance may differ. Sample questions and unweighted descriptive results from the PVA surveys are also presented for each dimension. At the time of compiling this report the final dataset of the PVAT 2012 was not available; thus, the analyses are based on PVAT 2011, LAT 2011, and VACA 2011/12. The results serve as illustrative examples of how the data from the PVA can be analysed. It should be pointed out that the sample size for the same survey might vary across indicators. This variation is caused by missing values and filter questions in the questionnaire (for example, households that respond that they don't have access to agricultural land are not asked about agricultural production).

Mountain-specific Poverty Indicators

To translate the MPF-HKH into the PVA questionnaire the broad dimensions of the framework – education, health, living standard, access to basic facilities, and accessibility – were broken down into several sub-dimensions, specific indicators were identified to measure the sub-dimensions, and questions formulated to retrieve information at the household level.

Education

Education, also known as cultural capital, is a crucial resource; it is not only of value in itself, but is also strongly linked to the accumulation of economic capital (Griliches and Mason 1972; Bourdieu 1986). To classify households in terms of education, four indicators were incorporated into the questionnaire: educational background, school attendance, access to education, and literacy.

Educational background

The educational background of the household was measured by the level of education of the household head. The head of the household is of central importance in relation to resource management, strategic planning, and decision making at the household level. Background analysis by Hunzai et al. (2011) showed that the education of the household head is strongly correlated with the literacy of household members as well as the economic wellbeing of the whole household. In this regard, educational background proved to be more influential than the highest educational degree held by a household member.
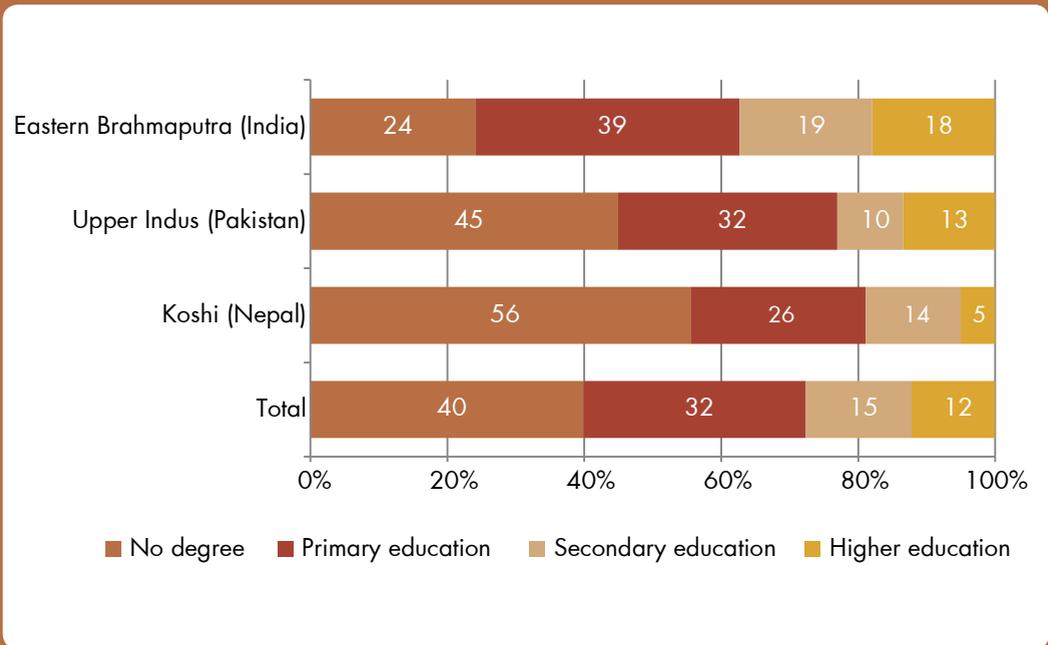
Table 7: **Question on educational background**

What is the highest completed level of education of the household head? *[Select only one option.]*			
Class 1 (1)	Class 2 (2)	Class 3 (3)	Class 4 (4)
Class 5 (5)	Class 6 (6)	Class 7 (7)	Class 8 (8)
Class 9 (9)	Class 10 (10)	School Leaving Certificate (11)	Class 12/Intermediate level (12)
Bachelor level (13)	Master level (14)	Professional degree (15)	
Literate (non-formal education) (16)		Illiterate (17)	Don't know (-1)

Figure 4 shows the distribution of a compressed form of this indicator for the three sub-basins of the VACA 2011/12.

School attendance

The second Millennium Development Goal is to achieve universal primary education. However, in the countries of the HKH a significant percentage of school aged children (6–14 years) do not attend school (UNICEF 2011). The reasons for non-attendance are diverse:

Figure 4: **Education of household head for the three VACA sub-basins (%)**

	No degree	Primary education	Secondary education	Higher education
Eastern Brahmaputra (India)	24	39	19	18
Upper Indus (Pakistan)	45	32	10	13
Koshi (Nepal)	56	26	14	5
Total	40	32	15	12

N=6,049 HH, 100%; compiled using data from VACA 2011/12

Sometimes children have to work in the fields, the house, or outside of the house. Other times parents do not have the money or do not see the need to send their children to school. However, the attendance of boys is higher than that of girls (UNICEF 2011).

Table 8: **Question on school attendance**

How many female and male children (aged 6–14) in your household do not attend school?			
# of male children		# of female children	
[If both '0' skip to Question 8.1]			

Based on PVAT 2011 data, Figure 5 shows the percentage of households with children where at least one child of school age does not attend school.

Access to education

Access to education, especially in physical terms, is of crucial importance for school attendance, particularly in the case of primary schools (Arunatilake 2006). Access to education is positively related to educational attainment and economic wellbeing. Access to schools is highly problematic in mountain areas, and children in the HKH region often have to cover great distances to reach the nearest school.

Figure 5: **Households with at least one child who does not attend school in the nine PVAT 2011 districts (%)**

District	%
Sindhupalchok	10
Humla	12
Bajhang	6
Kailali	4
Jajarkot	2
Gorkha	3
Saptari	5
Terhathum	1
Sankhuwasabha	2
Total	5
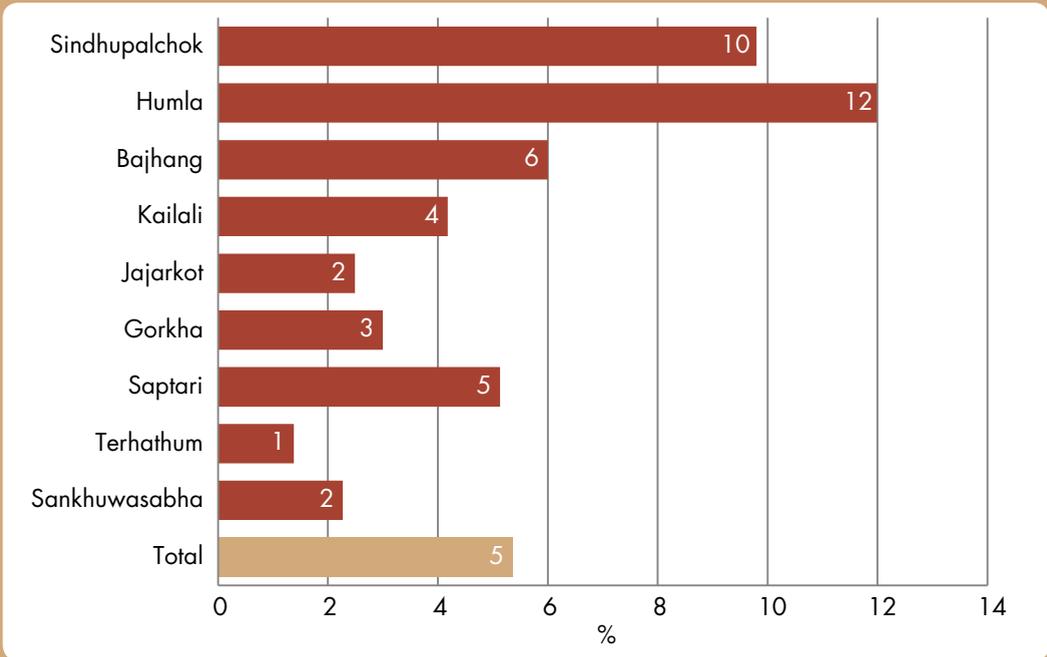
N=2,349 HH, 100%; compiled using data from PVAT 2011

Table 9: **Question on access to education**

How long does it take to get from your house to the closest of the following facilities (one way)? Please also indicate the mode of transport.

[Put '0' in time measurements if not appropriate. If respondent is unsure, ask for an approximation.]

Primary school	Mode of transport:		Days:		Hours:		Minutes:	
By foot (without load) (1)	Mule/pony/yak or other animal (2)				Bicycle/rickshaw (3)			
Motorcycle/tampo(4)	Car/bus (5)				Mixed (6)			

Figure 6 provides an overview of the average time that it takes to reach the nearest primary school in the three sub-basins of the VACA survey 2011/12.

Literacy

The literacy of household members is a strong indicator of education within the household. The ability to read and write not only enables individuals to develop their knowledge and potential, but also to participate fully in their community and wider society (UNESCO 2004). The advantage of this indicator is that it also takes into account household members who did not obtain any formal educational degree. An individual is regarded as illiterate if she or he is six years or older and is unable to read or write a letter (UNESCO 2004).

Figure 6: **Average time to reach the nearest primary school for the three VACA sub-basins (minutes)**
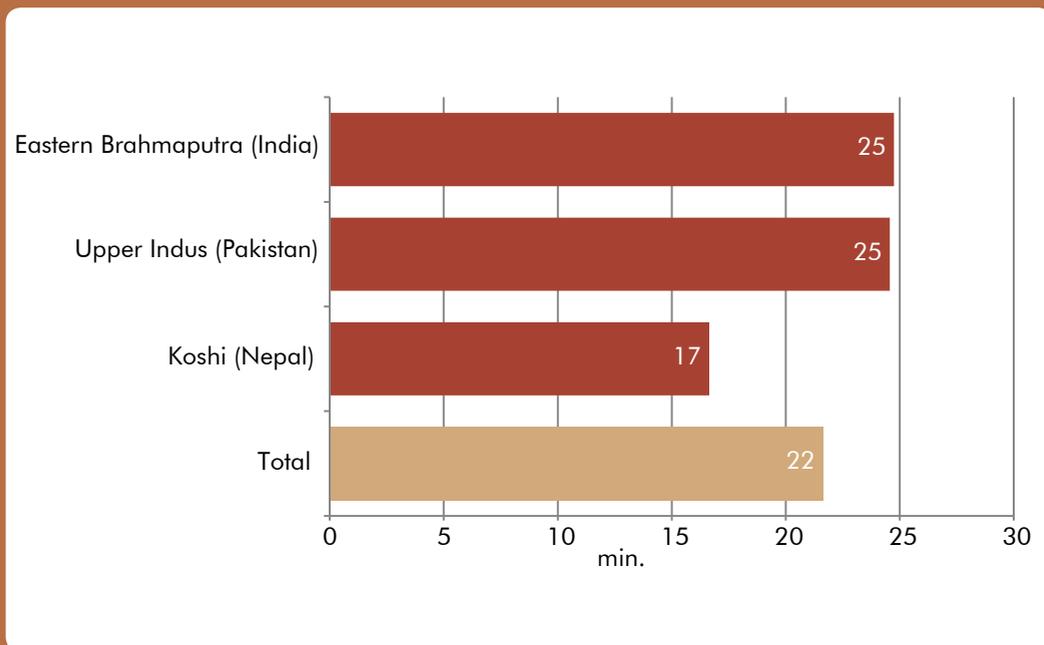
N=5,877 HH; compiled using data from VACA 2011/12

Table 10**: Question on literacy**

How many female and male members of your household aged 6 and older can read and write a letter?			
# of male members		# of female members	

Figure 7 shows the average literacy rates within the households of the nine districts surveyed in the PVAT 2012.

Health

Health – that is the absence of illness, injury, or pain – is important for quality of life. The World Health Organization (WHO) claims that "the enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being" (WHO 2006, p 1). Four indicators were used to measure the health status of households in the PVA questionnaire: illness, healthcare, food consumption, and literacy.

Illness

One strong indicator of the health status of a household is the occurrence of serious illnesses. An illness is categorized as serious if the respective household member is unable to work. Serious illness is a burden on the wellbeing of a household: it leads not only to a reduction in

Figure 7: **Literate household members in the nine PVAT 2011 districts (%)**
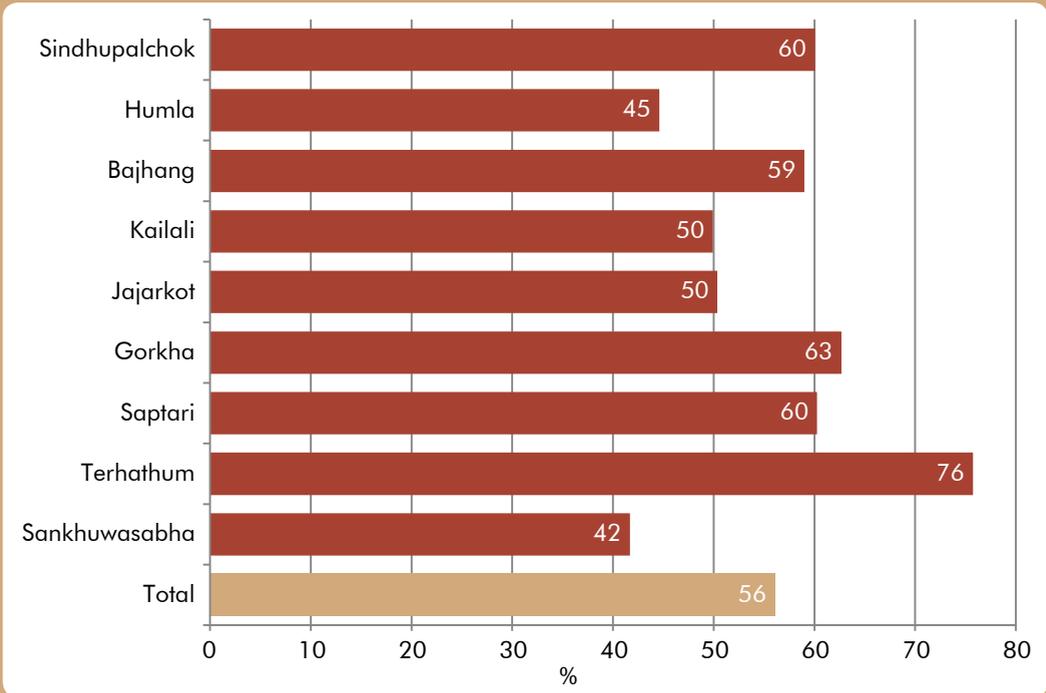
N=3,379 HH; compiled using data from PVAT 2011

the household's labour force, but also to the need for additional resources (financial, time) for the treatment and care of the ill person (Russel 2004).

Table 11: **Question on serious illness**

| In the last 12 months, how often has someone in your household been seriously ill (meaning they are so ill that they cannot work)?			
Never (1)	Once or twice (2)	Once a month (3)	A few times a month (4)
About once a week (5)	A few times a week (6)	Every day (7)	Don't know (-1)

Figure 8 presents the frequency of serious illnesses within the household based on the data from LAT 2011.

Healthcare

The ability to afford professional treatment in case of serious illness or injury measures the resilience of a household in an emergency. This indicator measures the potential to provide adequate healthcare for household members, rather than the actual occurrence of illness. Affordability is considered to be one of the most important determinants of access to healthcare and is most directly associated with poverty (Peters et al. 2008).

Figure 8: **Frequency of serious illness within the household during the last 12 months for the two LAT wetlands (%)**
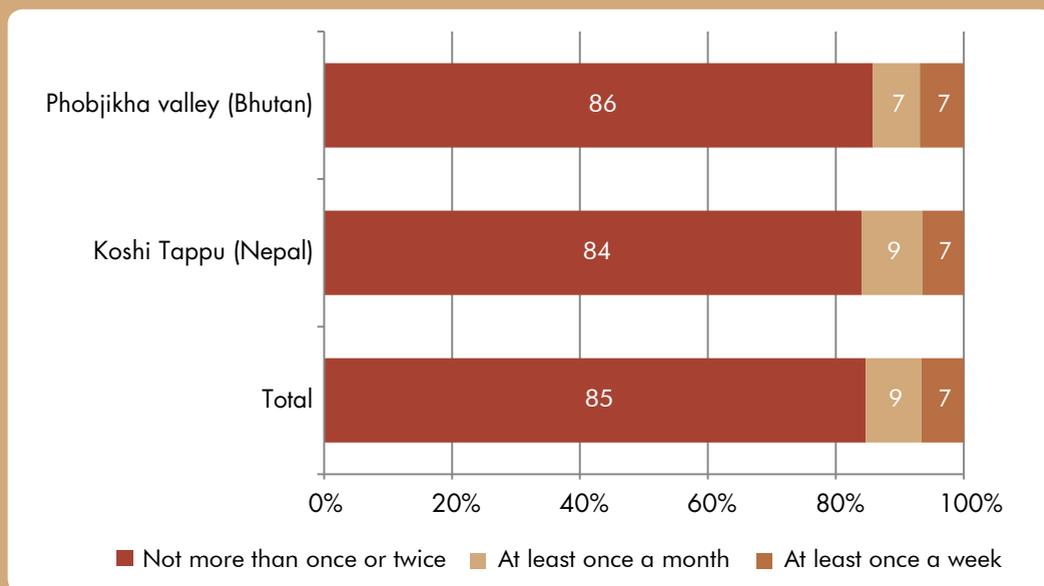
N=587 HH, 100%; compiled using data from LAT 2011

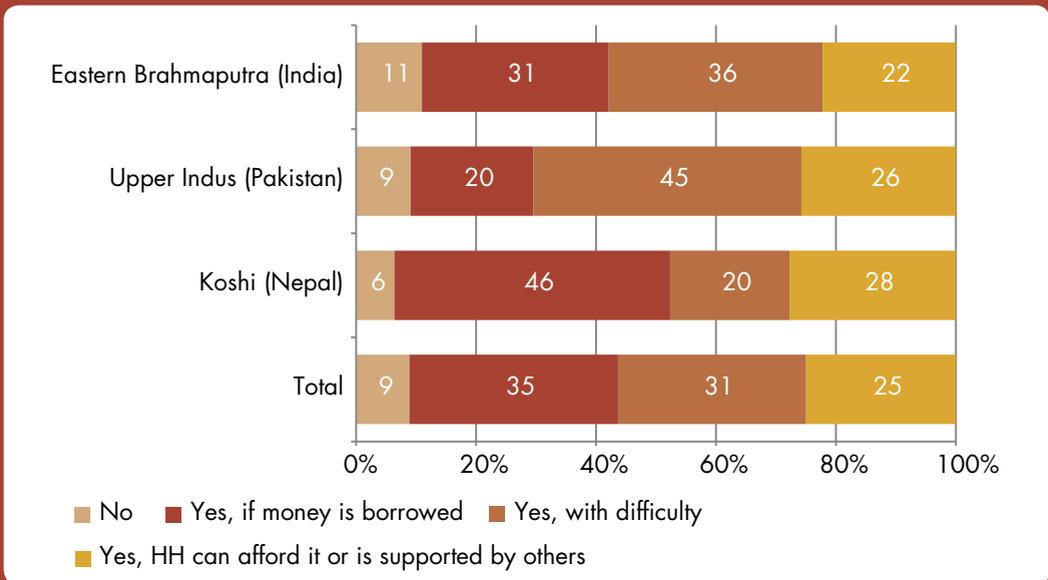## Table 12: **Question on the affordability of healthcare**

Can your household afford professional treatment for serious illness or injury?			
No (1)	Yes, if money is borrowed (2)	Yes, with much difficulty (3)	Yes, with some difficulty (4)
Yes, because government or employer helps pay for treatment (5)		Yes, household can afford it (6)	

Figure 9 shows the affordability of healthcare for the three sub-basins of the VACA 2011/12.

Food consumption

Nutrition is a fundamental indicator of health and wellbeing. The consequences of malnutrition are disability, stunted mental and physical growth, and death (WHO 2000). In the questionnaire, the food consumption of a household serves as a proxy for nutrition. The bureaus of statistics of the countries of the HKH provide food poverty lines that indicate the economic value of a food basket that would ensure the minimum nutritional calorie intake for an individual. If the per head food consumption of a household falls below that value, malnutrition is indicated. The question was adopted from the Vulnerability Analysis and Mapping of the World Food Programme (WFP 2010).

Figure 9: **Affordability of healthcare for the three VACA sub-basins (%)**

	No	Yes, if money is borrowed	Yes, with difficulty	Yes, HH can afford it or is supported by others
Eastern Brahmaputra (India)	11	31	36	22
Upper Indus (Pakistan)	9	20	45	26
Koshi (Nepal)	6	46	20	28
Total	9	35	31	25

■ No   ■ Yes, if money is borrowed   ■ Yes, with difficulty
■ Yes, HH can afford it or is supported by others

N= 6,060 HH, 100%; compiled using data from VACA 2011/12

Table 13: **Question on food consumption**

Whether purchased, home produced, or received in kind: What is the total value of the following food items consumed by your household in the last 30 days?

[Put value in local currency. Total value=what HH would have to spend on the local market. If respondent is unsure, ask for an approximation. Put '0' if not consumed.]

