Understanding Multidimensional Poverty
in 23 Districts of Nepal

ICIMOD

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The International Centre for Integrated Mountain Development, ICIMOD, is a regional knowledge development and learning centre serving the eight regional member countries of the Hindu Kush Himalaya – Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan – and based in Kathmandu, Nepal. Globalisation and climate change have an increasing influence on the stability of fragile mountain ecosystems and the livelihoods of mountain people. ICIMOD aims to assist mountain people to understand these changes, adapt to them, and make the most of new opportunities, while addressing upstream-downstream issues. We support regional transboundary programmes through partnership with regional partner institutions, facilitate the exchange of experience, and serve as a regional knowledge hub. We strengthen networking among regional and global centres of excellence. Overall, we are working to develop an economically and environmentally sound mountain ecosystem to improve the living standards of mountain populations and to sustain vital ecosystem services for the billions of people living downstream – now, and for the future.

Understanding Multidimensional Poverty in 23 Districts of Nepal

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Contents

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Acronyms and Abbreviations

epsem	equal probability sample of elements
HDI	Human Development Index
HH	Household
HKH	Hindu Kush Himalaya
HPI	Human Poverty Index
ICIMOD	International Centre for Integrated Mountain Development
MDG	Millennium Development Goal
MPF-HKH	Multidimensional Poverty Framework for the Hindu Kush Himalaya
MPI	Multidimensional Poverty Index
MPM-HKH	Multidimensional Poverty Measure for the Hindu Kush Himalaya
MPVM-HKH	Multidimensional Poverty Vulnerability Measure for the Hindu Kush Himalaya
NLSS	Nepal Living Standards Survey
OPHI	Oxford Poverty and Human Development Initiative
PSU	Primary Sampling Unit
PVA	Poverty and Vulnerability Assessment
PVAT	Poverty and Vulnerability Assessment Tool
SAE	Small Area Estimate
SSU	Second Sage Unit
UAU	Ultimate Area Unit
UNDP	United Nations Development Programme
USU	Ultimate Sampling Unit
VACA	Vulnerability and Adaptive Capacity Assessment
VDC	Village Development Committee
WHO	World Health Organization

Terminology

Multidimensional poverty headcount (H): The proportion of the population that is multidimensionally poor; ranges from '0' (0% of the population is multidimensionally poor) to '1' (100% of the population is multidimensionally poor).

Multidimensional poverty intensity (A): The average proportion of indicators in which poor people are deprived; ranges from '0' (the multidimensionally poor are on average deprived in 0% of indicators) to '1' (the multidimensionally poor are on average deprived in 100% of indicators).

Multidimensional poverty index value (HxA=M_0=MPM-HKH): The product of the poverty headcount (H) and the poverty intensity (A); ranges from '0' (nobody is multidimensionally poor and on average deprived in 0 indicators) to '1' (everyone is multidimensionally poor and on average deprived in all indicators).

Relative contribution: Decomposition that shows how much each dimension or indicator contributes to multidimensional poverty; ranges from '0' (a dimension/indicator contributes 0% to multidimensional poverty) to '1' (a dimension/indicator contributes 100% to multidimensional poverty); the relative contribution of all dimensions/indicators adds up to 1 or 100%.

Censored deprivation headcount: The proportion of the population that is multidimensionally poor and deprived in a certain indicator; ranges from '0' (0% of the population are multidimensionally poor and deprived in a certain indicator) to '1' (100% of the population are multidimensionally poor and deprived in a certain indicator).

Introduction

Approximately 211 million people reside in the Hindu Kush Himalayan (HKH) region, which spans eight countries – Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan (see Map 1). Poverty levels in these mountainous areas are high, ranging from 23 to 46% depending on the country. In other words, approximately every fourth to every second household is poor (Hunzai et al. 2011; Gerlitz et al. 2012). Countries in this region face difficulties in designing effective poverty alleviation measures. Although governments in the HKH region are mandated to reduce poverty, most of them lack the kind of cohesive information on the socioeconomic status of their mountain populations that would enable them to map the intensity, or understand the reasons for poverty and vulnerability.

In 2008, ICIMOD and its partners began to address this lack of knowledge with a research project designed to explore mountain poverty across the HKH region. Using national survey data from the eight countries of the HKH, the research produced evidence that with the exception of India, poverty in mountainous areas, is higher than in the plains. It also found important differences in the constellation of factors driving mountain poverty from those shaping poverty in the more accessible, mostly plain areas in these countries (Hunzai et al. 2011; Gerlitz et al. 2012).

This regional research showed that the available national survey data has its limitations in terms of mountain-specific indicators and consistency across countries. Furthermore, the data were not representative of smaller administrative units, which are important for planning, implementing, and monitoring action on the ground. Hence, national policy makers have little information at hand to improve the effectiveness of their poverty alleviation programmes in mountainous areas. In the words of Stiglitz et al. (2009): "We are almost blind when the metrics on which action is based are ill-designed or when they are not well understood. For many purposes, we need better metrics" (Stiglitz et al. 2009, p 9).

In 2010, the Multidimensional Poverty Index (MPI) was introduced as a new and more holistic way to measure human poverty (Alkire and Santos 2010). In contrast to economic poverty, which normally measures inability to participate in society owing to a lack of resources (Townsend 1979), 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 the United Nations Development Programme puts it, "a denial of choices and opportunities for living a tolerable life" (UNDP 1997, p 2). Multidimensional poverty measures allow us to capture multiple deprivations as well as the interconnections among those deprivations and are, thus, highly relevant in the context of developing countries.

The Multidimensional Poverty Index has replaced the previous UNDP Human Poverty Index and complements the international $1.25 per day poverty line. This step was necessary as research has increasingly demonstrated that the correlation between growth in per capita gross domestic product and non-income related Millennium Development Goals (MDGs) is limited. In other words, an increase in average incomes does not always reduce poverty when poverty is viewed in a more holistic manner (Alkire and Santos 2010). For example, India's economic growth since the 1980s has been strong, however, comparing the national survey data from 1998–1999 and 2005–2006, it is evident that, while income has increased, the percentage of undernourished children under three has remained almost the same (47%).This means that economic growth, while helpful in achieving development, is not sufficient on its own to reduce poverty (Alkire and Santos 2010). Through taxation, growth can provide increased assets to government; however, to have an impact on poverty, active and informed policy making is needed to ensure that these increased government resources are allocated to sectoral programmes that are important to the poor and increase their capabilities through active and informed policy making (Dreze and Sen 2011). Here, the clear advantage of multidimensional poverty measures is that they describe manifestations of poverty in an illustrative way and thus directly suggest areas of intervention.

Map 1: **The Hindu Kush Himalayan region**

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Amu Darya

Tarim

Yellow

Indus

Yangtze

Brahmaputra

Ganges

Irrawaddy

Salween

● Downstream river basins

◈ Hindu Kush Himalayan region

Mekong
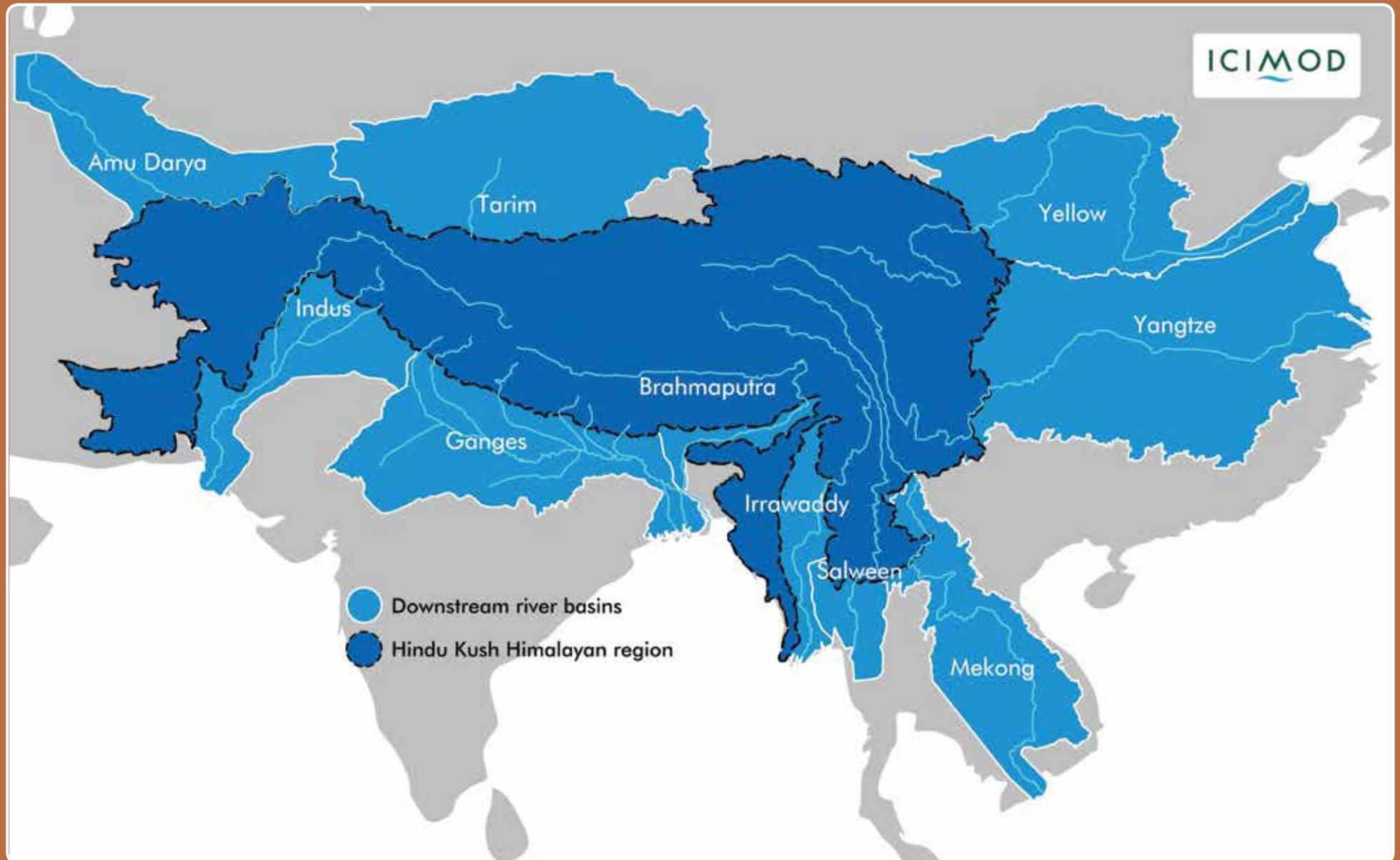
ICIMOD, in consultation with regional and international partners such as the Nepal Central Bureau of Statistics and the Oxford Poverty and Human Development Initiative (OPHI), an economic research centre within the Oxford Department of International Development, University of Oxford, developed a multidimensional poverty measure to identify and describe poor and vulnerable households across the Hindu Kush Himalayan region in a consistent manner. This measure – the Multidimensional Poverty Measure for the HKH (MPM-HKH) – is specifically designed to fulfil the requirements of poverty measurement in a region that is predominantly rural and mountainous and that stretches across several least developed countries.The MPM-HKH complements official poverty measures by incorporating mountain-specific indicators and describing the level and composition of multidimensional, mountain-specific poverty. The aim of the measure is to provide evidence-based information to policy makers and development planners in the HKH region on the level and composition of multidimensional poverty to support them in shaping and fine-tuning development policies and interventions.

Using the Poverty and Vulnerability Assessment (PVA) survey instrument, ICIMOD and its partners have collected primary data from 38 districts in four member countries in the Hindu Kush Himalayan region (23 districts in Nepal, seven in India, three in Pakistan, and five prefectures in China). Surveys are also planned and ongoing in Myanmar and Bhutan. This report demonstrates the utility of this approach by using the Nepal data to rank the relative poverty of the 23 surveyed districts and across these districts. The analysis gives some important clues about differences in the intensity and composition of poverty across these locations, which will guide decision makers in designing interventions aimed at reducing poverty and vulnerability. The fundamental benefit of this research is that it captures mountain specific indicators of poverty, provides representative data at the district level, and, most importantly, expands the concept of poverty beyond income or consumption levels to capture the multidimensional nature of human deprivation.

Methodology

Data

In an attempt to understand the specificities of mountain poverty and vulnerability, ICIMOD carried out several poverty and vulnerability assessments at the household level in different HKH countries in 2011 and 2012. These field surveys were restricted to specific regions to fulfil the purpose of certain projects; none covered an entire country. However, all assessments used the same household survey instrument (the Poverty and Vulnerability Assessment – PVA; see Gerlitz et al. 2014 or www.icimod.org/pvat2011), are representative at the district level, and follow a multi-stage random sample design for the selection of households (for details on sample size and sample design, see Annex A).

The Poverty and Vulnerability Assessment Tool (PVAT) surveys for 2011 and 2012 are part of the AdaptHimal project and were carried out in the poorest and most vulnerable districts of Nepal. The districts were identified on the basis of the small area estimates of economic poverty and malnutrition as well as the occurence of natural disasters like floods and droughts during the recent years provided by Nepal's National Planning Commission (Government of Nepal 2010). The Vulnerability and Adaptive Capacity Assessment (VACA) survey 2011/12 was carried out as part of the Himalayan Climate Change Adaptation Programme (HICAP) to assess livelihood vulnerability and its determinants as well as the adaptive capacities of the people living in the four sub-basins of the HKH region: the Upper Indus sub-basin in Pakistan, the Eastern Brahmaputra sub-basin in India, the Koshi sub-basin in Nepal, and the Upper Brahmaputra sub-basin in China. The PVAT 2011 and PVAT 2012 surveys were conducted by the Nepal Development Research Institute in April and May of the respective years. For the VACA 2012, the data were collected by the Nepal Development Research Institute and the Koshi Victims' Society from December 2011 to February 2012.

While it is acknowledged that differences in year and seasons might affect the comparability of the data, all interviews were conducted within the same 12-month period, during which drastic changes in the socioeconomic and infrastructural situation are unlikely. Most of the poverty indicators used are relatively robust with regards to seasonal trends, but an indicator such as 'food consumption' could, of course, be affected. While these reservations clearly need to be pointed out, in the view of the authors, the enormous wealth of data and the relatively short period between the surveys justifies analysing these datasets together.

PVAT 2011 covers 3,437 households in nine districts of Nepal; PVAT 2012 covers 3,073 households in eight districts of Nepal; and VACA Nepal 2011/12 covers 2,310 households in six districts in the Nepal portion of the Koshi sub-basin (Map 2). Table 1 and Table A1 in Annex A show the effective sample size of the datasets used for the development of the MPM-HKH, i.e., the sample size per district after deleting households with missing values on one or more poverty indicators. For the analysis in this report, the two PVAT surveys and the VACA Nepal survey 2011/12 were pooled, resulting in a combined dataset that contains socioeconomic information from 8,547 households in 23 districts of Nepal. The PVAT/VACA 2011/12 covers 3,272 households in nine of the 16 mountain districts, 3,755 households in ten of the 36 hill districts (not including Kathmandu, Lalitpur, and Bhaktapur), and 1,520 households in four of the 20 plain districts (Table 1).

While the selection of mountain and hill districts gives a fairly good account of these areas, the selection for the plains does not: Three out of the four surveyed plain districts are located in the highly flood-affected Koshi sub-basin in the plains.

Table 1: **Sample size of PVAT/VACA 2011/12 by region (households)**

	Urban	Rural	Total
Mountains	1,122	2,150	3,272
Hills	1,315	2,440	3,755
Plains	532	988	1,520
Total	**2,969**	**5,578**	**8,547**

Map 2:. **Districts surveyed for PVAT2011, PVAT 2012, and VACA 2011/12**

23 districts: 8,822 households
9 mountain districts: 3,448 households
10 hill districts: 3,836 households
4 plain districts: 1,538 households

Legend

PVAT 2011
PVAT 2012
VACA 2012
PVAT 2011 and PVAT 2012

HKH Region
Nepal

ICIMOD
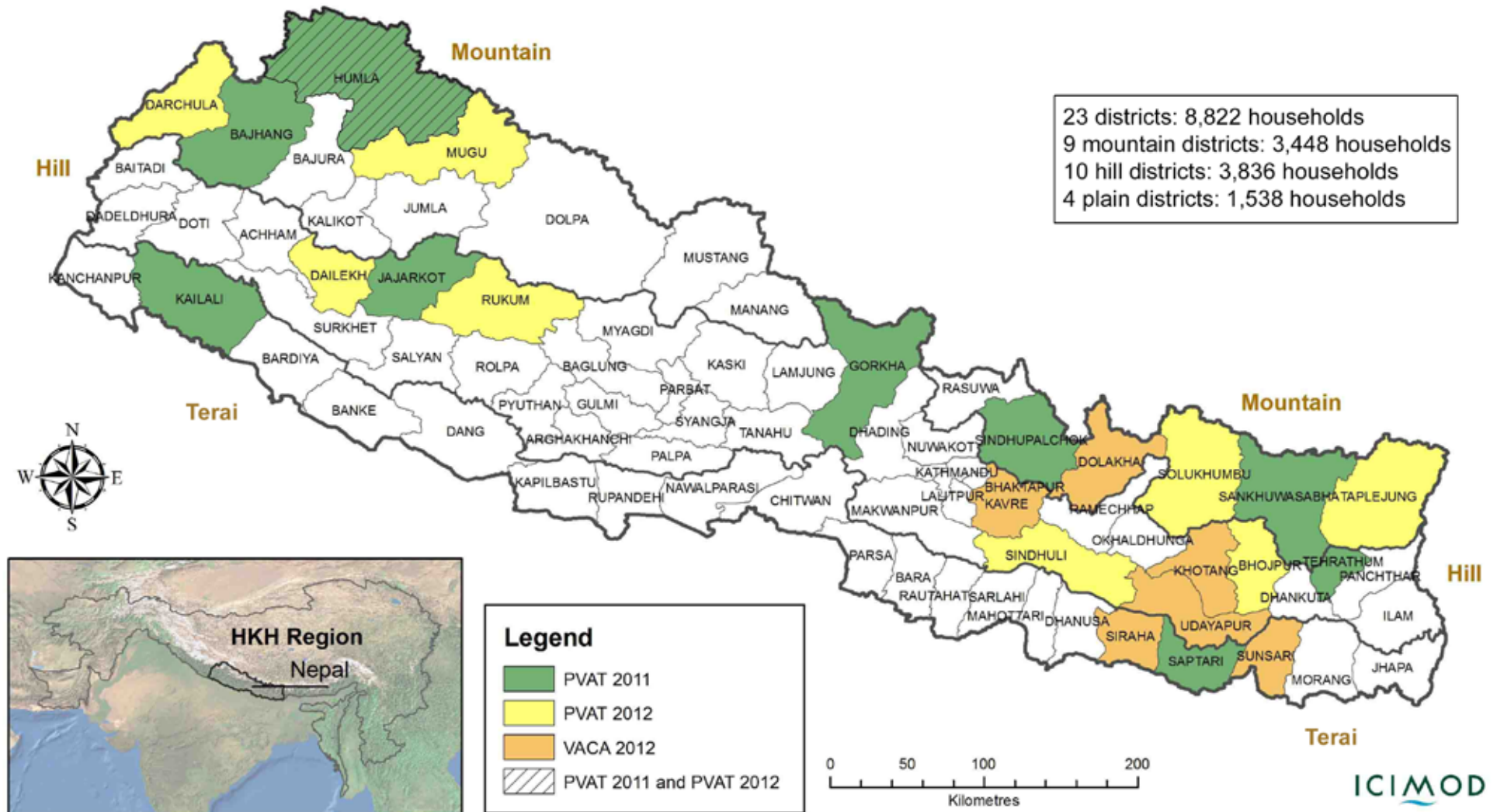
eastern Nepal. The validity of the data was analysed by comparing deprivation headcounts from the PVAT/VACA 2011/12 with those from the Nepal Living Standards Survey (NLSS) 2010/11 (Government of Nepal 2011a). Differences in sample design were taken into account and the sub-sample that allowed for the highest comparability, i.e., the hill region, was analysed. The findings from the PVAT/VACA 2011/12 survey proved to be highly consistent with those from the NLSS 2010/11 (Graphs A1 to A6, Annex B).

The three surveys (PVAT 2011, PVAT 2012 and VACA 2011/12) were implememented with the aim to obtain representative data for the selected districts and do not claim representativity at the level of ecological belts or at the national level. Thus, the findings presented in this report will be limited to district-level findings.

Multidimensional Poverty Framework for the HKH

The Multidimensional Poverty Framework for the Hindu Kush Himalayas (MPF-HKH) is a research framework that has been designed to fulfil the requirements of poverty measurement in a region that is predominantly rural and mountainous and that stretches across several of the world's least developed countries. The basic unit of analysis is the household. The MPF-HKH consists of 16 indicators that measure seven dimensions of poverty: 'education', 'health', 'material wellbeing', 'energy', 'water and sanitation', 'social capital', and 'physical accessibility'. The development of the MPF-HKH is based on the Multidimensional Poverty Index (MPI) (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). In addition, the selection was facilitated by discussions with regional and international poverty experts and statistcial data analysis.

The regional poverty study analysed consumption-based poverty defined by the official poverty lines of the respective countries. The 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 (Hunzai et al. 2011; Gerlitz et al. 2012). Indicators for socioeconomic status, household composition, assets and liabilities, basic facilities, and physical accessibility were selected based on theoretical considerations and their relevance in explaining overall poverty. The selection of indicators was limited, however, by the availability of data from international standardized surveys. Empirical findings showed that, with the exception of India, poverty was higher in mountain areas than other geographic areas within the same country. The study found that there was a higher concentration and combined prevalence of poverty predictors in mountain areas in all of the study sites. Parameters such as lower access to basic facilities like electricity, sanitation, and drinking water, poor physical access, and higher dependency rates were more prominent in remote mountain areas than in other locations. The two dimensions 'basic facilities' and 'physical accessibility' were strong indicators for understanding and explaining economic poverty in the mountains.

The MPI consists of ten deprivation indicators that measure three core dimensions of wellbeing: 'education', 'health', and 'standard of living'. Each indicator is strongly linked to the MDGs (Table 2; Alkire and Santos 2010, p 17). Within the MPF-HKH, the importance of these three dimensions is acknowledged and indicators are replicated where appropriate and feasible. However, within the MPI framework, one of the core dimensions, 'standard of living', is very broad and combines a variety of indicators. The findings of ICIMOD's earlier regional poverty study showed that the lack of basic facilities is not only one of the main components of poverty in the HKH region, it is also one of the underlying reasons why mountainous regions are poorer than non-mountainous regions (Hunzai et al. 2011; Gerlitz et al. 2012). It was decided to investigate the core standard of living dimension in greater detail. The research team came to the conclusion that, within the mountain-specific MPF-HKH, 'energy' and 'water and sanitation' should be separate dimensions. Thus, the MPI 'standard of living' dimension was divided into three dimensions: 'material wellbeing', 'energy', and 'water and sanitation'.

While there is no universally accepted definition of what constitutes a mountain, here the definition of UNEP-WCMC (2002) is used that identifies six mountain classes which are based on altitude, slope, or a combination of both factors. The

Table 2: **Dimensions, indicators, cut-offs and weights of the global MPI**

Dimension	Indicator	Deprived if...	Related to...	Relative weight
Education	Years of schooling	No household member has completed five years of schooling.	MDG2	16.7%
	Child enrolment	A school-aged child is not attending school in years 1 to 8.	MDG2	16.7%
Health	Mortality	A child has died in the family.	MDG4	16.7%
	Nutrition	An adult or child for whom there is nutritional information is malnourished*.	MDG1	16.7%
Standard of living	Electricity	The household has no electricity.	MDG7	5.6%
	Sanitation	The household´s sanitation facility is not improved (according to the MDG guidelines), or it is improved but shared with other households.	MDG7	5.6%
	Water	The household does not have access to clean drinking water (according to the MDG guidelines) or clean water is at more than 30 minutes walking distance from home.	MDG7	5.6%
	Floor	The household has dirt, sand, or dung floor.	MDG7	5.6%
	Cooking fuel	The household cooks with dung, wood, or charcoal.	MDG7	5.6%
	Assets	The household does not own more than one of: radio, TV, telephone, bike, or motorbike, and does not own a car or a tractor.	MDG7	5.6%

Note: MDG1 is to eradicate extreme poverty and hunger, MDG2 is to achieve universal primary education, MDG4 is to reduce child mortality, MDG7 is to ensure environmental sustainability.

* Adults are considered malnourished if their BMI is below 18.5. Children are considered malnourished if their z-score of weight-for-age is below minus two standard deviations from the median of the reference population.

Source: Alkire and Santos (2010, p 17)

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, also the so-called hill areas of Nepal are considered to be mountainous. Correspondingly, mountain people are people who live in mountainous areas, and mountain communities are settlements located in these areas. It is acknowledged that mountain people are a heterogeneous group with diverse socioeconomic and cultural backgrounds, but despite their diversity they all face challenges that are caused by the difficult terrain they live in. According to the mountain specificities framework, mountain areas are characterized by inaccessibility, a high degree of marginality, fragility, diversity, and specific niche resources, as well as high levels of human adaptation to these conditions (Jodha 1992). While the latter three mountain specificities can generate opportunities, the former three impose constraints for people living in mountain communities. Although these specificities are not always mutually exclusive, they are critical to governing the wellbeing of people living in mountain communities. 'Inaccessibility' and 'marginality' were considered to be particularly relevant to a mountain-specific poverty framework that aims to capture the deprivations in mountains so that they can be tackled by policies and development interventions. 'Inaccessibility' captures the elements of distance and constraints on mobility as well as the relatively low availability of risk management options in mountain communities. 'Marginality' is defined as a lack of social and political capital, which often results in difficulties at the household level in securing tenancy rights over land and in gaining access to social services such as credit, education, and health. At that national level, lack of social and political capital can in some cases lead to mountain areas receiving less political and policy attention and less than a proportionate share of the national development budget. The MPF-HKH incorporates the mountain specificities 'inaccessibility' and 'marginality' through two additional dimensions – 'physical accessibility' and 'social capital' – each with their own indicators (see discussion below and Figure 1).

Dimensions and indicators

'Education' is linked to the second MDG of universal primary education (Alkire and Santos 2010, p 17). It is a crucial resource that not only constitutes a value in itself, but is also strongly linked to the accumulation of economic capital (Griliches

Figure 1: **The Multidimensional Poverty Framework for the HKH (MPF-HKH)**
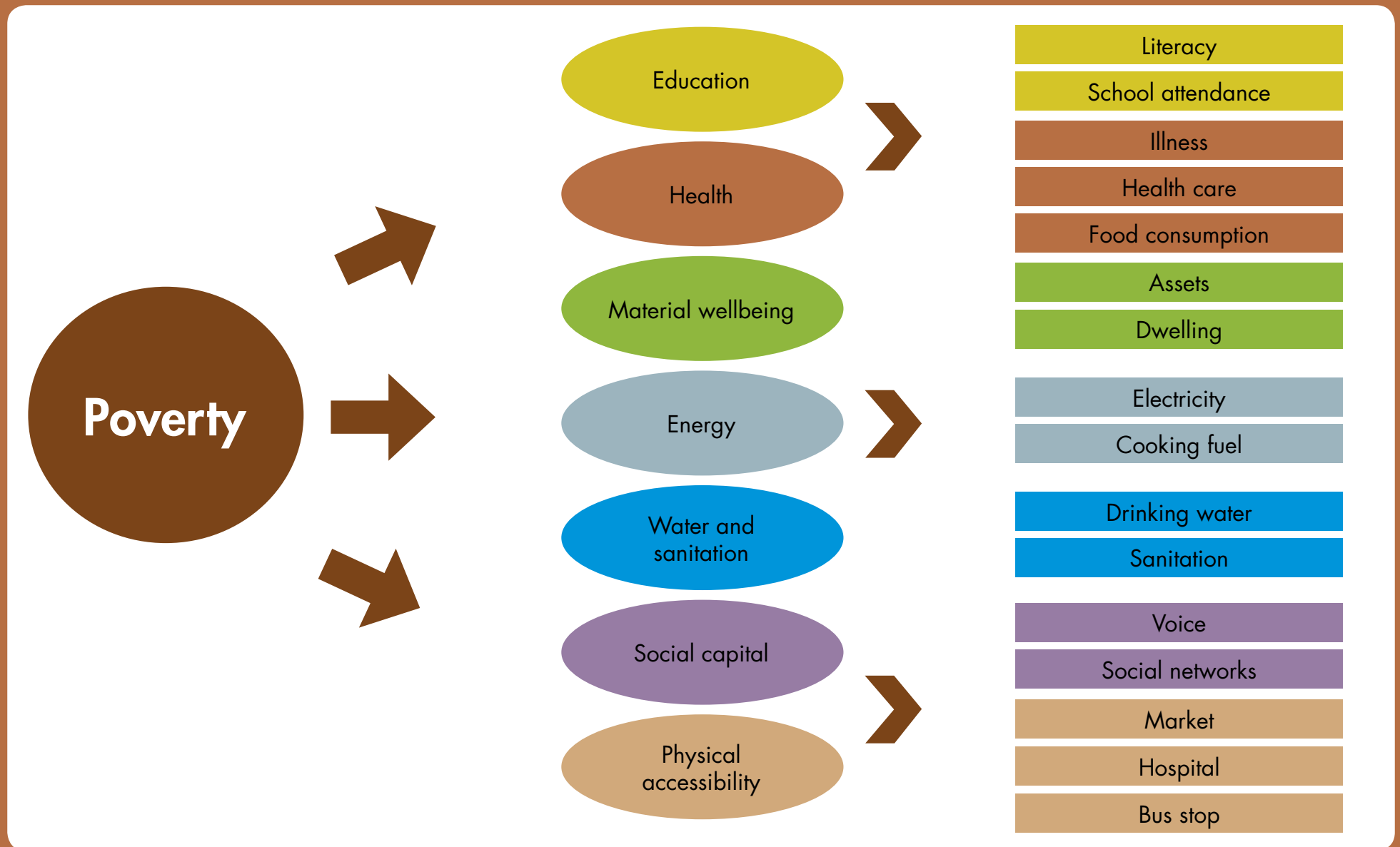
and Mason 1972; Bourdieu 1986) and is central to the capabilities approach. In the MPF-HKH, education is measured by the literacy of household members and school attendance of children of school-going age (Table 3). Literacy, i.e., the "ability to identify, understand, interpret, create, communicate and compute, using printed and written materials", enables individuals "to achieve their goals, to develop their knowledge and potential, and to participate fully in their community and wider society" (UNESCO 2004, p 13). School attendance of children of school-going age is an important premise for the achievement of universal primary education. Nevertheless, in the countries of the HKH region a significant percentage of children do not attend school (UNICEF 2011).

'Health' is linked to the first MDG, to eradicate extreme poverty and hunger, and the fourth MDG, to reduce child mortality (Alkire and Santos 2010, p 17). The absence of illness, injury, or pain is of crucial importance for quality of life. According to the World Health Organization (WHO), "the enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being" (WHO 2006, p 1). The MPF-HKH measures health by the frequency of serious illness among household members, the affordability of health care, and per capita food consumption (Table 3). Serious illness (i.e., so ill that the person is unable to work) not only reduces the quality of life of the person in question, it also places a burden on the whole household; it reduces the household labour force, while at the same time requiring the household to come up with additional resources for the treatment of the sick person (Russel 2004).

The indicator health care affordability measures the household's self-perceived ability to provide adequate treatment for its members in the case of serious illness or injury and is considered to be one of the most important indicators of access to health care (Peters et al. 2008). The indicator per capita food consumption links the MPF-HKH to official poverty measures in the HKH region, which are based on the 'cost of basic needs' approach (Ravallion 1994; Morduch 2006). In most developing countries, consumption-based measures are prefered over income-based measures as the collection of accurate income data is difficult in societies where self-employment, including subsistence agriculture and small business, is common. The National Statistics Bureau of Bhutan even refrained from including income measures in the Bhutan Living Standard Survey after the pilot Household

Table 3: **Dimensions, indicators, weights, and deprivation cut-offs for the Multidimensional Poverty Measure for the HKH**

Dimension	Indicator	Weights	Deprivation cut-offs (a household is deprived if…)
Education	Literacy	7.1%	at least one member (>= 6 years) is illiterate
	School attendance	7.1%	at least one child (6–14 years) is not attending school
Health	Illness	4.8%	at least once a month a member is seriously ill
	Health care	4.8%	health care is not affordable
	Food consumption	4.8%	food consumption is below the national food poverty line* or the household is dependent on food aid
Material wellbeing	Assets	7.1%	the household owns not more than one TV, radio, telephone, or non-motorized vehicle and has no car, motorbike, or tractor
	Dwelling	7.1%	the wall material is grass, leaves, bamboo, plastic, metal or asbestos, or the roof material is straw, leaves, thatch, bamboo, plastic or fabric
Energy	Electricity	7.1%	the household has no electricity for lighting from grid or other sources
	Cooking fuel	7.1%	the household cooks with solid cooking fuels (dung, wood, charcoal, etc.)
Water and sanitation	Drinking water	7.1%	there is no access to an improved source of drinking water (WHO definition), or water cannot be collected within a 30 minute walking distance
	Sanitation	7.1%	the household has no improved toilet facility (WHO definition), i.e., no facility at all or an open pit
Social capital	Political voice	7.1%	it is very difficult to influence the decision making process at the local level
	Social networks	7.1%	it is very difficult to borrow money
Physical accessibility	Market	4.8%	it takes > 3 hours one way to reach the next market centre, i.e., a round trip within a day is not possible
	Hospital	4.8%	it takes > 3 hours one way to reach the next hospital , i.e., a round trip within a day is not possible
	Bus stop	4.8%	it takes > 3 hours one way to reach the next bus stop, i.e., a round trip within a day is not possible

*For 2011, the official regional food poverty lines for 2010/11 were applied (Government of Nepal 2011b, p16). For 2012, the poverty lines were adjusted according to the quarterly National Consumer Price Indices for 2011/12 for food and beverages (Nepal Rastra Bank 2013, p 57).

Income and Expenditure Survey 2000 did not result in reliable income data (Royal Government of Bhutan 2007, p 6). Within the cost of basic needs approach, food consumption is a proxy for nutrition and a fundamental indicator of health and wellbeing. The consequences of malnutrition are disability, stunted mental and physical growth, and death (WHO 2000).

'Material wellbeing' is linked to the seventh MDG, ensure environmental sustainability (Alkire and Santos 2010, p17), and is a central dimension of the living standard of a household (Bérenger and Verdier-Chouchane 2007). Within the MPF-HKH, the material wellbeing of a household is measured by the possession of communication and transportation assets and the quality of the dwelling (Table 3). Assets are central indicators of material wellbeing (Haughton and Khandker 2009) and can be useful proxies for the economic status of a household, especially if data on income or household consumption are not available or unreliable (McKenzie 2005). The quality of the household dwelling is strongly linked to the human right to adequate housing. One of the main functions of a dwelling is to provide security and shelter from weather and climate (Human Rights Education Associates 2012), which is especially important in harsh mountainous environments. A high-quality dwelling can also protect households from hazard-induced displacement or death (Sharma and Patwardhan 2008).

'Energy' is also linked to the seventh MDG, ensure environmental sustainability (Alkire and Santos 2010, p 17). The MPF-HKH assesses the level of energy sources by the availability of electricity as the primary source of lighting and the use of improved cooking fuels (Table 3). Access to electricity has implications for the health, education, and income of households and communities. Among other things, it enables the refrigerated storage of vaccines and other medicine and food, studying at night, use of information communication technologies, and mechanization, all of which support job creation (Kanagawa and Nakata 2008). If resources are harvested unsustainably and energy conversion technologies are inefficient, the use of solid cooking fuels has serious negative implications for the health and economic status of the household. In addition, dependency on solid fuels in the context of a growing population can cause serious environmental damage in the form of deforestation and degradation (IEA 2006).

'Water and sanitation' is again linked to the seventh MDG – to ensure environmental sustainability (Alkire and Santos 2010, p 17). The MPF-HKH measures water and sanitation by access to improved sources of drinking water and improved sanitation (Table 3). Access to safe drinking water is a fundamental human right and positively related to health and income. The availability of improved sanitation facilities also has a positive effect on the health status of households and communities (WHO and UNICEF 2006). Inadequate drinking water supply and sanitation increases sensitivity to water-borne diseases (Hales et al. 2003) and adds to women's work burden.

'Social capital' is linked to the mountain specificity 'marginalization' (Jodha 1992). Social capital is crucial because it can be transformed into other forms of capital (Bourdieu 1986) and enables collective action regarding resource management to spread risks and for engagement to find wider support networks with, for example, policy makers or development agents (Tompkins and Adger 2004). Through involvement in organizations, networks, and associations people gain collective strength and increase their political bargaining power. The relevance of social capital as a central dimension of quality of life and human wellbeing has been widely acknowledged (see OECD 2001, Grootaert and van Bastelaer 2001, UNESCO 2002). Within the MPF-HKH, social capital is measured by the political voice of a household in the form of its self-perceived influence over decision making at the local level and the availability of social networks willing to provide loans to the household in times of stress (Table 3). Political voice is an indicator of social inclusion (Sen 2000) and reflects the possibility of communicating about, and influencing, one's own situation. The politically weak often have fewer entitlements and are disadvantaged in the distribution of public goods. The existence of social networks reflects the potential for social support in the form of loans of money, food, and non-food items. Such loans are an important strategy used by households in the HKH region to cope with environmental and socioeconomic shocks (Pouliotte et al. 2009).

The MPF-HKH indicators for 'physical inaccessibility' seek to capture the mountain specificity 'inaccessibility' (Jodha 1992). Inadequate physical infrastructure prevails in the HKH and hinders access to crucial facilities, such as credit and health services. It also restricts access to markets, which in turn results in higher supply

prices for basic goods as well as higher transportation costs and lower profit margins for self-produced products (Gibson and Rozelle 2003; Ali and Pernia 2003). The MPF-HKH measures physical accessibility by the time it takes to reach the nearest market, hospital, and bus stop. Access to markets and bus stops are linked to two of the basic coping and adaptation strategies identified by Agrawal and Perrin (2009): exchange to promote specialization and increase revenue flows, and mobility to pool or avoid risks across space. Hospitals represent the availability of an effective emergency response to essential health care demands.

In contrast to the 'objective' deprivation indicators of the MPF-HKH which measure physical goods or observable behaviour, the two 'subjective' social capital indicators are based on perceptions. When measuring social capital, a certain fuzziness lies in the nature of things as one is dealing with abstract concepts such as trust, norms, and values. Nevertheless, 'objective' indicators such as the membership in social organizations or the providing and receiving of social and/or economic support are often used. But pure membership status doesn't say anything about the quality of social relations; and support in the past might not have been received or given because it was not needed. The strength of social capital lies in its potential to be transformed into goods and services in times of need. Thus, in the context of the capability approach, the authors felt it appropriate to measure this potential: the potential to borrow money (an easily convertible good) when necessary and the potential to influence the decision making process at the local level. The use of 'subjective' indicators such as perceptions has a long tradition in the social sciences. Diener and Suh (1997) provided evidence that 'subjective' indicators are relevant and valid indicators for measuring the quality of life, as they shed light on a different angle of wellbeing and add substantially to 'objective' wellbeing measures. A prominent example for the combination of 'objective' and 'subjective' indicators in a quality of life measure is the Gross National Happiness Index of Bhutan (Ura et al. 2012).

Figure 1 shows the dimensions and indicators of the MPF-HKH. Table A4 (Annex C) presents a tetrachoric correlation matrix of all 16 deprivation indicators. As double-counting of deprivations should be avoided when using the Alkire-Foster method, the low or moderate correlations between most indicators can be regarded as satisfactory. Only the coefficients between the three physical

accessibility indicators are quite high, ranging from 0.85 to 0.92. This means that deprivation in these three physical accessibility indicators is strongly related. Nevertheless, all three physical accessibility indicators are taken into consideration because each one is linked to a crucial function, as described above.

Computing the Multidimensional Poverty Measure for the HKH

The Multidimensional Poverty Framework (MPF-HKH) provided the basis for the development of the Multidimensional Poverty Measure for the HKH (MPM-HKH). This measure was constructed using the Alkire-Foster method (Alkire and Foster 2011). First, in a dual identification process, the multidimensionally poor were identified by determining a cut-off point for each dimension of deprivation and deciding on the number of dimensions in which the household has to be deprived to be considered multidimensionally poor. In the next step, information on the multidimensionally poor is aggregated by censoring the data on the non-poor and calculating the poverty headcount, poverty intensity, and actual poverty measure.

A central event in the development of the MPM-HKH was a workshop in which representatives from regional non-governmental and governmental organizations participated. Among the participants were poverty experts from institutions such as the National Planning Commission of Nepal, the Benazir Income Support Program of Pakistan, and the Ministry of Chittagong Hill Tracts Affairs of Bangladesh. The whole time, the Oxford Poverty and Human Development Initiative guided the development of the MPF-HKH and provided valuable feedback and recommendations.

With input from the workshop participants, cut-off points for each deprivation indicator were determined (i.e., the threshold after which a household would be considered to be deprived in that dimension of wellbeing). Next, an aggregate deprivation cut-off (k) was defined (i.e., the number of deprivations a household has to have to be considered multidimensionally poor). Based on the first deprivation cut-offs, it was determined in which of the dimensions a household was deprived, which was the first stage of the two-stage counting approach. The second stage entailed adding up the number of deprivations each household faces. This procedure was slightly complicated by the application of weights to indicate the influence of each poverty indicator and poverty dimension on the

poverty measure (the number of deprivations was not actually added up, but rather the values of the assigned weights, which should total 1.0). Based on the second cut-off point, the aggregated deprivation cut-off, it was then determined if a household was among the multidimensionally poor.

To aggregate the information and construct the index the focus was solely on the multidimensionally poor. Data on non-poor households were censored, i.e., the deprivations experienced by those households were ignored during further analysis (for the raw/uncensored deprivation headcounts by district, see Table A3, Annex C). Now, the multidimensional poverty headcount (H) and the multidimensional poverty intensity (A), i.e., the average deprivation share among the poor could be calculated. The multidimensional poverty measure (M_0) – the actual poverty index – ranges from '0' (nobody is deprived in any indicator) to '1' (everyone is deprived in all indicators) and is the product of the poverty headcount and the poverty intensity ($H \times A = M_0$).

The definition of dimensions, indicators, weights, and cut-off points is normative and was obtained through literature review, data analysis, various bilateral and multilateral discussions with regional and international poverty experts, and the aforementioned workshop at ICIMOD. Table 2 presents the results of all the analyses, discussions, and consultations: the dimensions, indicators, weights, and deprivation cut-offs for the MPM-HKH.

One crucial decision concerned the weight to be given to the poverty indicators and poverty dimensions. Here, the importance of the single indicators and dimensions for the multidimensional MPM-HKH had to be defined. During the multidimensional poverty measure development workshop, two kinds of expert ratings were obtained. The ratings were triangulated and the resulting expert weights were used to construct a prototype of the MPM-HKH. The results were compared for a version in which equal weight was given to each indicator (resulting in unequal weight for each dimension) and one in which equal weight was given to each dimension and each indicator within a dimension. The overall findings of the different prototypes of the MPM-HKH did not differ considerably. Accordingly, the MPM-HKH has replicated the weighting approach of the MPI (Alkire and Santos 2010 p18) and given equal weight to all dimensions, as this is more comprehensible and easier to interpret for statistical laymen.

Each of the seven dimensions has a weight of 1/7 or 14.3%. Education, material wellbeing, energy, water and sanitation, and social capital each comprise two indicators. Here, each indicator has a weight of 1/14 or 7.1%. The respective weight of the indicators of the dimensions health and physical accessibility, which have three indicators each, was 1/21 or 4.8%.

Another crucial decision was the definition of the aggregate deprivation cut-off: The percentage of deprivation a household has to face to be considered multidimensionally poor has a strong influence on the poverty headcount, the poverty intensity, and the poverty measure and, thus, has strong political implications. For policy makers and development planners it is a considerable difference if 97% of the population of a country are considered to be poor (at $k = 10\%$) or only 5% (at $k = 60\%$). Graph 1 shows how the poverty headcount, the poverty intensity, and the poverty measure change with different aggregated deprivation cut-offs (k).

Graph 1: **Poverty headcount (H), poverty intensity (A), and poverty index value (M_0) for all aggregated poverty cut-offs (k) for the 23 surveyed districts**
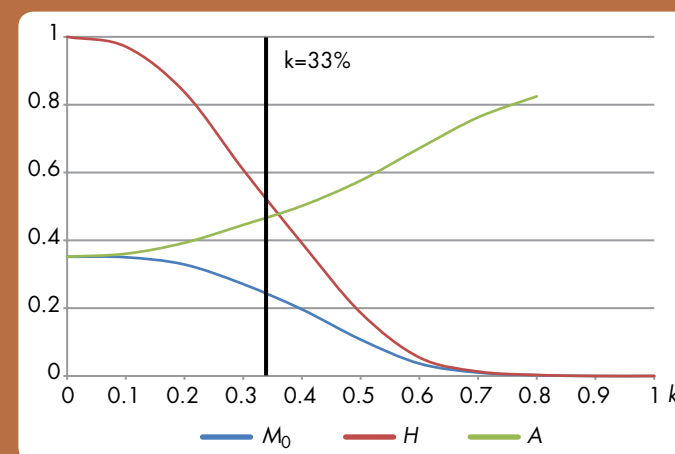
N= 8,547 HHs; own analysis, weighted; Source: PVAT/VACA 2011/12

Robustness analyses of the poverty measure according to three regions (defined as region 1, region 2, and region 3) showed that the ranking is robust between aggregated deprivation values of $k=0\%$ and $k=60\%$ (Graph A7, Annex C). While there is a significant difference between region 1 and region 3 in the range from $k=0\%$ to $k=40\%$, it has to be noted that the other poverty values do not differ significantly from each other (see the upper and lower bounds of the 95% confidence interval in Graph A8, Annex C). Similar analyses for three selected districts with significantly different poverty values resulted in a robustness of the poverty measure and its 95% confidence interval in the range of k-values 0% and 55% (Graph A9, Annex C).

It was decided to follow the approach of the MPI and choose a poverty cut-off of $k=33\%$ for the MPM-HKH (Alkire and Santos 2013, p19). Hence, a household is multidimensionally poor if it is deprived in 33% or more of the weighted indicators. A cut-off of 0.33 equals a deprivation in 2.3 dimensions or 5 to 7 indicators. For the 23 surveyed districts, this resulted in an overall poverty headcount (H) of 57%, a poverty intensity (A) of 45%, and a multidimensional poverty measure of 0.26 ($M_0=H \times A$).

A deprivation in at least five to seven indicators is a higher absolute poverty threshold than is used in the MPI, where a household is considered to be multidimensionally poor if it is deprived in at least two indicators. The relatively high cut-off can be justified with the argument that the HKH region stretches across some of the poorest and least developed countries of the world where the majority are deprived in one or two indicators. The MPM-HKH focuses first and foremost on extreme poverty and the improvement of the situation of the poorest, who make up almost 60% of the sample.

In addition to identifying the poor through the MPM-HKH, we were also interested in identifying those who may be considered vulnerable to falling into poverty. So an index with a poverty cut-off of $k=20\%$ (those deprived in at least three to five indicators or 1.4 dimensions) was constructed (Graph A10, Table A6, and Table A7, Annex C). This measure with poverty cut-off of 20% includes those who are vulnerable to multidimensional poverty (Alkire et al. 2013, p 4) and is, therefore, called the Multidimensional Poverty Vulnerability Measure for the Hindu Kush Himalayas (MPVM-HKH). With a headcount of 84%, the MPVM-HKH indicates that, in addition to the 57% of the population in the 23 surveyed districts who are currently among the multidimensionally poor, a further 27% are at risk of becoming multidimensionally poor (84% MPVM-HKH headcount minus 57% MPM-HKH headcount). For a comparison of the MPM-HKH findings with other existing poverty measures at district level, see Table A2, Annex B.

The Variable Nature of Poverty Across Districts

The findings of the research show that multidimensional poverty varies across the 23 surveyed districts of Nepal. Graph 2 and Table 4 present the MPM-HKH index value, headcount, and intensity by district in descending order according to index value. The MPM-HKH ranges from 0.04 in Dolakha, the district with the lowest multidimensional poverty that had a poverty incidence of 12% and a poverty intensity of 38%, to 0.45 in Bajhang, the multidimensionally poorest district, which had a poverty incidence of 88% and an average poverty intensity of 51%. The differences in the index values are mainly caused by the poverty headcount, which ranges from 12% to 91%, while the average deprivation share among the poor is comparatively homogenous with a range of 38% to 51%.

The poverty status among the mountain and hill districts is quite diverse: Three out of the nine surveyed mountain districts are among the five poorest districts (Bajhang, Humla, and Mugu), while two mountains districts are among the five districts with the lowest multidimensional poverty (Dolakha and Solukhumbu). One of the ten surveyed hill districts is among the five districts with the highest MPM-HKH value (Jajarkot), while three hill districts are among the five least poor districts with the lowest MPM-HKH value (Kavrepalanchok, Gorkha, and Terhathum). In contrast, the poverty status of the plain districts is rather homogenous: Three of the four surveyed plain districts are positioned in the middle field (Sindhuli, Kailali, and Sunsari). Only the eastern Terai district of Saptari shows high multidimensional poverty and holds the second position with a MPM-HKH headcount of 85%, poverty intensity of 50%, and index value of 0.43.

It is apparent that the situation in the selected mountain and hill districts is highly heterogeneous: Some areas are very remote and characterized by high multidimensional poverty, while others are well connected or hotspots for tourism and show relatively high levels of wellbeing. In the mountains and hills, we find the poorest as well as the most well-off districts among the 23 surveyed.

Graphs 3 and 4 give an overview of the composition of poverty in the form of the relative contribution of poverty dimensions and poverty indicators to the

Table 4: **Multidimensional poverty index value, headcount, and intensity by district**

District	Index value	Headcount (%)	Intensity (%)
Bajhang	0.45	87.6	51.4
Saptari	0.43	84.9	50.4
Humla	0.41	90.7	45.7
Jajarkot	0.40	79.2	50.1
Mugu	0.37	83.9	44.5
Khotang	0.35	73.6	47.7
Bhojpur	0.35	75.4	46.3
Sindhuli	0.35	67.9	51.2
Udayapur	0.33	70.1	47.6
Taplejung	0.31	68.2	45.6
Kailali	0.31	61.6	49.5
Siraha	0.30	74.1	40.4
Rukum	0.26	58.0	45.0
Dailekh	0.26	58.2	44.8
Darchula	0.24	54.9	44.2
Sunsari	0.21	52.5	40.2
Sankhuwasabha	0.20	47.9	41.5
Sindhupalchok	0.17	42.2	41.2
Gorkha	0.17	41.4	39.8
Solukhumbu	0.14	36.1	39.4
Terhathum	0.13	29.9	43.1
Kavrepalanchok	0.08	20.3	38.6
Dolakha	0.04	11.9	37.8
Total	**0.26**	**57.2**	**45.4**

N= 8,547 HHs; own analysis, weighted; Source: PVAT/VACA 2011/12

Graph 2: **Multidimensional poverty index value, headcount, and intensity by district**

Legend:
- Intensity
- Headcount
- Index value

District	Index value	Headcount	Intensity
Bajhang	0.48	0.97	0.49
Saptari	0.46	0.98	0.47
Humla	0.44	0.99	0.44
Jajarkot	0.43	0.93	0.47
Mugu	0.41	0.98	0.42
Khotang	0.41	0.94	0.43
Bhojpur	0.40	0.95	0.42
Sindhuli	0.40	0.88	0.46
Udayapur	0.39	0.92	0.43
Taplejung	0.39	0.95	0.40
Kailali	0.37	0.88	0.42
Siraha	0.36	0.96	0.37
Rukum	0.33	0.83	0.39
Dailekh	0.32	0.81	0.40
Darchula	0.32	0.84	0.38
Sankhuwasabha	0.31	0.92	0.34
Sunsari	0.29	0.84	0.34
Sindhupalchok	0.28	0.85	0.33
Gorkha	0.27	0.79	0.34
Solukhumbu	0.25	0.77	0.33
Terhathum	0.23	0.69	0.33
Kavre Palanchok	0.17	0.55	0.30
Dolakha	0.12	0.41	0.28

N= 8,547 HHs; own analysis, weighted; Source: PVAT/VACA 2011/12

MPM-HKH. In the section District Poverty Profiles and Annex D, detailed findings are presented for each district. In this section, the discussion of findings will focus on the above observation that the composition of multidimensional poverty across districts varies considerably. One of the main reasons for this variation is the wide variation in physical accessibility, which contributes from 0% in the districts of Saptari, Siraha, and Sunsari to 30% in Humla. In the two plains districts, Siraha and Sunsari, deprivation in water and sanitation make a high level contribution (32% and 35% respectively); while in Kailali there are high levels of deprivation in terms of social capital (21%); and in Sankhuwasabha deficits in material wellbeing are comparatively high (28%) (for absolute measures of the relevance of the poverty indicators in the districts, see the section on District Poverty Profiles and Annex D, or look at the overview of censored deprivation headcounts by district in Table A5, Annex C).