Grains and cereals (rice/wheat/maize/millet, etc.)	☐	Pulses, lentils, beans	☐
Cooking oil, ghee, butter	☐	Meat, eggs, fish	☐
Milk, curd, cheese, other milk products	☐	Vegetables, potatoes	☐
Fresh fruits and nuts	☐	Spices and condiments (salt/masala/garlic, etc.)	☐
Sugar, honey, sweets, tea, soft drinks	☐	Alcoholic beverages	☐
Cigarettes, bindis, other tobacco products	☐	Meals taken outside home	☐
Bread, biscuits, noodles	☐	Miscellaneous other food expenditure	☐

Figure 10 presents the average per head food consumption for the nine Nepali districts of the PVAT 2011.

Figure 10: **Average monthly per head food consumption in the nine PVAT 2011 districts (NPR)**
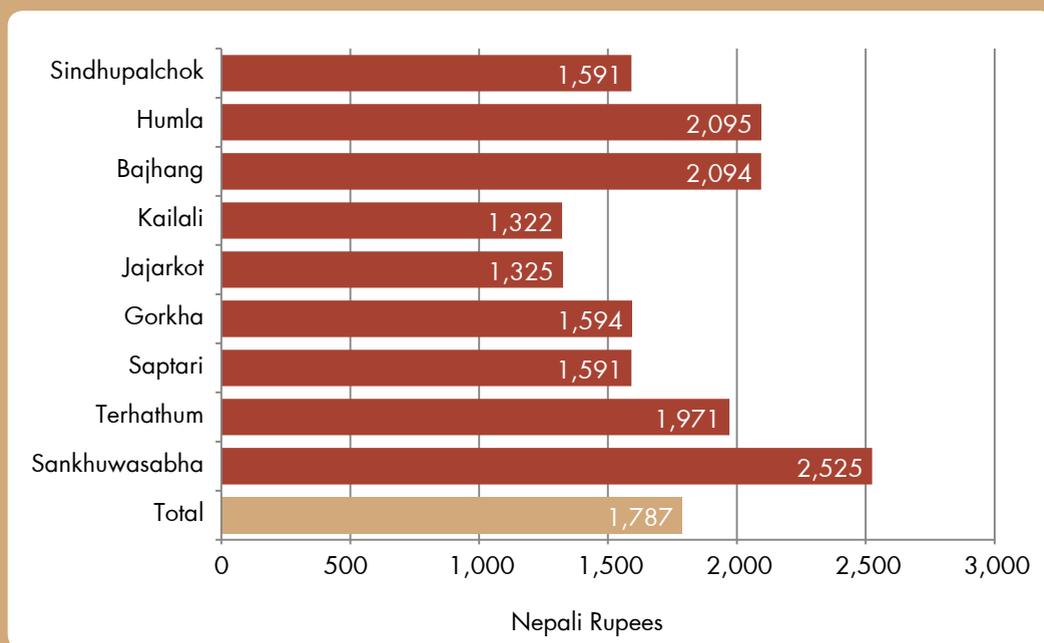
N=3,427 HH; compiled using data from PVAT 2011

Child mortality

The fourth Millennium Development Goal is the reduction of child mortality, which is strongly linked to health and poverty. Most deaths of infants and children under the age of five are a result of disease and malnutrition, triggered by high exposure to disease vectors and low resistance to infections (Victora et al. 2003).

Table 14: **Question on child mortality**

During the last 20 years, has a woman of this household ever given birth to a child who was born alive, but died before the age of five?	
Yes (1)	No (2)

Material wellbeing

Material wellbeing is a central dimension of the living standard of a household (Bérenger and Verdier-Chouchane 2007). Three indicators were included in the questionnaire to measure material wellbeing: basic goods (non-good consumption), assets, and the quality of the dwelling.

Basic goods

Poverty is, among other things, defined as the inability to acquire basic goods and services (World Bank 2000). Besides basic food items, this includes non-food items and services such as apparel, education and health services, personal care items, and housing. In the questionnaire, the ability to acquire basic goods and services is measured via non-food consumption. Besides food poverty lines, most statistical bureaus of the countries of the HKH also provide non-food poverty lines, which indicate the economic value of a non-food basket that ensures a minimum level of non-food goods and services. If the per head non-food consumption of a household falls below that value, a deprivation in material wellbeing is indicated. The question on non-food consumption was adopted from the Vulnerability Analysis and Mapping of the World Food Programme (WFP 2010).

Table 15: **Questions on non-food consumption**

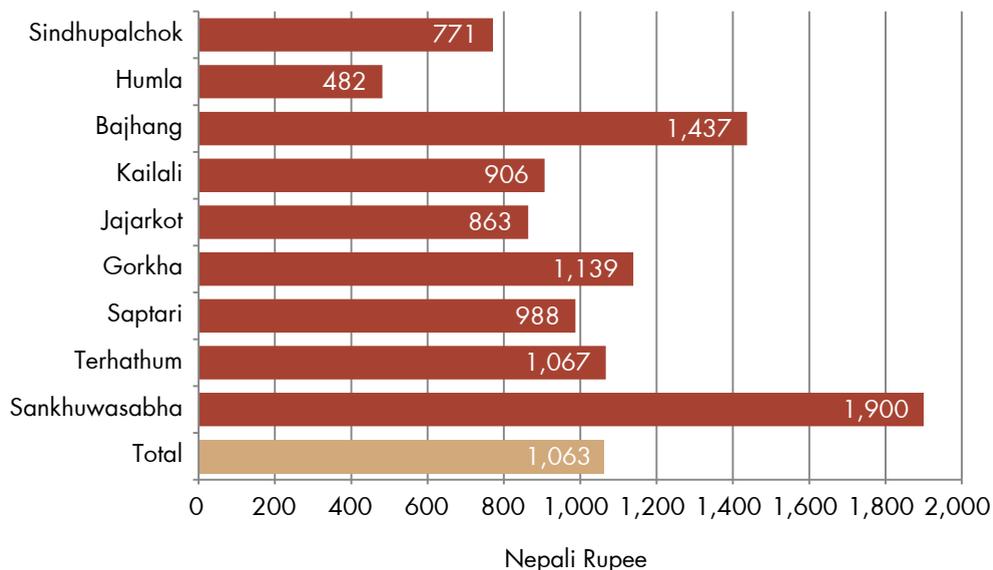| What is the total value of the following non-food items and services purchased or received in kind by your household during the last 12 months? *[Put value in local currency. Total value=what HH would have to spend on the local market. If respondent is unsure, ask for an approximation. Put '0' if not spent on an item.]*			
Medical expenses, healthcare		Education (school fees/books/ uniforms)	
Clothing, shoes, other apparel		Personal care items (soap/cosmetics, etc.)	
Fuel and electricity (cooking/lighting)		Transportation and communication	
Agricultural tools, seeds, fertilizers, hiring labour		Veterinary expenses, animal feed/fodder	
Celebrations, social events, rituals			
If someone wanted to rent this dwelling today, how much money would they have to pay each month? *[Put value in local currency. If respondent unsure, ask for an approximation.]*			
Rent:			

Figure 11 shows the average per head non-food consumption in the nine districts surveyed by PVAT 2011.
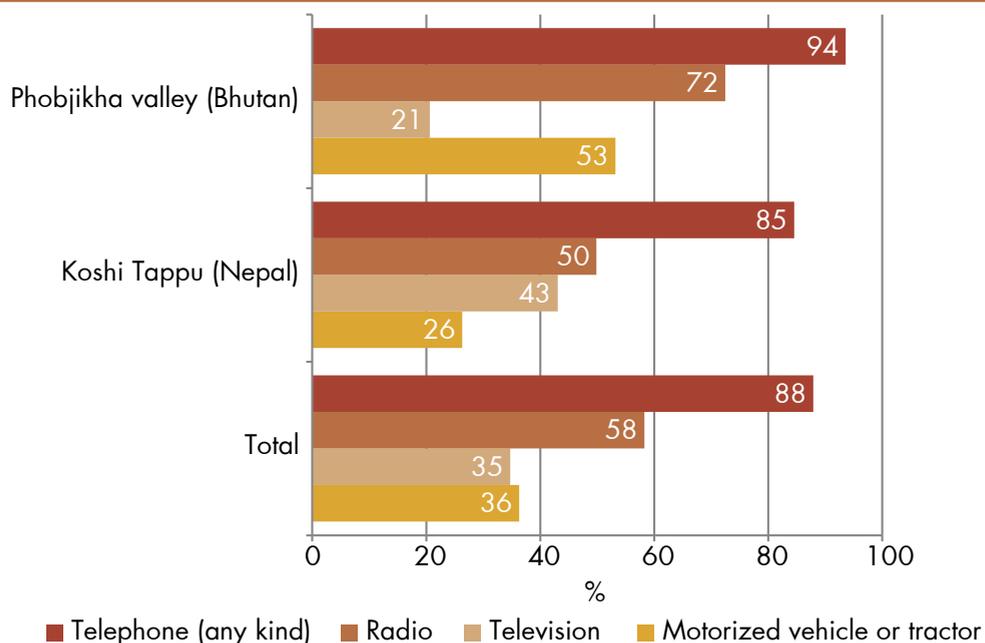
Assets

The possession of durable goods and assets is a central dimension of material wellbeing (Haughton and Khandker 2009). It is also a useful proxy for the economic status of a household, especially if data on income or household consumption is not available or is unreliable (McKenzie 2005). In the questionnaire, this dimension is measured by the household's ownership of communication and transportation assets.

Figure 11: **Average monthly per head non-food consumption in the nine PVAT 2011 districts (NPR)**

District	Nepali Rupee
Sindhupalchok	771
Humla	482
Bajhang	1,437
Kailali	906
Jajarkot	863
Gorkha	1,139
Saptari	988
Terhathum	1,067
Sankhuwasabha	1,900
Total	1,063

N=3,432 HH; compiled using data from PVAT 2011

Figure 12: **Households that own at least one of the mentioned communication and transportation assets for the two LAT wetlands (%)**

	Telephone (any kind)	Radio	Television	Motorized vehicle or tractor
Phobjikha valley (Bhutan)	94	72	21	53
Koshi Tappu (Nepal)	85	50	43	26
Total	88	58	35	36

■ Telephone (any kind) ■ Radio ■ Television ■ Motorized vehicle or tractor

N=587 HH, 100%; compiled using data from LAT 2011

Table 16: **Question on durable goods**

How many of the following items does your household have?	
# of televisions	☐
# of dish antennae	☐
# of radios	☐
# of mobile phones	☐
# of other kind of telephones	☐
# of motor vehicles (motorcycles, cars, etc.)	☐
# of non-motorized vehicles (carts, bicycles, etc.)	☐
# of tractors/power tillers	☐
# of mechanized threshers	☐
# of other assets, specify:	☐

Figure 12 presents the availability of several communication and transportation assets for the two wetlands of the LAT 2011.

Dwelling

The quality of dwelling is another central indicator of the material wellbeing of a household and strongly linked to the human right to adequate housing. Housing fulfils physical, psychological, and social needs. It should provide security and shelter from the weather and climate, a sense of personal space and privacy, and be a gathering area and communal space (Human Rights Education Associates 2012). The focus in the questionnaire is on the physical functionality of the dwelling. The quality of the dwelling is operationalized by the construction materials used for the house, which can be categorized into different quality classes (Sharma and Patwardhan 2008).

Figure 13: **Quality of wall material for the 3 VACA sub-basins (%)**
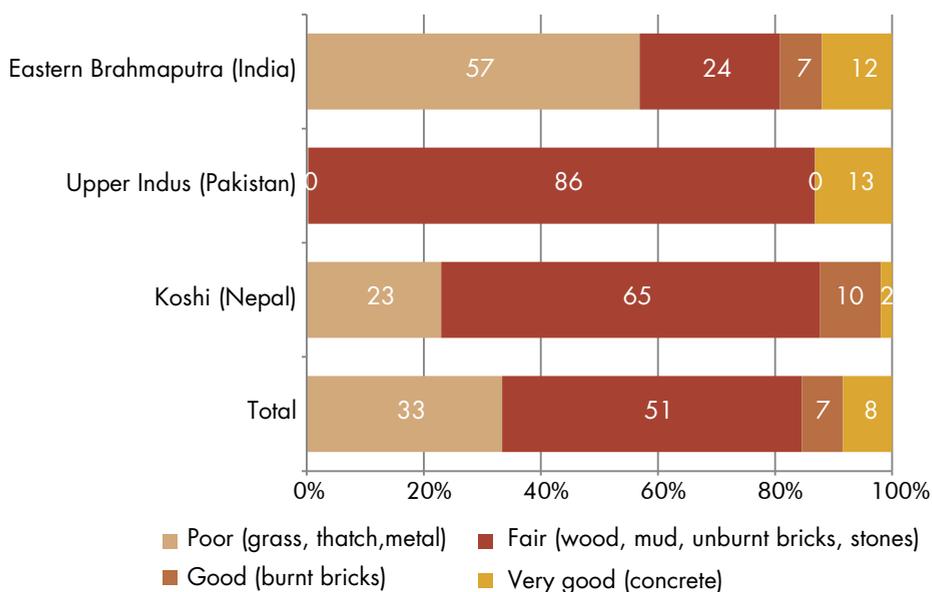
N=3,432 HH, 100%; compiled using data from PVAT 2011

Table 17: **Questions on quality of dwelling**

[Information to be collected by enumerator while in the household (ask only if unable to determine answer visually).] What is the primary construction material of the housing unit's exterior walls?		
1. Grass/leaves/reeds	2. Thatch/bamboo	3. Plastic/fabric
4. Metal/GI/asbestos sheets	5. Wood/branches	6. Mud
7. Unburnt bricks	8. Stones	9. Burnt bricks
10. Concrete	11. Other, specify:	
[Information to be collected by enumerator while in the household (ask only if unable to determine answer visually).] What is the primary construction material of the housing unit's main roof?		
1. Straw/reeds	2. Thatch/bamboo	3. Plastic/fabric
4. Metal/GI/asbestos sheets	5. Wood/planks	6. Mud
7. Tiles/shingles/slates	8. Stones	9. Concrete
10. Other, specify:		

Based on VACA 2011/12 data, Figure 13 shows the categorization of the quality of wall material according to Sharma and Patwardhan 2008.

Basic facilities

Lack of access to basic facilities is one of the mountain-specific determinants of economic poverty in the HKH region (Hunzai et al. 2011). This dimension consists of three indicators: access to electricity, access to improved sources of drinking water, and access to improved sanitation.

Electricity

Access to electricity has implications for the health, education, and income of households and communities. Among other things, electricity enables the storage of vaccinations, medicines, and food in refrigerators; allows students to study at night; and enables the use of information and communication technologies and mechanization in industry as well as job creation (Kanagawa and Nakata 2008). In the questionnaire, access to electricity is measured by the primary source of lighting in a household.

Table 18: **Question on the primary source of lighting**

What is the primary source of light your HH uses? ☐	[Do not read out all options. Just ask questions and select the appropriate ones.]	
	1. Electricity from local grid	2. Electricity from national grid
	3. Electricity from a generator	4. Electricity from solar cells, wind turbine or small, hydroelectric dam
	5. Liquid fuel [petrol, kerosene]	
	6. Gas fuel [methane from tank, biogas]	7. Coal or charcoal
	8. Vegetable or animal based fats or oils	
	9. Candle, paraffin wax, or battery-powered source	
	11. Animal dung	12. Other, specify:
	-2. None	-3. Heat not needed in region

Figure 14 provides information on access to electricity for the nine districts of the PVAT 2011.

Drinking water

Access to safe drinking water is a fundamental human right and positively related to health and income (WHO and UNICEF 2006). Improved drinking water sources are piped water, public taps or standpipes, tube wells, bore holes, protected dug wells, protected springs, and rainwater collection. Unimproved drinking water sources are unprotected dug wells, unprotected springs, tanker-trucks, and surface water.

Figure 14: **Access to electricity in the nine PVAT 2011 districts (%)**
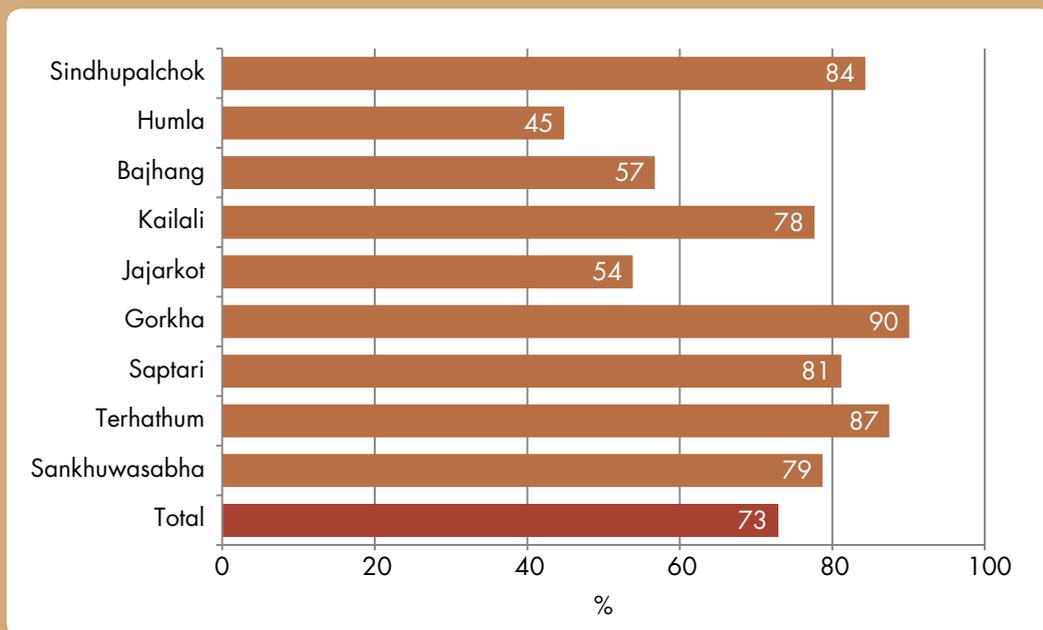
N=3,437 HH, 100%; compiled using data from PVAT 2011

Table 19: **Question on access to improved sources of drinking water**

| What is the main source of the water your household uses for drinking (i.e., the source your water comes from immediately before being used)		
During the rainy season ☐	During the dry season ☐	During most of the year ☐
No rainy season in our area (-2)	No dry season in our area (-3)	6. Mud
[Do not read out all options. Just ask questions and select the appropriate ones.]		
1. Unprotected dug well	2. Protected dug well	3. Bore hole
7. Public standpipe	8. Piped water inside the house	9. Piped water inside the community
10. Rainwater collection	11. Vendor provided/bottled water	12. Water tanker
13. Other, specify:		

Figure 15 shows the percentage of households with improved sources of drinking water in the nine districts of the PVAT 2011.

Sanitation

Besides safe drinking water, access to improved sanitation facilities has a positive impact on the health status of households and communities (WHO and UNICEF 2006). Improved sanitation facilities are flush or pour-flush toilets, ventilated improved pit latrines, enclosed pit latrines, and composting toilets. Open pit latrines, buckets, and no toilet facilities are considered to be unimproved sanitation facilities.

Figure 15: **Households with access to improved sources of drinking water in the nine PVAT 2011 districts (%)**
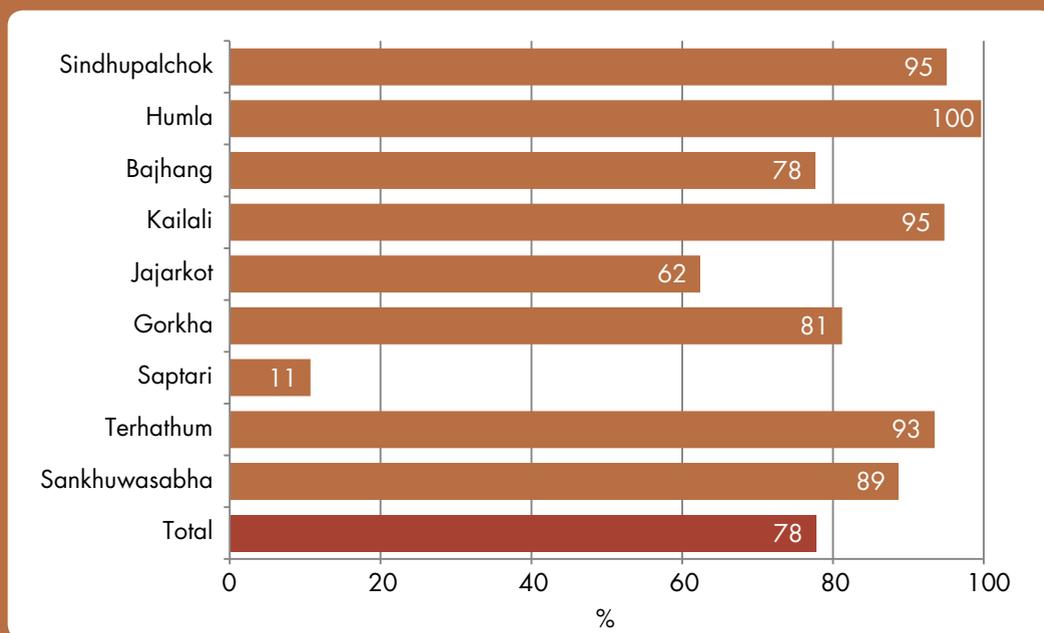
N=3,437 HH, 100%; compiled using data from PVAT 2011

Table 20: **Questions on access to improved sanitation facilities**

What type of toilet facility does your household usually use?	
[Do not read out all options. Just ask question and select the appropriate one.]	
None (open defecation) (1) *[Skip to Question 14]*	Open pit (2)
Enclosed pit (3)	Enclosed improved-ventilation pit (4)
Enclosed pour-flush (5)	Enclosed flush (6)
Compost or biogas (7)	Other, specify (8):
'Open' means there is no structure, or a structure with no roof. 'Enclosed' means there is a structure with any sort of roof.	
How many households use this toilet?	
# of HHs	

The percentage of households with access to improved sanitation facilities for the nine districts of the PVAT 2011 is presented in Figure 16.