Graph 3: **Relative contribution of poverty dimensions by district**
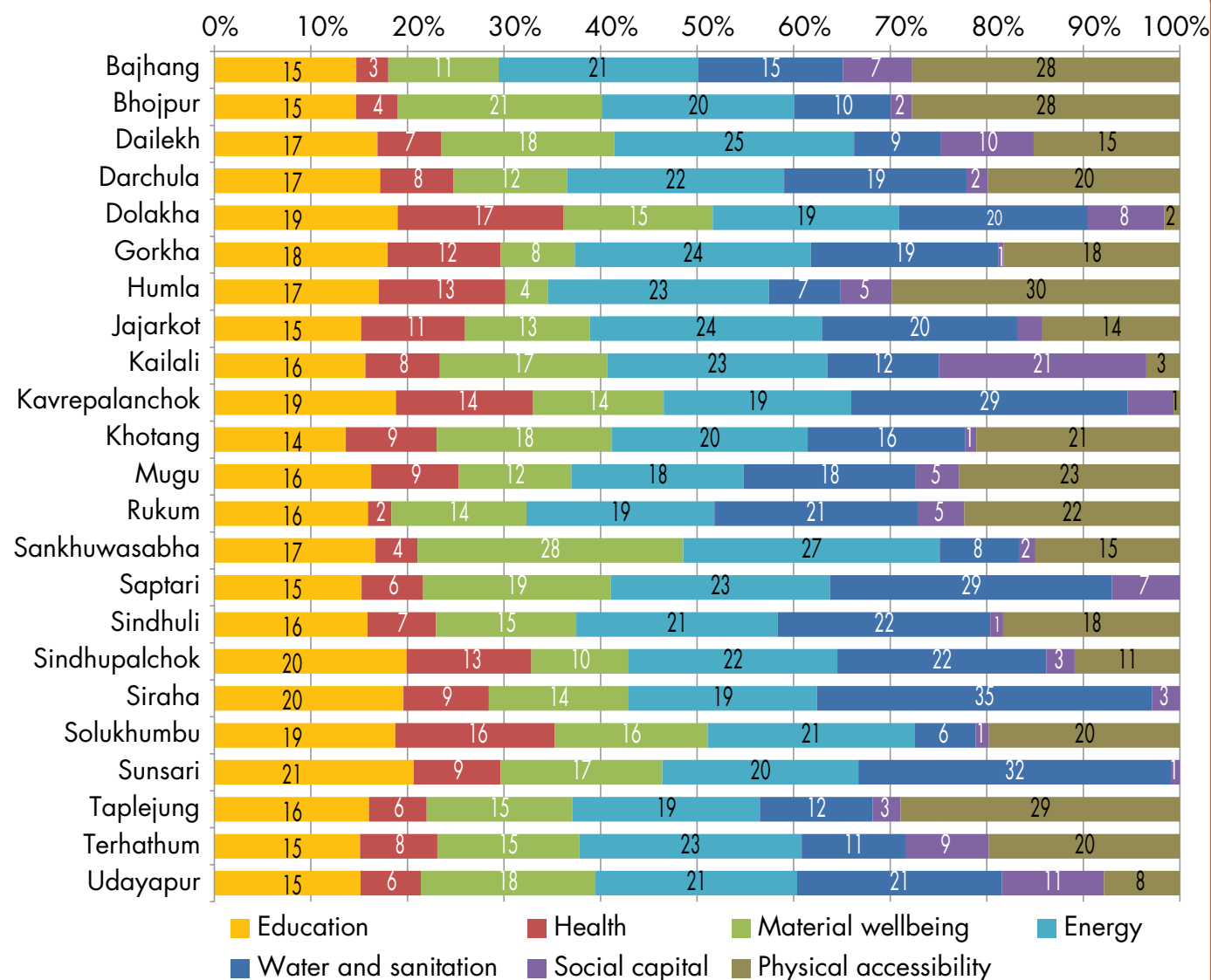
N= 8,547 HHs; own analysis, weighted; Source: PVAT/VACA 2011/12

Graph 4: **Relative contribution of poverty indicators by district**

Axis: 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

District	Segment values (left → right)
Bajhang	14, 1, 1, 1, 7, 4, 6, 15, 3, 12, 4, 3, 9, 9, 9
Bhojpur	15, 1, 1, 3, 8, 13, 4, 16, 6, 4, 2, 8, 10, 9
Dailekh	16, 1, 2, 2, 3, 11, 7, 8, 17, 4, 5, 3, 7, 6, 4, 5
Darchula	17, 1, 1, 7, 12, 6, 17, 9, 10, 2, 8, 10, 2
Dolakha	19, 4, 5, 8, 14, 2, 19, 12, 8, 8, 1, 1
Gorkha	18, 4, 4, 3, 7, 1, 6, 18, 11, 8, 5, 9, 4
Humla	16, 1, 5, 3, 6, 4, 7, 16, 2, 4, 10, 9, 11
Jajarkot	15, 1, 4, 6, 12, 1, 9, 15, 9, 12, 2, 1, 2, 6, 6
Kailali	15, 1, 2, 2, 4, 10, 7, 8, 15, 2, 9, 9, 12, 2, 2
Kavrepalanchok	18, 3, 10, 11, 2, 1, 18, 12, 17, 3, 1
Khotang	13, 4, 2, 3, 7, 11, 5, 16, 10, 7, 1, 4, 10, 7
Mugu	16, 2, 4, 3, 10, 1, 1, 16, 11, 7, 2, 3, 3, 9, 11
Rukum	15, 1, 1, 12, 2, 3, 16, 7, 14, 4, 5, 9, 8
Sankhuwasabha	16, 3, 2, 11, 17, 9, 18, 4, 4, 1, 5, 8, 2
Saptari	14, 1, 2, 3, 8, 11, 8, 15, 15, 15, 3, 4
Sindhuli	15, 1, 2, 3, 2, 9, 6, 6, 15, 10, 12, 1, 5, 8, 6
Sindhupalchok	18, 2, 4, 2, 8, 8, 2, 4, 18, 7, 14, 3, 4, 6, 1
Siraha	18, 2, 3, 1, 5, 2, 12, 1, 18, 17, 17, 2, 1
Solukhumbu	18, 6, 5, 6, 12, 4, 3, 18, 5, 2, 1, 1, 12, 7
Sunsari	18, 3, 3, 6, 3, 14, 2, 18, 18, 14, 1
Taplejung	16, 3, 3, 1, 6, 9, 3, 16, 1, 11, 3, 9, 11, 9
Terhathum	15, 1, 1, 3, 4, 6, 9, 6, 17, 1, 10, 2, 6, 5, 10, 6
Udayapur	15, 1, 5, 7, 11, 5, 16, 9, 12, 5, 5, 2, 5, 1

Legend:
- Literacy
- School attendance
- Illness
- Health care
- Food consumption
- Assets
- Dwelling
- Electricity
- Cooking fuel
- Drinking water
- Sanitation
- Political voice
- Social networks
- Market
- Hospital
- Bus stop

Mapping Index Value, Headcount, and Intensity

This section maps the Multidimensional Poverty Measure for the HKH (index value, censored poverty headcount, and intensity) for the 23 surveyed districts in Nepal.

MPM-HKH Index Value

As noted earlier, the MPM-HKH index value is the product of the multidimensional poverty headcount, i.e., the poverty incidence among the population, and the multidimensional poverty intensity, i.e., the average deprivation share among the multidimensionally poor. The MPM-HKH index value ranges from '0' (nobody is multidimensionally poor and on average deprived in 0 indicators) to '1' (everyone is multidimensionally poor and on average deprived in all indicators). Table 5 and Map 3 show that among the 23 surveyed districts the MPM-HKH index value ranges from 0.04 in Dolakha to 0.45 in Bajhang.

MPM-HKH Headcount

The MPM-HKH headcount indicates the proportion of the population that is multidimensionally poor. It ranges from '0' (0% of the population are multi-dimensionally poor) to '1' (100% of the population are multidimensionally poor). Table 6 and Map 4 show that among the 23 surveyed districts the multi-dimensional poverty headcount ranges from 12% in Dolakha to 91% in Humla.

MPM-HKH Intensity

The MPM-HKH intensity provides information about the average proportion of indicators in which poor people are deprived. It ranges from '0' (the multidimensionally poor are on average deprived in 0% of the indicators) to '1' (the multidimensionally poor are on average deprived in 100% of the indicators). Table 7 and Map 5 show that among the 23 surveyed districts the average deprivation share among the poor ranges from 38% in Dolakha to 51% in Bajhang.

Table 5: MPM-HKH index value

District	
Bajhang	0.45
Saptari	0.43
Humla	0.41
Jajarkot	0.40
Mugu	0.37
Khotang	0.35
Bhojpur	0.35
Sindhuli	0.35
Udayapur	0.33
Taplejung	0.31
Kailali	0.31
Siraha	0.30
Rukum	0.26
Dailekh	0.26
Darchula	0.24
Sunsari	0.21
Sankhuwasabha	0.20
Sindhupalchok	0.17
Gorkha	0.17
Solukhumbu	0.14
Terhathum	0.13
Kavrepalanchok	0.08
Dolakha	0.04

N= 8,547 HHs; own analysis, weighted
Source: PVAT/VACA 2011/12

Table 6: MPM-HKH headcount (%)

District	%
Humla	90.7
Bajhang	87.6
Saptari	84.9
Mugu	83.9
Jajarkot	79.2
Bhojpur	75.4
Siraha	74.1
Khotang	73.6
Udayapur	70.1
Taplejung	68.2
Sindhuli	67.9
Kailali	61.6
Dailekh	58.2
Rukum	58.0
Darchula	54.9
Sunsari	52.5
Sankhuwasabha	47.9
Sindhupalchok	42.2
Gorkha	41.4
Solukhumbu	36.1
Terhathum	29.9
Kavrepalanchok	20.3
Dolakha	11.9

N= 8,547 HHs; own analysis, weighted
Source: PVAT/VACA 2011/12
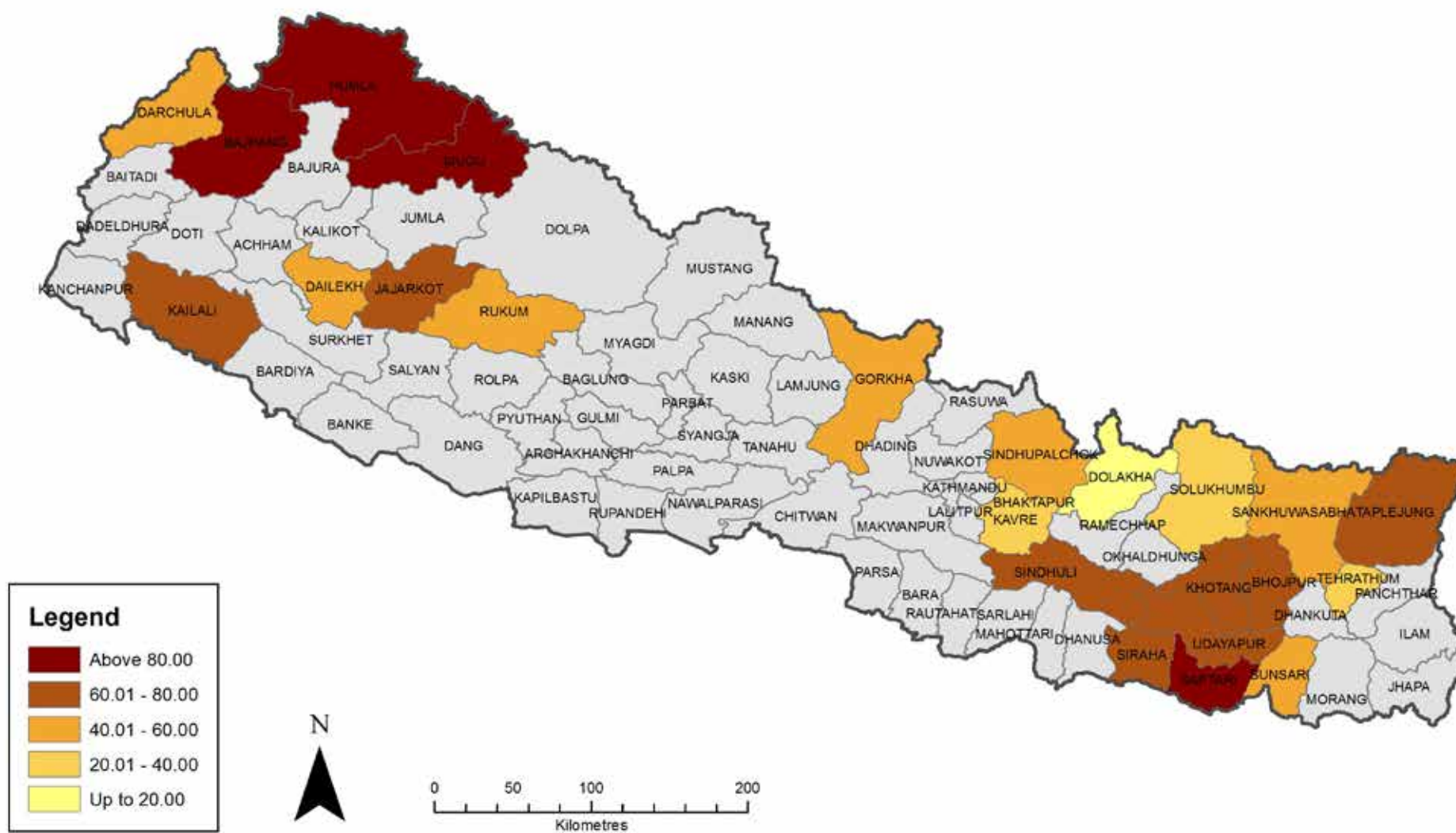
Table 7: MPM-HKH intensity (%)

District	%
Bajhang	51.4
Sindhuli	51.2
Saptari	50.4
Jajarkot	50.1
Kailali	49.5
Khotang	47.7
Udayapur	47.6
Bhojpur	46.3
Humla	45.7
Taplejung	45.6
Rukum	45.0
Dailekh	44.8
Mugu	44.5
Darchula	44.2
Terhathum	43.1
Sankhuwasabha	41.5
Sindhupalchok	41.2
Siraha	40.4
Sunsari	40.2
Gorkha	39.8
Solukhumbu	39.4
Kavrepalanchok	38.6
Dolakha	37.8

N= 8,547 HHs; own analysis, weighted;
Source: PVAT/VACA 2011/12

Map 3: **MPM-HKH index value**

Legend

■	Above 0.35
■	0.26 - 0.35
■	0.16 - 0.25
■	0.11 - 0.15
■	Up to 0.10

N

0   50   100   200
Kilometres
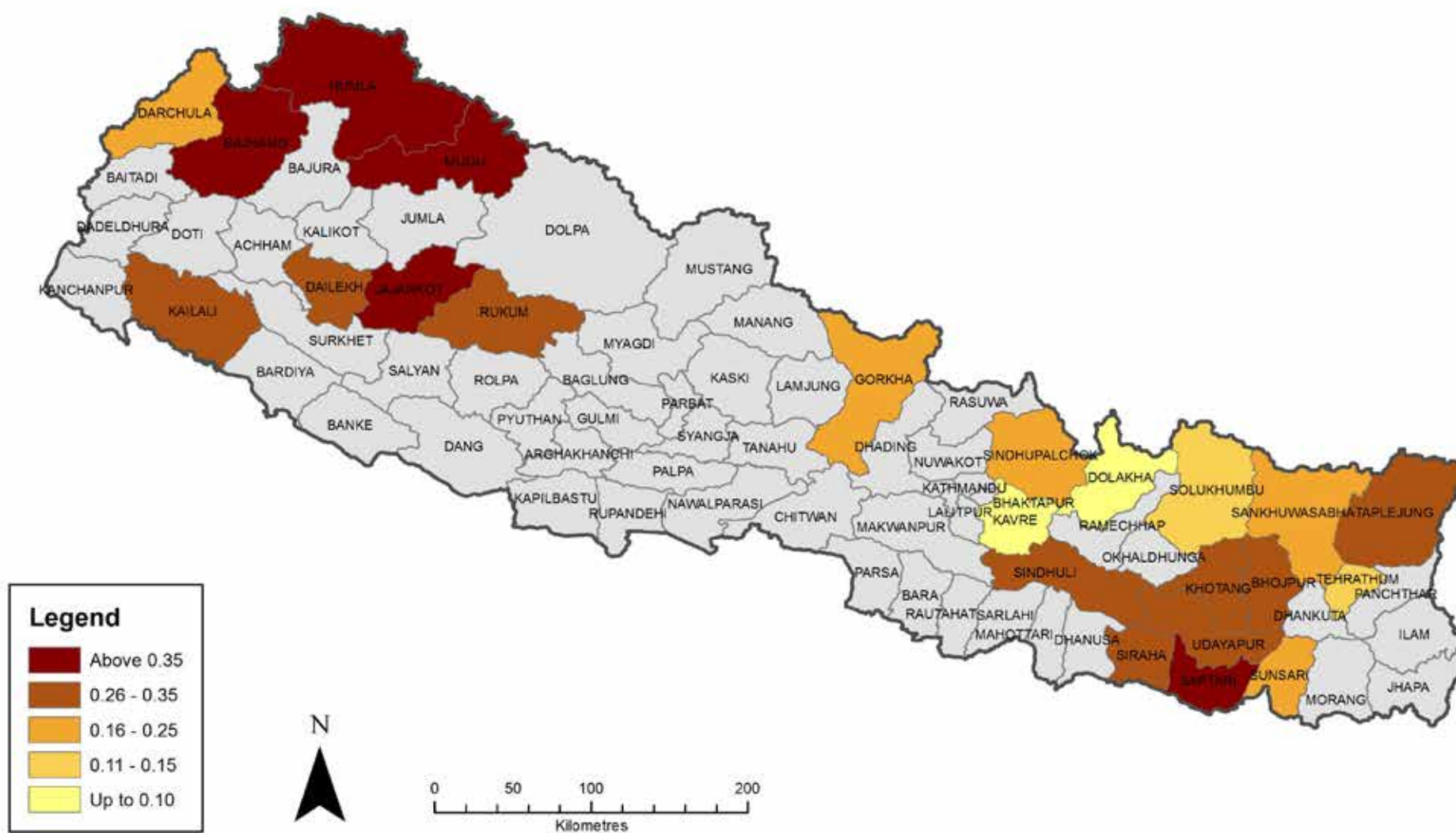
Map 4: **MPM-HKH headcount (%)**

Map 5: **MPM-HKH intensity (%)**

Legend
- Above 49.00
- 46.01 - 49.00
- 43.01 - 46.00
- 40.01 - 43.00
- Up to 40.00

N

0 50 100 200
Kilometres
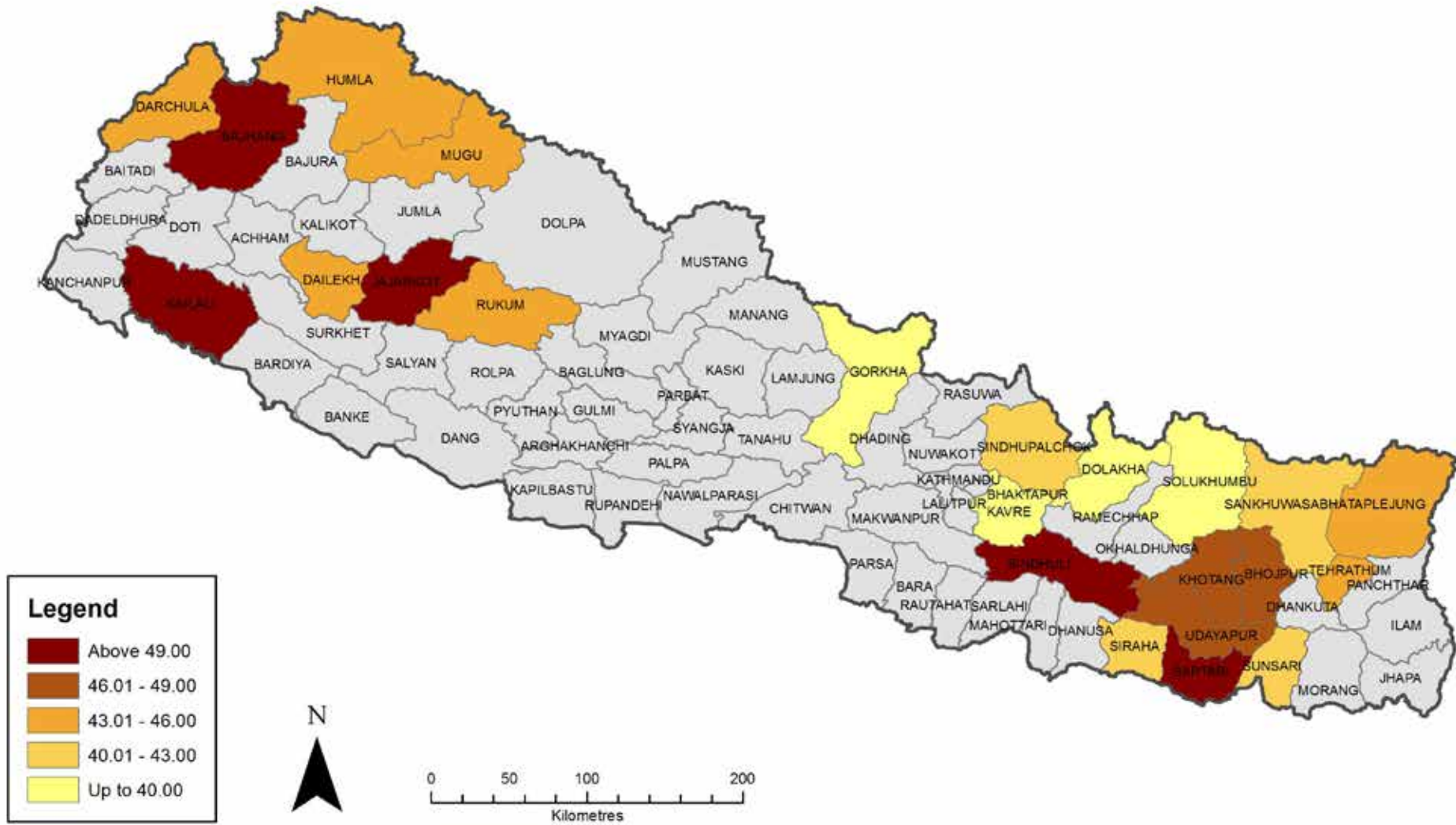
Mapping the Dimensions of Poverty

This section maps the dimensions of multidimensional poverty and their indicators in the 23 selected districts of Nepal.

Education

Maps 6 and 7 present the censored deprivation headcounts for the education indicators literacy and school attendance.

Literacy

A household is deprived in literacy if at least one household member aged six years or older is illiterate. Table 8 and Map 6 show that among the 23 surveyed districts the proportion of the population that is multidimensionally poor and deprived in literacy ranges from 12% in Dolakha to 89% in Humla.

School attendance

A household is deprived in the indicator school attendance if at least one child of school-going age is not attending school. Table 9 and Map 7 show that among the 23 surveyed districts the proportion of the population that is multidimensionally poor and deprived in school attendance ranges from 0% in Dolakha to 8% in Sunsari.

Health

The following three maps present censored deprivation headcounts for the health indicators – illness, health care, and food consumption.

Illness

A household is deprived in the indicator illness if a household member is seriously ill (i.e., so ill that s/he cannot work at least once a month). Table 10 and Map 8 show that among the 23 surveyed

Table 8: **Literacy: Censored deprivation headcount (%)**	
District	%
Humla	89.0
Bajhang	85.2
Saptari	82.6
Mugu	81.1
Jajarkot	78.2
Siraha	73.8
Bhojpur	68.8
Sindhuli	67.5
Taplejung	66.2
Udayapur	65.1
Khotang	63.8
Kailali	60.6
Dailekh	55.1
Darchula	54.8
Rukum	54.5
Sunsari	52.5
Sankhuwasabha	44.5
Sindhupalchok	41.9
Gorkha	40.0
Solukhumbu	36.0
Terhathum	25.2
Kavrepalanchok	19.9
Dolakha	11.8

N= 8,547 HHs; own analysis, weighted;
Source: PVAT/VACA 2011/12

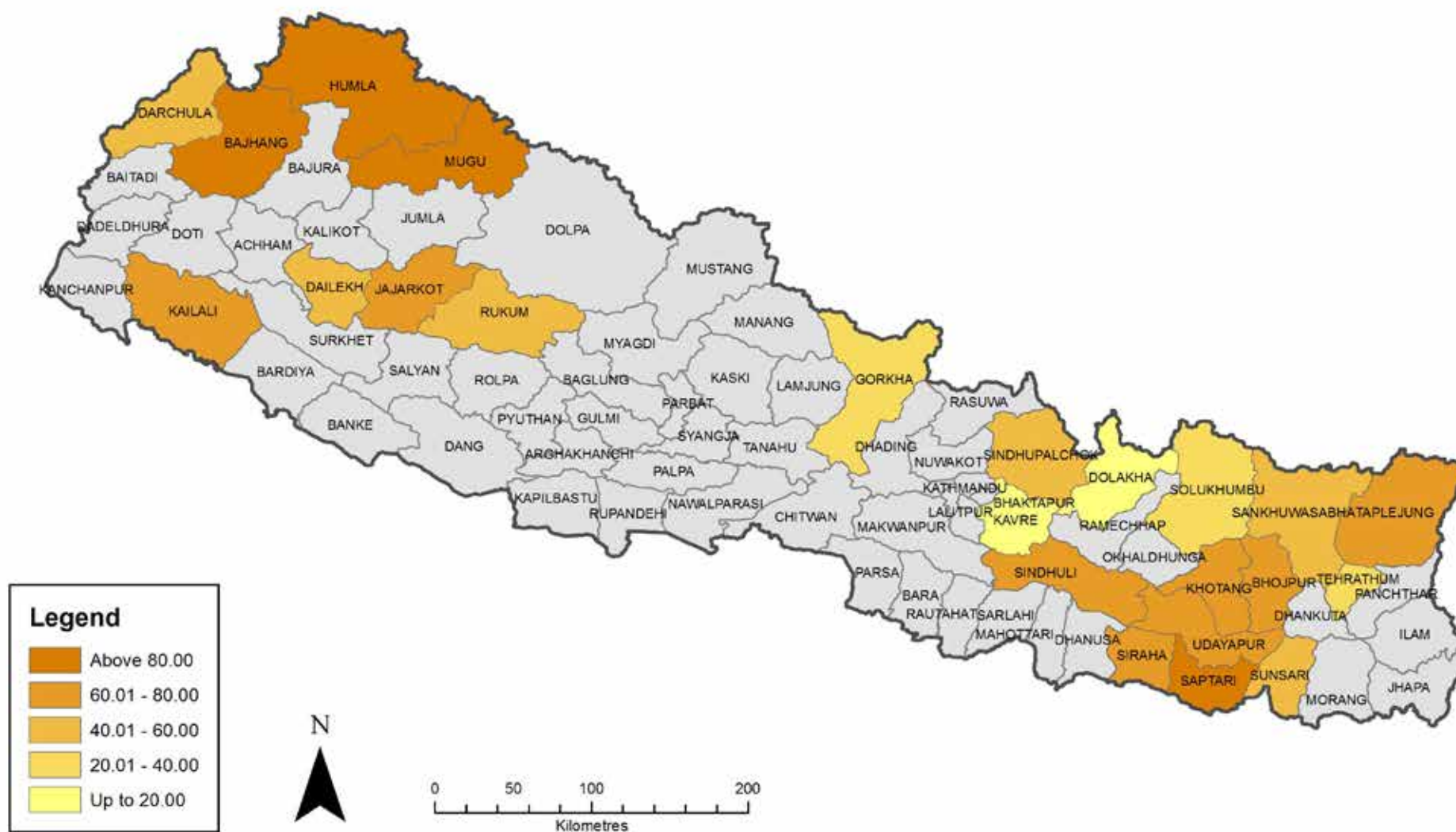| Table 9: **School attendance: Censored deprivation headcount (%)**	
District	%
Sunsari	8.4
Siraha	7.6
Saptari	7.4
Humla	7.4
Sindhuli	7.2
Sindhupalchok	5.8
Dailekh	4.7
Bajhang	4.1
Udayapur	3.2
Jajarkot	3.0
Kailali	2.9
Mugu	2.2
Rukum	2.1
Darchula	2.1
Taplejung	1.5
Sankhuwasabha	1.2
Gorkha	1.1
Khotang	1.0
Solukhumbu	0.9
Terhathum	0.7
Bhojpur	0.7
Kavrepalanchok	0.3
Dolakha	0.0

N= 8,547 HHs; own analysis, weighted;
Source: PVAT/VACA 2011/12
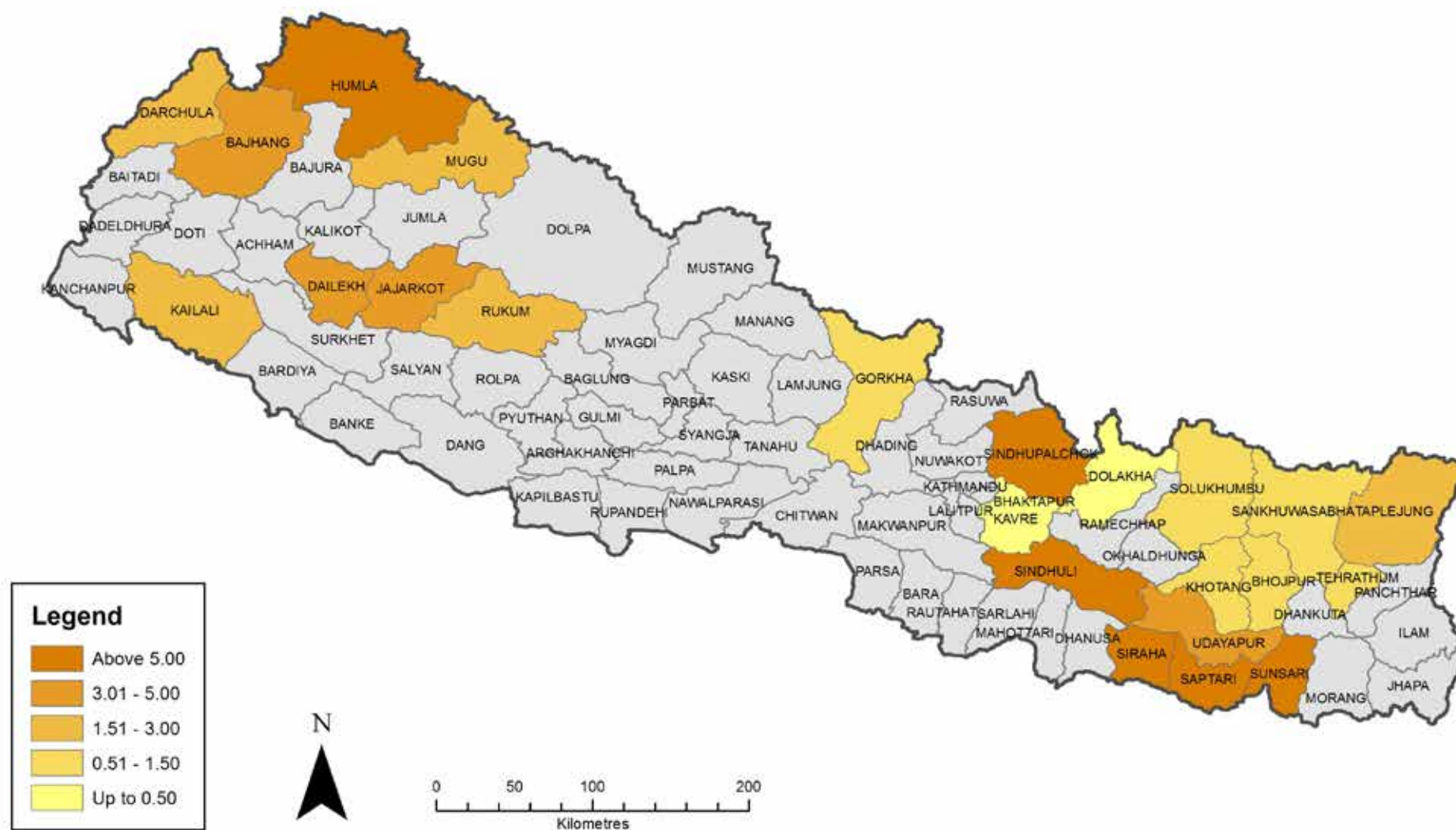
Table 10: **Illness: Censored deprivation headcount (%)**	
District	%
Humla	39.5
Khotang	29.2
Siraha	19.8
Saptari	19.0
Taplejung	18.0
Mugu	18.0
Solukhumbu	17.8
Gorkha	15.3
Sindhupalchok	14.0
Sindhuli	13.6
Sunsari	12.9
Kailali	12.1
Bajhang	11.4
Sankhuwasabha	10.7
Dailekh	9.2
Rukum	7.5
Udayapur	5.7
Kavrepalanchok	5.7
Bhojpur	4.5
Dolakha	4.2
Jajarkot	3.0
Terhathum	2.9
Darchula	2.7

N= 8,547 HHs; own analysis, weighted;
Source: PVAT/VACA 2011/12

Map 6: **Literacy: Censored deprivation headcount (%)**

Legend

- Above 80.00
- 60.01 - 80.00
- 40.01 - 60.00
- 20.01 - 40.00
- Up to 20.00

Map 7: **School attendance: Censored deprivation headcount (%)**

Map 8: **Illness: Censored deprivation headcount (%)**

Legend

■	Above 20.00
■	15.01 - 20.00
■	10.01 - 15.00
■	5.01 - 10.00
■	Up to 5.00
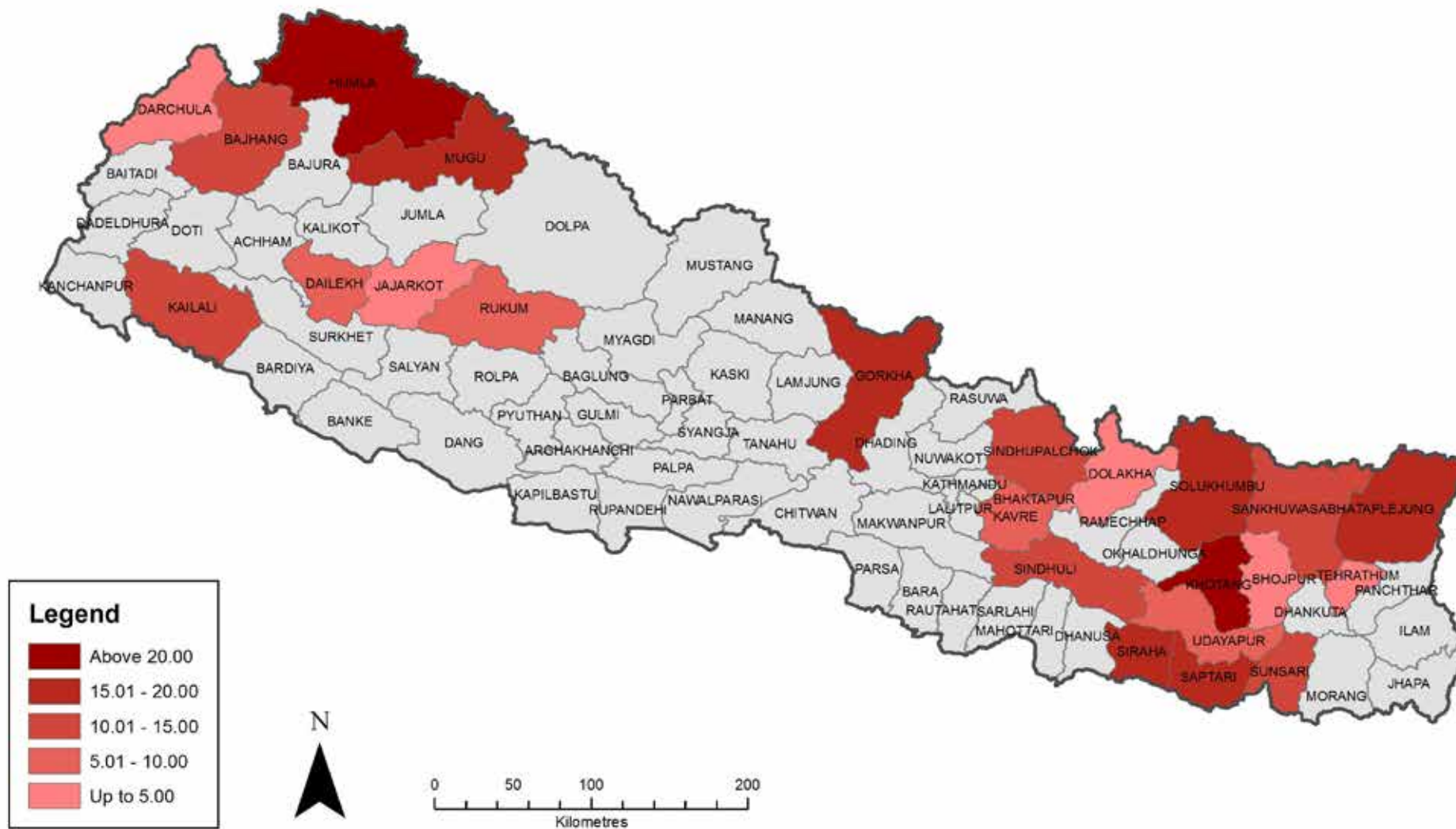
districts the proportion of the population that is multidimensionally poor and frequently faces serious illnesses within the household ranges from 3% in Darchula to 40% in Humla.

Health care

A household is deprived of health care if it cannot afford professional treatment for serious illness or injury. Table 11 and Map 9 show that among the 23 surveyed districts the proportion of the population that is multidimensionally poor and deprived of health care ranges from 0% in Sankhuwasabha to 37% in Jajarkot.

Food consumption

A household is deprived in the indicator food consumption if its per capita food consumption is below the national food poverty line or if the household depends on food aid. For the data from 2011, the official food poverty line of 2011 was applied (Government of Nepal 2011b). For the year 2012, the poverty line was adjusted according to the National Consumer Price Index (Nepal Rastra Bank 2013). Table 12 and Map 10 show that among the 23 surveyed districts the proportion of the population that is multidimensionally poor and deprived in food consumption ranges from 3% in Rukum to 51% in Jajarkot.

Material Wellbeing

The following two maps present censored deprivation headcounts for the material wellbeing indicators – assets and dwelling.

Assets

A household is deprived in the indicator assets if it owns not more than one kind of various communication or transportation assets (TV, radio, telephone, non-motorized vehicle) and it doesn't have any motorized vehicle (car, motorbike, tractor). Table 13 and Map 11 show that among the 23 surveyed districts the proportion of the population that is multidimensionally poor and deprived in assets ranges from 9% in Dolakha to 64% in Jajarkot.

Table 11: Health care: Censored deprivation headcount (%)

District	%
Jajarkot	37.3
Mugu	31.2
Humla	22.9
Sindhuli	22.7
Taplejung	19.2
Gorkha	15.9
Solukhumbu	15.6
Khotang	14.5
Saptari	14.1
Kailali	12.3
Dailekh	11.6
Bhojpur	9.4
Bajhang	8.3
Terhathum	8.2
Sindhupalchok	6.0
Siraha	4.8
Dolakha	4.4
Rukum	2.3
Kavrepalanchok	0.8
Udayapur	0.7
Sunsari	0.7
Darchula	0.5
Sankhuwasabha	0.2

N= 8,547 HHs; own analysis, weighted;
Source: PVAT/VACA 2011/12

Table 12: Food consumption: Censored deprivation headcount (%)

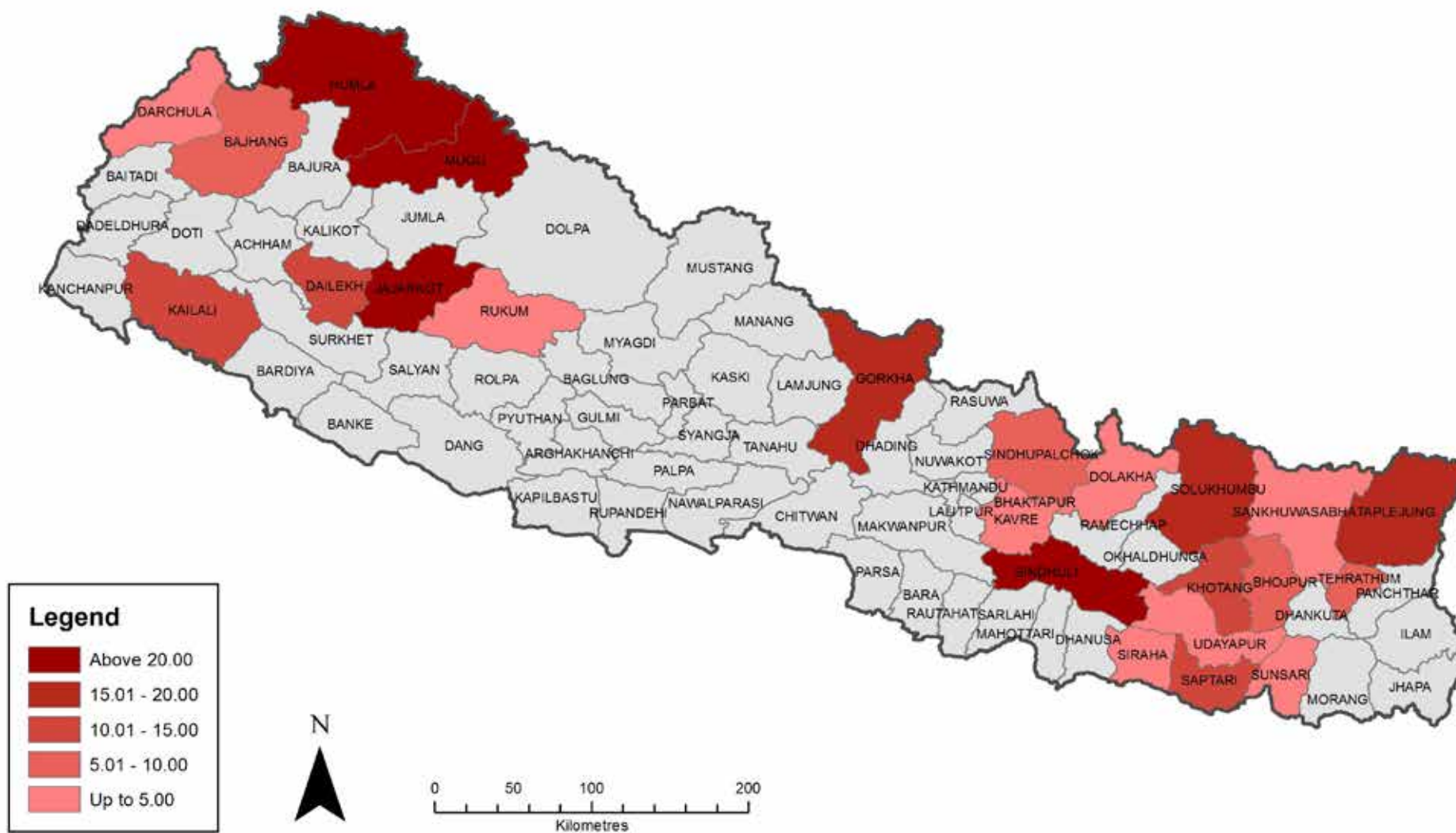| District	%
Jajarkot	50.6
Humla	49.2
Udayapur	38.0
Darchula	35.5
Siraha	30.7
Sindhupalchok	27.6
Khotang	27.2
Saptari	26.8
Sunsari	26.6
Mugu	23.5
Kailali	22.0
Bhojpur	19.2
Kavrepalanchok	16.7
Solukhumbu	16.6
Dailekh	16.1
Sindhuli	15.7
Bajhang	14.8
Terhathum	11.4
Gorkha	9.1
Sankhuwasabha	8.0
Dolakha	7.9
Taplejung	3.4
Rukum	3.2

N= 8,547 HHs; own analysis, weighted;
Source: PVAT/VACA 2011/12

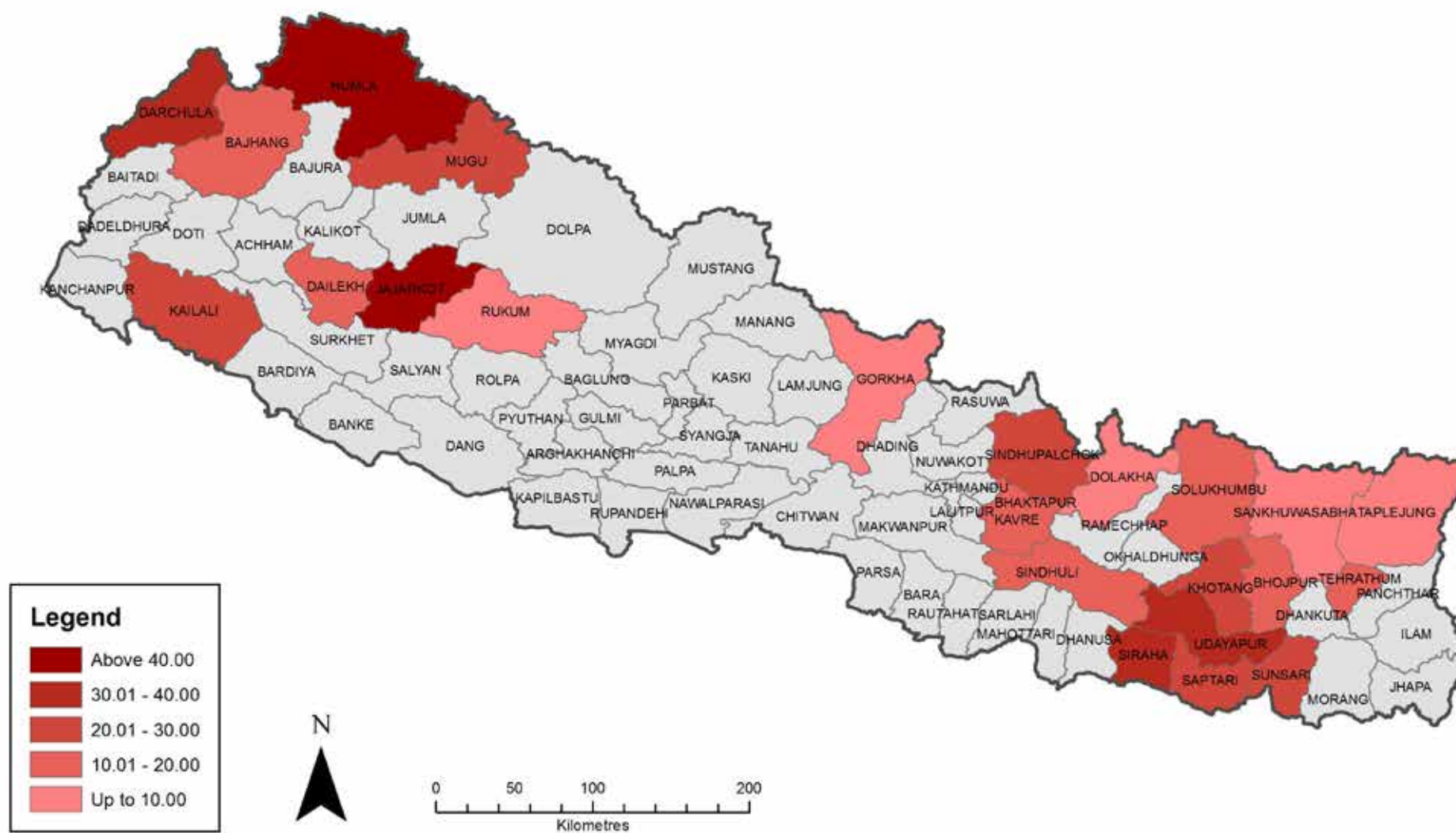**Table 13: Assets: Censored deprivation headcount (%)**

District	%
Jajarkot	64.4
Mugu	55.9
Saptari	51.3
Bajhang	47.9
Rukum	44.4
Sindhuli	43.7
Kailali	43.1
Bhojpur	42.0
Dailekh	39.8
Darchula	39.8
Khotang	36.6
Udayapur	33.6
Sankhuwasabha	30.3
Humla	29.3
Taplejung	29.1
Solukhumbu	23.7
Sindhupalchok	20.7
Gorkha	17.2
Kavrepalanchok	12.5
Siraha	11.3
Terhathum	10.8
Sunsari	9.0
Dolakha	8.6

N= 8,547 HHs; own analysis, weighted;
Source: PVAT/VACA 2011/12

Map 9: **Health care: Censored deprivation headcount (%)**

Legend

- Above 20.00
- 15.01 - 20.00
- 10.01 - 15.00
- 5.01 - 10.00
- Up to 5.00

N

0   50   100   200
Kilometres

Map 10: **Food consumption: Censored deprivation headcount (%)**

Legend

- Above 40.00
- 30.01 – 40.00
- 20.01 – 30.00
- 10.01 – 20.00
- Up to 10.00

N

0   50   100   200
Kilometres

Map 11: **Assets: Censored deprivation headcount (%)**

Legend

- Above 40.00
- 30.01 - 40.00
- 20.01 - 30.00
- 10.01 - 20.00
- Up to 10.00

N

0   50   100   200
Kilometres
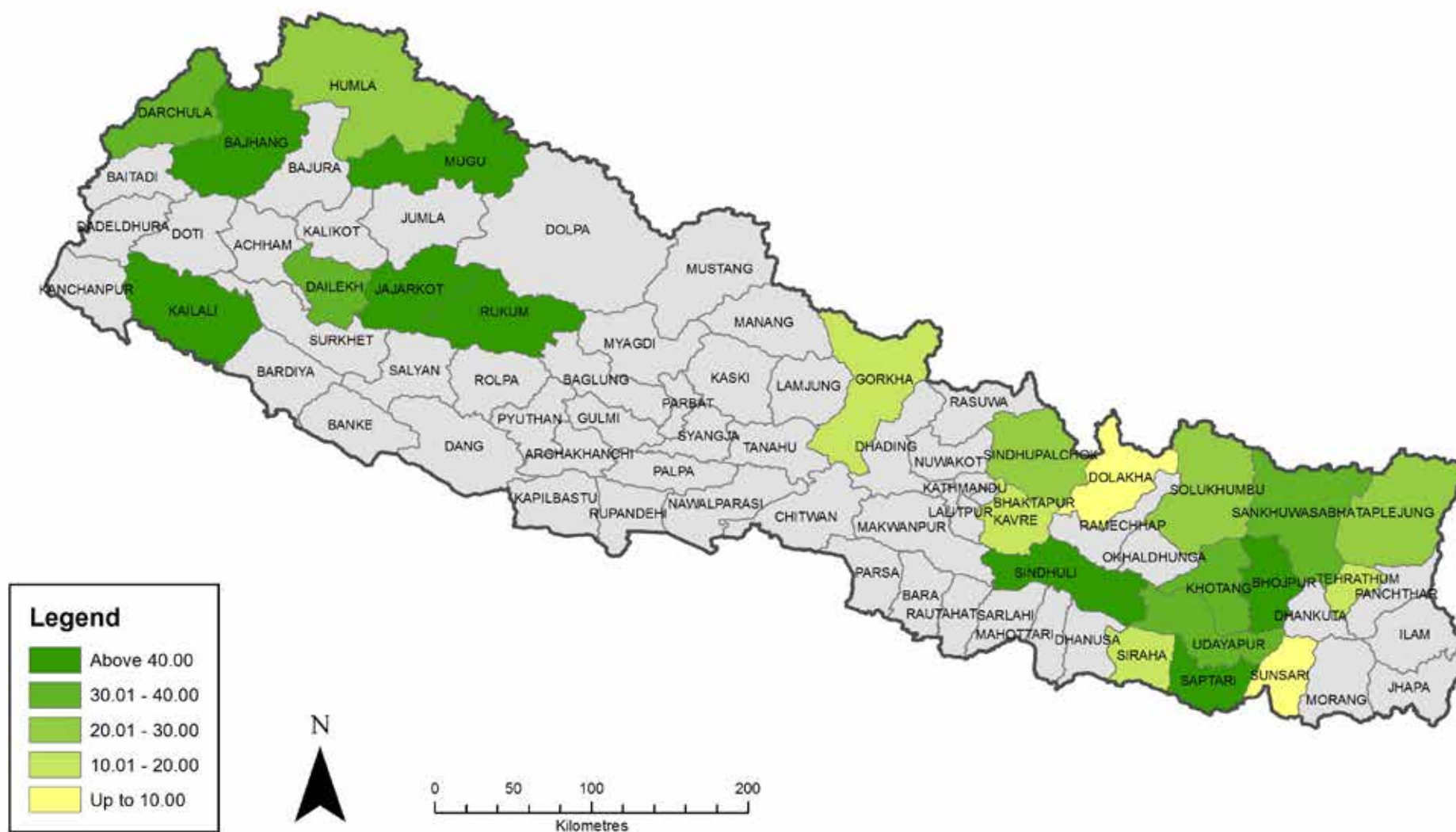
Dwelling

A household is deprived in the indicator dwelling if it lives in a low quality dwelling (i.e., if the wall material is grass, leaves, bamboo, plastic, metal or asbestos or if the roof material is straw, leaves, thatch, bamboo, plastic, or fabric). Table 14 and Map 12 show that among the 23 surveyed districts the proportion of the population that is multidimensionally poor and deprived in terms of quality of dwelling ranges from 0% in Humla to 68% in Saptari.

Energy

The following two maps present censored deprivation headcounts for the energy indicators – electricity and cooking fuel.

Electricity

A household is deprived in the indicator electricity if its primary source of lighting is not electricity from the grid or other sources. Table 15 and Map 13 show that among the 23 surveyed districts the proportion of the population that is multidimensionally poor and deprived in electricity ranges from 0% in Dolakha to 52% in Jajarkot.

Cooking fuel

A household is deprived in the indicator cooking fuel if it primarily uses solid fuels (i.e., dung, wood, coal or charcoal, sawdust, grass, or other natural materials, for cooking). Table 16 and Map 14 show that among the 23 surveyed districts the proportion of the population that is multidimensionally poor and deprived in terms of cooking fuel ranges from 12% in Dolakha to 90% in Humla.

Water and Sanitation

The following two maps present censored deprivation headcounts for the water and sanitation indicators – drinking water and sanitation.