Figure 16: **Access to improved sanitation facilities in the nine PVAT 2011 districts (%)**

District	%
Sindhupalchok	50
Humla	52
Bajhang	25
Kailali	65
Jajarkot	47
Gorkha	73
Saptari	42
Terhathum	68
Sankhuwasabha	82
Total	56
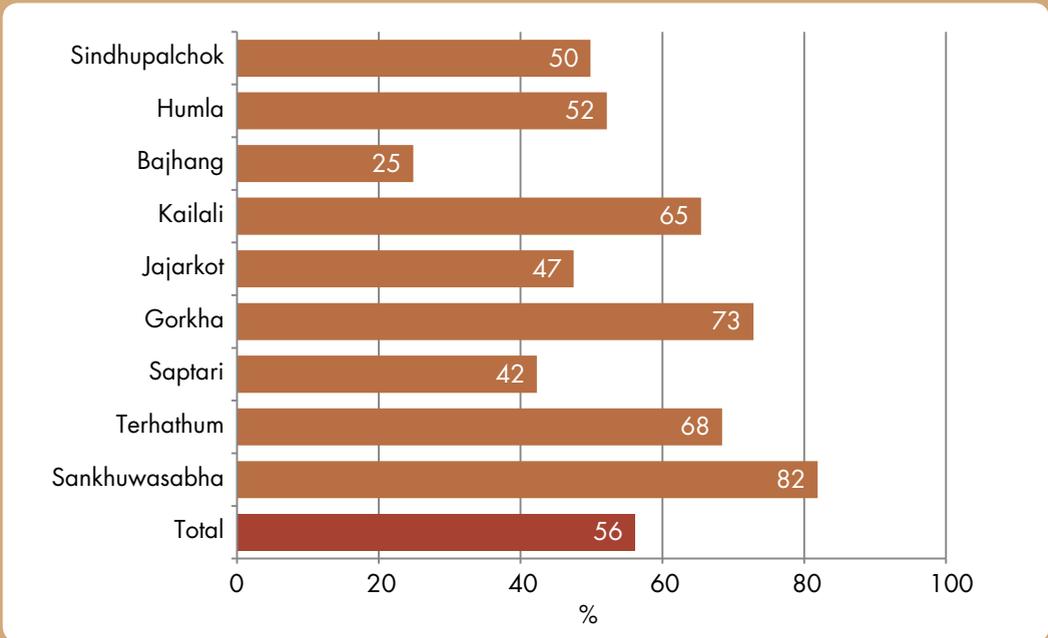
N=3,437 HH, 100%; compiled using data from PVAT 2011

Social capital

The dimension social capital is linked to the mountain specificity of marginalization (Jodha 1992). Social capital is crucial because it can be transformed into other forms of capital (Bourdieu 1986) and enables collective action regarding a) resource management to spread risks and b) engagement to find wider support networks, e.g., among policy makers or development agents (Tompkins and Adger 2004). In the questionnaire, social capital is measured by indicators for political voice and social networks.

Political voice

Through involvement in organizations, networks, and associations, people gain collective strength and, thereby, increase their political bargaining power. Political voice is an indicator of social inclusion (Sen 2000) and reflects the possibility of communicating and influencing one's own situation. The politically weak often have fewer entitlements and are disadvantaged in the distribution of public goods. In the

PVA questionnaire, political voice is measured in form of the ease of influencing the decision-making process at the local and higher level.

Table 21: **Questions on political influence**

How easy is it for your household to influence the decision-making process at the local level?				
Very difficult (1)	Difficult (2)	Neither/nor (3)	Easy (4)	Very easy (5)
How easy is it for your household to influence the decision-making process at a higher level?				
Very difficult (1)	Difficult (2)	Neither/nor (3)	Easy (4)	Very easy (5)

Figure 17 shows the ease that households perceived influencing the decision-making process at the local level in the nine districts of the PVAT 2011.

Social networks

Social networks reflect the potential for social support. Obtaining loans in the form of money, food, and non-food items is an important strategy used by households in the HKH region to cope with environmental and socioeconomic shocks (Pouliotte et al. 2009). A crucial indicator of social capital is the strength of a household's social networks, which is assessed by the question on which formal and informal institutions have actually provided the household with support in time of stress.

Figure 17: **Perceived ease of influencing decision-making processes at the local level in the nine PVAT 2011 districts (%)**
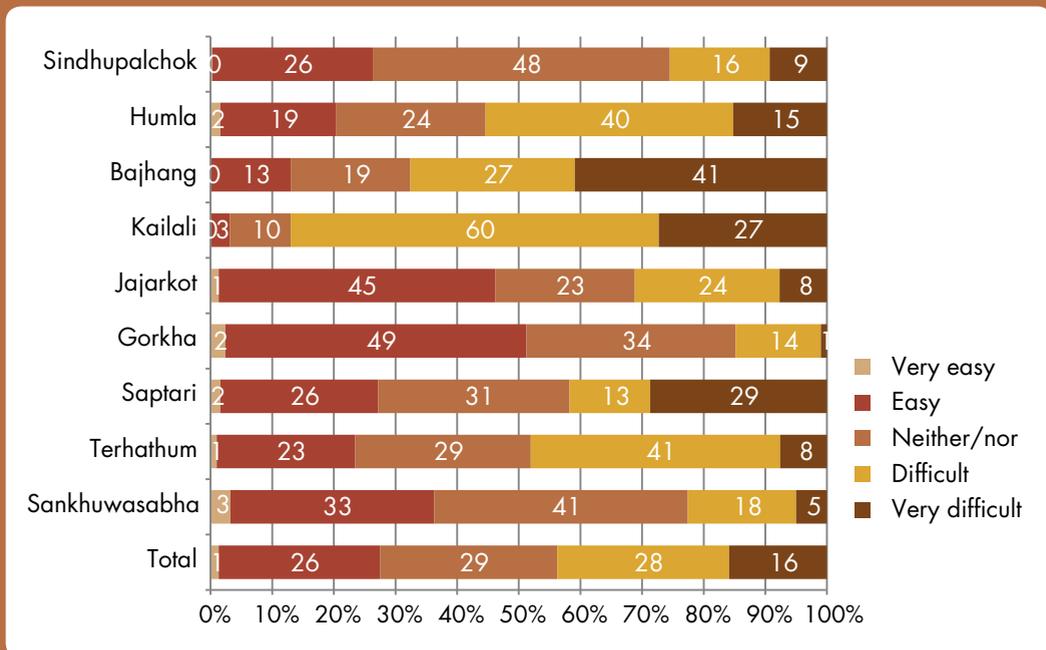
N=3,436 HH, 100%; compiled using data from PVAT 2011.

Table 22: **Question on strength of social networks**

Who of the following assisted the household to deal with the effects of the events you just mentioned [in Question 42]?		
[Read out all possibilities and ask if help was provided. More than one option possible.]		
Family ☐	Friends ☐	People in the community ☐
Insurance company ☐	Financial institution ☐	Local government ☐
National government ☐	Government (general) ☐	Local NGO ☐
International organization (e.g., WFP, FAO) ☐	Has assisted (1)	Has not assisted (2)

An important dimension related to adaptive capacity is the potential support that can be expected of social networks in times of stress. The support potential is measured by access to loans. In the questionnaire, access to loans is measured by the kind of network that would be approached first (formal or informal) and the overall difficulty involved in borrowing money.

Table 23: **Questions on access to loans**

If your household wanted to borrow money, whom would you approach first?		
[Select only one option]		
1. Relatives	2. Friends	3. Village fund
4. Village government	5. Rural credit cooperative	6. Private money lender
7. Microfinance institution	8. Government bank	9. Private bank
10. Joint village and bank fund	11. Joint development project and bank fund	12. Other, specify:
How easy would it be to borrow money?		

Very difficult (1)	Difficult (2)	Neither/nor (3)	Easy (4)	Very easy (5)

Figure 18 shows the percentage of households that received assistance from various formal and informal institutions in times of stress for the two wetlands of the LAT 2011.

Physical accessibility

Physical inaccessibility is one of the specific determinants of high economic poverty in the mountains of the HKH (Hunzai et al. 2011). Remoteness restricts access to markets and results in high supply prices for basic goods as well as high transportation costs and low profit margins for own products (Gibson and Rozelle 2003, Ali and Pernia 2003). In addition, inadequate physical infrastructure hinders access to crucial facilities such as credit and health services and, thus, results in political, social, and economic marginalization. In the questionnaire, accessibility is measured by the time it takes to reach the nearest road and important facilities such as health institutions, markets, agricultural centres, and financial and communication services. The list used in the question on physical accessibility was adopted from the Nepal Living Standard Survey 2003/04 questionnaire (His Majesty's Government of Nepal 2004).

Figure 18: **Percentage of households that have received assistance from various institutions in times of stress for the two LAT wetlands (%)**
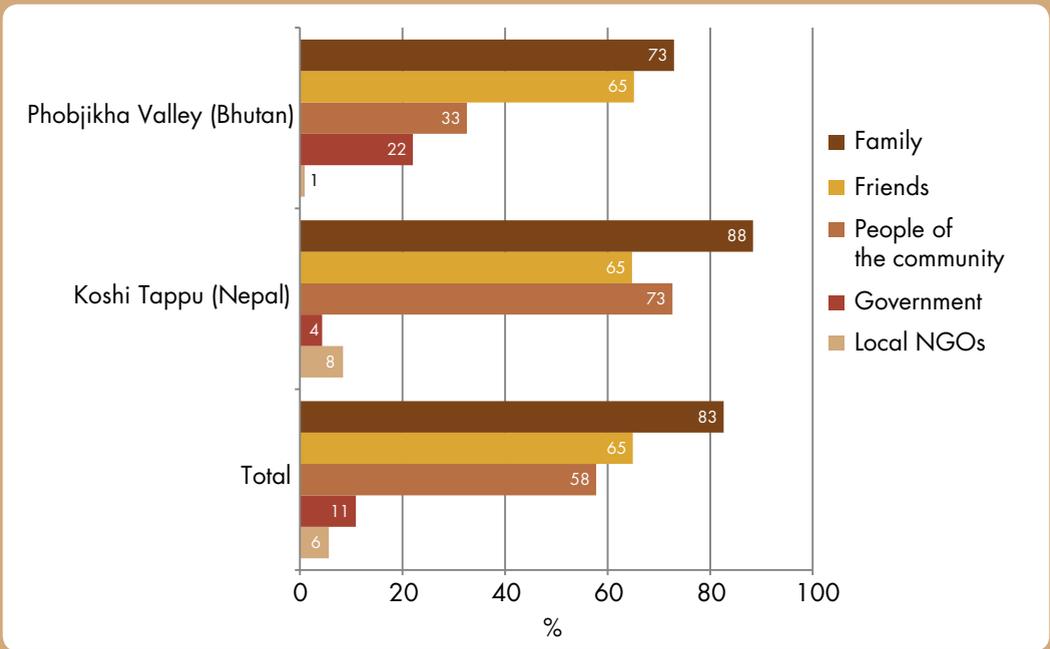
N=587 HH, 100%; compiled using data from LAT 2011.

Figure 19: **Average time to reach various facilities for the two LAT wetlands (hours)**
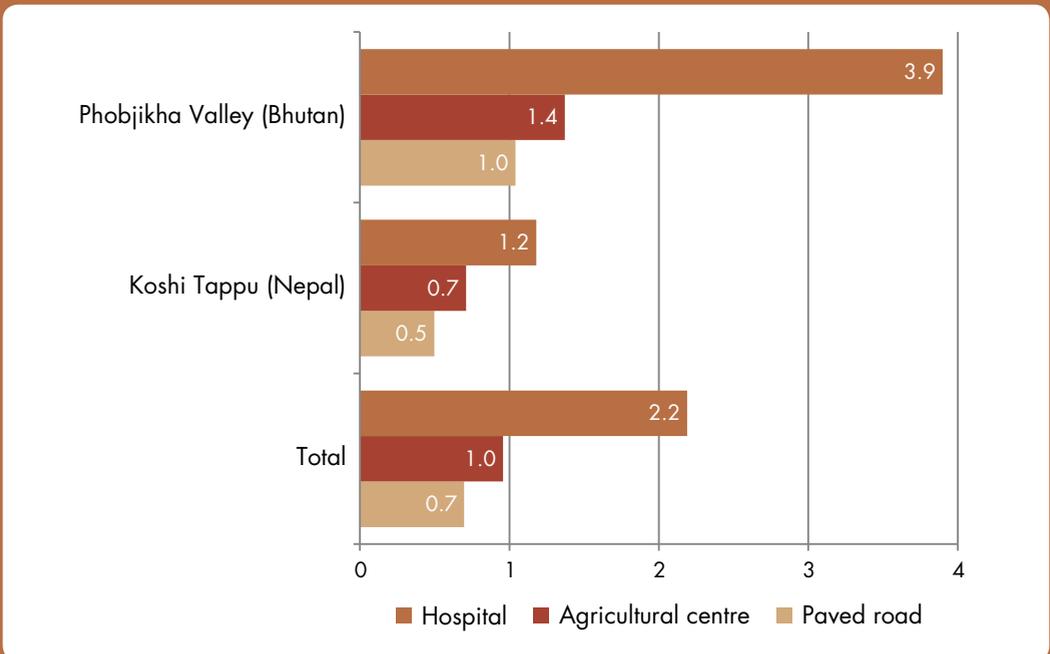
N=587 HH; compiled using data from LAT 2011.

Table 24: **Question on physical accessibility**

How long does it take to get from your house to the closest of the following facilities (one way)? Please also indicate the mode of transport.

[Put '0' in time measurements if not appropriate. If respondent is unsure, ask for an approximation.]

Facility	Mode of transport:		Days:		Hours:		Minutes:	
Health post	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Hospital	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Bus stop	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Paved road	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Dirt road, vehicle passable	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Local shop/shops	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Weekly market (haat bazaar)	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Market centre	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Agricultural centre	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Livestock extension centre	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Cooperative (Sajha)	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Bank	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Post office	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Public telephone	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Remittance outlet	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Police post	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Local government office	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐

By foot (without load) (1)	Mule/pony/yak or other animal (2)	Bicycle/rickshaw (3)
Motorcycle/tampo (4)	Car/bus (5)	Mixed (6)

Figure 19 shows the average time it takes to reach the nearest hospital, paved road, and agricultural centre for the two wetlands of the LAT 2011.

Mountain-specific Livelihood Vulnerability Indicators

To translate the MLVF-HKH into the PVA questionnaire the broad dimensions of the framework – adaptive capacity, sensitivity, and exposure – were broken down into several sub-dimensions, specific indicators were identified to measure these sub-dimensions, and questions formulated to retrieve information at the household level.

Adaptive capacity

Adaptive capacity is defined as quality that allows people and systems to increase their ability to cope with external (e.g., climate) stresses and hazards and to expand the range of conditions under which they can sustain themselves and their livelihoods. The identified mountain-specific sub-dimensions of adaptive capacity are socio-demographic profile, entitlement to agricultural resources, livelihood strategies, social networks, and accessibility.

Socio-demographic status

The socio-demographic profile takes into account the household's composition as well as its socioeconomic status, two dimensions that are strongly linked with adaptive capacity. Migration studies on economic adaptation show that household composition "affects its collective ability to access resources" and shapes "the manner in which household members respond to available opportunities" (Kibria 1994, p 82). The dependency ratio (the number of dependents per labour force) in households is relatively high in the mountains of the HKH and has a strong effect on economic poverty (Hunzai et al. 2011). This indicator reflects the degree of involvement and responsibility the working generation of a household faces and indicates a household's flexibility to adapt to drivers of change.

Table 25: **Questions on dependency ratio**

How many persons have eaten and slept in your household for at least six months during the last 12 months?			
# of household members: ☐			
How many of those are **females and males** of the following age groups: aged 5 or younger, aged 6 to 14, aged 15 to 64, and aged 65 and older? *[Put '0' if not applicable. Make sure number of persons adds up to total number of HH members.]*			
males aged 0–5 ☐	males aged 6–14 ☐	males aged 15–64 ☐	males aged 65+ ☐
females aged 0–5 ☐	females aged 6–14 ☐	females aged 15–64 ☐	females aged 65+ ☐

Another relevant indicator related to adaptive capacity is the gender of the head of the household. Findings show that female-headed households are more vulnerable because traditional social barriers limit women's access to information, land, and other resources (Tenge et al. 2004).

Table 26: **Question on gender of head of household**

[Only if relation not '1'] HH head's sex= M (1)/F (2)

A central indicator of socioeconomic status is the educational background of the household, which is measured by the level of education of the household head. The head of the household is of central importance in regard to resource management, strategic planning, and decision making at the household level. The education of the household head is strongly correlated with economic wellbeing (Hunzai et al. 2011). In addition, education is strongly linked to adaptive capacity because it improves the ability to understand, accept, and properly utilise new agricultural (and non-agricultural) technologies and innovations (Asfaw and Admassie 2004).

Table 27: **Question on educational background**

What is the highest completed level of education of the household head? *[Select only one option.]*			
Class 1 (1)	Class 2 (2)	Class 3 (3)	Class 4 (4)
Class 5 (5)	Class 6 (6)	Class 7 (7)	Class 8 (8)
Class 9 (9)	Class 10 (10)	School Leaving Certificate (11)	Class 12/Intermediate level (12)
Bachelor level (13)	Masters level (14)	Professional degree (15)	
Literate (non-formal education) (16)		Illiterate (17)	Don't know (-1)

Figure 20: **Average dependency ratio in the nine PVAT 2011 districts**
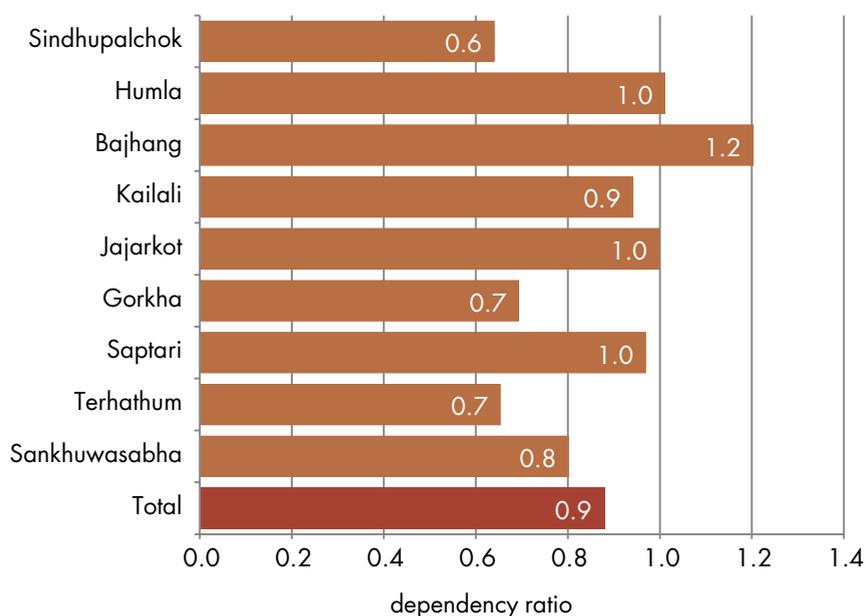
N=3,386 HH; compiled using data from PVAT 2011

Figure 20 shows the average dependency ratio of households in the nine districts of the PVAT 2011.

Agricultural resources

Access to various resources increases the ability of a household to cope with hazards and environmental changes (Adger 1999; Smit and Wandel 2006). In the HKH region, the majority of households are dependent on agriculture; hence, the questionnaire focused on access to agricultural resources. In this regard, the amount of land available for agriculture is the central indicator.

Table 28: **Questions on access to agricultural land**

Does your household have access to land for agriculture?					
Yes (1)	No (2) *[Skip to Question 33]*				
How much land does your household have for agriculture (for crops, grass, trees, etc.)? *[Enumerator to convert local measurement into hectares. Put '0' if not appropriate.]*					
Crop farming	☐	Orchard/tree crops	☐	Grassland/pasture	☐
Home/kitchen garden	☐	Fallow land	☐	Other	☐

Another important agricultural resource is livestock. The questionnaire looked at the ownership of various types of livestock.

Table 29: **Questions on ownership of livestock**

Does your household own livestock?		
Yes (1)	No (2) *[Skip to Question 37]*	
How many of the following animals does your household own? [Count female and male animals together]		
Bullocks/cows	# of	☐
Buffaloes	# of	☐
Goats	# of	☐
Sheep	# of	☐
Yaks/naks	# of	☐
Horses/donkeys/mules	# of	☐
Pigs	# of	☐
Poultry/ducks/pigeons	# of	☐
Other livestock	# of	☐

Figure 21 shows the availability of agricultural land per head for the nine districts of the PVAT 2011.