Table 14: **Dwelling: Censored deprivation headcount (%)**

District	%
Saptari	67.6
Bhojpur	62.9
Khotang	54.7
Siraha	52.4
Udayapur	51.5
Sankhuwasabha	45.8
Sunsari	41.3
Taplejung	40.3
Kailali	34.0
Sindhuli	31.5
Bajhang	30.9
Dailekh	26.7
Terhathum	16.4
Solukhumbu	8.4
Jajarkot	8.2
Rukum	7.7
Mugu	6.6
Sindhupalchok	4.6
Kavrepalanchok	2.8
Gorkha	2.0
Dolakha	1.2
Darchula	0.2
Humla	0.0

N= 8,547 HHs; own analysis, weighted;
Source: PVAT/VACA 2011/12

Table 15: **Electricity: Censored deprivation headcount (%)**

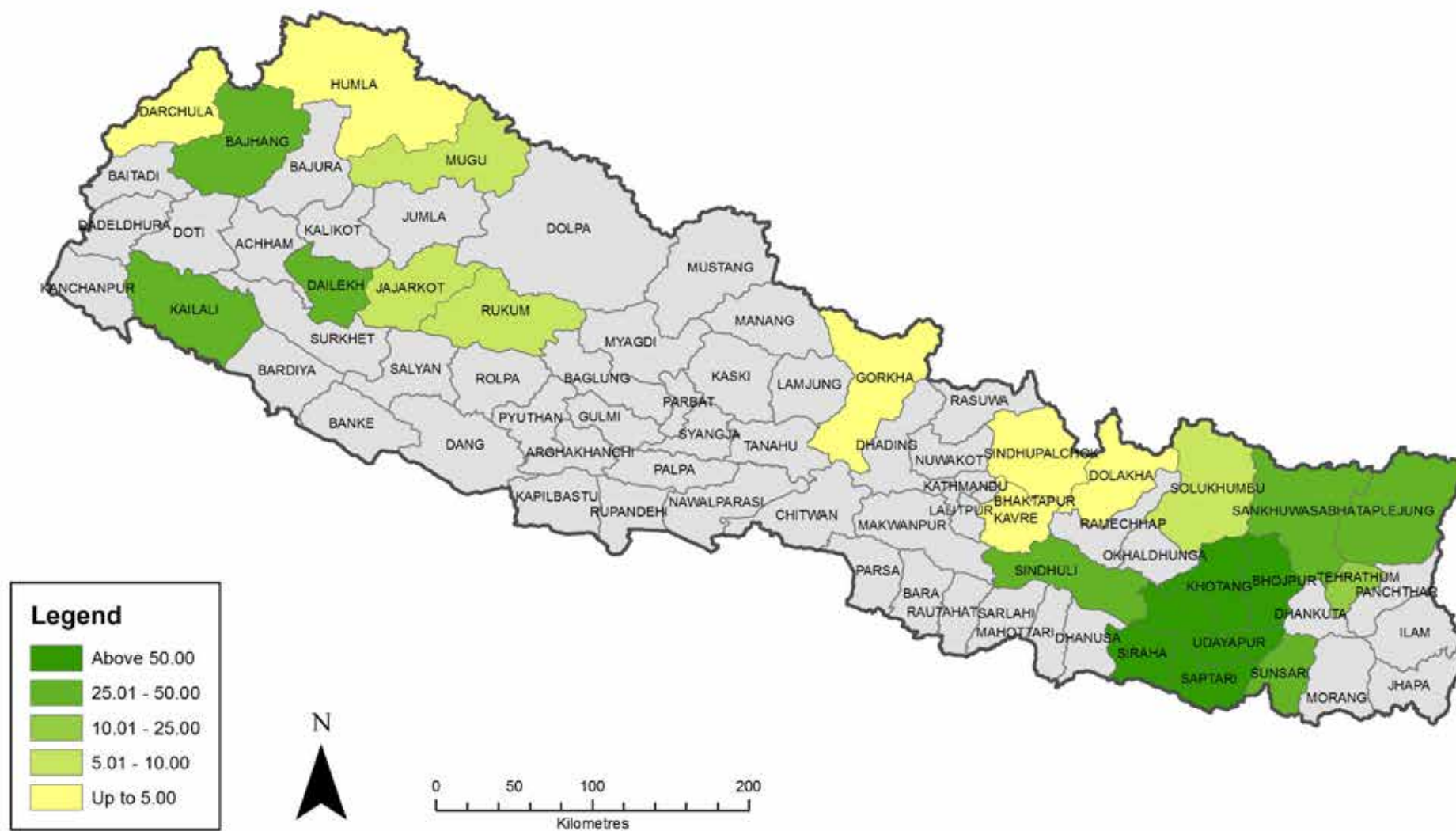| District	%
Jajarkot	52.2
Saptari	49.2
Humla	40.8
Bajhang	40.6
Kailali	36.1
Dailekh	32.3
Sindhuli	31.9
Sankhuwasabha	25.8
Khotang	25.6
Udayapur	25.1
Bhojpur	21.3
Darchula	20.9
Taplejung	15.7
Gorkha	14.0
Rukum	13.9
Terhathum	10.3
Sindhupalchok	10.3
Sunsari	7.4
Mugu	7.4
Siraha	7.2
Solukhumbu	6.9
Kavrepalanchok	1.2
Dolakha	0.1

N= 8,547 HHs; own analysis, weighted;
Source: PVAT/VACA 2011/12

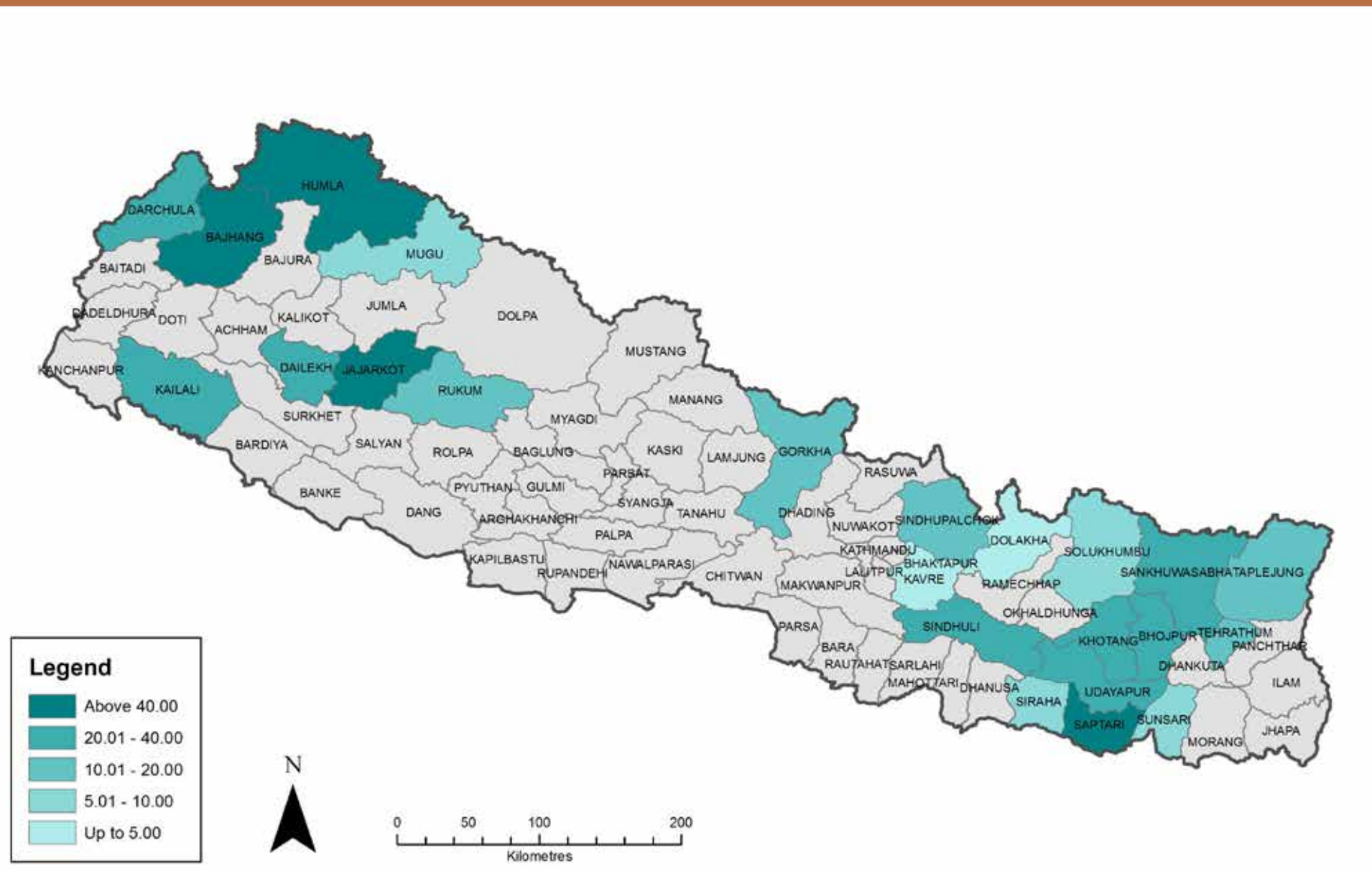Table 16: **Cooking fuel: Censored deprivation headcount (%)**

District	%
Humla	90.4
Bajhang	87.6
Saptari	83.9
Mugu	83.5
Jajarkot	79.2
Bhojpur	75.4
Siraha	73.8
Khotang	73.6
Udayapur	70.1
Sindhuli	67.9
Taplejung	67.9
Kailali	61.0
Dailekh	58.2
Rukum	57.0
Darchula	54.9
Sunsari	52.5
Sankhuwasabha	47.9
Sindhupalchok	42.2
Gorkha	41.4
Solukhumbu	35.8
Terhathum	29.9
Kavrepalanchok	19.9
Dolakha	11.9

N= 8,547 HHs; own analysis, weighted;
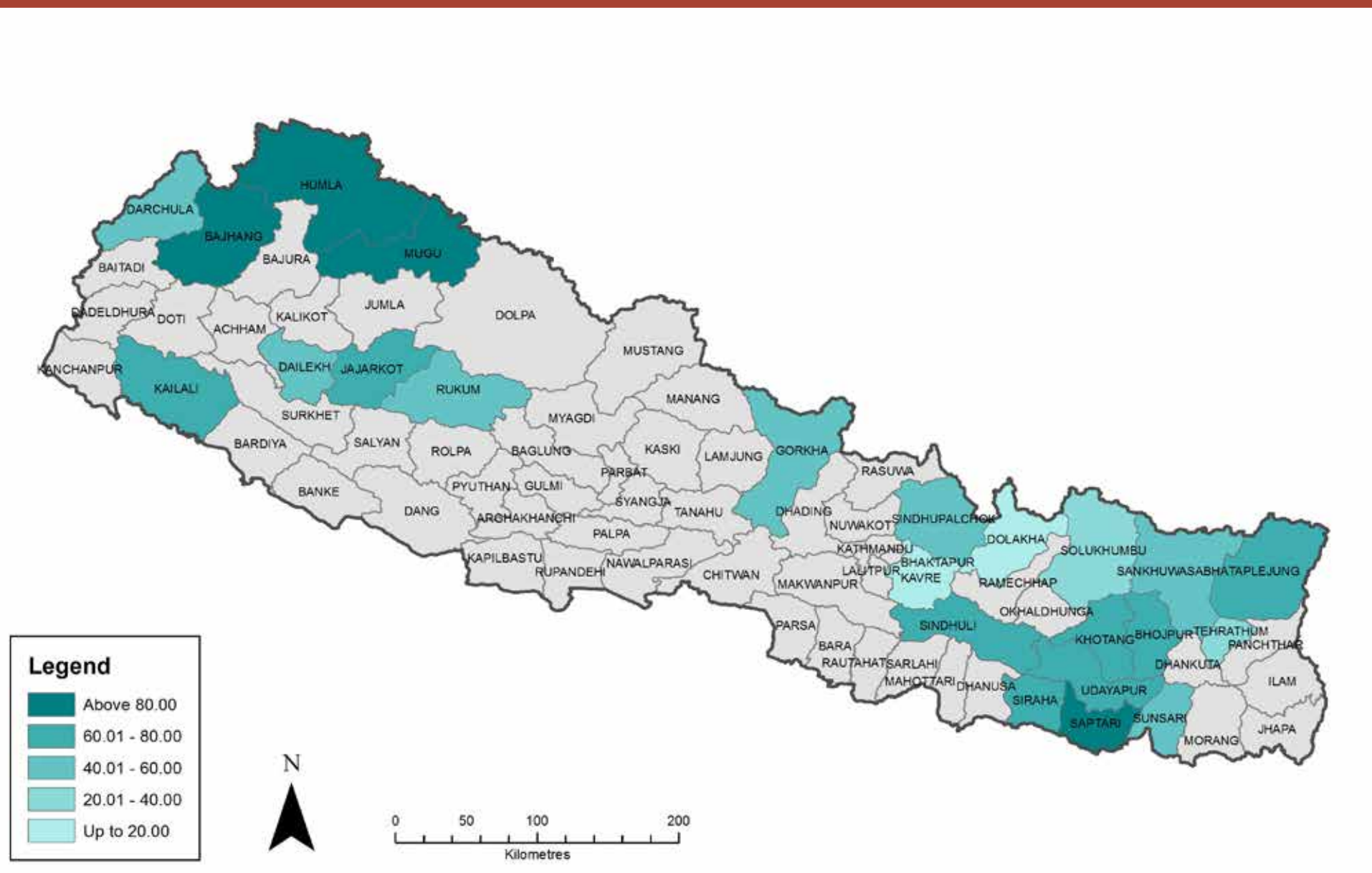Source: PVAT/VACA 2011/12

Map 12: **Dwelling: Censored deprivation headcount (%)**

Legend

- Above 50.00
- 25.01 – 50.00
- 10.01 – 25.00
- 5.01 – 10.00
- Up to 5.00

Map 13: Electricity: Censored deprivation headcount (%)

Legend

- Above 40.00
- 20.01 - 40.00
- 10.01 - 20.00
- 5.01 - 10.00
- Up to 5.00

N

| 0 | 50 | 100 | 200 |
Kilometres

Map 14: **Cooking fuel: Censored deprivation headcount (%)**

Legend

- Above 80.00
- 60.01 - 80.00
- 40.01 - 60.00
- 20.01 - 40.00
- Up to 20.00

N

0   50   100   200
Kilometres

Drinking water

A household is deprived in the indicator drinking water if it doesn't have access to an improved source of drinking water according to the WHO definition (i.e., household connection, public standpipe, borehole, protected dug well, protected spring, rainwater) or if the drinking water cannot be collected within 30 minutes walking distance. Table 17 and Map 15 show that among the 23 surveyed districts the proportion of the population that is multidimensionally poor and deprived of improved sources of drinking water ranges from 0% in Humla to 84% in Saptari.

Sanitation

A household is deprived in the indicator sanitation if it doesn't have access to an improved toilet facility according to the WHO definition (public sewer connection, septic system connection, pour-flush latrine, simple pit latrine, ventilated improved pit latrine). Table 18 and Map 16 show that among the 23 surveyed districts the proportion of the population that is multidimensionally poor and deprived of improved sanitation ranges from 3% in Solukhumbu to 84% in Saptari.

Social Capital

The following two maps present censored deprivation headcounts for the social capital indicators – political voice and social networks.

Political voice

A household is deprived in the indicator political voice if it is very difficult for its members to influence the decision making process at the local level. Table 19 and Map 17 show that among the 23 surveyed districts the proportion of the population that is multidimensionally poor and deprived in political voice ranges from 0% in Solukhumbu to 40% in Kailali.

Table 17: Drinking water: Censored deprivation headcount (%)

District	%
Saptari	83.9
Siraha	71.2
Mugu	56.6
Sunsari	52.2
Jajarkot	49.6
Khotang	47.2
Sindhuli	46.1
Udayapur	41.9
Bhojpur	31.0
Darchula	30.0
Rukum	26.8
Gorkha	25.3
Bajhang	18.8
Sindhupalchok	17.0
Dailekh	15.0
Kavrepalanchok	13.0
Sankhuwasabha	11.8
Kailali	11.6
Solukhumbu	9.3
Dolakha	7.2
Taplejung	4.0
Terhathum	1.3
Humla	0.2

N= 8,547 HHs; own analysis, weighted;
Source: PVAT/VACA 2011/12

Table 18: Sanitation: Censored deprivation headcount (%)

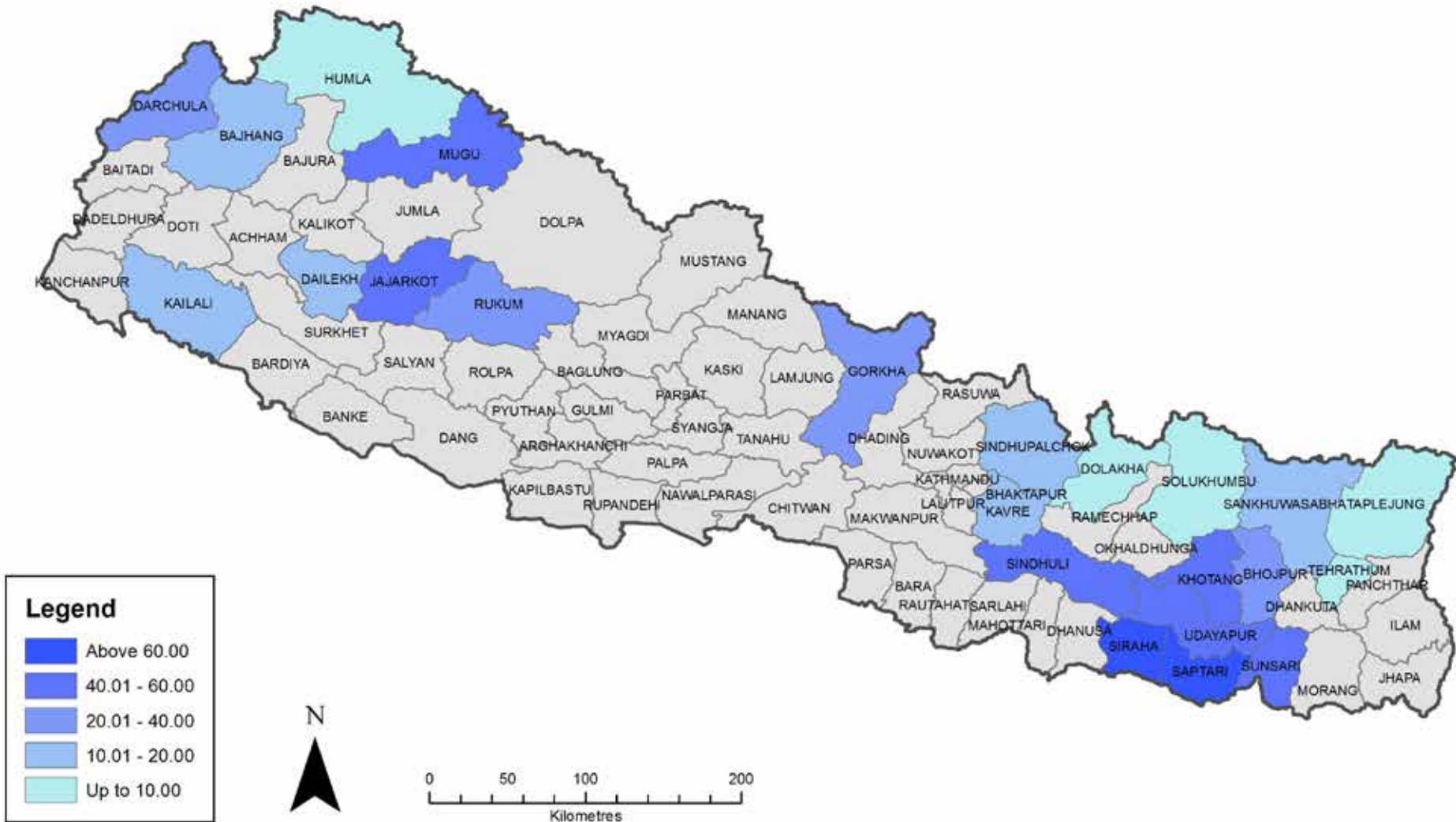| District	%
Saptari	84.0
Bajhang	75.5
Siraha	70.6
Jajarkot	63.8
Sindhuli	57.4
Udayapur	54.5
Rukum	49.6
Taplejung	48.0
Humla	45.7
Sunsari	42.6
Kailali	38.9
Mugu	38.2
Darchula	35.3
Khotang	35.2
Sindhupalchok	34.7
Bhojpur	21.7
Gorkha	19.1
Dailekh	19.0
Terhathum	18.2
Kavrepalanchok	18.2
Sankhuwasabha	11.4
Dolakha	4.9
Solukhumbu	3.3

N= 8,547 HHs; own analysis, weighted;
Source: PVAT/VACA 2011/12

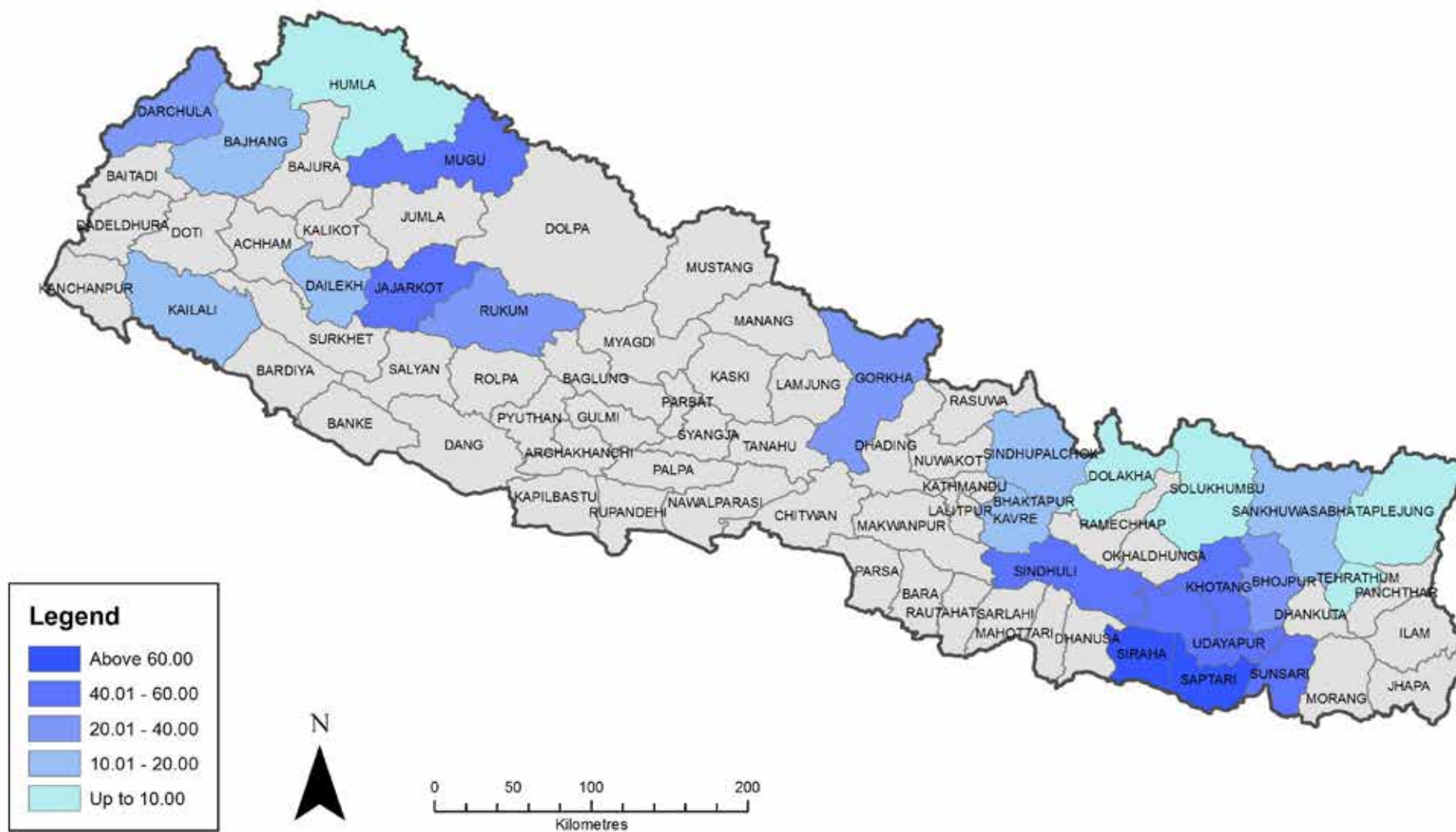**Table 19: Political voice: Censored deprivation headcount (%)**

District	%
Kailali	40.0
Bajhang	30.6
Udayapur	27.2
Saptari	20.7
Rukum	16.6
Taplejung	13.4
Humla	11.2
Mugu	10.9
Dailekh	10.2
Jajarkot	10.1
Siraha	9.7
Darchula	6.9
Sindhupalchok	6.1
Terhathum	5.0
Dolakha	4.9
Khotang	4.7
Sindhuli	4.0
Kavrepalanchok	3.9
Sunsari	1.3
Gorkha	1.3
Sankhuwasabha	1.1
Bhojpur	1.1
Solukhumbu	0.2

N= 8,547 HHs; own analysis, weighted;
Source: PVAT/VACA 2011/12

Map 15: Drinking water: Censored deprivation headcount (%)

Legend

■	Above 60.00
■	40.01 - 60.00
■	20.01 - 40.00
■	10.01 - 20.00
■	Up to 10.00

N

0   50   100   200
Kilometres

Map 16: **Sanitation: Censored deprivation headcount (%)**

Legend

- Above 60.00
- 40.01 - 60.00
- 20.01 - 40.00
- 10.01 - 20.00
- Up to 10.00

N

0   50   100   200
Kilometres

Map 17: **Political voice: Censored deprivation headcount (%)**

Legend

- Above 20.00
- 15.01 - 20.00
- 10.01 - 15.00
- 5.01 - 10.00
- Up to 5.00
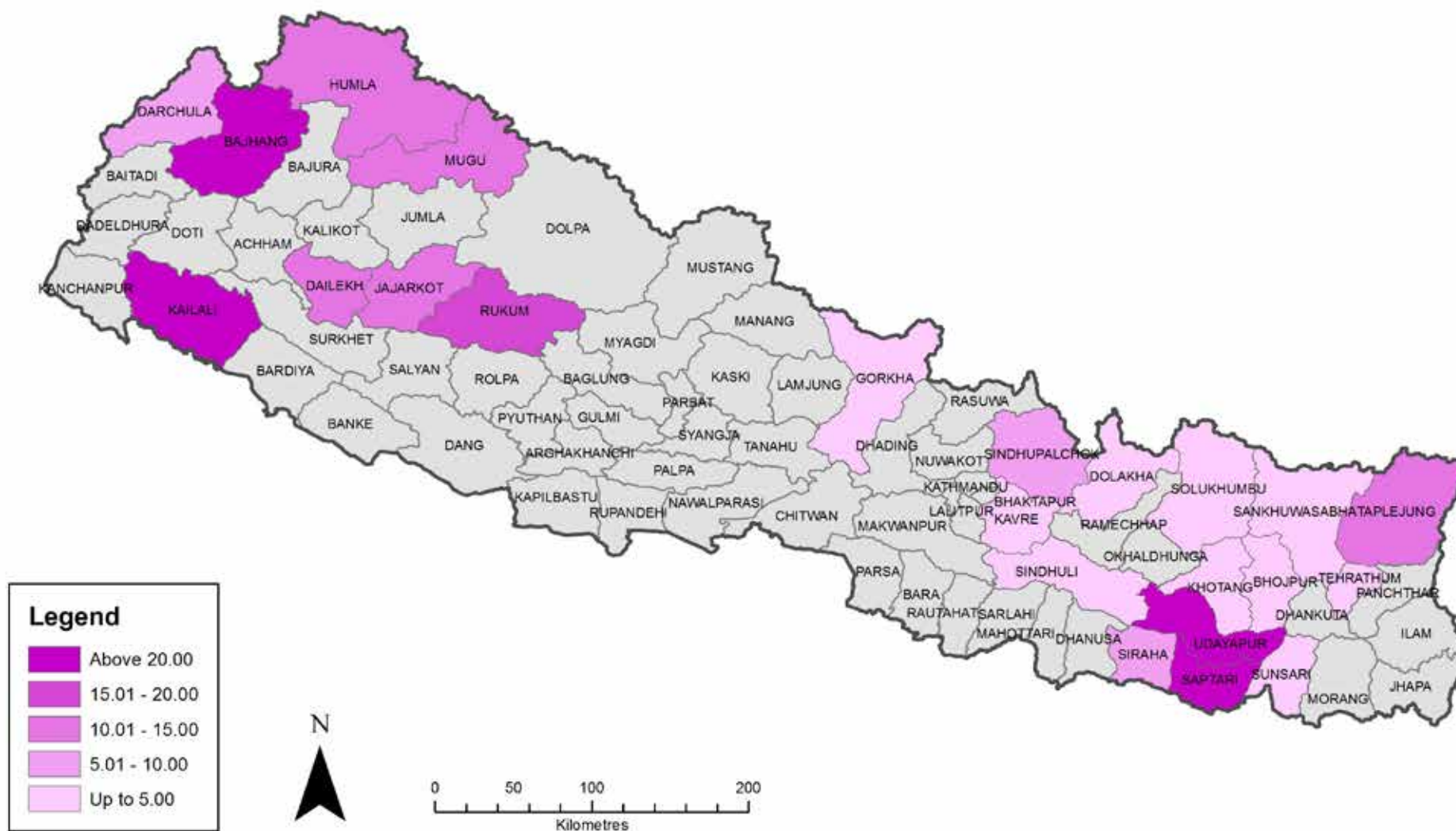
Social networks

A household is deprived in the indicator social networks if it is very difficult for its members to borrow money in times of need. Table 20 and Map 18 show that among the 23 surveyed districts the proportion of the population that is multidimensionally poor and deprived in social networks ranges from 0% in Gorkha to 51% in Kailali.