Figure 21: **Average agricultural land per head in the nine PVAT 2011 districts (hectare)**

District	ha
Sindhupalchok	0.12
Humla	0.05
Bajhang	0.06
Kailali	0.03
Jajarkot	0.06
Gorkha	0.11
Saptari	0.15
Terhathum	0.19
Sankhuwasabha	0.15
Total	0.10

ha
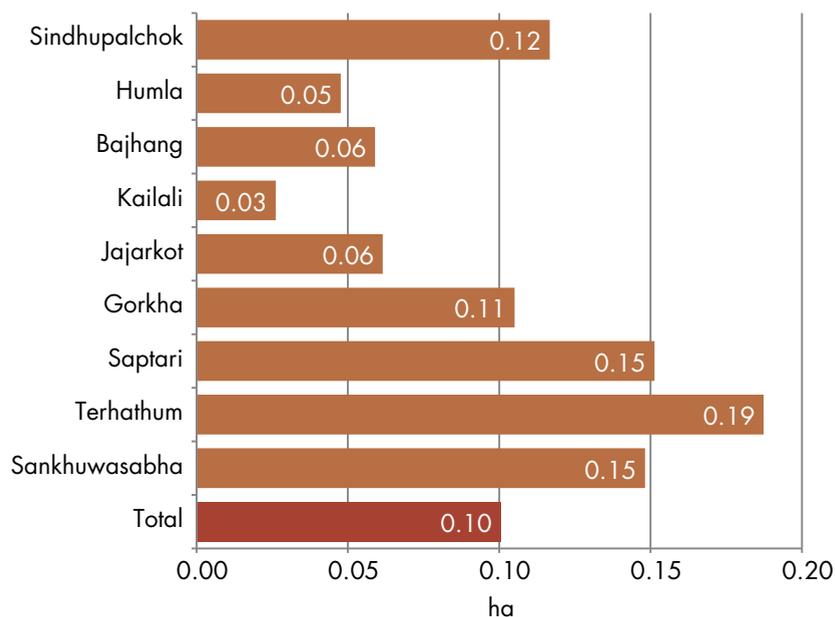
N=3,431 HH; compiled using data from PVAT 2011

Livelihood strategies

Whether livelihood diversification is the universal strategy for risk mitigation (Turner at al. 2003) or merely an outcome of coping strategies (Wood 2003), an increase in livelihood options and flexibility is an attempt to address environmental and economic uncertainties and enhance adaptive capacity (Marschke and Berkes 2006). One crucial indicator for measuring livelihood diversification is the contribution of various sources of livelihood to yearly household income. The questionnaire looks at the degree of dependency of households on the primary sector as well as on other sectors.

Table 30: **Question on livelihood diversification**

What is the percentage contribution of the following sources to total yearly household income?					
[Fill in approximate percentage. Put '0' if not applicable. Proceed until it adds up to 100%.]					
Crop, vegetable, and fruit sales		%	Livestock and livestock product sales		%
Fish sales		%	Forest products sales (fuelwood/NTFPs)		%
Herb sales		%	Medicinal and aromatic plant sales		%
Daily wages (in community/area)		%	Salaried employment (in community/area)		%
Tourism		%	Other business/trade income		%
Rent, interest on loans, or returns from shares		%	Pensions		%
Remittances		%	Development aid projects		%
Gifts or begging		%	Governmental social benefit schemes		%
Total % column 1		%	**Total % column 2**		%
			Total column 1 + column 2		%

Another indicator of livelihood diversification is non-agricultural occupations. The questionnaire asked about the number of persons, period of time, and sector in which household members were engaged in non-agricultural occupations – either in their own business or as employees.

Table 31: **Questions on non-agricultural occupations**

During the last 12 months, how many members of your household managed/ran their own non-agricultural (also non-hunting, non-forestry, and non-fishing) business for 0 to 3 months, 4 to 6 months, 7 to 9 months, and 10 months or more?							
[During the 12 months preceding the survey. Put '0' if not applicable.]							
# 0–3 months		# 4–6 months		# 7–9 months		# 10 months or more	
[Skip to Question 56.1 if '0' in all fields.]							

What kind of business was that?			
[Select only one option. If there is more than one business, select the one that contributes most to the HH income.]			
Mining and quarrying (1)	Manufacturing (2)	Electric, gas, and water supply (3	Construction (4)
Wholesale and retail trade (5)		Hotel and restaurant (6)	Other tourist services (7)
Transport, storage, and communications (8)		Real estate, renting, and business activities (9)	
Financial intermediation (10)	Public administration (11)	Defence (12)	Education (13)
Health and social work (14)		Other community, social and personal service activities (15)	
Private households with employed persons (16)		Extra-territorial organizations and bodies (17)	

During the last 12 months, how many members of your household were employed in non-agri-cultural (also non-hunting, non-forestry, and non-fishing) occupations for 0 to 3 months, 4 to 6 months, 7 to 9 months, and 10 months or more?

[During the 12 months preceding the survey. Put '0' if not applicable.]

# 0–3 months		# 4–6 months		# 7–9 months		# 10 months or more	

[Skip to Question 55.1 if '0' in all fields]

What kind of occupation was that?

[Select only one option. If there is more than one occupation, select the one that contributes most to the HH income.]

Mining and quarrying (1)	Manufacturing (2)	Electric, gas, and water supply (3)	Construction (4)
Wholesale and retail trade (5)	Hotel and restaurant (6)	Other tourist services (porter, etc.) (7)	
Transport, storage, and communications (8)		Real estate, renting, and business activities (9)	
Financial intermediation (10)	Public administration (11)	Defence (12)	Education (13)
Health and social work (14)	Other community, social, and personal service activities (15)		
Private households with employed persons (16)		Extra-territorial organizations and bodies (17)	

In the HKH region labour migration and remittances have become a significant livelihood option for households (Kollmair et al. 2006; Sharma 2008; Hoermann et al. 2010; Banerjee et al. 2011). The following two questions measure the yearly value of remittances received by households, differentiated by source (i.e., internal migrants or international migrants).

Table 32: **Questions on remittances**

What was the total value [in local currency] of remittances, cash and in kind, that your household received during the last 12 months from people within the country?

[Enumerator to remind respondent that all responses are confidential.]

Value of remittances	

What was the total value [in local currency] of remittances, **cash and in kind**, that your household received during the last 12 months from people outside the country?

[Enumerator to remind respondent that all responses are confidential.]

Value of remittances	

Within the agricultural sector, cash crops are another livelihood diversification option available to households in the HKH region. The following question asks if cash crops are grown and about cash crop diversity.

Figure 22 shows the average percentage of contribution of different income sources to the yearly household income for the three sub-basins of the VACA 2011/12.

Table 33: **Question on cash crop diversity**

During the last 12 months, what kind of staples, supplementary, and cash crops did your household grow?

[Do not read out all options. Just ask question and select the appropriate one. Record up to 5 crops per category. Put '0' if not applicable.]

Cash crops:	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
Early paddy (1)	Main paddy (2)	Upland paddy (3)	Wheat (4)	Winter/spring maize (5)	
Summer maize (6)	Millet (7)	Barley (8)	Wheat (4)	Other cereals (10)	
Soybean (11)	Black gram (12)	Red gram (13)	Grass pea (14)	Lentil (15)	
Horse gram (16)	Pea (17)	Green gram (18)	Coarse gram (19)	Cow pea (20)	
Other legumes (21)	Winter potato (22)	Summer potato (23)	Sweet potato (24)	Colocasia (25)	
Other tubes (26)	Mustard (27)	Ground nut (28)	Linseed (29)	Sesame (30)	
Other oilseed (31)	Sugarcane (32)	Jute (33)	Tobacco (34)	Other cash crops (35)	
Chillies (36)	Onions (37)	Garlic (38)	Ginger (39)	Turmeric (40)	
Cardamom (41)	Coriander Seed (42)	Other spices (43)	Winter vegetables (44)		
Summer vegetables (45)	Orange (46)	Lemon (47)	Lime (48)	Sweet lime (49)	
Other citrus (50)	Mango (51)	Banana (52)	Guava (53)	Jackfruit (54)	Pineapple (55)
Lychees (56)	Pear (57)	Apple (58)	Plum (59)	Papaya (60)	Pomegranate (61)
Other fruit (62)	Tea (63)	Thatch (64)	Podder trees (65)	Bamboo (66)	Other trees (67)

Social networks

Social networks enhance adaptive capacity because they enable collective action in the form of a) resource management to spread the risks associated with individual events and b) engagement to find wider support networks, e.g., among policy makers or development agents (Tompkins and Adger 2004). A crucial indicator is the actual strength of social networks of a household, which was assessed with a question on which formal and informal institutions have actually provided households with support in times of stress.

Table 34: **Question on strength of social networks**

Who of the following assisted the household to deal with the effects of the events you just mentioned [in Question 42]?

[Read out all possibilities and ask if help was provided. More than one option possible.]

Family	☐	Friends	☐	People in the community	☐
Insurance company	☐	Financial institution	☐	Local government	☐
National government	☐	Government (general)	☐	Local NGO	☐
International organization (e.g., WFP, FAO)	☐	Has assisted (1)		Has not assisted (2)	

Figure 22: **Contribution of various sources to yearly household income for the three VACA sub-basins (%)**
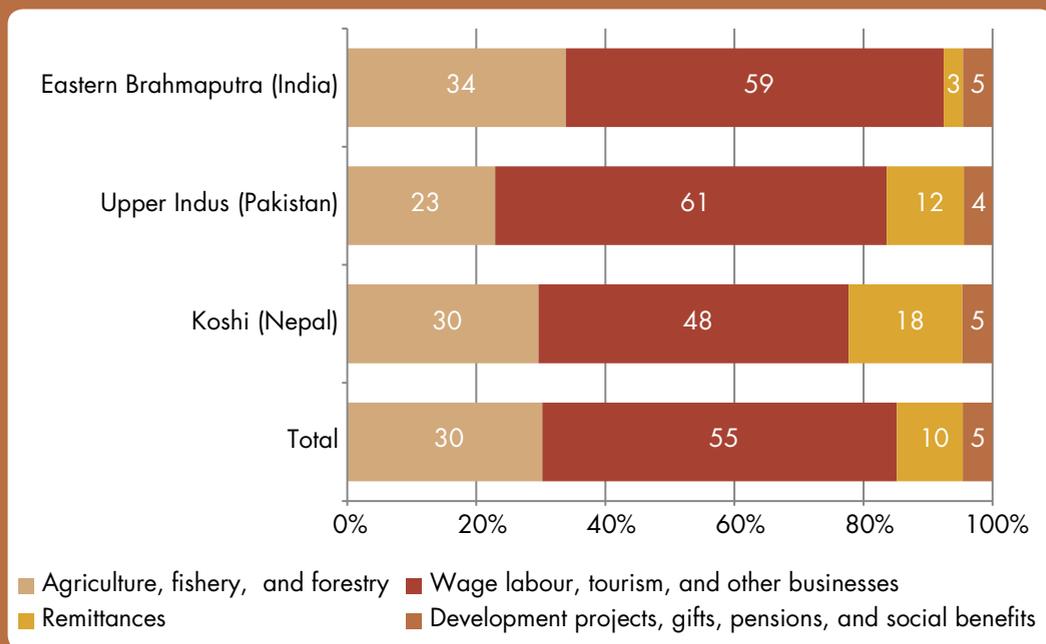
N=6,047 HH; compiled using data from VACA 2011/12

Another important indicator of adaptive capacity is the potential support that can be expected of social networks in times of stress. Support potential is measured by access to loans. The ability to obtain loans in the form of money, food, and non-food items is an important strategy used by the households of the HKH region to cope with environmental and economic shocks (Pouliotte et al. 2009). In the questionnaire, access to loans is measured by the kind of network that would be approached first (formal or informal) and the overall difficulty involved in borrowing money.

Table 35: **Questions on access to loans**

If your household wanted to borrow money, whom would you approach first? *[Select only one option.]*		
1. Relatives	2. Friends	3. Village fund
4. Village government	5. Rural credit cooperative	6. Private money lender
7. Microfinance institution	8. Government bank	9. Private bank
10. Joint village and bank fund	11. Joint development project and bank fund	12. Other, specify:

How easy would it be to borrow money?				
Very difficult (1)	Difficult (2)	Neither/nor (3)	Easy (4)	Very easy (5)

Through involvement in organizations, networks, and associations, people gain collective strength and increase their political bargaining power. Political voice is an indicator of social inclusion (Sen 2000) and reflects the possibility of communicating and influencing one's own situation. The politically weak often have fewer entitlements and are disadvantaged in the distribution of public goods. In the questionnaire, political voice is measured by the ease of influencing the decision-making process at local and higher levels.

Table 36: **Questions on political influence**

How easy is it for your household to influence the decision-making process at the local level?				
Very difficult (1)	Difficult (2)	Neither/nor (3)	Easy (4)	Very easy (5)
How easy is it for your household to influence the decision-making process at a higher level?				
Very difficult (1)	Difficult (2)	Neither/nor (3)	Easy (4)	Very easy (5)

Figure 23 shows the perceived ease of borrowing money for the nine districts surveyed in PVAT 2011.

Physical accessibility

Physical access to institutions, services, and facilities is a central dimension of adaptive capacity and highly relevant in the mountain context. Accessibility is directly linked to two of

Figure 23: **Perceived ease of borrowing money in the nine PVAT 2011 districts (%)**
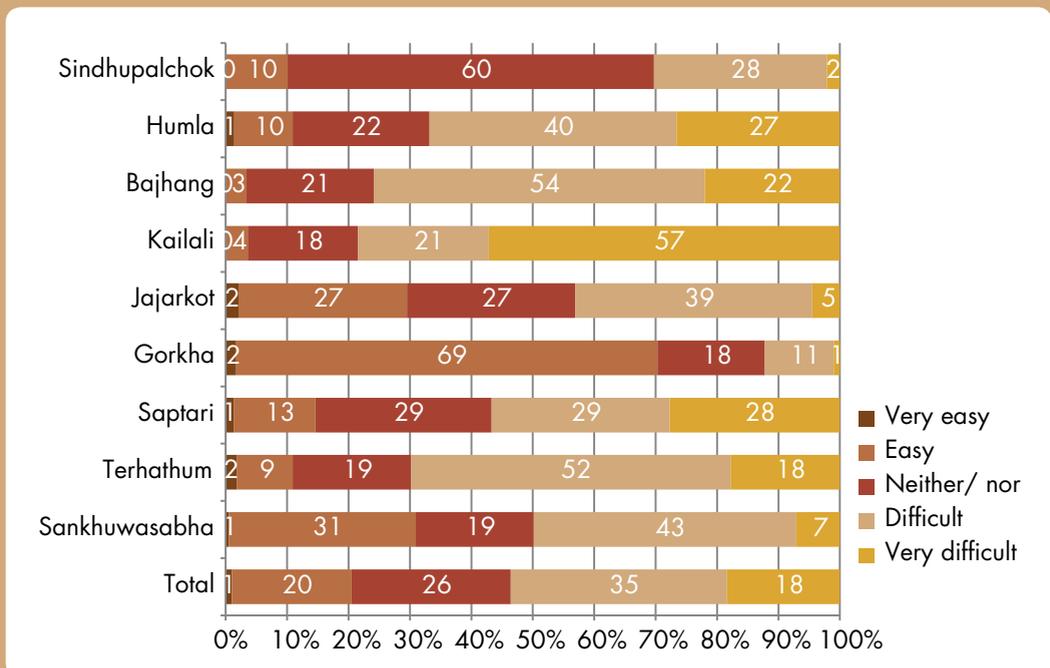
N=3,435 HH, 100%; compiled using data from PVAT 2011

the basic coping and adaptation strategies identified by Agrawal and Perrin (2009): 'mobility', which is to pool or avoid risks across space, and 'exchange', which is access to markets to promote specialization and increase revenue flows and can substitute for any of the other four strategy forms (the remaining three being storage pools, diversification, and communal pooling). Inadequate physical infrastructure hinders access to crucial facilities such as credit and health services and, thus, results in political, social, and economic marginalization. In the questionnaire, accessibility is measured by the time it takes to reach the next road as well as important facilities such as health institutions, markets, agricultural centres, and financial and communication services. The list of items was adopted from the questionnaire of the Nepal Living Standard Survey 2003/04 (His Majesty's Government of Nepal 2004).

Table 37: **Question on accessibility**

How long does it take to get from your house to the closest of the following facilities (one way)? Please also indicate the mode of transport.

[Put '0' in time measurements if not appropriate. If respondent is unsure, ask for an approximation.]

Primary school	Mode of transport:	☐	Days:	☐	Hours:	☐	Hours:	☐
Health post	Mode of transport:	☐	Days:	☐	Hours:	☐	Hours:	☐
Hospital	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Bus stop	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Paved road	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Dirt road, vehicle passable	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Local shop/shops	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Weekly market (haat bazaar)	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Market centre	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Agricultural centre	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Livestock extension centre	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Cooperative (Sajha)	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Bank	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Post office	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Public telephone	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Remittance outlet	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Police post	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Local government office	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
By foot (without load) (1)	Mule/pony/yak or other animal (2)		Bicycle/rickshaw (3)					
Motorcycle/tampoo (4)	Car/bus (5)		Mixed (6)					

Figure 24: **Average time it takes to reach various facilities for the two LAT wetlands (hours)**
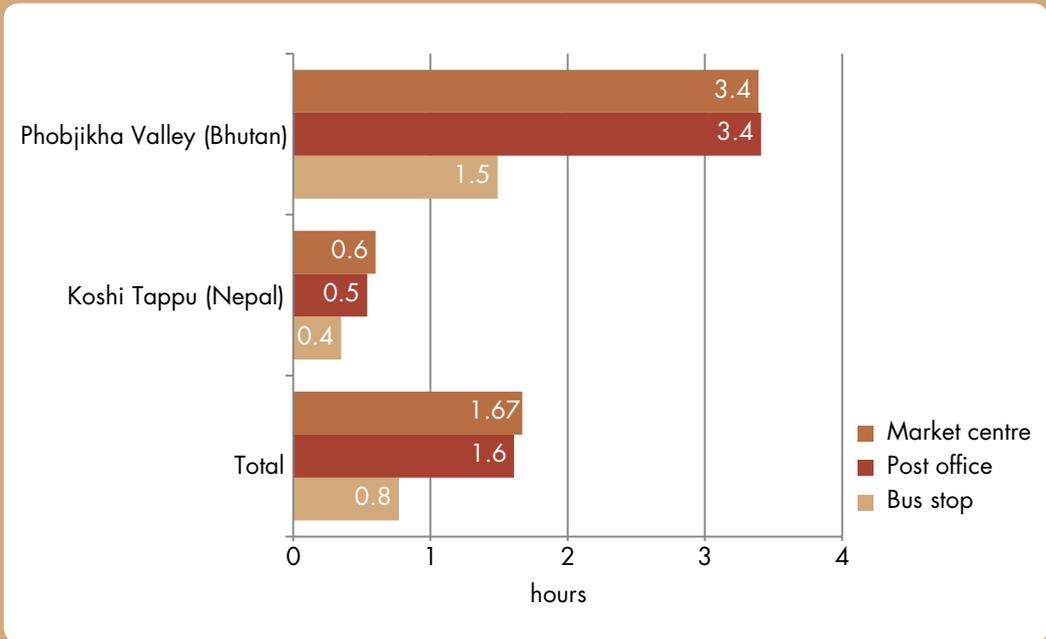
N=587 HH; compiled using data from LAT 2011

Figure 24 shows the average time it takes to reach the market centre, post office, and bus stop for the two wetlands of the LAT 2011.

Sensitivity

Sensitivity is defined as a factor that makes people or systems more likely to experience harm when exposed to a hazard or stress. The identified mountain-specific sub-dimensions of sensitivity are wellbeing, health and sanitation, food security, water security, coping strategies, and environmental stability.

Wellbeing

Economic wellbeing is an important dimension of individual sensitivity, because a lack of wellbeing is linked to higher insecurity, especially in times of stress. Poverty is not only related to marginalization and lack of access to resources, poor people also tend to live in more marginal and hazardous areas and, thus, face a higher exposure to risk (Adger 1999). Economic wellbeing is measured by various indicators in the questionnaire, the central one being the total per head consumption. Poverty is, among other things, defined as the inability to acquire basic goods and services (World Bank 2000). In addition to basic food items, this includes non-food items and services such as apparel, education and health services, personal care items, and housing. In the questionnaire, the ability to acquire basic goods and services is measured using food and non-food consumption and housing costs.

Most statistical bureaus of the countries of the HKH provide poverty lines that indicate the economic value of a basket of minimum food and non-food goods and services. If the per head consumption of a household falls below that value, a deprivation in wellbeing is indicated. The questions measuring food and non-food consumption were adopted from the Vulnerability Analysis and Mapping of the World Food Programme (WFP 2010).

Table 38: **Questions on total per head consumption**

Whether **purchased, home produced, or received in kind**: What is the **total value** of the following **food items** consumed by your household in the last 30 days? *[Put value in local currency. Total value=what HH would have to spend on the local market. If respondent is unsure, ask for an approximation. Put '0' if not consumed.]*			
Grains and cereals (rice/wheat/maize/millet, etc.)	☐	Pulses, lentils, beans	☐
Cooking oil, ghee, butter	☐	Meat, eggs, fish	☐
Milk, curd, cheese, other milk products	☐	Vegetables, potatoes	☐
Fresh fruit and nuts	☐	Spices and condiments (salt/masala/garlic, etc.)	☐
Sugar, honey, sweets, tea, soft drinks	☐	Alcoholic beverages	☐
Cigarettes, bindis, other tobacco products	☐	Meals taken outside home	☐
Bread, biscuits, noodles	☐	Miscellaneous other food expenditure	☐

What is the **total value** of the following **non-food items and services purchased or received in kind** by your household during the **last 12 months**? *[Put value in local currency. Total value=what HH would have to spend on the local market. If respondent is unsure, ask for an approximation. Put '0' if not spent on an item.]*			
Medical expenses, healthcare	☐	Education (school fees, books, uniforms)	☐
Clothing, shoes, other apparel	☐	Personal care items (soap/cosmetics, etc.)	☐
Fuels and electricity (cooking/lighting, etc.)	☐	Transportation and communication	☐
Agricultural tools, seeds, fertilizers, hiring labour	☐	Veterinary expenses, animal feed/fodder, etc.	☐
Celebrations, social events, rituals	☐		☐

If someone wanted to rent this dwelling today, how much money would they have to pay each month?
[Put value in local currency. If respondent unsure, ask for an approximation.]

Rent ☐

The possession of durable goods and assets is a central dimension of material wellbeing (Haughton and Khandker 2009). It is also a useful proxy for the economic status of a household, especially if data on income or household consumption is not available or unreliable (McKenzie 2005). In the questionnaire this dimension is measured by the household's ownership of several communication and transportation assets.

Table 39: **Question on ownership of durable goods**

How many of the following items does your household have?	
# of televisions	☐
# of dish antennae	☐
# of radios	☐
# of mobile phones	☐
# of other kind of telephones	☐
# of motor vehicles (motorcycles, cars, etc.)	☐
# of non-motorized vehicles (carts, bicycles, etc.)	☐
# of tractors/power tillers	☐
# of mechanised threshers	☐
# of other assets, specify:	☐

While information on the total household consumption and ownership of communication and transport assets provides a good picture of actual wellbeing, there are things that can pose a threat to the future wellbeing of a household and increase its sensitivity to environmental and economic shocks. One of them is the ability to afford professional treatment in the case of serious illness or injury, which measures the resilience of a household in case of emergency. Rather than the actual occurrence of illness, this indicator surveys the potential to provide adequate healthcare for household members. Affordability is considered to be one of the most important determinants of access to healthcare and is most directly associated with poverty (Peters et al. 2008).

Table 40: **Question on the affordability of healthcare**

Can your household afford professional treatment for serious illness or injury?			
No (1)	Yes, if money is borrowed (2)	Yes, with much difficulty (3)	Yes, with some difficulty (4)
Yes, because government or employer helps pay for treatment (5)		Yes, household can afford it (6)	

Another factor affecting future wellbeing is indebtedness. Many rural smallholders are forced into debt to finance essential inputs to their production system, a step that often leads to chronic indebtedness (Barbier and López 1998). In the questionnaire, indebtedness is measured by the extent to which a household is currently in debt.

## Table 41: **Question on the extent to which households are currently in debt**

Is your household currently in debt?			
[Enumerator to remind respondent that all responses are confidential.]			
No (1) [Skip to question 59]	Yes, a little (2)	Yes, a moderate amount (3)	Yes, a lot (4)

Figure 25 presents the average total per head consumption for the three sub-basins of the VACA 2011/12.

Health and sanitation

There is widespread consensus that changes in temperature and precipitation and extreme weather events affect human health. There are direct effects on health from heat and cold waves, air pollution, and aeroallergens, as well as indirect effects via food production and nutrition, vector-borne infectious diseases, water-borne infectious diseases, and changes to social and economic disruption (Githeko and Woodward 2003). Generally, sensitivity to health issues related to climate variability and extreme weather events is higher for those people already affected by pre-existing illnesses (Hales et al. 2003). A strong indicator of the health status of a household is the occurrence of serious illnesses. In the questionnaire, an illness is categorized as serious if the respective household member is unable to work.

Figure 25: **Average total per head consumption for the three VACA sub-basins (USD)**
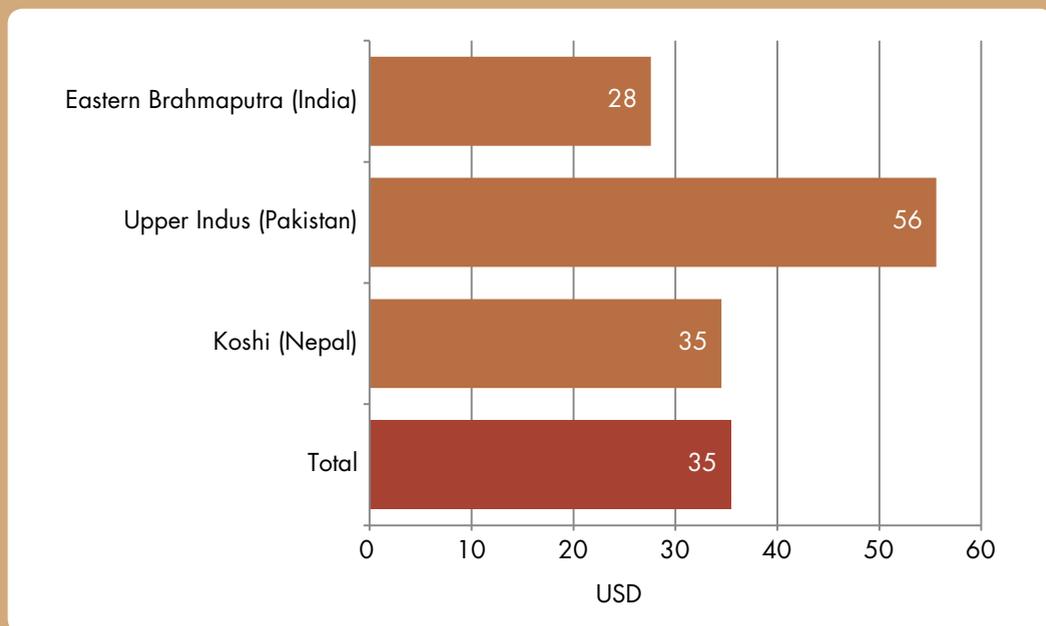
N=6,080 HH; compiled using data from VACA 2011/12

Table 42: **Question on serious illness**

In the last 12 months, how often has someone in your household been **seriously** ill (meaning they are so ill that they cannot work)?			
Never (1)	Once or twice (2)	Once a month (3)	A few times a month (4)
About once a week (5)	A few times a week (6)	Every day (7)	Don't know (-1)

Another relevant issue in the HKH region is an increased sensitivity to water-related diseases because of inadequate drinking water supply and sanitation (Hales et al. 2003). Access to safe drinking water is a fundamental human right and positively related to health and income (WHO and UNICEF 2006). Improved drinking water sources are piped water, public taps or standpipes, tube wells, bore holes, protected dug wells, protected springs and rainwater collection, while unimproved drinking water sources are unprotected dug wells, unprotected springs, tanker-trucks, and surface water.

Table 43: **Question on access to improved sources of drinking water**

What is the **main source** of water your household uses for drinking (i.e., the source your water comes from immediately before being used)?		
During the rainy season ☐	During the dry season ☐	During most of the year ☐
No rainy season in our area (-2)	No dry season in our area (-3)	
[Do not read out all options. Just ask questions and select the appropriate ones.]		
1. Unprotected dug well	2. Protected dug well	3. Bore hole
4. Unprotected spring	5. Protected spring	6. Pond/river/stream/canal
7. Public standpipe	8. Piped water inside the house	9. Piped water inside the community
10. Rainwater collection	11. Vendor provided/bottled water	12. Water tanker
13. Other, specify:		

A source that is considered to be safe does not necessarily provide water that can be consumed without treatment. Thus, a question to capture the perceived quality of drinking water has been included in the questionnaire.

Table 44: **Question on perceived quality of drinking water**

Generally, what do you think the drinking quality of your household's water is?				
Very poor (1)	Poor (2)	Fair (3)	Good (5)	Very good (5)

Besides safe drinking water, access to improved sanitation facilities has a positive effect on the health status of households and communities (WHO and UNICEF 2006). Improved sanitation facilities are flush or pour-flush toilets, ventilated improved pit latrines, enclosed pit latrines, and composting toilets, while unimproved sanitation facilities are open pit latrines, buckets, and no toilet facilities.

Table 45: **Question on access to improved sanitation facilities**

| What type of toilet facility does your household usually use?	
[Do not read out all options. Just ask question and select the appropriate one.]	
None (open defecation) (1) [Skip to Question 14]	Open pit (2)
Enclosed pit (3)	Enclosed improved-ventilation pit (4)
Enclosed pour-flush (5)	Enclosed flush (6)
Compost or biogas (7)	Other, specify (8):
'Open' means there is no structure, or a structure with no roof. 'Enclosed' means there is a structure with any sort of roof.	

Figure 26 presents the distribution of perceived quality of drinking water for the two wetlands of the LAT 2011.

Food security

Recent projections show that climate change will have an impact on food security, namely, food availability (production and trade), access to food, stability of food supplies, and food use (Gregory et al. 2005; Schmidhuber and Tubiello 2007). "The importance of the various dimensions and the overall impact of climate change on food security will differ across regions and over time and, most importantly, will depend on the overall socioeconomic

Figure 26: **Perceived quality of drinking water for the two LAT wetlands (%)**
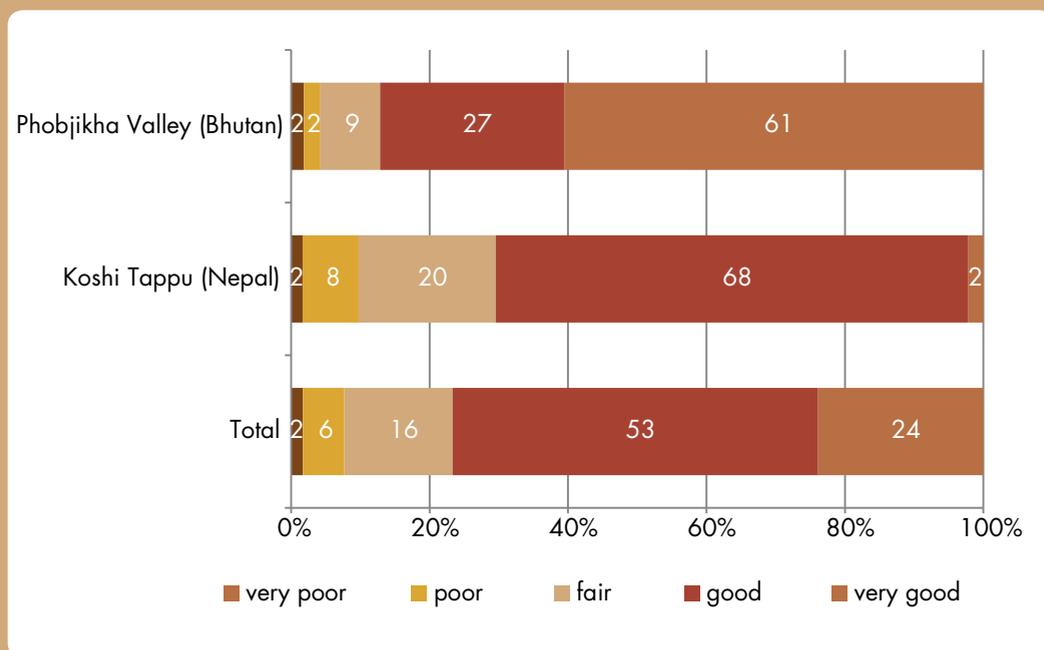
N=587 HH, 100%; compiled using data from LAT 2011

status that a country has accomplished as the effects of climate change set in" (Schmidhuber and Tubiello 2007, p 19708). At the micro level, those households that are already unable to maintain food security are the ones that are most sensitive to climate variability (Maxwell and Smith 1992). To assess the food security of households, various indicators were used, a central one being the number of months during the last year that the household had sufficient food to feed all household members.

Table 46: **Question on the number of months the household had sufficient food**

During the last 12 months, for how many months did you have sufficient food to feed all members of your household?
Months= ☐

Another central indicator of food security is food self-sufficiency, i.e., if the household on its own is able to produce or buy enough food to feed all household members it is considered food self-sufficient, whereas if it is dependent on contributions from outside it is not.

Table 47: **Question on food self-sufficiency**

Where does your household **mainly** get its food from?	
Mainly food self-sufficient (1)	Mainly buys food from store/market (2)
Mainly receives food from food aid (3)	Mainly receives food from public distribution system (4)
Combination of all four (5)	

To assess potential food supply shortfalls in the future, a question on current food stocks was included in the questionnaire. This question surveys how many months various food stocks last if used to feed all members of the household.

Table 48: **Question of current food stocks**

For how many months does your current food stock last to feed all household members? *[Put value in months, i.e., 2 years=24 months. If respondent is unsure, ask for an approximation. Put '0' if not appropriate.]*					
Rice stocks	☐	Paddy stocks	☐	Wheat grain stocks	☐
Wheat flour stocks	☐	Maize stocks	☐	Millet stocks	☐
Barley stocks	☐	Buckwheat stocks	☐	Chino stocks	☐
Potato stocks	☐				

Monocropping increases the risk of yield loss from extreme weather events and changes in temperature and precipitation (Abramovitz et al. 2001), and, thus, raises the sensitivity of households. To take this into account, a question on food crop diversity was included in the questionnaire. This collects information on the various staples and supplementary crops planted by the household during the last year.

Table 49: **Question on food crop diversity**

| During the last 12 months, what kind of staples, supplementary, and cash crops did your household grow? *[Do not read out all options. Just ask question and select the appropriate one. Record up to 5 crops per category. Put '0' if not applicable.]*									
Staples:	1	☐	2	☐	3	☐	4	☐	5 ☐
Supplementary crops:	1	☐	2	☐	3	☐	4	☐	5 ☐

Early paddy (1)	Main paddy (2)	Upland paddy (3)		Wheat (4)	Winter/spring maize (5)
Summer maize (6)	Millet (7)	Barley (8)		Buckwheat (9)	Other cereals (10)
Soybean (11)	Black gram (12)	Red gram (13)		Grass pea (14)	Lentil (15)
Horse gram (16)	Pea (17)	Green gram (18)		Coarse gram (19)	Cow pea (20)
Other legumes (21)	Winter potato (22)	Summer potato (23)		Sweet potato (24)	Colocasia (25)
Other tubes (26)	Mustard (27)	Ground nut (28)		Linseed (29)	Sesame (30)
Other oilseed (31)	Sugarcane (32)	Jute (33)		Tobacco (34)	Other cash crops (35)
Chillies (36)	Onions (37)	Garlic (38)		Ginger (39)	Turmeric (40)
Cardamom (41)	Coriander Seed (42)	Other spices (43)		Winter vegetables (44)	
Summer vegetables (45)	Orange (46)	Lemon (47)		Lime (48)	Sweet lime (49)
Other citrus (50)	Mango (51)	Banana (52)	Guava (53)	Jackfruit (54)	Pineapple (55)
Lychees (56)	Pear (57)	Apple (58)	Plum (59)	Papaya (60)	Pomegranate (61)
Other fruit (62)	Tea (63)	Thatch (64)	Podder trees (65)	Bamboo (66)	Other trees (67)

Figure 27 shows the average number of months that households had sufficient food to feed all household members for the nine districts of the PVAT 2011.

Water security

Water security is directly linked to food production and is of central importance to the livelihoods of the people in the HKH region. Already scarce, it is expected that ongoing population growth, urbanization, and changes in climate will further reduce the availability of water resources (Ragab and Prudhomme 2002; Molden 2007; Hanjra and Qureshi 2010). As with food security, the households that are already facing water shortages are more sensitive to changes in temperature and precipitation. The questionnaire contains several indicators for water security, both for drinking water and water for agriculture. Regarding the former, one indicator is access to drinking water, measured by the amount of time it takes to

Figure 27: **Average number of months that households had sufficient food to feed all household members during the last 12 months in the nine PVAT 2011 districts (months)**
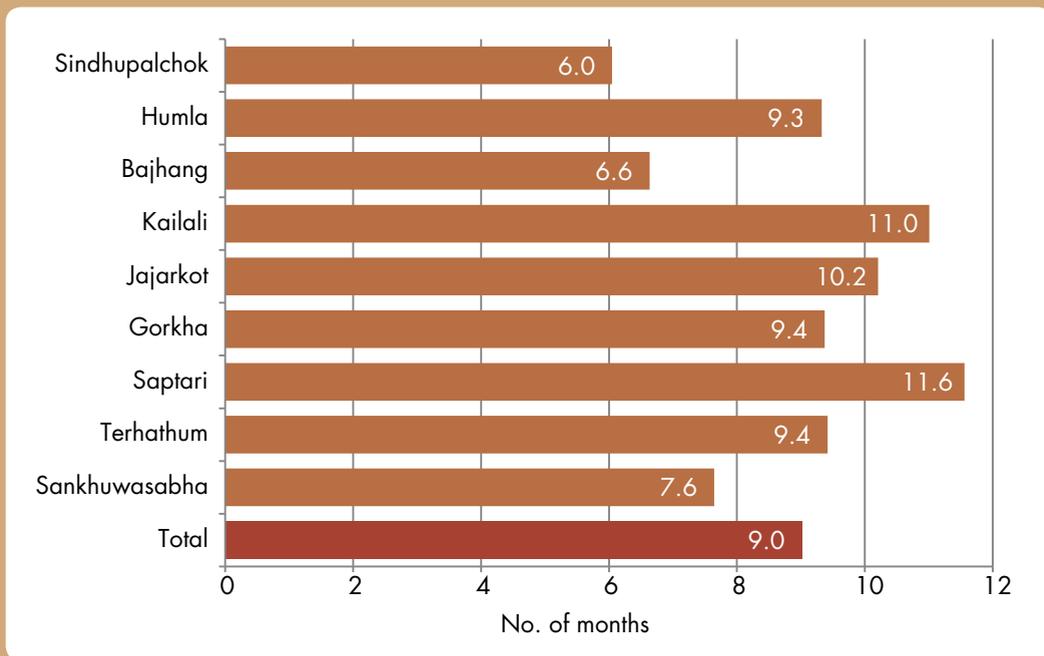
N=3,429 HH; compiled using data from PVAT 2011

collect water for household needs. The questionnaire differentiates between the dry season and rainy season, assuming that access to drinking water varies between the seasons.

Table 50: **Question on access to drinking water**

Approximately how much time (in minutes) does it take a member of your household to collect water for your needs for a normal day?		
[If water is collected from a piped supply in the household record '1' minute]		
During the rainy season ☐	During the dry season ☐	During most of the year ☐
No rainy season in our area (-2)	No dry season in our area (-3)	Don't know (-1)

Another important indicator of water security is sufficiency of drinking water. In the questionnaire, drinking water sufficiency is measured by the amount of months that there was enough water to fulfil the household's needs in the last year.

Table 51: **Question on drinking water sufficiency**

During the last 12 months, for how many months was your household's main source of water sufficient to meet your household's needs?
Months: ☐

To take into account the availability of water resources for agriculture, questions measuring the sufficiency of water for various agricultural uses were included in the questionnaire. Here, the number of months that households had enough water for their crops, livestock, and fish breeding and catching is assessed.

Table 52: **Questions on sufficiency of water for agriculture**

During the last 12 months, for how many months was there enough water for your household's crops?
Months:
During the last 12 months, for how many months was there enough water for your household's livestock?
Months:
During the last 12 months, for how many months was there enough water for your household's fish breeding/catching?
Months:

Scarcity of resources always brings with it the risk of human conflict – a risk that will increase with climate change (Barnett and Adger 2007). While the situation of a household might be satisfactory at the moment, information was gathered as to whether or not there are conflicts over the use of water as an indication of potential water insecurity in the future. The questionnaire looks at two types of water conflict: conflict within the community and conflict with other communities.

Table 53: **Questions on frequency of conflict over water**

How often is there conflict over the use of water in your community?				
Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)
How often is there conflict over the use of water between your community and other communities?				
Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)

Figure 28 presents the average number of months that water was sufficient for household use as well as agriculture for the three sub-basins of the VACA 2011/12.

Coping strategies

The sensitivity of a household is reflected in the coping strategies that have already been applied by a household. The MLVF-HKH looks at short-term coping behaviour regarding environmental or economic shocks. One basic short-term coping strategy used by households is the diversification of livelihoods to spread risk.