Physical Accessibility

The following three maps present censored deprivation headcounts for the physical accessibility indicators – market, hospital, and bus stop.

Market

A household is deprived in the indicator market if it takes more than three hours one way to reach the next market centre. Table 21 and Map 19 show that among the 23 surveyed districts the proportion of the population that is multidimensionally poor and deprived of physical access to markets ranges from 0% in Sunsari to 83% in Bajhang.

Hospital

A household is deprived in the indicator hospital if it takes more than three hours one way to reach the next hospital. Table 22 and Map 20 show that among the 23 surveyed districts the proportion of the population that is multidimensionally poor and deprived of physical access to hospitals ranges from 0% in Sunsari to 86% in Bajhang.

Table 20: Social networks: Censored deprivation headcount (%)

District	%
Kailali	50.7
Saptari	28.6
Udayapur	26.5
Dailekh	25.6
Humla	24.1
Bajhang	18.4
Mugu	13.9
Terhathum	11.5
Bhojpur	10.5
Jajarkot	5.1
Siraha	4.7
Sindhuli	4.5
Sankhuwasabha	4.3
Solukhumbu	2.7
Kavrepalanchok	1.9
Sunsari	1.6
Darchula	1.6
Khotang	1.6
Rukum	1.3
Sindhupalchok	0.8
Taplejung	0.4
Dolakha	0.2
Gorkha	0.1

N= 8,547 HHs; own analysis, weighted; Source: PVAT/VACA 2011/12

Table 21: Market: Censored deprivation headcount (%)

District	%
Bajhang	83.4
Humla	81.6
Bhojpur	59.6
Taplejung	56.3
Darchula	38.4
Sindhuli	36.1
Dailekh	32.5
Rukum	31.4
Mugu	25.5
Khotang	24.9
Sankhuwasabha	20.4
Udayapur	17.2
Gorkha	16.2
Jajarkot	15.5
Sindhupalchok	15.3
Terhathum	13.3
Solukhumbu	1.9
Dolakha	0.7
Kailali	0.0
Kavrepalanchok	0.0
Saptari	0.0
Siraha	0.0
Sunsari	0.0

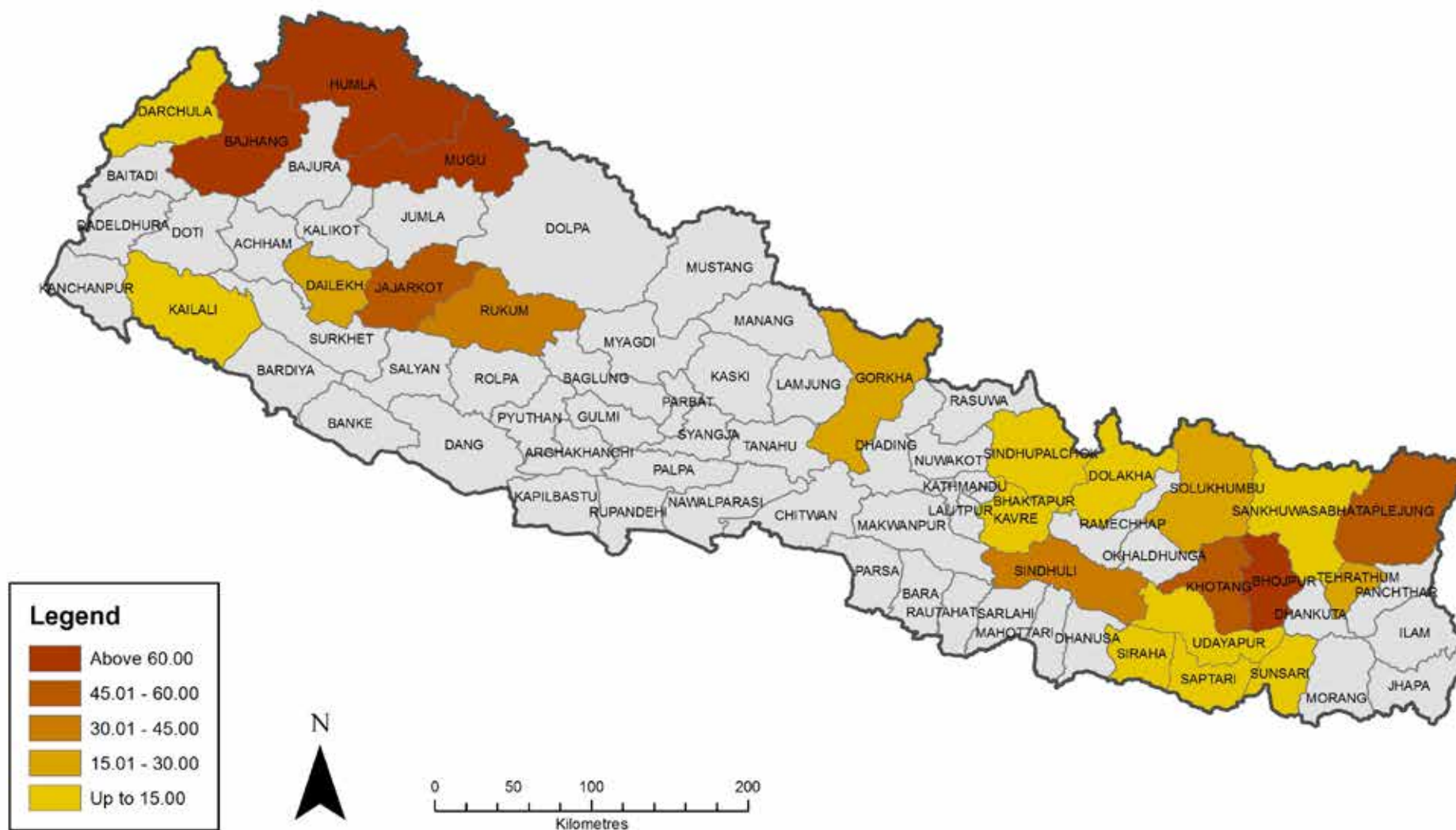N= 8,547 HHs; own analysis, weighted; Source: PVAT/VACA 2011/12

Table 22: Hospital: Censored deprivation headcount (%)

District	%
Bajhang	85.9
Humla	79.9
Bhojpur	73.2
Khotang	72.2
Mugu	68.4
Taplejung	66.9
Sindhuli	57.8
Jajarkot	53.2
Rukum	50.9
Darchula	49.9
Udayapur	36.4
Solukhumbu	35.0
Sankhuwasabha	34.3
Gorkha	32.0
Terhathum	25.2
Sindhupalchok	23.0
Dailekh	21.3
Kailali	14.5
Kavrepalanchok	1.1
Dolakha	1.0
Saptari	0.0
Siraha	0.0
Sunsari	0.0

N= 8,547 HHs; own analysis, weighted; Source: PVAT/VACA 2011/12

Map 18: **Social networks: Censored deprivation headcount (%)**
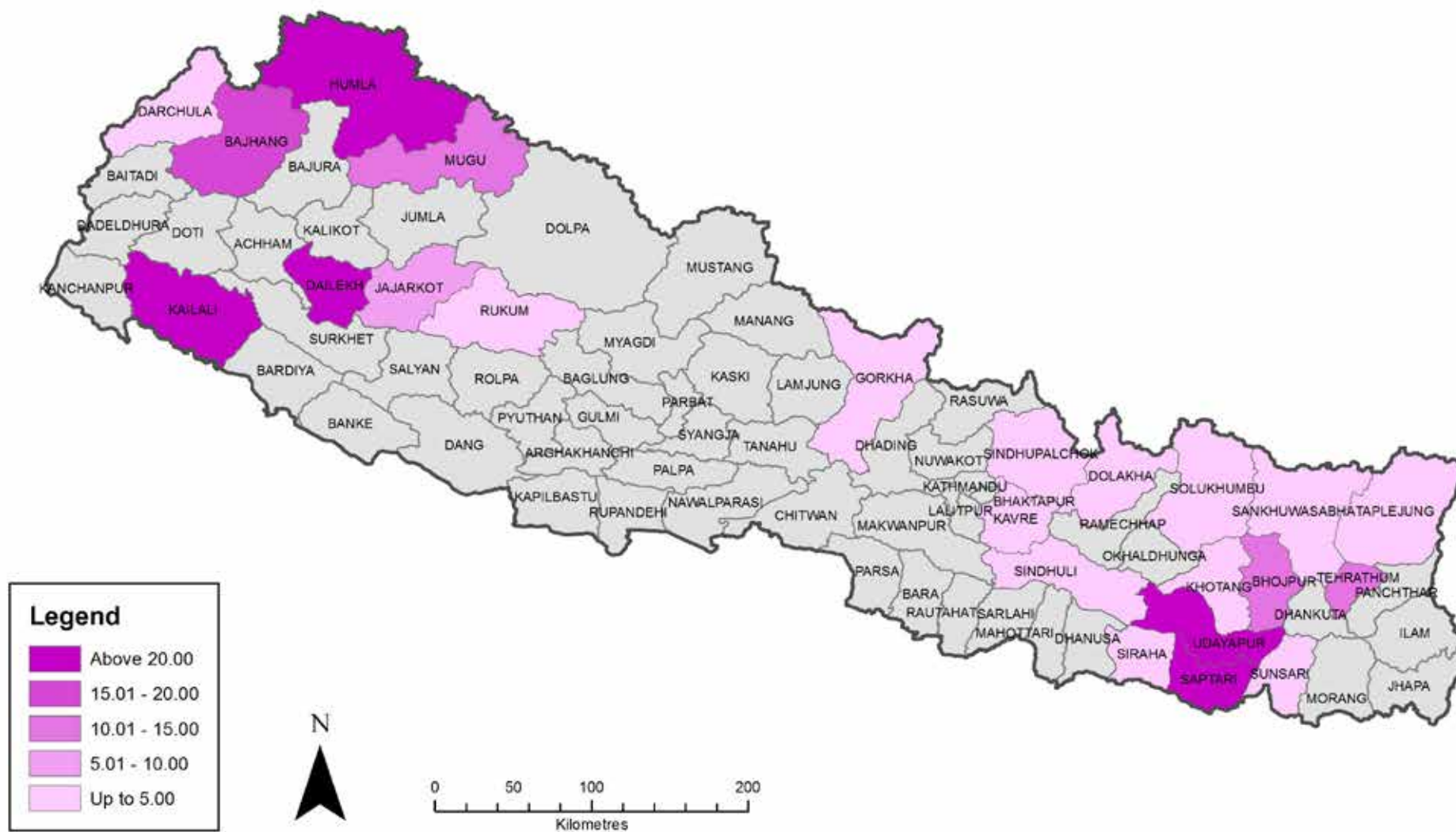
Legend

- Above 20.00
- 15.01 - 20.00
- 10.01 - 15.00
- 5.01 - 10.00
- Up to 5.00

Map 19: **Market: Censored deprivation headcount (%)**

Legend

- Above 40.00
- 30.01 - 40.00
- 20.01 - 30.00
- 10.01 - 20.00
- up to 10.00

N

0   50   100   200
Kilometres

Map 20: **Hospital: Censored deprivation headcount (%)**

Legend

- ■ Above 60.00
- ■ 45.01 - 60.00
- ■ 30.01 - 45.00
- ■ 15.01 - 30.00
- ■ Up to 15.00

N

0 50 100 200
Kilometres
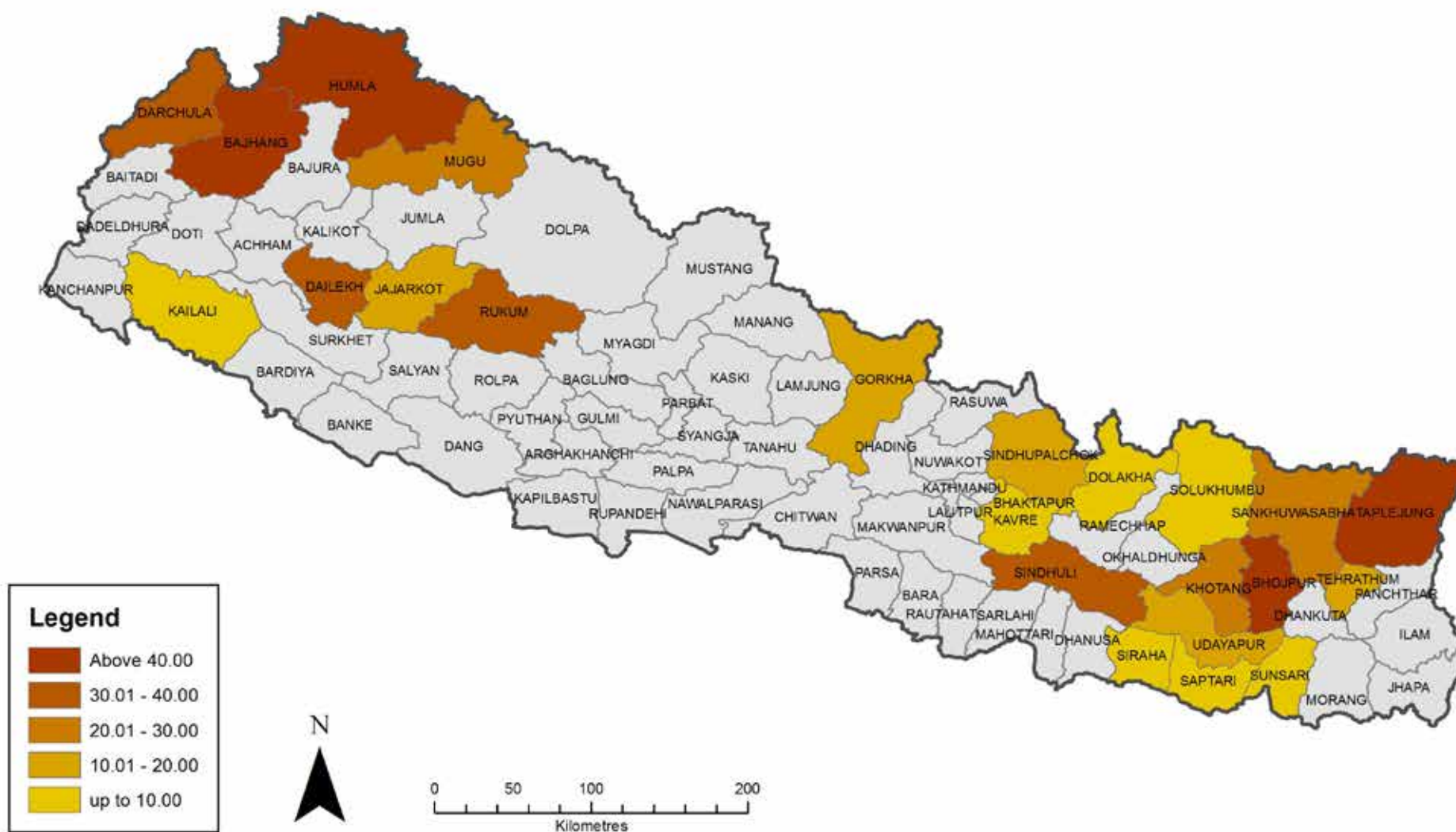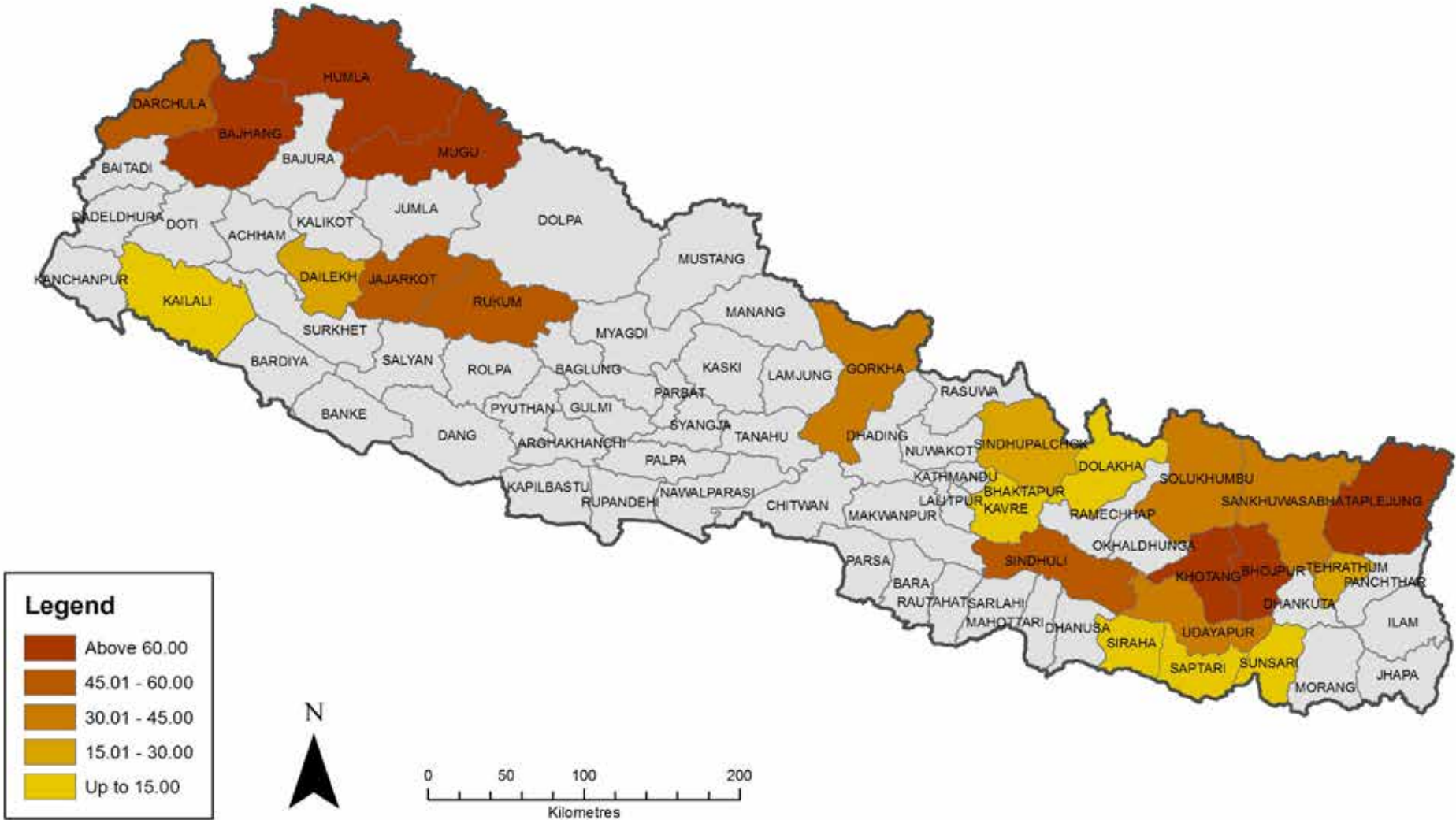
Bus stop

A household is deprived in the indicator bus stop if it takes more than three hours one way to reach the next bus stop. Table 23 and Map 21 show that among the 23 surveyed districts the proportion of the population that is multidimensionally poor and deprived of physical access to bus stops ranges from 0% in Sunsari to 91% in Humla.

Table 23: **Bus stop: Censored deprivation headcount (%)**

District	%
Humla	90.7
Mugu	83.9
Bajhang	83.2
Bhojpur	64.7
Taplejung	59.1
Khotang	53.0
Jajarkot	52.5
Rukum	41.7
Sindhuli	41.4
Dailekh	27.3
Solukhumbu	21.5
Gorkha	15.9
Terhathum	15.6
Darchula	13.0
Kailali	12.0
Sankhuwasabha	7.4
Udayapur	4.6
Sindhupalchok	2.7
Dolakha	0.0
Kavrepalanchok	0.0
Saptari	0.0
Siraha	0.0
Sunsari	0.0

N= 8,587 HHs; own analysis, weighted;
Source: PVAT/VACA 2011/12

Map 21: **Bus stop: Censored deprivation headcount (%)**

Legend

- Above 60.00
- 45.01 - 60.00
- 30.01 - 45.00
- 15.01 - 30.00
- Up to 15.00

N

0   50   100   200
Kilometres

District Poverty Profiles

The PVAT/VACA 2011/12 data allows analysis of the MPM-HKH at the district level and the construction of district poverty profiles, which are a potential resource for the development of district-specific poverty alleviation programmes. In this section, the findings for three of the five poorest districts are discussed in detail to enable the reader to interpret the decomposition of the MPM-HKH. Detailed findings for the remaining 20 districts can be found in Annex D. The three districts presented here are the mountain district Bajhang, the hill district Jajarkot, and the plain district Saptari. Each of these districts is the poorest in its respective ecological belt and the findings for these districts shed light on how multidimensional poverty differs in the mountains, hills, and plains.

Bajhang

Bajhang is a rural and remote mountain district in the Far Western Development Region of Nepal with a total population of 195,159 (Government of Nepal 2012). On average, agriculture contributes 31% to household income (PVAT 2011). With a contribution of 45%, secondary and tertiary sector employment is also important, while remittances make up the remaining 22% of average household income. Around 65% of Bajhang's households are employed in non-agricultural sectors such as mining and quarrying (26%), construction (11%), and education (11%) (PVAT 2011).

Among the 23 surveyed districts, Bajhang has the highest MPM-HKH index value (0.45). More than 85% of Bajhang's population falls among the multidimensionally poor. Among the 23 surveyed districts, the intensity of poverty is the highest in Bajhang. On average, the multidimensionally poor in Bajhang are deprived in 51% of poverty indicators (Table 24).

Table 24: **Bajhang: Multidimensional poverty index value, headcount, and intensity**

District	Index value	Headcount (%)	Intensity (%)
Bajhang	0.45	87.6	51.4

N= 381 HHs; own analysis, weighted; Source: PVAT 2011

Bajhang District

Legend
- District Headquarters
- District boundary
- VDC boundary

Location

Legend
- Bajhang District
- District boundary
- Country boundary
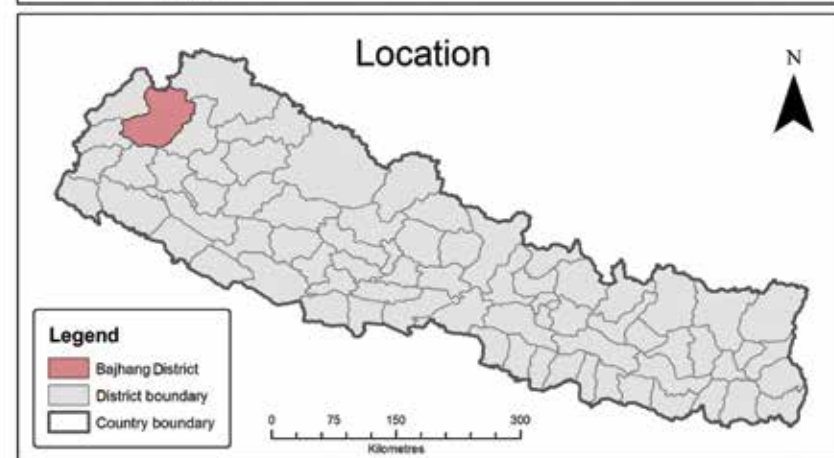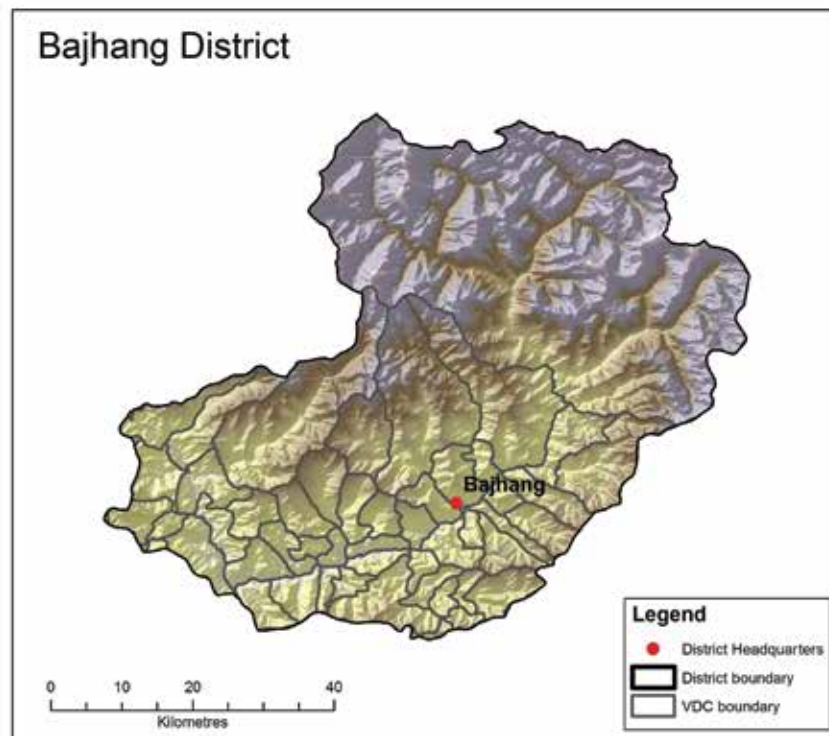
Given Bajhang's geographical location, deprivation in physical accessibility is the main contributor to multidimensional poverty (28%). Inadequate access to markets, hospitals, and bus stops all contribute equally to Bajhang's poverty status (each 9%). With a contribution of 21%, lack of improved energy sources is the second most important poverty dimension in Bajhang. Here, the indicator cooking fuel alone makes up 15% of the MPM-HKH. Deprivations in education, and water and sanitation contribute 15% each to Bajhang's multidimensional poverty. Illiteracy and lack of improved sanitation facilities also contribute 14% and 12% respectively. The three physical accessibility indicators, cooling fuels, literacy, and sanitation together contribute 68% to the MPM-HKH. The dimension health is of relatively low importance to multidimensional poverty in Bajhang, with a contribution of only 3% (Figures 2 and 3).

The censored deprivation headcounts in Graph 5 show deprivation in absolute terms. The multidimensionally poor who are deprived in terms of improved cooking fuel, access to markets, access to hospitals, access to public transport, or literacy make up more than 80% of the population. In other words, more

Figure 3: **Bajhang: Relative contribution of poverty indicators (%)**

Figure 2: **Bajhang: Relative contribution of poverty dimensions (%)**
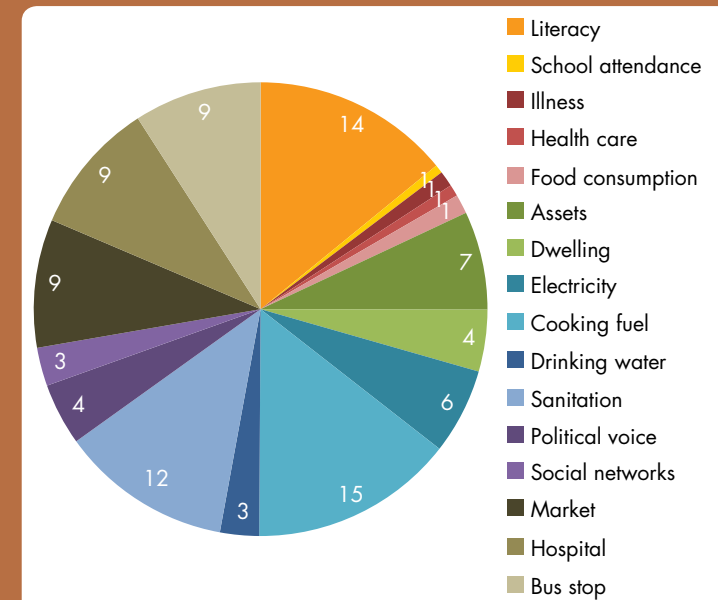
Graph 5: **Bajhang: Censored deprivation headcounts (%)**
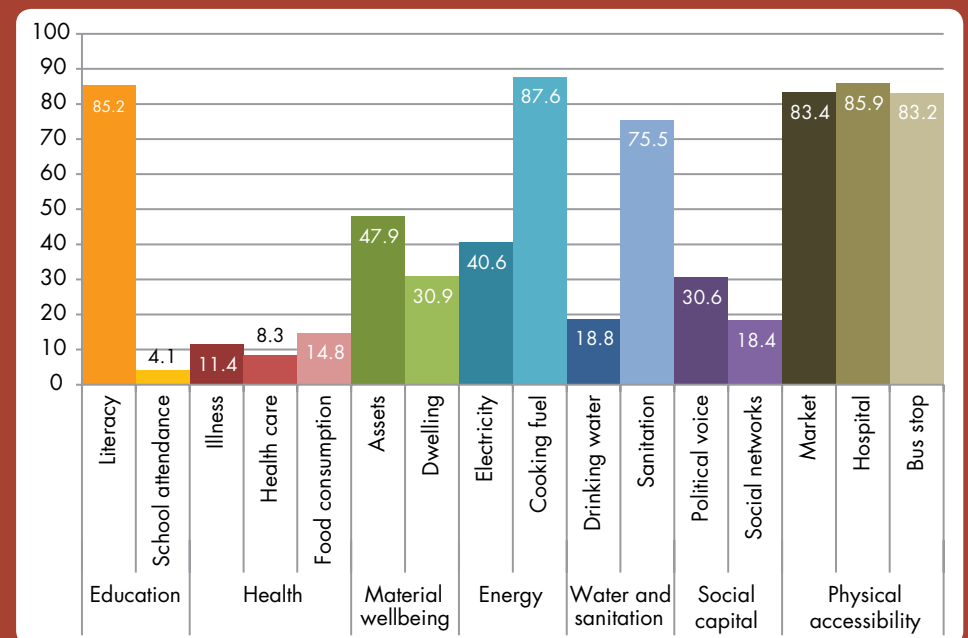
than 80% of Bajhang's population is multidimensionally poor and uses solid cooking fuels (88%), is at least three hours away from the nearest market centre (83%), hospital (86%), or bus stop (83%), or has at least one household member who is illiterate (85%). Furthermore, 76% of the population lives in poverty and has inadequate toilet facilities or no toilet facility at all. The multidimensionally poor who are deprived in terms of assets make up almost half of the population (48%) and those who are deprived of electricity constitute 41%. It is also worth mentioning that about one-third of the population is poor and faces deprivations in terms of quality of dwelling and political voice (both 31%). Interestingly, the percentage of multidimensionally poor households that are deprived in terms of school attendance is relatively low (4%). This indicates that poor parents, often illiterate themselves, are sending their children to school, which will increase the level of literacy in Bajhang over the coming decades.

To alleviate multidimensional poverty in Bajhang, policy makers and development practitioners should focus on infrastructure. There is a need to improve physical accessibility to crucial institutions and services, and to improve basic facilities such as cooking fuels and sanitation. Improved access to roads and market centres also has the potential to increase incomes, which would in turn improve material wellbeing. Beyond these infrastructure measures, there should be a focus on social inclusion in the form of literacy and political empowerment programmes. The improvement of physical infrastructure alone may not result in an equitable decrease in poverty among Bajhang's poor population.

Jajarkot

Jajarkot is a hill district in the Mid Western Development region with a total population of 171,304 (Government of Nepal 2012). On average, the primary sector contributes 51% to total household income, secondary and tertiary sector employments 29% and remittances 20%. In 28% of households at least one household member is employed in the non-agricultural sector, mainly in education (5%), providing domestic services to private households (4%), and construction (3%) (PVAT 2011).

Among the ten surveyed hill districts, Jajarkot has the highest incidence of multidimensional poverty with an MPM-HKH index value of 0.40. About 80%
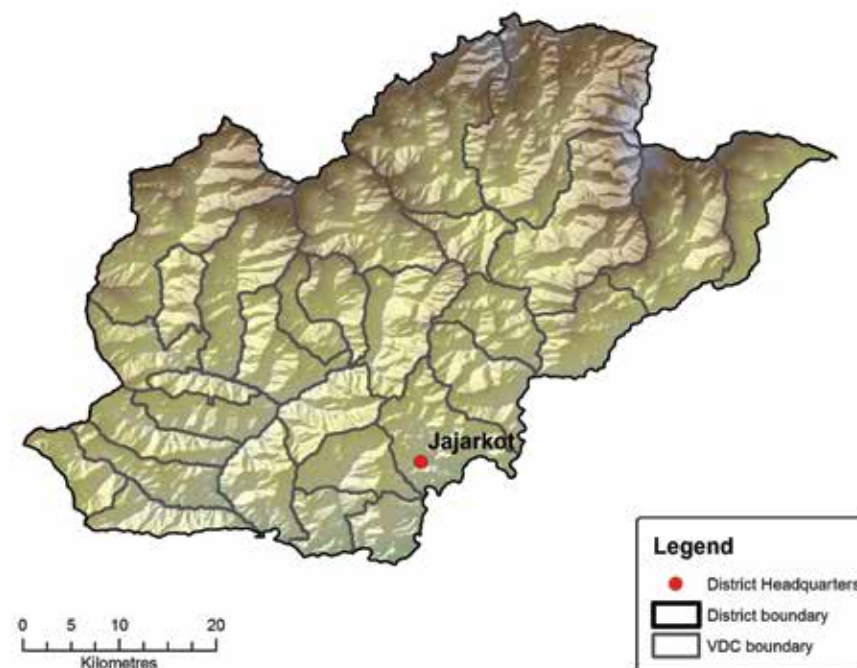
of the population in Jajarkot is among the multidimensionally poor (headcount 79.2%). On average, the multidimensionally poor are deprived in 50% of the poverty indicators (Table 25).

Table 25: **Jajarkot: Multidimensional poverty index value, headcount, and intensity**

District	Index value	Headcount (%)	Intensity (%)
Jajarkot	0.40	79.2	50.1

N= 354 HHs; own analysis, weighted; Source: PVAT 2011

The two basic facility dimensions, energy (24%) and water and sanitation (20%) together contribute 44% to multidimensional poverty in Jajarkot. Here, the strongest contributors are deprivation of improved cooking fuel (15%) and sanitation (12%), while drinking water and electricity contribute 9% each. The third and fourth most important poverty dimensions in Jajarkot are education (15%) and physical accessibility (14%), respectively. Deprivation of education is mainly contributed by households with at least one illiterate member (15%), while the lack of connectivity is reflected particularly in inadequate access to hospitals and public transport (each 6%). Poor material wellbeing contributes 13% to the MPM-HKH in Jajarkot, which can be mainly attributed to deprivation of assets (12%). At 11%, the dimension health also contributes to the overall poverty value. Inadequate food consumption and the inability to afford health care contribute almost equally (6% and 4%, respectively). Deprivation of social capital makes a relatively small contribution to Jajarkot's multidimensional poverty (3%) (Figures 4 and 5).

A look at absolute poverty figures in the form of censored deprivation headcounts reveals that almost 80% of Jajarkot's population is multidimensionally poor and deprived in terms of cooking fuel (79%) or literacy (78%) (Graph 6). The multidimensionally poor who are deprived of assets or improved sanitation make up 64% of the population. More than 50% of the population is poor and lives more than three hours away from the nearest hospital and bus stop (each 53%). Another 50% of the population is poor and deprived in terms of electricity (52%), food consumption (51%), or improved sources of drinking water (50%). As in

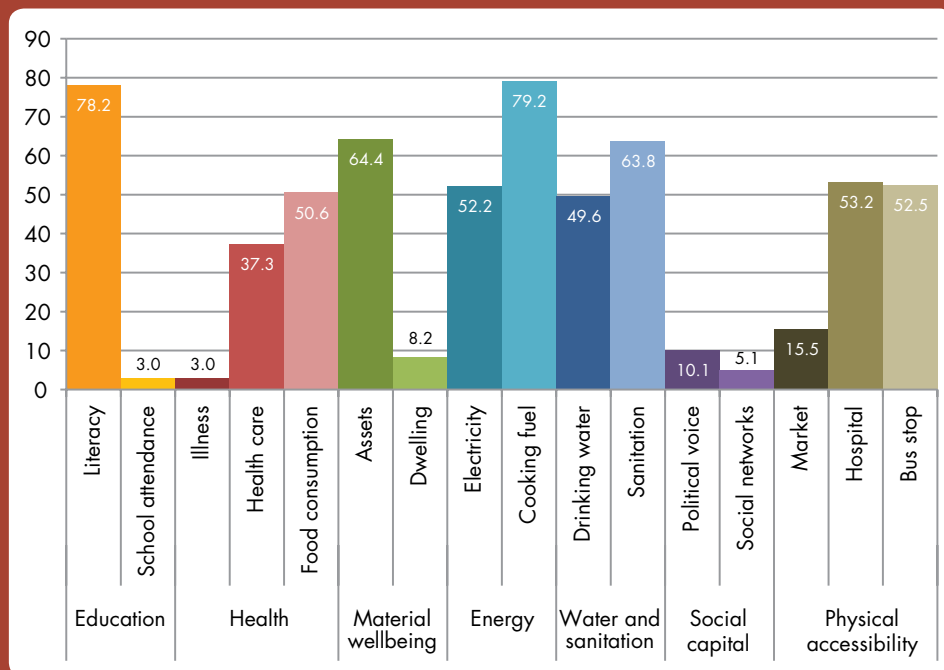Figure 4: **Jajarkot: Relative contribution of poverty dimensions (%)**

- Education
- Health
- Material wellbeing
- Energy
- Water and sanitation
- Social capital
- Physical accessibility
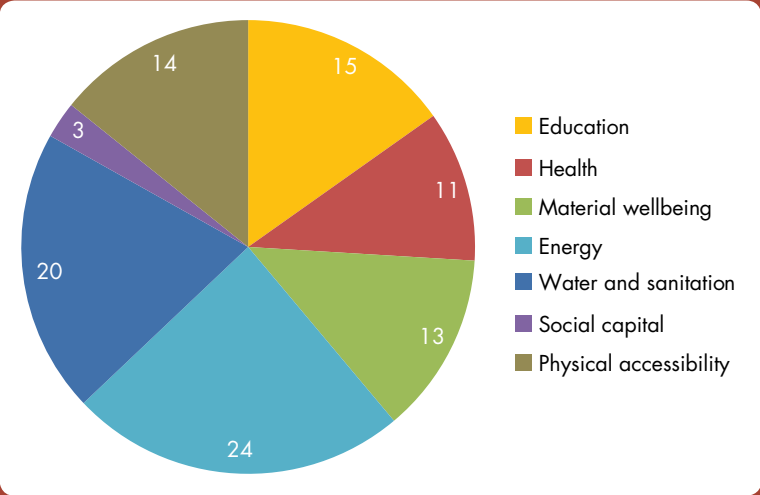
Figure 5: **Jajarkot: Relative contribution of poverty indicators (%)**

- Literacy
- School attendance
- Illness
- Health care
- Food consumption
- Assets
- Dwelling
- Electricity
- Cooking fuel
- Drinking water
- Sanitation
- Political voice
- Social networks
- Market
- Hospital
- Bus stop
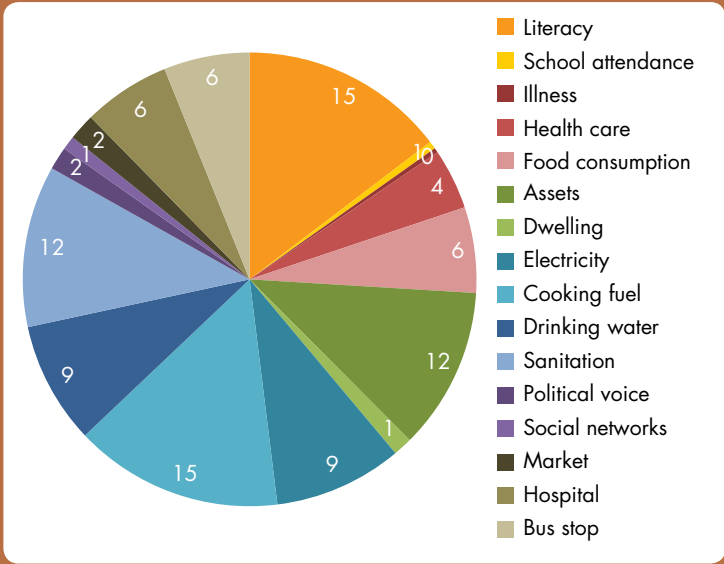
## Graph 6: **Jajarkot: Censored deprivation headcounts (%)**

N= 354 HHs; own analysis, weighted; Source: PVAT 2011

Bajhang, the censored deprivation headcount for school attendance is relatively low, which indicates that most of the poor send their children to school, even though they are often illiterate themselves.

In Jajarkot, poverty alleviation programmes should first and foremost focus on the wider use of improved cooking fuel and adult literacy training. Secondly, there is a strong need for income-generating measures to increase the material wellbeing of households and for investment in improved sanitation facilities. In addition, a range of measures should be undertaken to address the lack of physical accessibility, inadequate drinking water supply, insufficient supply of electricity, and inadequate food consumption.
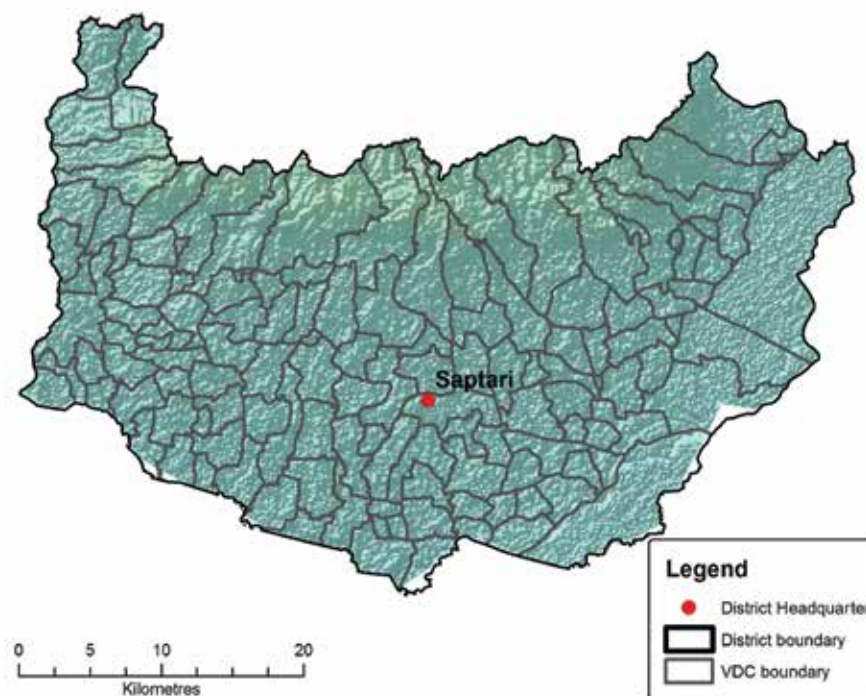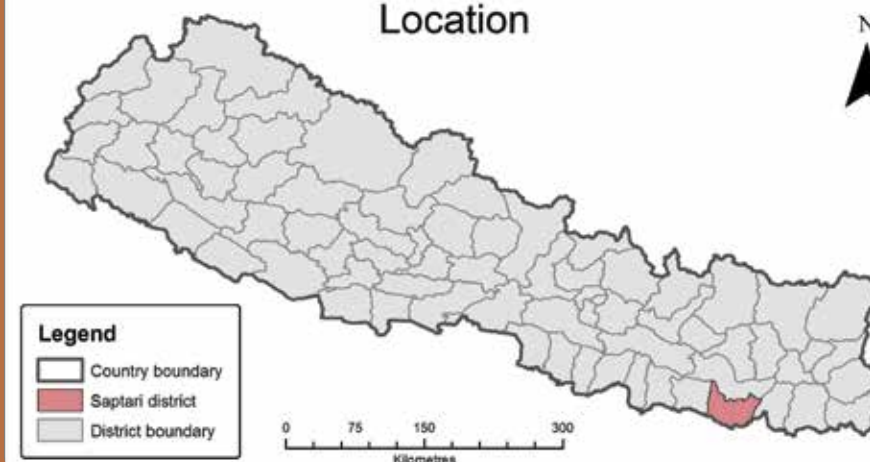
Saptari

Saptari is a district in the plains of Nepal located in the Eastern Development Region with a total population of 639,284 (Government of Nepal 2012). On average, secondary and tertiary sector employment contributes 42% of household income, closely followed by the primary sector with 40% (PVAT 2011), while remittances make up about 18%. In 65% of households at least one household member is employed in the non-agricultural sector. Here, the most prominent forms of employment are the provision of domestic services in private households (21%), manufacturing (9%), and construction (9%) (PVAT 2011).

Among the 23 surveyed districts, Saptari has the second highest multidimensional poverty with a MPM-HKH value of 0.43. About 85% of Saptari's population is among the multidimensionally poor and on average households are deprived in 50% of the poverty indicators (Table 26).

Table 26: **Saptari: Multidimensional poverty index value, headcount, and intensity**

District	Index value	Headcount (%)	Intensity (%)
Saptari	0.43	84.9	50.4

N= 370 HHs; own analysis, weighted; Source: PVAT 2011

In Saptari, multidimensional poverty is particularly high because of deprivations in water and sanitation (29%), energy (23%), and material wellbeing (19%), which jointly make up 71% of the MPM-HKH. Within these three poverty dimensions, the indicators sanitation, drinking water, and cooking fuel contribute 15% each to multidimensional poverty, while low quality dwellings add another 11%, and lack of assets and electricity contribute 8% each. At 15%, the dimension education is another influential contributor to Saptari's poverty status. Here, deprivation of literacy is particularly important, contributing 14%. Compared to the other dimensions of poverty, social capital and health make relatively low contributions (7% and 6%, respectively). There is no deprivation of physical accessibility in Saptari (Figures 6 and 7).

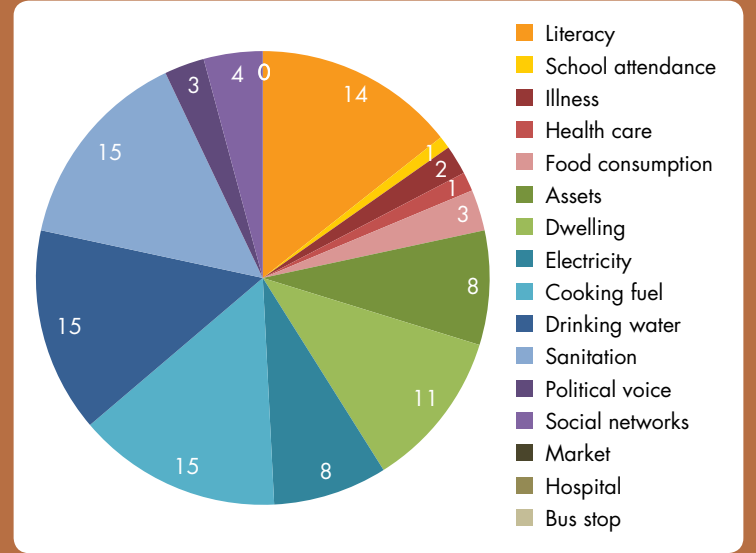Figure 6: **Saptari: Relative contribution of poverty dimensions (%)**

- Education
- Health
- Material wellbeing
- Energy
- Water and sanitation
- Social capital
- Physical accessibility
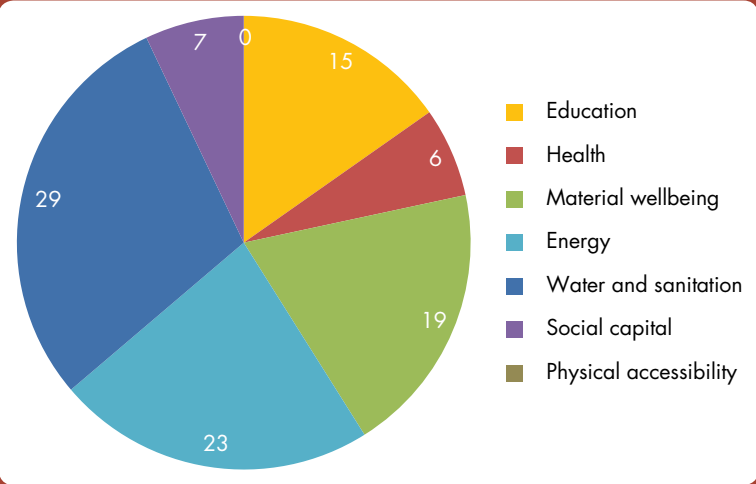
Figure 7: **Saptari: Relative contribution of poverty indicators (%)**

- Literacy
- School attendance
- Illness
- Health care
- Food consumption
- Assets
- Dwelling
- Electricity
- Cooking fuel
- Drinking water
- Sanitation
- Political voice
- Social networks
- Market
- Hospital
- Bus stop

Looking at absolute deprivation figures in Graph 7, it can be seen that more than 80% of Saptari's population is multidimensionally poor and deprived of improved sanitation, improved sources of drinking water, improved cooking fuels (84% each), or literacy (83%). Furthermore, the poor who live in low quality dwellings make up 68% of the population. About half of Saptari's population is poor and deprived in terms of assets (51%) or electricity (49%). Compared to these figures, the censored deprivation headcounts for the indicators social networks and food consumption are quite low. Nevertheless, the multidimensionally poor who are deprived in terms of access to loans or adequate food intake still make up more than one-quarter of Saptari's population (29% and 27% respectively). The percentage of the population that is poor and doesn't send their children to school (7%) is relatively high compared to other districts.

Because Saptari is in the plains, its population is well connected to crucial services and institutions. Thus, investing in roads or public transportation would not seem to be a high priority. However, to tackle poverty, investment in other forms of physical infrastructure are urgently needed. Here, the priority should be to develop improved sanitation facilities, improved sources of drinking water, and improved cooking fuel. Furthermore, the high level of illiteracy among the population should be addressed. Also important, though of lower priority, are income-generating measures to increase the material wellbeing of the population and more widespread provision of electricity.

Graph 7: **Saptari: Censored deprivation headcounts (%)**
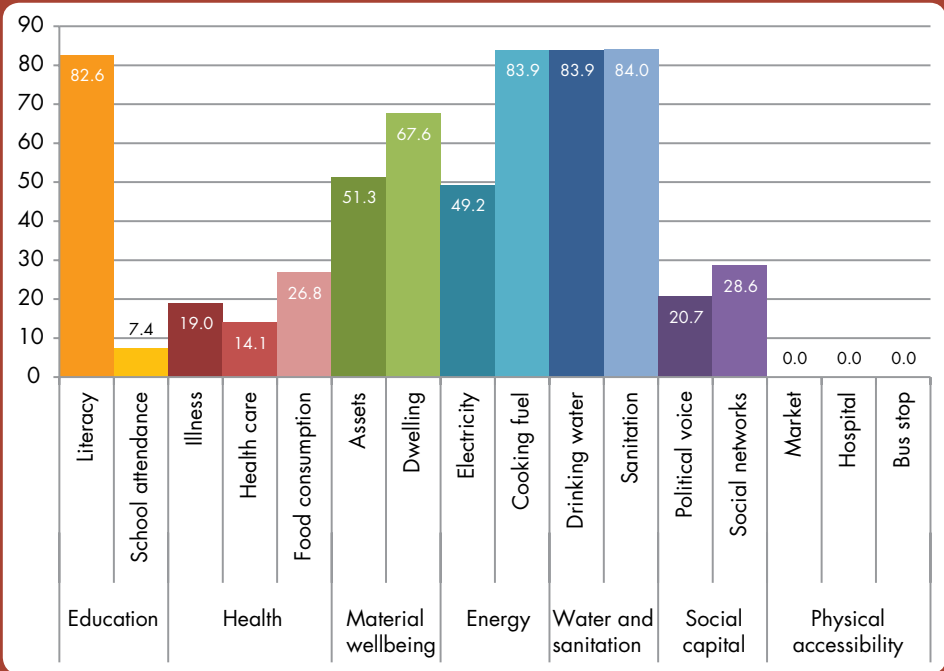
N= 370 HHs; own analysis, weighted; Source: PVAT 2011

Conclusion

Policy makers in the Hindu Kush Himalayan region face an enormous challenge: Every second to every fourth household in the mountain communities in the region lives in poverty. Policy makers are mandated to address this challenge, but have limited empirical, evidence-based information on where the poverty pockets are located and, more importantly, in what ways the people are poor and vulnerable.

To address this lack of information, ICIMOD in cooperation with regional and international partners, initiated extensive primary research to identify the most deprived communities and to understand the composition of their deprivation. The research reported here uses data collected in Nepal to demonstrate how the Poverty and Vulnerability Assessment methodology can be applied throughout the Hindu Kush Himalayan region. This methodology is specifically designed to fulfil the requirements of multidimensional poverty measurement in a region that is predominantly rural and mountainous and that stretches across several least developed countries.

The Multidimensional Poverty Measure for the Hindu Kush Himalayas goes beyond the concept of poverty based on income or consumption and permits us to examine poverty as a complex phenomenon with many dimensions. Research has shown that poverty alleviation interventions need to go beyond economic growth in order to sustainably reduce poverty. For a more holistic approach to poverty alleviation, decision makers require a fuller picture of poverty in all its dimensions, which is what this research has tried to do. To support the national government to allocate central development funds to the areas most in need, and to help local governments and NGOs to use these and other external and locally-raised funds to address the most pressing local problems, this report ranks the 23 surveyed districts in terms of multidimensional poverty and explores differences in the prominence of various dimensions of deprivation in these districts. The research shows how the contribution of the different dimensions of poverty – such as education, health, material wellbeing, energy, water and sanitation, social capital, and physical accessibility – varies in different locations in Nepal.