Figure 28: **Average number of months that water was sufficient for household use and agriculture for the three VACA sub-basins (months)**
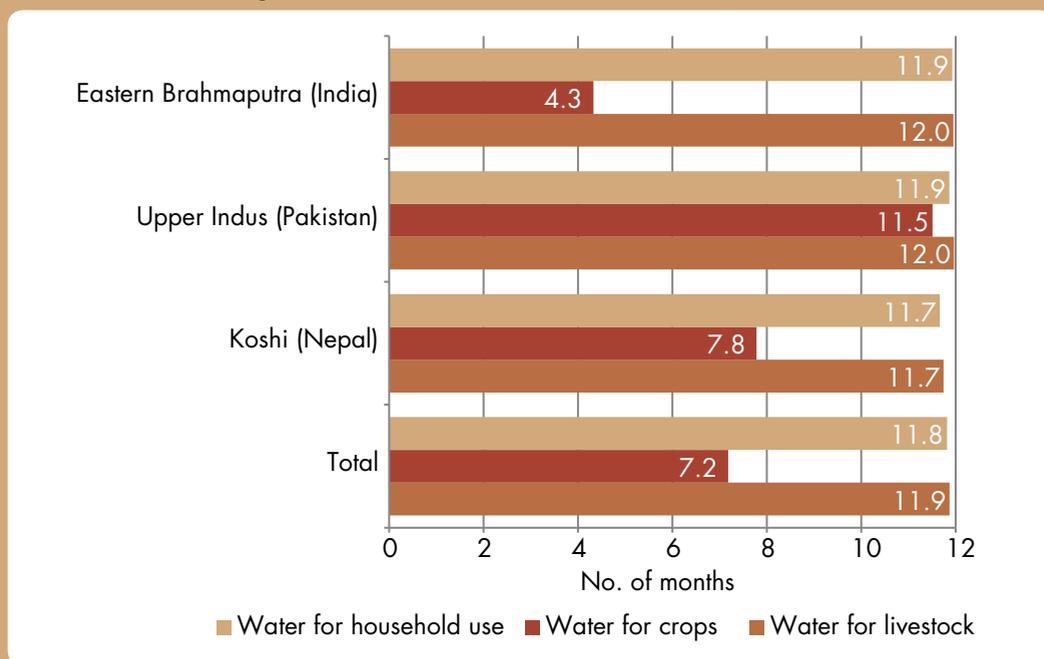
N=4,834 HH; compiled using data from VACA 2011/12

Table 54: **Question on short-term livelihood diversification coping strategies**

What of the following things did your household do to deal (cope) with the events you just mentioned [in Question 42]? *[More than one option possible.]*			
Collected wild food		Collected and sold fuelwood/NTFPs	
Non-working HH member started to work		HH member sought work in same community	
HH member sought work elsewhere (migration)		Done (1)	Not done (2)

Other short-term coping strategies to deal with environmental or economic shocks are a) the reduction of household expenditure and b) the use of savings and the lease or sale of household assets. These decreases in investment in livelihoods are problematic as, in the first case, it can impact negatively on the wellbeing of household members and, in the second case, it can reduce the livelihood options available to the household.

Table 55: Question on short-term decreased investment in livelihood coping strategies

What of the following things did your household do to deal (cope) with the events you just mentioned [in Question 42]? *[More than one option possible.]*			
Relied on less preferred/less expensive food	☐	Spent savings on food	☐
Reduced portions/number of meals	☐	HH member sought work in same community	☐
Skipped day without eating	☐	Consumed seed stocks held for next season	☐
Took children out of school to work	☐	Moved children to a less expensive school	☐
Sent children to work outside the HH	☐	Reduced spending on education	☐
Reduced spending on health	☐	Reduced spending on clothes	☐
Leased out farmland	☐	Sold farmland	☐
Sold HH assets (including small animals, jewellery)	☐	Sold agricultural assets (tools, seeds, livestock)	☐
HH member sought work elsewhere (migration)	☐	Done (1)	Not done (2)

In addition, the MLVF-HKH looks at medium-term coping strategies regarding climate variability. Because variations in climate and precipitation affect agriculture first and foremost, the main focus here lies on changes in cropping patterns and livestock rearing. Livelihood diversification and specialization in the form of non-agricultural activities and migration are also considered.

Table 56: Question on medium-term coping strategies to deal with climate variability

[If 48.1 and 48.2 are 'No', skip to Question 49.1.] Because of these changes occurring in your village, has your household done any of the following: *[More than one option possible. Put '0' if not applicable.]*			
Given up planting certain types of crops	☐	Introduced new crop types and varieties	☐
Given up rearing certain types of livestock	☐	Introduced new types of livestock	☐
Given up off-farm activities	☐	Taken on new off-farm activities (i.e., wage labour)	☐
Stopped migrating	☐	Migrated	☐
Others, please specify:		Done (1)	Not done (2)

A crucial indicator of the effectiveness of applied coping strategies is the actual time it takes a household to recover from environmental and economic shocks. The recovery period is measured by the number of months it took the household to return to a satisfactory situation.

Table 57: **Question on time to recover from environmental and economic shocks**

Following the events you just mentioned [in Question 42]: How many months did it take your household to return to a satisfactory situation?

*[Record answer in months (for example, 1 year = 12 months).]*

Months=		Less than one month (0)	Our household has not recovered yet (-2)

Figure 29 shows the percentage of households that applied various medium-term coping strategies to deal with climate variability for the three sub-basins of the VACA 2011/12.

Environmental stability

Due to their altitude and steep slopes, as well as geological, edaphic, and biotic factors, mountain areas are characterized by a high degree of environmental fragility, which makes them vulnerable to irreversible damage caused by overuse and rapid climatic changes (Jodha 2001). Three specific risks are soil erosion including mudslides and landslides from high-intensity rain; disturbances of hydrological cycles and flows of water through increased snowmelt; and soil degradation through the overuse of agricultural land (Jodha 2001). To assess the sensitivity of households for soil erosion and landslides, a question on the slope of agricultural land was included in the questionnaire. Households with flat agricultural land are less sensitive than households with land that is gently sloping, steep, or terraced.

Figure 29: **Households that applied various medium-term coping strategies for the 3 VACA sub-basins (%)**
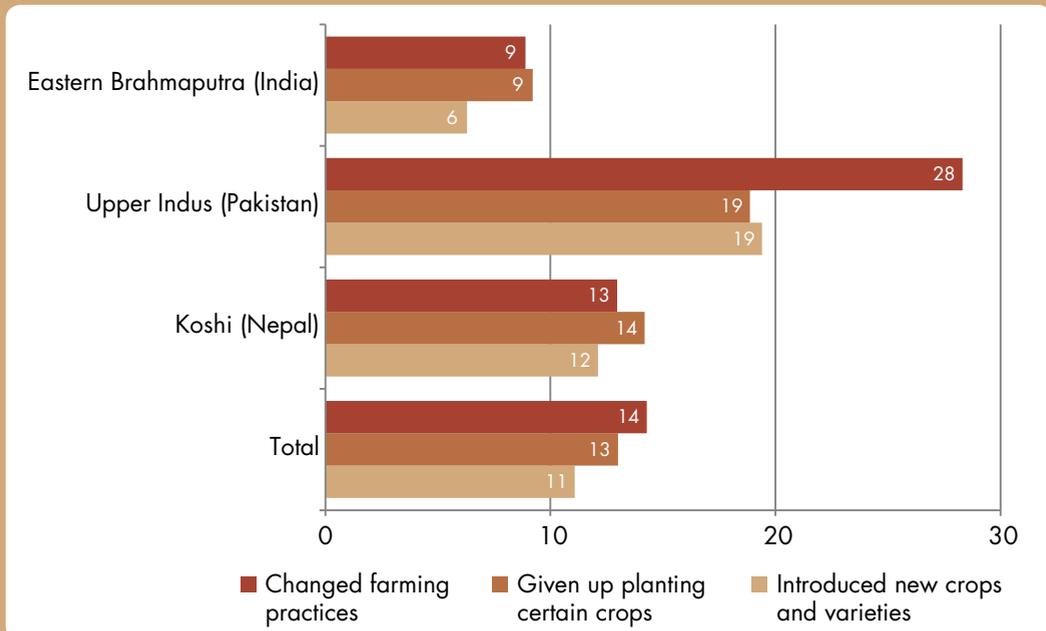
N=5,692 HH, 100%; compiled using data from VACA 2011/12

Table 58: **Question on slope of agricultural land**

Is the **majority** of your household's land flat, gently sloping, steep or terraced?				
Flat (1)	Gently sloping (2)	Steep (3)	Terraced (4)	Mixed (5)

Compared to rainfed agriculture, irrigated agriculture is not only characterized by higher yield levels and lower on-farm water loss, but is also less sensitive to climatic factors because irrigation enables farmers to grow a broader variety of crops on their land (Rockström et al. 2003). Thus, a question asking if the majority of a household's agricultural land is irrigated or rainfed was included in the questionnaire.

Table 59: **Question on irrigation of agricultural land**

Is the **majority** of the household's land irrigated or rainfed?		
Majority irrigated (1)	Majority rainfed (2)	Half irrigated, half rainfed (3)

The condition of the soil influences the types of crops that can be planted, yield, and the erodibility of the land. In addition, areas with more productive soil are less sensitive to adverse climate conditions than areas with less productive soil (O'Brien et al. 2004). The questionnaire records the soil quality of the majority of the household's agricultural land – categories range from low quality soil (e.g., stony-gravely or sandy) to high quality soil (e.g., loamy).

Table 60: **Question on quality of soil**

What kind of soil covers the **majority** of your household's land?				
Stony-gravely (1)	Clay (2)	Loamy [mixed clay, sand, and/or silt] (3)	Sandy (4)	
Wet (5)	Droughty (6)	Mixed, specify (7):	Other, specify (8):	Don't know (-1)

One of the main functions of a dwelling is to provide security and shelter from weather and climate (Human Rights Education Associates 2012). In a fragile environment a high-quality dwelling can protect households from displacement or death because of extreme weather events and hazards (Sharma and Patwardhan 2008). A couple of questions were incorporated into the questionnaire to assess the quality of the household's dwelling and the ability of the dwelling to withstand hazards.

Table 61: **Questions on the quality of dwelling**

[Information to be collected by enumerator while in the household (ask only if unable to determine answer visually).]
What is the **primary** construction material of the housing unit's exterior walls?

1. Grass/leaves/reeds	2. Thatch/bamboo	3. Plastic/fabric
4. Metal/GI/asbestos sheets	5. Wood/branches	6. Mud
7. Unburnt bricks	8. Stones	9. Burnt bricks
10. Concrete	11. Other, specify:	

[Information to be collected by enumerator while in the household (ask only if unable to determine answer visually).]
What is the primary construction material of the housing unit's main roof?

1. Straw/reeds	2. Thatch/bamboo	3. Plastic/fabric
4. Metal/GI/asbestos sheets	5. Wood/planks	6. Mud
7. Tiles/shingles/slates	8. Stones	9. Concrete
10. Other, specify:		

Can your home withstand strong winds, severe rain, snow, or hail without significant damage?

No (1)	Yes (2)	Yes, with minor damage (3)	Perhaps, but with significant damage likely (4)
Little to no extreme weather in this region (-2)			Don't know (-1)

Figure 30 presents the average percentage of households with flat and irrigated agricultural land in the two wetlands of the LAT 2011.

Figure 30: **Households with mainly flat and mainly irrigated land for the two LAT wetlands (%)**
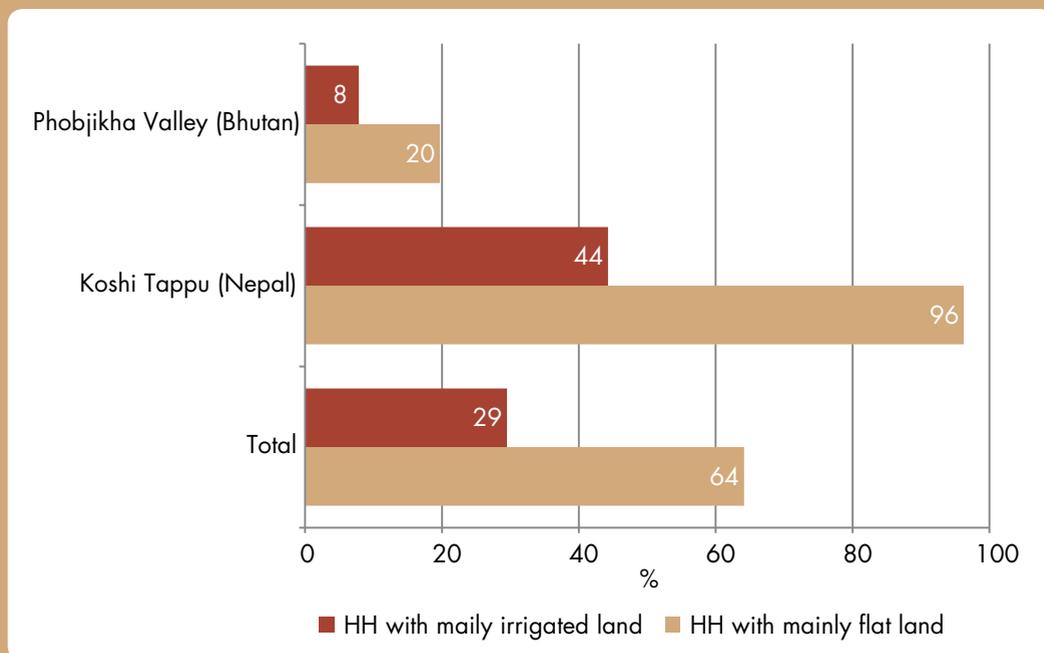
N=441 HH, 100%; compiled using data from LAT 2011.

Exposure

Exposure is understood as the extent to which households have been exposed in recent years to evolving environmental hazards that are likely to be influenced by climate change, as well as socioeconomic hazards. The MLVF-HKH differentiates between short- and medium-term exposure.

Short-term exposure

Short-term exposure is measured by the shocks households have experienced during the 12 months prior to the survey. In addition to the IPCC (2007) definition, which focuses on climate-related exposure, the framework takes into account not only environmental shocks (e.g., floods, extremes in temperature and precipitation), but also economic shocks (e.g., unemployment, failure of a business). The questionnaire assesses the nature of the five most important shocks, their severity, and the damage they have caused. The nature of shock is surveyed using a list that tries to cover most of the common negative events that might happen to the people of the HKH region. It is an extended version of the list used in IFAD's Multidimensional Poverty Assessment Tool (Cohen 2009). Severity is a subjective indicator for impact measured by a five-point Likert scale. Damage is an objective impact indicator measuring the loss in local currency. This takes into account the fact that the subjective impact of an event that has caused the same damage may differ between households.

Figure 31: **Average combined damage caused by environmental and economic shocks during the last 12 months for the three VACA sub-basins (USD)**
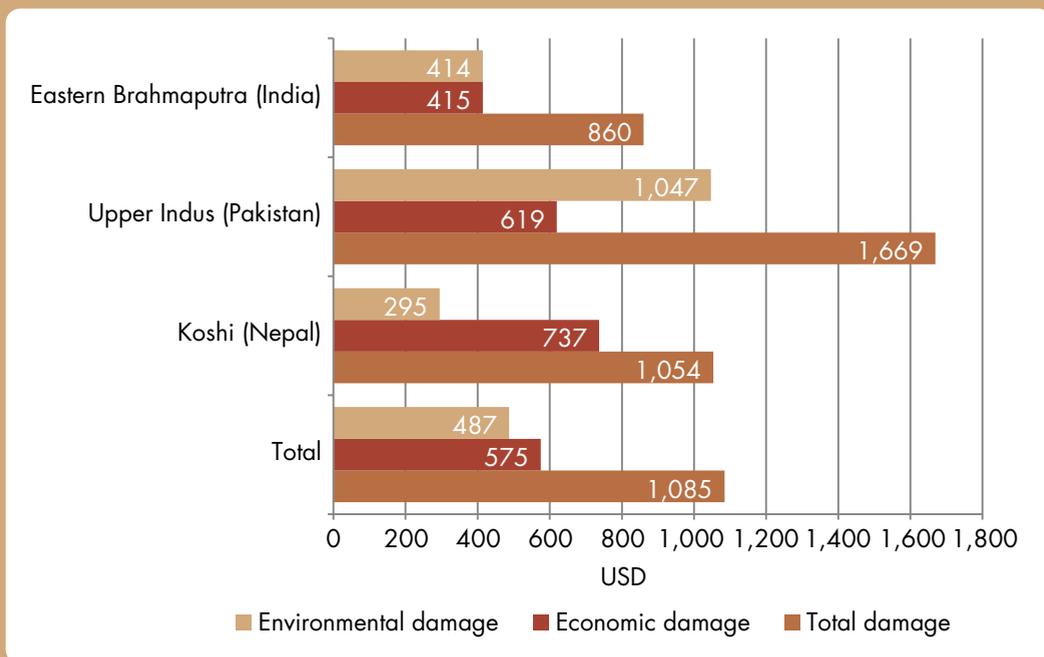
N=6,096 HH; compiled using data from VACA 2011/12

Table 62: **Questions on environmental and economic shocks**

During the last 12 months, what were the 5 most important problems/shocks, natural or economic, your household faced (as far as negative impacts to your household, household members' livelihoods and/or the household's agriculture/livestock/fish breeding)?

*[Enumerator to list up to five events, from 'most important' (1st) to 'less important'. Enumerator can provide examples of specific events **only** if respondent does not understand the question once it is read twice.]*

For each of these events, how severe was it for your household? ['Severity']

For each of these events, how much damage [in local currency] did it cause your household? ['Damage']

Severity=	Very low (1)	Low (2)	Medium (3)	High (4)	Very high (5)
1st	Event # =		Severity=	Damage=	
2nd	Event # =		Severity=	Damage=	
3rd	Event # =		Severity=	Damage=	
4th	Event # =		Severity=	Damage=	
5th	Event # =		Severity=	Damage=	

1. Drought	2. Dry spell	3. Flood	4. Erratic rainfall	5. Frost
6. Hail	7. Snow or blizzard	8. Avalanche	9. Landslide/erosion	10. Earthquake
11. Volcanic eruption	12. Typhoon/hurricane	13. Tornado		14. Strong wind
15. Dust storm	16. High temperatures	17. Low temperatures		18. Sub-zero temperatures
19. Fire	20. Insect attack	21. Crop pests		22. Lack of fertilizer and /or too expensive
23. Bad seeds	24. Soil problems	25. Livestock disease/death		26. Irrigation problems
27. Labor shortage	28. Theft	29. Low market prices for crops/livestock		30. Poor market access
31. Family sickness	32. Death of HH member	33. Debt	34. Bandh (strike)	35. Local conflict
36. National conflict	37. Taxes	38. Unemployment	39. Loss of house	40. Failure of HH business
41. Personal violence	42. Intimidation	43. Corruption	44. Imprisonment	45. Electricity shortage
46. Wildlife related shocks		47. Divorce/separation		48. Other, specify:

Figure 31 shows the average combined damage of all shocks that occurred during the last 12 months for the three sub-basins of the VACA 2011/12.

Medium-term exposure

Medium-term exposure is measured by the perceived changes in climate events and in the occurrence of extreme weather events and hazards during the last ten years. The concept covers changes in the frequency and severity of environmental shocks, new climatic and environmental conditions, and perceived climate variability. The first indicator is related to the environmental shocks mentioned during the assessment of short-term exposure and enquires if those events have occurred before, and, if they have, if such events have become more frequent and severe.

Table 63: Questions on changes in frequency and severity of environmental shocks

[Before asking 46.1, for each event transfer the code of event type from 42. Stick to the numbers used in Question 42, e.g., if 1st event in 42 was 'hail', put '6' in type and remind respondent that you are talking about this type of event now.]

During the last 10 years, which of the five events you just mentioned [in Question 42] have occurred before? ['Prior occurrence'] [Repeat events mentioned in Question 42. Stick to the numbers used in Question 42.]

Have these events you just mentioned [in Question 46.1] changed in frequency over the last 10 years?
['Change in frequency'] [Only record for events that occurred before.]

Has the severity of the events you just mentioned [in Question 46.1] changed over the last 10 years?
['Change in severity'] [Only record for events that occurred before.]

Prior occurrence	Has occurred before (1)		Has not occurred before (2)	
Change in frequency	Less frequent (1)	No change (2)	More frequent (3)	
Change in severity	Less severe (1)	No change (2)	More severe (3)	

1st event	Type	☐	Prior occurrence	☐	Change in frequency	☐	Change in severity	☐
2nd event	Type	☐	Prior occurrence	☐	Change in frequency	☐	Change in severity	☐
3rd event	Type	☐	Prior occurrence	☐	Change in frequency	☐	Change in severity	☐
4th event	Type	☐	Prior occurrence	☐	Change in frequency	☐	Change in severity	☐
5th event	Type	☐	Prior occurrence	☐	Change in frequency	☐	Change in severity	☐

New climatic and environmental conditions are assessed by asking whether or not households have perceived new phenomena in their environment during the last ten years, and, if so, what kind of changes have been observed.

Climate variability is measured by perceived changes in temperature and precipitation. The questionnaire enquires as to whether or not variability in temperature and precipitation patterns has been perceived, and, if so, what kind of change has been observed.

## Table 64: **Questions on new climatic and environmental conditions**

During the last 10 years, have you observed any changes in your environment that have not occurred before?		
Yes (1)	No (2) [Skip to Question 48.1]	

What kind of events have you observed that **had not occurred in your community before**?

[More than one option possible. Do not read out all options. Just ask question and select the appropriate one. Put '-6' if not applicable.]

Drought	☐	Dry spell	☐	Flood	☐
Erratic rainfall	☐	Frost	☐	Hail	☐
Snow or blizzard	☐	Avalanche	☐	Landslide/erosion	☐
Earthquake	☐	Volcanic eruption	☐	Typhoon/hurricane	☐
Tornado	☐	Strong wind	☐	Dust storm	☐
High temperatures	☐	Low temperatures	☐	Sub-zero temperatures	☐
Fire	☐	Insect attack	☐	Crop pests	☐
Soil problems	☐	Livestock disease	☐	Irrigation problems	☐
Occurrence of new plant species	☐	Occurrence of new animal species (e.g., mosquitoes)		☐
		Observed (1)		Not observed (0)	

Figure 32: **Households that have experienced changes in environment, temperature, and precipitation during the last 10 years for the three VACA sub-basins (%)**
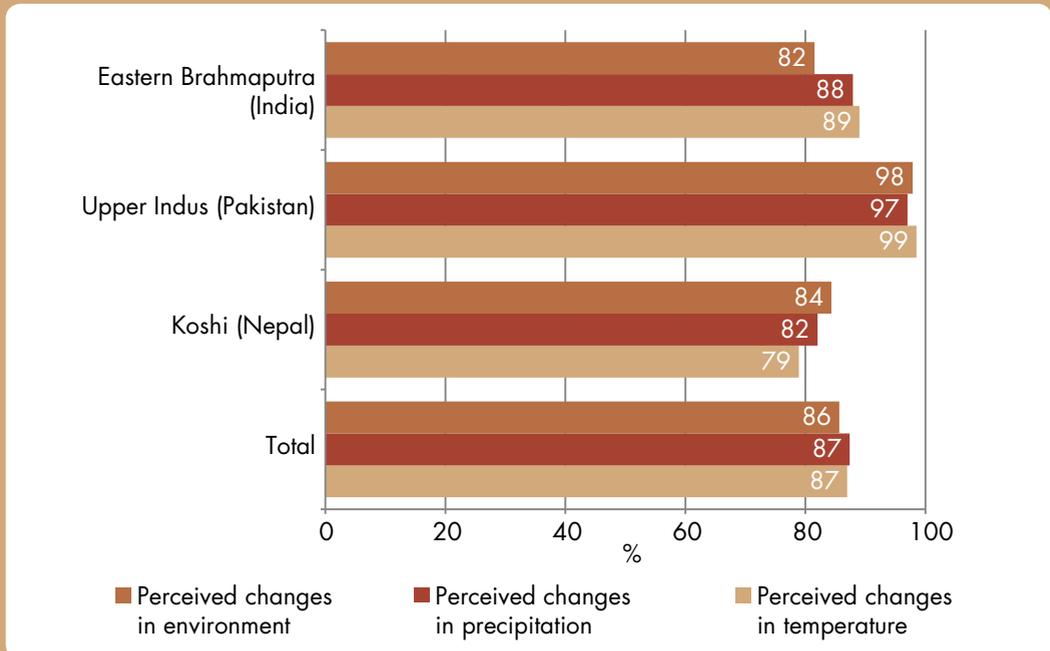
N=6,094 HH, 100%; compiled using data from VACA 2011/12

Table 65: **Questions on perceived climate variability**

Overall, would you say that the temperature patterns in your community have changed over the last 10 years?	
Yes (1)	No (2) [Skip to Question 48.3]

How have temperature patterns changed in your community over the last 10 years?

[More than one option possible. Do not read out all options. Just ask question and select the appropriate one. Put '-6' if not applicable.]

It has significantly warmed	☐	It has slightly warmed	☐
It has significantly cooled	☐	It has slightly cooled	☐
Hot seasons have become hotter	☐	Hot seasons have become cooler	☐
Cold seasons have become colder	☐	Cold seasons have become warmer	☐
Frost is more common	☐	Frost is less common	☐
Heat waves are more frequent	☐	Cold waves are more frequent	☐
Other, specify:	☐	Observed (1)	Not observed (2)

Overall, would you say that the precipitation patterns in your community have changed over the last 10 years?	
Yes (1)	No (2) [Skip to Question 48.4l]

How have precipitation patterns changed in your community over the last 10 years?

[More than one option possible. Do not read out all options. Just ask question and select the appropriate one. Put '-6' if not applicable.]

Annual amount has increased	☐	Annual amount has decreased	☐
Summer precipitation has increased	☐	Summer precipitation has decreased	☐
Winter precipitation has increased	☐	Winter precipitation has decreased	☐
Timing of precipitation has advanced	☐	Timing of precipitation is delayed	☐
Number of rainy days has increased	☐	Number of rainy days has decreased	☐
Number of snowfall days has increased	☐	Number of snowfall days has decreased	☐
Precipitation intensity has increased	☐	Precipitation intensity has decreased	☐
Hailstorms have become more frequent	☐	Hailstorms have become less frequent	☐
More erratic precipitation	☐	Other, specify:	☐
		Observed (1)	Not observed (2)

Figure 32 presents the percentage of households that have perceived changes in temperature and precipitation patterns for the three sub-basins of the VACA 2011/12.

Conclusion

The Hindu Kush Himalayan region (HKH) is being confronted with rapid economic, social, and environmental changes. At the same time, there is a lack of cohesive information on the socioeconomic situation of the around 210 million people who reside in the region and, specifically, data on the vulnerability of livelihoods to change and responsive behaviour's. Development interventions to support mountain communities through the process of change and adaptation are less effective if not tailored to the mountain-specific context.

ICIMOD has developed the Poverty and Vulnerability Assessment, a household survey questionnaire, to explore the characteristics of mountain-specific poverty, vulnerability, and adaptive capacity. This report describes the development of the survey questionnaire and its underlying theoretical concepts. The PVA is based on two central research frameworks that address the specific needs of the HKH region: the Multidimensional Poverty Framework for the HKH and the Multidimensional Livelihood Vulnerability Framework for the HKH. The Poverty and Vulnerability Assessment has been extensively field tested and implemented across the HKH region. So far, more than 13,000 households have been surveyed across Bhutan, India, Nepal, and Pakistan. Initial findings support the findings of previous studies, namely, that there are mountain-specific aspects to the poverty, vulnerability, and adaptive capacity of mountain people. The Poverty and Vulnerability Assessment provides evidence-based knowledge on the mountain-specific drivers of vulnerability and poverty. It identifies the most vulnerable mountain/hill communities and, thus, allows the prioritization of interventions (i.e., where to intervene). More importantly, the Poverty and Vulnerability Assessment provides knowledge on the type and magnitude of mountain-specific drivers of poverty and vulnerability in order to design appropriate intervention packages (i.e., how to intervene). Finally, the Poverty and Vulnerability Assessment serves as a monitoring instrument as it allows us to measure the impact of interventions (i.e., what did the intervention achieve). Data and evidence generated by the Poverty and Vulnerability Assessment is already guiding and informing both policy and development planners for effective development interventions in a mountain-specific context.

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Annex: Poverty and Vulnerability Assessment Household Questionnaire

Enumerator: _____   Time _____:_____ to   Date (Y/M/D): 20____/____/____
                                      _____:_____

Region: _____   District:_____   VDC/municipality:_____

Respondent's age: GPS coordinates   HH code:_____ Consent: _____
   Sex= M (1)/ F (2)   Lat:
                             Long:

Relation to HH head = head (1)/ husband, wife (2)/ son, daughter (3)/ grandchild (4)/ father, mother (5)/ brother, sister (6)/ nephew, niece (7)/ son-, daughter-in-law (8)/ brother-, sister-in-law (9)/ father-, mother-in-law (10)/ other family relative (11)/ servant, servant's relative (12)/ tenant, tenant's relative (13)/ other (14)

HH head's name:_____ HH head's marital status = married (1)/single (2)/
                                                                        divorced (3)/ widowed (4)

[Only if relation not '1']   *[Only if relation not '1']*

1.1 How many persons have **eaten and slept** in your household **for at least six months** during the last 12 months?

# of household members:	

1.2 How many of those are **females and males** of the following age groups: aged 5 or younger, aged 6 to 14, aged 15 to 64, and aged 65 and older?
[Put '0' if not applicable. Make sure number of persons adds up to total number of HH members.]

males aged 0–5		males aged 6–14		males aged 15–64		males aged 65+	
females aged 0–5		females aged 6–14		females aged 15–64		females aged 65+	

2.1 During the last 12 months, how many adults of your household have commuted to work, either for business or employment, **in a different town or village** for 0 to 3 months, 4 to 6 months, 7 to 9 months, and 10 months or more?
[During the 12 months preceding the survey. Put '0' if not applicable.]

0–3 months		4–6 months		7–9 months		10 months or more	

[Skip to Question 2.3 if '0' in all fields]

2.2   During the last 12 months, where have the commuters of this household worked?

[Record information of up to 3 destinations.]

	District/province (specify)	Country (specify)	Type
Destination 1			
Destination 2			
Destination 3			
Type=	rural (1)	urban (2)	

2.3   During the last 12 months, how many adults **lived and worked in a different town or village within the country** for 0 to 3 months, 4 to 6 months, 7 to 9 months, and 10 months or more?

[During the 12 months preceding the survey. Put '0' if not applicable.]

0–3 months		4–6 months		7–9 months		10 months or more	

2.4   During the last 12 months, how many adults **lived and worked in a town or village in another country** for 0 to 3 months, 4 to 6 months, 7 to 9 months, and 10 months or more?

[During the 12 months preceding the survey. Put '0' if not applicable.]

0–3 months		4–6 months		7–9 months		10 months or more	

2.5   *[Skip to Question 3 if all fields in 2.3 and 2.4 are '0'.]*

During the last 12 months, **where** have the adults you just mentioned [in Questions 2.3 and 2.4] **lived and worked**?

[Record information of up to 3 destinations.]

	Town/village (specify)	District/province (specify)	Country (specify)	Type
Destination 1				
Destination 2				
Destination 3				
Type=	rural (1)	urban (2)		

3   What is the **highest completed** level of education of the household head?

[Select only one option.]

Class 1 (1)	Class 2 (2)	Class 3 (3)	Class 4 (4)
Class 5 (5)	Class 6 (6)	Class 7 (7)	Class 8 (8)
Class 9 (9)	Class 10 (10)	School Leaving Certificate (11)	Class 12/Intermediate level (12)
Bachelor level (13)	Master level (14)	Professional degree (15)	
Literate (non-formal education) (16)		Illiterate (17)	Don't know (-1)

4   What is the caste/ethnicity of the household head? *[Select only one option.]*

Brahmin/Chhetri (1)	Terai middle caste (2)	Dalit (3)	Newar (4)
Hill Janajati (5)	Terai Janajati (6)	Muslim (7)	Other minority (8)

Castes/ethnic groupings:
1. **Brahmin/Chhetris:** Brahmin, Chhetri, Thakuri, Sanyasi, Kayashta, Rajput, Baniya, Marwadi, Jaine, Nurang, Bengali
2. **Terai middle castes:** Yadav, Teli, Kalwar, Sudi, Sonar, Lohar, Koiri, Kurmi, Kanu, Haluwai, Hajam/Thakur, Badhe, Rajbhar, Kewat Mallah, Numhar, Kahar, Lodha, Bing/Banda, Bhediyar, Mali, Kamar Dhunia
3. **Dalits:** Kami, Damai, Sarki, Gaine, Badi, Chamar, Musahar, Tatma, Bantar, Dhsadadh/Paswan, Khatway, Dom, Chidimar, Dhobi, Halkhor, unidentified Dalit
4. **Newars:** All Newari castes
5. **Janajatis (hill):** Magar, Tamang, Rai, Gurung, Limbu, Sherpa, Bhote, Walung, Buansi, Hyolmo, Gharti/Bhujel, Kumal, Sunuwar, Baramu, Pahari, Adivasi Janajati, Yakkha,Shantal, Jirel, Darai, Dura, Majhi, Dunuwar, Thami, Lepcha, Chepang, Bote, Raji, Hayu, Raute, Kusunda
6. **Janajatis (Terai):** Tharu, Dhanuk, Rajbanshi, Tajpuriya, Gangai, Dhimal, Meche, Kisan, Munda, Santhal/Satar/Dhangad/Jhangad, Koche, Pattarkatta/Kusbadiya
7. **Muslims:** Muslim, Churoute
8. **Other groups**

5   How long does it take to get from your house to the closest of the following facilities (one way)? Please also indicate the mode of transport.
[Put '0' in time measurements if not appropriate. If respondent is unsure, ask for an approximation.]

Primary school	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Health post	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Hospital	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Bus stop	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Paved road	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Dirt road, vehicle passable	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Local shop/shops	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Weekly market (haat bazaar)	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Market centre	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Agricultural centre	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Livestock extension centre	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Cooperative (Sajha)	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Bank	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Post office	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Public telephone	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Remittance outlet	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Police post	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
Local government office	Mode of transport:	☐	Days:	☐	Hours:	☐	Minutes:	☐
By foot (without load) (1)	Mule/pony/yak or other animal (2)		Bicycle/rickshaw (3)					
Motorcycle/tempo (4)	Car/bus (5)			Mixed (6)				

6   How many female and male members of your household aged 6 and older can read and write a letter?

# of male members		# of female members	

7   How many female and male children (aged 6–14) in your household do not attend school?

# of male members		# of female members	

8   During **the last 20 years**, has a woman of this household ever given birth to a child who was born alive but died before the age of five?

Yes (1)	No (2)

9   In the **last 12 months**, how often has someone in your household been seriously ill (meaning they are so ill that they cannot work)?

Never (1)	Once or twice (2)	Once a month (3)	A few times a month (4)
About once a week (5)	A few times a week (6)	Every day (7)	Don't know (-1)

10   Can your household afford professional treatment for serious illness or injury?

No (1)	Yes, if money is borrowed (2)	Yes, with much difficulty (3)	Yes, with some difficulty (4)
Yes, because government or employer helps pay for treatment (5)	Yes, household can afford it (6)		

11.1   Does your household own this dwelling?

Yes (1)	No (2)

11.2   How many rooms of this dwelling does your household occupy?

# of rooms:	

11.3   If someone wanted to rent this dwelling today, how much money would they have to pay each month?

[Put value in local currency. If respondent unsure, ask for an approximation.]

Rent:	

12.1   *[Information to be collected by enumerator while in the household (ask only if unable to determine answer visually).]*

What is the **primary** construction material of the housing unit's exterior walls?

1. Grass/leaves/reeds	2. Thatch/bamboo	3. Plastic/fabric
4. Metal/Galvanized iron/asbestos sheets	5. Wood/branches	6. Mud
7. Unburnt bricks	8. Stones	9. Burnt bricks
10. Concrete	11. Other, specify:	

12.2 *[Information to be collected by enumerator while in the household (ask only if unable to determine answer visually).]*

What is the **primary** construction material of the housing unit's main roof?

1. Straw/reeds	2. Thatch/bamboo	3. Plastic/fabric
4. Metal/Galvanized iron/Asbestos sheets	5. Wood/planks	6. Mud
7. Tiles/shingles/slates	8. Stones	9. Concrete
10. Other, specify:		

12.3 Can your home withstand strong winds, severe rain, snow or hail without significant damage?

No (1)	Yes (2)	Yes, with minor damage (3)	Perhaps, but with significant damage likely (4)
Little to no extreme weather in this region (-2)			Don't know (-1)

13.1	What is the **primary** source of light your home uses? ☐	*[Do not read out all options. Just ask questions and select the appropriate ones.]*
13.2	What is the **primary** fuel source your household uses for cooking? ☐	
13.3	What is the **primary** fuel source your household uses for heat? ☐	

1. Electricity from local grid	2. Electricity from national grid
3. Electricity from a generator	4. Electricity from solar cells, wind turbine or small, hydroelectric dam
5. Liquid fuel [petrol, kerosene]	
6. Gas fuel [methane from tank, biogas]	7. Coal or charcoal
8. Vegetable or animal based fats or oils	
9. Candle, paraffin wax, or battery-powered source	
10. Wood, sawdust, grass, or other natural material	
11. Animal dung	12. Other, specify:
-2. None	-3. Heat not needed in region

14.1 What type of toilet facility does your household usually use?

[Do not read out all options. Just ask question and select the appropriate one.]

None (open defecation) (1) [Skip to Question 15]	Open pit (2)
Enclosed pit (3)	Enclosed improved-ventilation pit (4)
Enclosed pour-flush (5)	Enclosed flush (6)
Compost or biogas (7)	Other, specify (8):
'Open' means there is no structure, or a structure with no roof. 'Enclosed' means there is a structure with any sort of roof.	

14.2 How many households use this toilet?

# of HHs	☐

15　What is the main source of the water your household uses for drinking (i.e., the source your water comes from immediately before being used)?

During the rainy season		During the dry season		During most of the year	
No rainy season in our area (-2)		No dry season in our area (-3)			

[Do not read out all options. Just ask questions and select the appropriate ones.]

1. Unprotected dug well	2. Protected dug well	3. Bore hole
4. Unprotected spring	5. Protected spring	6. Pond/river/stream/canal
7. Public standpipe	8. Piped water inside the house	9. Piped water inside the community
10. Rainwater collection	11. Vendor provided/bottled water	12. Water tanker
13. Other, specify:		

16.1　**Approximately** how much time (in minutes) does it take a member of your household to collect water for your needs for a normal day?

[If water is collected from a piped supply in the household record '1' minute]

During the rainy season		During the dry season		During most of the year	
No rainy season in our area (-2)		No dry season in our area (-3)		Don't know (-1)	

16.2　During the last 7 days, how many times did the following household members go to fetch water?

[Put '0' if not applicable.]

males aged 0–5		males aged 6–14		males aged 15–64		males aged 65+	
females aged 0–5		females aged 6–14		females aged 15–64		females aged 65+	

17　Does your household treat water before drinking it (any treatment method: boiling, allowing to settle, filter, chemical treatment, etc.)?

Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)

18　During the last 12 months, for how many months was your household's main source of water sufficient to meet your household's needs?

Months:	

19　How often can your household afford to purchase (direct payments only, not maintenance fees) water for your household's needs?

Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)
Do not need to pay for water (-2)				

20　Generally, what do you think the drinking quality of your household's water is?

Very poor (1)	Poor (2)	Fair (3)	Good (5)	Very good (5)

21   Does your household have access to land for agriculture?

Yes (1)	No (2) [Skip to Question 33]

22   How much land does your household have for agriculture (for crops, grass, trees, etc.)?
[Enumerator to convert local measurement into hectares. Put '0' if not appropriate.]

Crop farming		Orchard/tree crops		Grassland/pasture	
Home/kitchen garden		Fallow		Other	

23.1   How many plots of land does your household use for agriculture?

# of plots:	

23.2   Approximately, how much time in minutes does it take to get from your household to the **farthest** plot?
[Record tine in minutes, i.e., 2 hours =120 min.]

# of minutes:	

24   Is the **majority** of your household's land flat, gently sloping, steep, or terraced?

Flat (1)	Gently sloping (2)	Steep (3)	Terraced (4)	Mixed (5)

25   Is the **majority** of the household's land irrigated or rainfed?

Majority irrigated (1)	Majority rainfed (2)	half irrigated, half rainfed (3)

26   What kind of soil covers the **majority** of your household's land?

Stony-gravely (1)	Clay (2)	Loamy [mixed clay, sand and/or silt] (3)	Sandy (4)
Wet (5)	Droughty (6)	Mixed, specify (7):	Other, specify (8):	Don't know (-1)

27   What kind of ownership does your household have for the **majority** of your land?

1. Owned	2. Leasehold	3. Share-cropping arrangement
4. Tenure access in common property resource		5. Other

28.1   During the last 12 months, which of the following did your household use on your farm?
[More than one option possible.]

Compost/manure		Chemical fertilizer		Pesticide		Used (1)	Not used (2)

[If at least one is used, skip to Question 28.3.]

28.2   Why does your household **not** use compost/manure, artificial fertilizer, and pesticide?
[Skip to Question 29]

Household cannot afford to buy artificial fertilizer, pesticide/is not able to produce compost/manure (1)
Household does not think they need to use compost/manure, fertilizer, and pesticide (2)

28.3 During the last 12 months, how often was your household able to **make**, **or buy**, enough compost/manure, artificial fertilizer, and/or pesticide for each growing season?

Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)

29 During the last 12 months, which of the following machines did you use on your farm?

[More than one option possible.]

Tractor	☐	Power tiller	☐	Harvester	☐	Thresher	☐	Used (1)	Not used (2)

30.1 Does your household **mainly** buy seeds, save seeds, or receive seeds for free?

Mainly buys seeds (1)	Mainly saves seeds (2)	Mainly receives seeds for free (3)

30.2 During the last 12 months, how often was your household able to buy, save, or receive enough seeds?

Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)

31 During the last 12 months, what kind of staples, supplementary, and cash crops did your household grow?

[Do not read out all options. Just ask question and select the appropriate one. Record up to 5 crops per category. Put '0' if not applicable.]

Staples:	#1	☐	#2	☐	#3	☐	#4	☐	#5	☐
Supplementary crops:	#1	☐	#2	☐	#3	☐	#4	☐	#5	☐
Cash crops:	#1	☐	#2	☐	#3	☐	#4	☐	#5	☐

Early paddy (1)	Main paddy (2)	Upland paddy (3)	Wheat (4)	Winter/spring maize (5)
Summer maize (6)	Millet (7)	Barley (8)	Buckwheat (9)	Other cereals (10)
Soybean (11)	Black gram (12)	Red gram (13)	Grass pea (14)	Lentil (15)
Horse gram (16)	Pea (17)	Green gram (18)	Coarse gram (19)	Cow pea (20)
Other legumes (21)	Winter potato (22)	Summer potato (23)	Sweet potato (24)	Colocasia (25)
Other tubes (26)	Mustard (27)	Ground nut (28)	Linseed (29)	Sesame (30)
Other oilseed (31)	Sugarcane (32)	Jute (33)	Tobacco (34)	Other cash crops (35)
Chillies (36)	Onions (37)	Garlic (38)	Ginger (39)	Turmeric (40)
Cardamom (41)	Coriander Seed (42)	Other spices (43)	Winter vegetables (44)	
Summer vegetables (45)	Orange (46)	Lemon (47)	Lime (48)	Sweet lime (49)
Other citrus (50)	Mango (51)	Banana (52)	Guava (53)	Jackfruit (54)	Pineapple (55)
Lychees (56)	Pear (57)	Apple (58)	Plum (59)	Papaya (60)	Pomegranate (61)
Other fruit (62)	Tea (63)	Thatch (64)	Fodder trees (65)	Bamboo (66)	Other trees (67)

32.1 During the last 12 months, for how many months was there enough water for your household's crops?

Months=	

32.2 How often can your household afford to purchase (direct payments only, not maintenance fees) water for your household's crops?

Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)
Do not need to pay for water (-2)				

33 Does your household own livestock?

Yes (1)	No (2) [Skip to Question 37]

34.1 How many of the following animals does your household own?
[Count female and male animals together]

34.2 How did you feed the following animals during the last 12 months?
[More than one option possible.]

Bullocks/cows	# of	☐	Stall fed	☐	Grazed in open area	☐	Transhumance	☐
Buffaloes	# of	☐	Stall fed	☐	Grazed in open area	☐	Transhumance	☐
Goats	# of	☐	Stall fed	☐	Grazed in open area	☐	Transhumance	☐
Sheep	# of	☐	Stall fed	☐	Grazed in open area	☐	Transhumance	☐
Yaks/naks	# of	☐	Stall fed	☐	Grazed in open area	☐	Transhumance	☐
Horses/ donkeys/ mules	# of	☐	Stall fed	☐	Grazed in open area	☐	Transhumance	☐
Pigs	# of	☐						
Poultry/ducks/ pigeons	# of	☐			Feeding:	Yes (1)	No (2)	
Other livestock	# of	☐						

35.1 During the last 12 months, for how many months was there enough water for your household's livestock?

Months=	

35.2 How often can your household afford to purchase (direct payments only, not maintenance fees) water for your household's livestock?

Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)
Do not need to pay for water (-2)				

36   During the last 12 months, for how many months was your household able to grow, collect, or buy enough fodder?

Months= [ ]

37   Does your household breed or catch fish?

| Yes (1) | No (2) [Skip to Question 40.1] |

38   During the last 12 months, how many kilos of fish did your household produce or catch?

Kilograms= [ ]

39   During the last 12 months, for how many months was there enough water for your household's fish breeding/catching?

Months= [ ]

40.1   *[Ask only if HH has agricultural land, livestock, or is engaged in fish breeding/catching. Otherwise skip to Question 41.]*
How many members of your household work on your farm (agriculture, livestock, fish breeding)?

HH members= [ ]

40.2   How often does your household have enough household members to work/manage your farm?

| Never (1) | Rarely (2) | Sometimes (3) | Often (4) | *Always (5) [Skip to Question 41]* |

40.3   How did your household overcome the labour shortage mentioned in *Question 40.2*?
[More than one option possible. Do not read out all options.]

Household members worked extra hours		Hired labour		
Left the land fallow		Introduced less labour intensive crop species		
Gave up labour intensive crop species		Reduced the number of livestock		
Changed the type of livestock		Exchanged labour with other households		
Other, specify:		Done (1)	Not done (2)	

41   During the last 12 months, which of the following products did your household collect from the surrounding area?
[More than one option possible.]

Fuelwood		Timber		Wild edible vegetables	
Medicinal and aromatic plants		Dried/fallen leaves		Bamboo	
Thatch		Mud/stones		Forage/grass	
Wild edible fruits		Fodder		Foliage	
		Collected (1)	Not collected (2)		

42.1 During the last 12 months, what were the 5 most important problems/shocks, natural or economic, your household faced (as far as negative impacts to your household, household members' livelihoods and/or the household's agriculture/livestock/fish breeding)?

*[Enumerator to list up to five events, from 'most important' (1st) to 'less important'. Enumerator can provide examples of specific events **only** if respondent does not understand the question once it is read twice.]*

42.2 For each of these events, **how severe** was it for your household? ['Severity']

42.3 For each of these events, **how much damage** [in local currency] did it cause your household? ['Damage']

Severity=	Very low (1)	Low (2)	Medium (3)	High (4)	Very high (5)
1st	Event # = ☐		Severity= ☐		Damage= ☐
2nd	Event # = ☐		Severity= ☐		Damage= ☐
3rd	Event # = ☐		Severity= ☐		Damage= ☐
4th	Event # = ☐		Severity= ☐		Damage= ☐
5th	Event # = ☐		Severity= ☐		Damage= ☐

1. Drought	2. Dry spell	3. Flood	4. Erratic rainfall	5. Frost
6. Hail	7. Snow or blizzard	8. Avalanche	9. Landslide/ erosion	10. Earthquake
11. Volcanic eruption	12. Typhoon/ hurricane	13. Tornado	14. Strong wind	
15. Dust storm	16. High temperatures	17. Low temperatures	18. Sub-zero temperatures	
19. Fire	20. Insect attack	21. Crop pests	22. Lack of fertilizer and/or too expensive	
23. Bad seeds	24. Soil problems	25. Livestock disease/ death	26. Irrigation problems	
27. Labor shortage	28. Theft	29. Low market prices for crops /livestock	30. Poor market access	
31. Family sickness	32. Death of HH member	33. Debt	34. Bandh (strike)	35. Local conflict
36. National conflict	37. Taxes	38. Unemployment	39. Loss of house	40. Failure of HH business
41. Personal violence	42. Intimidation	43. Corruption	44. Imprisonment	45. Electricity shortage
46. Wildlife related shocks		47. Divorce/separation	48. Other, specify:	

43   Who of the following assisted the household to deal with the effects of the events you just mentioned *[in Question 42]*?

[Read out all possibilities and ask if help was provided. More than one option possible.]

Family		Friends		People in the community	
Insurance company		Financial institution		Local government	
National government		Government (general)		Local NGO	
International organization (e.g., WFP, FAO)		Has assisted (1)		Has not assisted (2)	

44   What of the following things did your household do to deal (cope) with the events you just mentioned *[in Question 42]? [More than one option possible.]*

Relied on less preferred/less expensive food		Bought food on credit	
Borrowed money from bank		Borrowed money from other financial service provider	
Borrowed money from relatives		Borrowed money from friends	
Borrowed money from cooperative/village fund		Begged for money or food	
Spent savings on food		Collected wild food	
Collected and sold fuelwood/NTFPs		Reduced portions/number of meals	
Restricted consumption of adults		Skipped day without eating	
Consumed seed stocks held for next season		Took children out of school to work	
Moved children to a less expensive school		Sent children to school to benefit from incentive	
Sent children to work outside the HH		Non-working HH member started to work	
HH member sought work in same community		HH member sought work elsewhere (migration)	
Reduced spending on education		Reduced spending on health	
Reduced spending on clothes		Leased out farmland	
Sold farmland		Sold HH assets (including small animals, jewellery)	
Sold agricultural assets (tools, seeds, livestock)		Done (1)	Not done (2)

45   Following the events you just mentioned [in Question 42]: How many months did it take your household to return to a satisfactory situation?

[Record answer in months (for example, 1 year = 12 months).]

Months=		Less than one month (0)	Our household has not recovered yet (-2)

46   *[Before asking 46.1, for each event transfer the code of event **type** from 42. Stick to the numbers used in Question 42, e.g., if 1st event in 42 was 'hail', put '6' in **type** and **remind** respondent that you are talking about this type of event now.]*

46.1 During the **last 10 years**, which of the five events you just mentioned *[in Question 42]* have **occurred** before?

['Prior occurrence'] [Repeat events mentioned in Question 42. Stick to the numbers used in Question 42.]

46.2 Have these events **you just mentioned** [in Question 46.1] changed **in frequency** over the **last 10 years**?

['Change in frequency'] [Only record for events that occurred before.]

46.3 Has the **severity** of the events you just mentioned *[in Question 46.1]* changed over the **last 10 years**?

['Change in severity'] [Only record for events that occurred before.]

Prior occurrence	Has occurred before (1)		Has not occurred before (2)	
Change in frequency	Less frequent (1)	No change (2)	More frequent (3)	
Change in severity	Less severe (1)	No change (2)	More severe (3)	

1st Event	Type	☐	Prior occurrence	☐	Change in frequency	☐	Change in severity	☐
2nd Event	Type	☐	Prior occurrence	☐	Change in frequency	☐	Change in severity	☐
3rd Event	Type	☐	Prior occurrence	☐	Change in frequency	☐	Change in severity	☐
4th Event	Type	☐	Prior occurrence	☐	Change in frequency	☐	Change in severity	☐
5th Event	Type	☐	Prior occurrence	☐	Change in frequency	☐	Change in severity	☐

47.1 During the last 10 years, have you observed any changes in your environment that have **not occurred before**?

Yes (1)	No (2) [Skip to Question 48.1]

47.2 What kind of events have you observed that **had not occurred in your community before**?

[More than one option possible. Do not read out all options. Just ask question and select the appropriate one. Put '-6' if not applicable.]

Drought	☐	Dry spell	☐	Flood	☐
Erratic rainfall	☐	Frost	☐	Hail	☐
Snow or blizzard	☐	Avalanche	☐	Landslide/erosion	☐
Earthquake	☐	Volcanic eruption	☐	Typhoon/hurricane	☐
Tornado	☐	Strong wind	☐	Dust storm	☐
High temperatures	☐	Low temperatures	☐	Sub-zero temperatures	☐
Fire	☐	Insect attack	☐	Crop pests	☐
Soil problems	☐	Livestock disease	☐	Irrigation problems	☐
Occurrence of new plant species	☐	Occurrence of new animal species (e.g., mosquitoes)			☐
		Observed (1)		Not observed (2)	

48.1 Overall, would you say that the temperatures patterns in your community have changed over the **last 10 years**?

Yes (1)	No (2) [Skip to Question 48.3]

48.2 How have temperature patterns changed in your community over the **last 10 years**?

[More than one option possible. Do not read out all options. Just ask question and select the appropriate one. Put '-6' if not applicable.]

It has significantly warmed	☐	It has slightly warmed	☐
It has significantly cooled	☐	It has slightly cooled	☐
Hot seasons have become hotter	☐	Hot seasons have become cooler	☐
Cold seasons have become colder	☐	Cold seasons have become warmer	☐
Frost is more common	☐	Frost is less common	☐
Heat waves are more frequent	☐	Cold waves are more frequent	☐
Other, specify:	☐	Observed (1)	Not observed (2)

48.3 Overall, would you say that the precipitation patterns in your community have changed over the *last 10 years*?

Yes (1)	No (2) [Skip to Question 48.4l]

48.4 How has the precipitation patterns changed in your community over the **last 10 years**?

[More than one option possible. Do not read out all options. Just ask question and select the appropriate one. Put '-6' if not applicable.]

Annual amount has increased	☐	Annual amount has decreased	☐
Summer precipitation has increased	☐	Summer precipitation has decreased	☐
Winter precipitation has increased	☐	Winter precipitation has decreased	☐
Timing of precipitation has advanced	☐	Timing of precipitation is delayed	☐
Number of rainy days has increased	☐	Number of rainy days has decreased	☐
Number of snowfall days has increased	☐	Number of snowfall days has decreased	☐
Precipitation intensity has increased	☐	Precipitation intensity has decreased	☐
Hail storms have become more frequent	☐	Hail storms have become less frequent	☐
More erratic precipitation	☐	Other, specify:	☐

48.5   *[If 48.1 and 48.3 are 'no' skip to Question 49.1.]*

Because of these changes occurring in your village, has your household done any of the following:

[More than one option possible. Put '-6' if not applicable.]

Given up planting certain types of crops		Introduced new crop types and varieties	
Given up rearing certain types of livestock		Introduced new types of livestock	
Given up off-farm activities		Taken on new off-farm activities (i.e., wage labour)	
Stopped migrating		Migrated	
Others, please specify:		Done (1)	Not done (2)

49.1   Where does your household **mainly** get its food from?

Mainly food self-sufficient (1)	Mainly buys food from store/market (2)
Mainly receives food from food aid (3)	Mainly receives food from public distribution system (4)
Combination of all four (5)	

49.2   During the last 12 months, for how many months did you have sufficient food to feed all members of your household?

Months=	

49.3   During the last 12 months, how often did any member of your household eat fewer meals, or smaller portions, than usual because there was not enough food?

Never (1)	Once or twice (2)	Once a month (3)	A few times a month (4)
About once a week (5)	A few times a week (6)	Every day (7)	Don't know (-1)

49.4   During the past 12 months, did your household ever experience one full day with no food to eat?

Never (1)	Once or twice (2)	Approximately once a month (3)
Approximately every two weeks (4)	Approximately every week (5)	Don't know (-1)

50   For how many months does your current food stock last to feed all household members?

[Put value in months, i.e., 2 years=24 months. If respondent is unsure, ask for an approximation. Put '0' if not appropriate.]

Rice stocks		Paddy stocks		Wheat grain stocks	
Wheat flour stocks		Maize stocks		Millet stocks	
Barley stocks		Buckwheat stocks		Chino stocks	
Potato stocks					

51 Whether **purchased, home produced, or received in kind:** What is the **total value** of the following **food items** consumed by your household **in the last 30 days**?
[Put value in local currency. Total value=what HH would have to spend on the local market. If respondent is unsure, ask for an approximation. Put '0' if not consumed.]

Grains and cereals (rice/wheat/maize/millet, etc.)		Pulses, lentils, beans	
Cooking oil, ghee, butter		Meat, eggs, fish	
Milk, curd, cheese, other milk products		Vegetables, potatoes	
Fresh fruits and nuts		Spices and condiments (salt/masala/garlic, etc.)	
Sugar, honey, sweets, tea, soft drinks		Alcoholic beverages	
Cigarettes, bindis, other tobacco products		Meals taken outside home	
Bread, biscuits, noodles		Miscellaneous other food expenditure	

52 What is the **total value** of the following **non-food items and services purchased or received in kind** by your household during the **last 12 months**?
[Put value in local currency. Total value=what HH would have to spend on the local market. If respondent is unsure, ask for an approximation. Put '0' if not spent on an item.]

Medical expenses, healthcare		Education (school fees, books, uniforms)	
Clothing, shoes, other apparel		Personal care items (soap/cosmetics, etc.)	
Fuels and electricity (cooking/lighting)		Transportation and communication	
Agricultural tools, seeds, fertilizers, hiring labour		Veterinary expenses, animal feed/fodder	
Celebrations, social events, rituals			

53 What is the **percentage contribution** of the following sources to the **total yearly household income**?
[Fill in approximate percentage. Put '0' if not applicable. Proceed until it adds up to 100%.]

Crop, vegetable, fruit sales	%	Livestock and livestock product sales	%
Fish sales	%	Forest products sales (fuelwood/NTFPs)	%
Herb sales	%	Medicinal and aromatic plant sales	%
Daily wages (in community/area)	%	Salaried employment (in community/area)	%
Tourism	%	Other business/trade income	%
Rent, interest on loans, or returns from shares	%	Pensions	%
Remittances	%	Development aid projects	%
Gifts or begging	%	Governmental social benefit schemes	%
Total % column 1	%	**Total % column 2**	%
		Total column 1 + column 2	%

54.1 What was the total value [in local currency] of remittances, **cash and in kind**, that your household received during the last 12 months from **people within the country**?
[Enumerator to remind respondent that all responses are confidential.]

Value of remittances	

54.2 What was the total value [in local currency] of remittances, **cash and in kind**, that your household received during the last 12 months **from people outside the country**?
[Enumerator to remind respondent that all responses are confidential.]

Value of remittances	

54.3 During the **last 10 years**, has your household spent remittances on the following **items and services**?

Usage =	

54.4 During the last 12 months, what is the percentage of the remittances that your household has spent on the following items and services?

Percentage =	

[Fill in approximate percentage. Put '0' if not applicable. If households have received remittances in 54.1 and 54.2, proceed until it adds up to 100%.]

Usage =	Yes (1)	No(2)

Items, assets, and services		Usage	Percentage
Food			%
Housing (built new ones or improved existing ones)			%
Communication (telephone, mobile phone, Internet, bills)			%
Transport	Motorised transport (lorry, tempo, jeep, car, motorbike, boat)		%
	Non-motorized transport (cycle, pack animal, boat)		%
Bought consumer goods (clothes, shoes, jewellery, cosmetics)			%
Agriculture	Bought rural assets such as land/irrigation equipment		%
	Improved farming techniques (seeds, fertilizer, pesticide)		%
	Bought or hired draught animals (ox, male buffalo)		%
	Bought or hired labour saving machinery (tractor, harvester, thresher)		%
	Hired farm labour		%
Animal husbandry	Bought livestock		%
	Extension services (medical checkup, vaccination)		%
	Hired labour		%
Healthcare			%
Education	School expenses		%
	Higher education expenses		%
Business venture			%
Home savings			%
Disaster relief, recovery, and preparedness			%
Bought insurance, bonds or shares			%
Repaid loans			%
Sponsored another migrant			%
Community activities (festivals, activities, infrastructure)			%
Other, specify:			%
Total			%

55.1 During the last 12 months, how many members of your household **managed/ran** their own **non-agricultural (also non-hunting, non-forestry, and non-fishing)** business for 0 to 3 months, 4 to 6 months, 7 to 9 months, and 10 months or more?

[During the 12 months preceding the survey. Put '0' if not applicable.]

# 0–3 months		# 4–6 months		# 7–9 months		# 10 months or more	

[Skip to Question 56.1 if '0' in all fields]

55.2 What kind of business was that?

[Select only one option. If there is more than one business, select the one that contributes most to the HH income.]

Mining and quarrying (1)	Manufacturing (2)	Electric, gas, and water supply (3)	Construction (4)
Wholesale and retail trade (5)	Hotel and restaurant (6)	Other tourist services (7)	
Transport, storage, and communications (8)		Real estate, renting, and business activities (9)	
Financial Intermediation (10)	Public administration (11)	Defence (12)	Education (13)
Health and social work (14)		Other community, social, and personal service activities (15)	
Private households with employed persons (16)		Extra-territorial organizations and bodies (17)	

56.1 During the last 12 months, how many members of your household were employed in **non-agricultural (also non-hunting, non-forestry, and non-fishing)** occupations for 0 to 3 months, 4 to 6 months, 7 to 9 months, and 10 months or more?

[During the 12 months preceding the survey. Put '0' if not applicable.]

# 0–3 months		# 4–6 months		# 7–9 months		# 10 months or more	

[Skip to Question 57.1 if '0' in all fields]

56.2 What kind of occupation was that?

[Select only one option. If there is more than one occupation, select the one that contributes most to the HH income.]

Mining and quarrying (1)	Manufacturing (2)	Electric, gas, and water supply (3)	Construction (4)
Wholesale and retail trade (5)	Hotel and restaurant (6)	Other tourist services (porter, etc.) (7)	
Transport, storage, and communications (8)		Real estate, renting, and business activities (9)	
Financial Intermediation (10)	Public administration (11)	Defence (12)	Education (13)
Health and social work (14)		Other community, social, and personal service activities (15)	
Private households with employed persons (16)		Extra-territorial organizations and bodies (17)	

57.1   If your household wanted to borrow money, whom would you approach first?
[Select only one option]

1. Relatives	2. Friends	3. Village fund
4. Village government	5. Rural credit cooperative	6. Private money lender
7. Microfinance institution	8. Government bank	9. Private bank
10. Joint village and bank fund	11. Joint development project and bank fund	12. Other, specify:

57.2   How easy would it be to borrow money?

Very difficult (1)	Difficult (2)	Neither/nor (3)	Easy (4)	Very easy (5)

58.1   Is your household currently in debt?
[Enumerator to remind respondent that all responses are confidential.]

No (1) [Skip to Question 59]	Yes, a little (2)	Yes, a moderate amount (3)	Yes, a lot (4)

58.2   To whom is the **majority** of this debt owed?

1. Relatives	2. Friends	3. Village fund
4. Village government	5. Rural credit cooperative	6. Private money lender
7. Microfinance institution	8. Government bank	9. Private bank
10. Joint village and bank fund	11. Joint development project and bank fund	12. Other, specify:

59   How many of the following items does your household have?

# of televisions	☐
# of dish antennae	☐
# of radios	☐
# of mobile phones	☐
# of other kind of telephones	☐
# of motor vehicles (motorcycles, cars, etc.)	☐
# of non-motorized vehicles (carts, bicycles, etc.)	☐
# of tractors/power tillers	☐
# of mechanised threshers	☐
# of other assets, specify:	☐

60.1   How many options does your household have for its economic betterment?

None (1)	A Few (2)	Some (3)	A lot (4)	Many (5)

60.2   In the **last 12 months**, how has the economic situation of your household changed?

Worsened a lot (1)	Worsened moderately (2)	Worsened slightly (3)
No significant change (4)	Improved slightly (5)	Improved moderately (6)
Improved a lot (7)		

61.1   How easy is it for your household to influence the decision-making process **at the local level**?

Very difficult (1)	Difficult (2)	Neither/nor (3)	Easy (4)	Very easy (5)

61.2   How easy is it for your household to influence the decision-making process **at a higher level**?

Very difficult (1)	Difficult (2)	Neither/nor (3)	Easy (4)	Very easy (5)

61.3   In the **last 12 months**, how has the political influence of your household changed?

Worsened a lot (1)	Worsened moderately (2)	Worsened slightly (3)
No significant change (4)	Improved slightly (5)	Improved moderately (6)
Improved a lot (7)		

62.1   Does your household have an insurance policy that covers any of the following risk?
        [More than one option possible.]

Property damage		Crop damage	
Livestock death		Damage to/loss of business	
Illness/injury of HH members (health insurance)		Death of HH members (life insurance)	
Other, specify:		Yes (1)	No (2)

62.2   Does any member of your household have an own bank account?

Yes (1)	No (2)

63.1   How often is there conflict over the use of water in your community?

Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)

63.2   How often is there conflict over the use of water between your community and other communities?

Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)

64   Is anyone of your household a member of one of the following community organizations?
        [More than one option possible. Read all options.]

Farmers group		Water users group		Women's self help group	
Forest users group		Fishery users group		Credit group	
				Yes (1)	No (2)

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