The MPM-HKH allows us to describe the specific multidimensional profile of poverty in a particular location and compare it with the profiles of other locations. The research illustrates the importance of location-specific data in the development of effective poverty reduction approaches. The findings clearly point toward the need for poverty alleviation strategies that take into account district characteristics, as the manifestation of multidimensional poverty varies considerably across the districts. Blanket approaches for the entire country might ignore crucial local manifestations of poverty and hence may not be effective. The findings also reveal some common patterns in the profile of mountain poverty, the lack of access being the most prevalent dimension of poverty in mountainous areas.

In the case study of Nepal showcased in this research, data collected were representative at the district level, which means that policy makers are now equipped with evidence-based knowledge on the incidence, intensity, and composition of multidimensional poverty for different geographic locations. This research should help policy makers to design interventions tailored to respond to the major drivers of poverty in the 23 surveyed districts.

The research framework for the MPM-HKH is the result of the consultation and discussion that took place over a period of three years. The concept represents a compromise between a variety of ideas and opinions, the objectives of the study, and data availability. The resulting MPM-HKH is the first successful prototype of a multidimensional poverty measure for the Hindu Kush Himalayas. Multidimensional poverty measures are based on normative decisions, and multidimensional poverty findings are influenced to a great extent by these decisions. There is always the possibility that the reader might identify other relevant dimensions or indicators, or disagree with some of the existing ones. Accordingly, there is scope for refining and adjusting the concept of multidimensional poverty.

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Annex A: Sample Design

Sample size

The sample size n (number of households) for each selected district was calculated on the basis of the following power equations:

$$x = Z (c/1)^2 r (1 - r)$$

$$n = Nx/([N - 1] E^2 + x)$$

$$E = \sqrt{([N - n] x/n [N - 1])}$$

…where N is the population size (total number of households), E is the margin of error (here, 5% or 0.05), r is the (expected) distribution/probability of the target indicator (here, 50% or 0.50, i.e., the most conservative value which requires the highest sample size), $Z (c/1)$, the critical value for the confidence level c (here, 1.96 for c=0.95 or 95%), and x is thep poduct odf the critical value, the (expected) distribution/probability of the target indicator and its counter-probability.

The total number of households per district and other population information was based on the latest official population figures available at the time the sample sizes were calculated –National Population Census 2001 of Nepal (His Majesty's Government of Nepal 2002) for PVAT 2011 and VACA 2011/12, and National Population and Housing Census 2011 of Nepal (Government of Nepal 2012) for PVAT 2012. Although the total number of households varies quite considerably across districts (from 9,479 households in Humla to 162,407 households in Sunsari), the average recommended sample size was about 380 households for each district. The reason for the almost identical recommended sample size in all districts is that sample size calculation is mainly determined by selection probability and less by actual population size. With x=0.960 (=1.962*0.5 *0.5) and E=0.05, the recommended sample size for Humla is 9,479*0.960/([9,479–1]*0.052+0.960)=369, while the recommended sample size for Sunsari is 162,407*0.960/([162,407–1]*0.052+0.960)=383. The effective sample size presented in Table A1 differs from the number of household that were surveyed because households with missing values for one or more poverty indicators were excluded from the analysis.

Sample design

For PVAT 2011, PVAT 2012, and VACA 2011/12 the household selection within the districts was based on a multistage random sample with an equal probability sample of elements (epsem) at all stages. The primary sampling unit (PSU) was the village development committee (VDC) and the ultimate sampling unit (USU) was the household. Budget constraints and the difficult terrain limited the number of PSUs that could be drawn. To guarantee a good geographical coverage as well as the inclusion of the urban population, all VDCs in a district were divided into five categories: 'urban' (municipalities and district headquarters), 'rural, quarter 1' (generally north-west), 'rural, quarter 2' (generally, north-east), 'rural, quarter 3' (generally south-west), and 'rural, quarter 4' (generally, south-east) and then listed. An attempt was made to divide the rural areas into four parts with roughly the same total number of households.

During the first stage, PSUs were randomly selected (epsem) from each of the five lists. In all districts, exactly one VDC was selected from the list of urban PSUs. The number of selected VDCs for each rural quarter differs for the PVAT surveys and the VACA survey because of budget reasons: For PVAT 2011 and PVAT 2012, one VDC per rural quarter was selected; for VACA 2011/12, two or three VDCs per quarter were selected. At the stage of ultimate area units (UAUs), the USUs were randomly selected (epsem). The cluster sizes were based on fixed rates (n [N of selected UAU/N of all selected UAU in a district]). For VACA 2011/12 and PVAT 2011, there was minimum sample size per UAU (10 and 8 households respectively). The budget didn't allow for a previous complete listing of households per UAU. Thus, the USUs were selected using the random walk procedure.

Based on experiences from the PVAT 2011, for which a two-stage design was used, an additional third stage was introduced for VACA 2011/12 and PVAT 2012. During this third stage, second stage units (SSUs) in the form of wards were randomly selected (epsem). In the case of VACA 2011/12, two SSUs were drawn per VDC. For PVAT 2012, four wards were randomly selected in each selected VDC.

To compensate for imperfections in the sample design, household and population weights in the form of inverse selection probabilities for use at the district level were estimated and used for the analysis. In the following, the probability of a household in a district being selected is reported for the three surveys.

PVAT 2011:

$$p = (n_{PSU\ list\ x}/N_{PSU\ list\ x})\ (n_{HH}\ [N_{HH\ UAU}\ x/N_{HH\ selected\ UAUs}])$$

PVAT 2012, VACA 2011/12:

$$p = (n_{PSU\ list\ x}/N_{PSU\ list\ x})\ (n_{ssu\ VDC\ x}/N_{ssu\ VDC\ x})\ (n_{HH}\ [N_{HH\ UAU\ x}/N_{HH\ selected\ UAUs}])$$

…where n is the selected number of units and N is the total number of units.

The sample design described above was the standard procedure. In a few cases, exceptions had to be made.

Table A1: **Sample size of analysed datasets for Nepal**

Survey	District	Total no. of households*	No. of surveyed VDCs	No. of surveyed wards	No. of surveyed households	Effective sample size (HHs)
PVAT 2011	Sankhuwasabha	34,624	5	25	381	268
	Terhathum	22,094	5	42	383	375
	Saptari	121,098	5	31	383	370
	Gorkha	66,506	5	31	383	371
	Jajarkot	30,472	5	13	379	354
	Kailali	142,480	5	15	385	382
	Bajhang	33,786	5	14	386	381
	Humla	9,479	5	21	368	362
	Sindhupalchok	66,688	5	18	389	382
	Total	**527,227**	**45**	**210**	**3,437**	**3,245**
PVAT 2012	Taplejung	26,509	5	20	385	384
	Bhojpur	39,419	5	20	384	382
	Solukhumbu	23,785	5	21	384	374
	Sindhuli	57,581	5	22	384	380
	Rukum	41,856	5	20	384	375
	Dailekh	48,919	5	17	384	384
	Mugu	9,619	5	19	384	384
	Darchula	24,618	5	19	384	352
	Total	**272,306**	**40**	**158**	**3,073**	**3,015**
VACA Nepal 2011/12	Khotang	42,664	9	17	385	365
	Dolakha	45,688	9	18	385	385
	Kavre-Palanchowk	80,720	8	16	385	385
	Sunsari	162,407	12	18	386	385
	Siraha	117,962	12	23	384	383
	Udayapur	66,557	13	24	385	384
	Total	**515,998**	**63**	**116**	**2,310**	**2,287**

* Source: National Population and Housing Census 2011 of Nepal (Government of Nepal 2012)

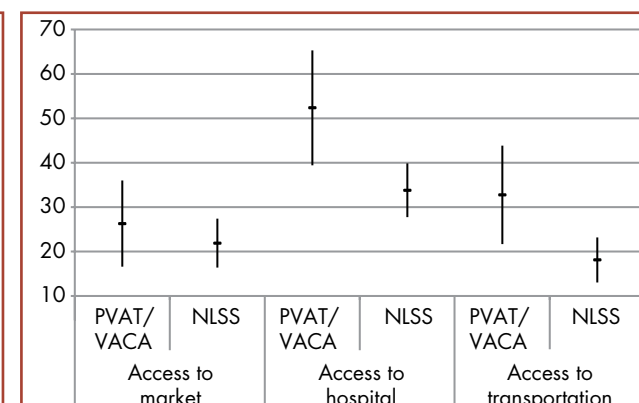Graph A1: Comparison of deprivation headcount for education indicators for hill region (%)
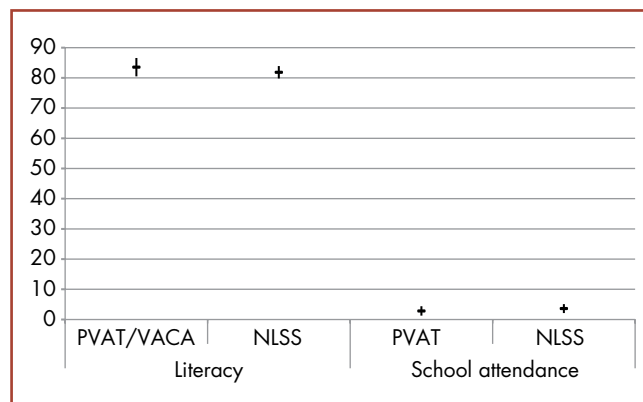
N: 3,836 HHs (PVAT/VACA 2011/12), 2,196 HHs (NLSS 2010/11; without Kathmandu valley); weighted analysis, 100%; the horizontal bars indicate the headcount, the vertical bars indicate the 95% confidence interval

Graph A2: Comparison of deprivation headcount for health indicators for hill region (%)
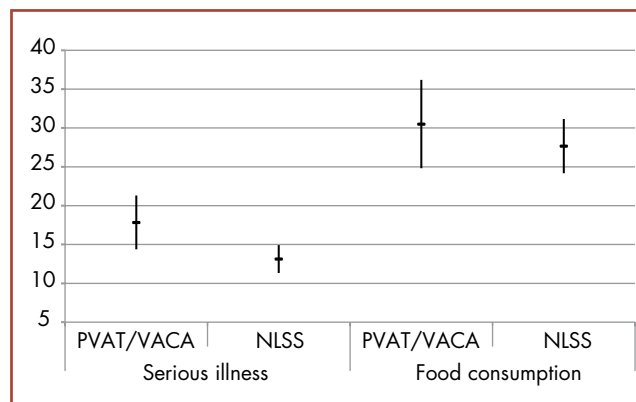
N: 3,836 HHs (PVAT/VACA 2011/12), 2,196 HHs (NLSS 2010/11; without Kathmandu valley); weighted analysis, 100%; the horizontal bars indicate the headcount, the vertical bars indicate the 95% confidence interval

Graph A3: Comparison of deprivation headcount for material wellbeing indicators for hill region (%)
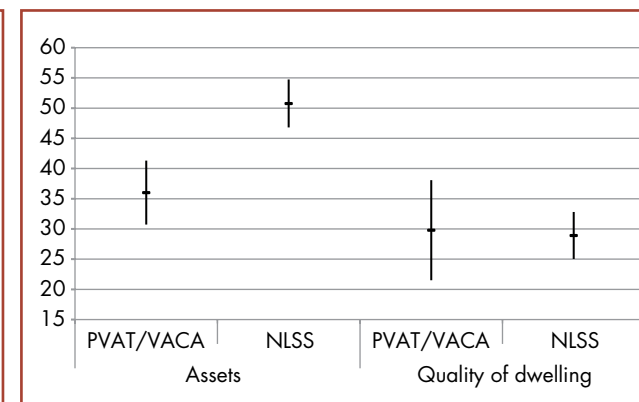
N: 3,836 HHs (PVAT/VACA 2011/12), 2,196 HHs (NLSS 2010/11; without Kathmandu valley); weighted analysis, 100%; the horizontal bars indicate the headcount, the vertical bars indicate the 95% confidence interval

Graph A4: Comparison of deprivation headcount for energy indicators for hill region (%)
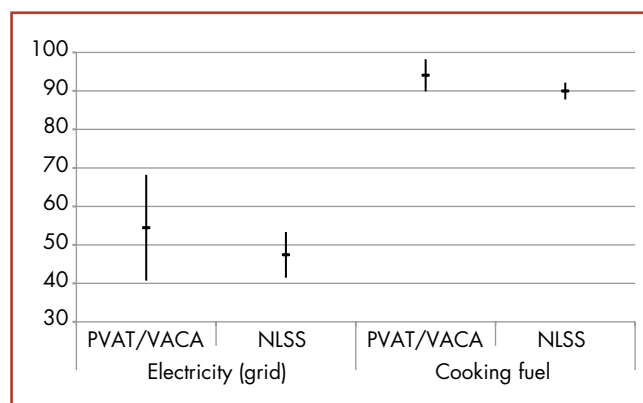
N: 3,836 HHs (PVAT/VACA 2011/12), 2,196 HHs (NLSS 2010/11; without Kathmandu valley); weighted analysis, 100%; the horizontal bars indicate the headcount, the vertical bars indicate the 95% confidence interval

Graph A5: Comparison of deprivation headcount for water and sanitation indicators for hill region (%)
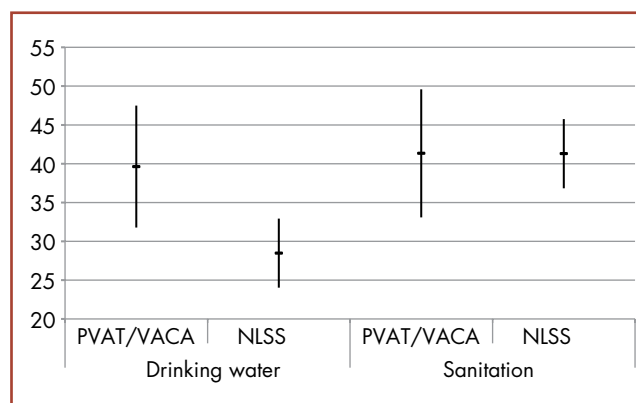
N: 3,836 HHs (PVAT/VACA 2011/12), 2,196 HHs (NLSS 2010/11; without Kathmandu valley); weighted analysis, 100%; the horizontal bars indicate the headcount, the vertical bars indicate the 95% confidence interval

Graph A6: Comparison of deprivation headcount for physical accessibility indicators for hill region (%)

N: 3,836 HHs (PVAT/VACA 2011/12), 2,196 HHs (NLSS 2010/11; without Kathmandu valley); weighted analysis, 100%, the horizontal bars indicate the headcount, the vertical bars indicate the 95% confidence interval

Annex B: Comparison with other data

PVAT/VACA 2011/12 and NLSS 2010/11: Comparison of raw deprivation headcounts

Comparison of the MPM-HKH with other available district level poverty measures

Table A2 provides a comparison of the MPM-HKH ranking for the 23 surveyed districts with rankings of other poverty and development measures that are available at the district level: the Human Poverty Index (HPI) 2001 (UNDP 2004), the Human Development Index (HDI) 2001 (UNDP 2004), and the Small Area Estimates (SAEs) of poverty rates (Government of Nepal et al. 2006). Higher rankings correspond to higher poverty levels and lower human development levels, while lower ranking represent lower poverty levels and higher human development levels. Comparing the MPM-HKH rankings with the other available human poverty and development measures results in an ambivalent picture: while the MPM-HKH ranking of some districts, such as Bajhang, corresponds relatively well with the ranking of other measurers (especially the HPI 2001 and HDI 2001), it differs quite clearly in other cases, for example, for Saptari. The ranking of the three external poverty measures reveal inconsistencies in many places; the highest consistency in ranking can be observed between the HPI 2001 and the HDI 2001, which are two products emerging from the same analysis.

The observed inconsistencies can be attributed to three factors: Firstly, the MPM-HKH is the only poverty measure that is entirely based on household survey data that are representative at the district level and that stem from one data source. While the remaining measures incorporate indicators from the National Population Census 2001 of Nepal, which is representative even below the district level, other indicators are taken from national surveys, which only allow statistical inference at a higher level of aggregation. In these cases, district level indictors had to be estimated by elaborate multivariate modelling, which carries with it the

risk of misspecification. In this regard, the poverty SAEs, which were completely imputed based on available survey data, can be considered to be the most precarious.

Secondly, the human poverty and development measures are based on data from different years. While the MPM-HKH is based on recent survey data from 2011 and 2012, the HPI 2001 and HDI 2001 was constructed using various data collected from 1996 to 2001, and the poverty SAEs are based on datasets from 2001 and 2003/04. From 1996 to 2011, the situation in some districts of Nepal might have changed considerably; this is also indicated by trend analysis of the official economic poverty rate, which decreased from 42% to 25% during that period (see Government of Nepal 2011b, p 3).

The presented measures constitute various approaches to measuring human poverty and development. Although all of them measure the same abstract concept, the consideration of different indicators and the application of measurement methods might result in a variation in results. Variations can be also observed when comparing the global MPI with the global HPI and the international $1.25 per day poverty rate (see Alkire and Santos 2010).

Table A2: **Comparison of rankings of the MPM-HKH[a], HPI 2001[b], HDI 2001[c], and Poverty SAEs[d] for the 23 surveyed districts**

District	MPM-HKH: Rank (index value)	HPI 2001: Rank (index value)	HDI 2001: Rank (index value)	Poverty SAE: rank (headcount)
Bajhang	1 (0.451)	3 (59.9)	2 (0.331)	11 (0.473)
Saptari	2 (0.428)	18 (40.2)	13 (0.453)	22 (0.280)
Humla	3 (0.415)	1 (63.8)	4 (0.367)	15 (0.415)
Jajarkot	4 (0.397)	4 (57.2)	3 (0.343)	13 (0.441)
Mugu	5 (0.374)	2 (61.1)	1 (0.304)	6 (0.510)
Khotang	6 (0.351)	15 (42.8)	11 (0.442)	2 (0.535)
Bhojpur	7 (0.349)	14 (43.6)	17 (0.472)	3 (0.525)
Sindhuli	8 (0.348)	8 (48.3)	16 (0.469)	1 (0.603)
Udayapur	9 (0.334)	19 (40.0)	20 (0.488)	7 (0.508)
Taplejung	10 (0.311)	21 (38.4)	15 (0.467)	4 (0.518)
Kailali	11 (0.305)	20 (39.5)	10 (0.442)	8 (0.504)
Siraha	12 (0.299)	9 (47.1)	9 (0.427)	21 (0.290)
Rukum	13 (0.261)	5 (53.7)	6 (0.386)	9 (0.491)
Dailekh	14 (0.261)	6 (52.5)	5 (0.381)	5 (0.516)
Darchula	15 (0.243)	11 (45.4)	8 (0.424)	17 (0.377)
Sunsari	16 (0.211)	23 (32.2)	21 (0.500)	23 (0.212)
Sankhuwasabha	17 (0.199)	13 (43.5)	19 (0.481)	10 (0.487)
Sindhupalchok	18 (0.174)	7 (51.1)	7 (0.414)	18 (0.370)
Gorkha	19 (0.165)	16 (41.7)	14 (0.454)	16 (0.382)
Solukhumbu	20 (0.142)	10 (45.8)	18 (0.479)	12 (0.463)
Terhathum	21 (0.129)	17 (40.9)\	22 (0.523)	14 (0.425)
Kavrepalanchok	22 (0.078)	22 (33.5)	23 (0.543)	19 (0.351)
Dolakha	23 (0.045)	12 (44.0)	12 (0.450)	20 (0.336)

Source: [a] PVAT/VACA 2011/12 //add reference (author date)// see above!. jyg, own analysis; [b]Nepal Human Development Report 2004 (UNDP 2004, p 145–146); [c]Nepal Human Development Report 2004 (UNDP 2004, p 142–143); [d]Small Area Estimates of Poverty, Caloric Intake and Malnutrition in Nepal (Government of Nepal et al. 2006, p D1–D3)

Annex C: Specificities of the MPM-HKH

Graph A7: Poverty index value by region (region 1, region 2, region 3) for all aggregated poverty cut-offs (k)
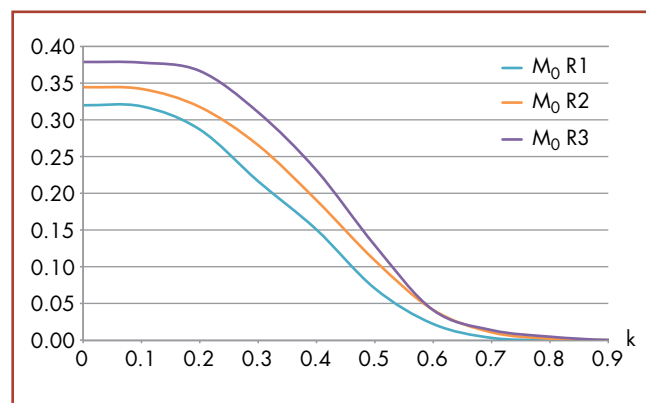
N= 8,547 HHs; (region 1 (R1)=3,313 HHs, region 2 (R2)=3,753 HHs, region 3 (R3)=1,521 HHs); own analysis, weighted; Source: PVAT/VACA 2011/12

Graph A8: Poverty index value with 95% confidence interval by region (region 1, region 2, region 3) for all aggregated poverty cut-offs (k)
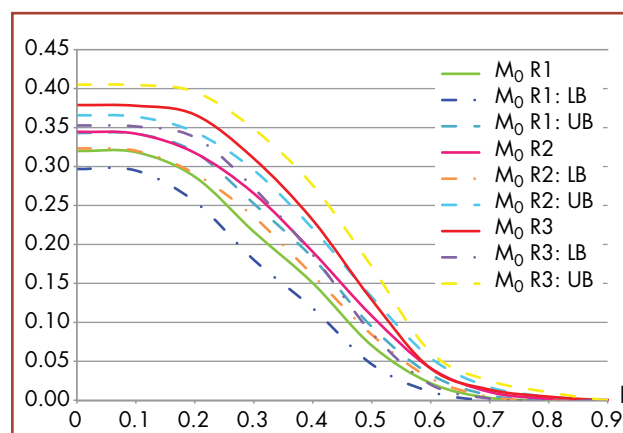
N= 8,547 HHs; (region 1 (R1)=3,313 HH, region 2 (R2)=3,753 HH, region 3 (R3)=1,521 HH); own analysis, weighted; dotted lines show upper bounds (UB) and lower bounds (LB) of 95% confidence interval; Source: PVAT/VACA 2011/12

Graph A9: Poverty index value with 95% confidence interval by district for all aggregated poverty cut-offs (k)
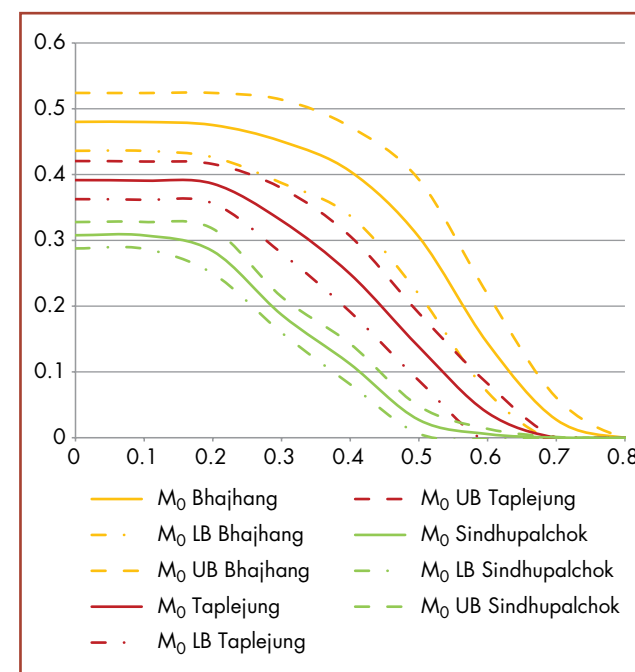
N= 1,147 HHs; own analysis, weighted; dotted lines show upper bounds (UB) and lower bounds (LB) of 95% confidence interval; Source: PVAT/VACA 2011/12

Table A3: MPM-HKH: Raw deprivation headcounts for poverty indicators by district

	Education		Health			Material wellbeing		Energy		Water & sanitation		Social capital		Physical accessibility		
	Literacy	School attendance	Illness	Health care	Food consumption	Assets	Dwelling	Electricity	Cooking fuel	Drinking water	Toilet	Voice	Social networks	Market	Hospital	Bus stop
Bajhang	.95 (.011)	.04 (.010)	.13 (.017)	.08 (.014)	.15 (.018)	.48 (.026)	.31 (.024)	.41 (.025)	1.00 (.000)	.19 (.020)	.79 (.021)	.31 (.024)	.19 (.020)	.88 (.017)	.96 (.010)	.87 (.017)
Bhojpur	.85 (.018)	.01 (.005)	.05 (.011)	.10 (.015)	.21 (.021)	.45 (.025)	.71 (.023)	.22 (.021)	.99 (.004)	.35 (.024)	.22 (.021)	.01 (.005)	.12 (.016)	.68 (.024)	.92 (.014)	.76 (.022)
Dailekh	.85 (.018)	.05 (.011)	.13 (.017)	.14 (.018)	.21 (.021)	.44 (.025)	.29 (.023)	.37 (.025)	.98 (.007)	.17 (.019)	.22 (.021)	.13 (.017)	.32 (.024)	.46 (.025)	.25 (.022)	.36 (.025)
Darchula	.93 (.013)	.02 (.008)	.05 (.011)	.01 (.004)	.47 (.027)	.43 (.026)	.00 (.002)	.24 (.023)	.98 (.007)	.37 (.026)	.41 (.026)	.07 (.014)	.02 (.007)	.55 (.027)	.74 (.023)	.17 (.020)
Dolakha	.85 (.018)	.00 (.000)	.28 (.023)	.13 (.017)	.29 (.023)	.19 (.020)	.01 (.006)	.00 (.001)	.99 (.005)	.11 (.016)	.12 (.017)	.09 (.015)	.01 (.005)	.01 (.005)	.02 (.007)	.00 (.000)
Gorkha	.83 (.020)	.01 (.005)	.26 (.023)	.36 (.025)	.22 (.021)	.29 (.024)	.05 (.011)	.19 (.020)	.96 (.010)	.40 (.025)	.27 (.023)	.01 (.006)	.00 (.002)	.18 (.020)	.52 (.026)	.17 (.020)
Humla	.98 (.008)	.08 (.014)	.40 (.026)	.24 (.023)	.53 (.026)	.30 (.024)	.00 (.000)	.43 (.026)	1.00 (.003)	.00 (.002)	.47 (.026)	.12 (.017)	.24 (.022)	.84 (.019)	.82 (.020)	1.00 (.000)
Jajarkot	.96 (.010)	.03 (.009)	.05 (.011)	.39 (.026)	.58 (.026)	.67 (.025)	.08 (.015)	.57 (.026)	1.00 (.000)	.55 (.026)	.67 (.025)	.11 (.017)	.06 (.012)	.16 (.019)	.56 (.026)	.55 (.026)
Kailali	.95 (.011)	.03 (.009)	.17 (.019)	.13 (.017)	.30 (.024)	.50 (.026)	.36 (.025)	.37 (.025)	.96 (.010)	.15 (.018)	.43 (.025)	.45 (.025)	.67 (.024)	.00 (.000)	.15 (.018)	.13 (.017)
Kavrepalanchok	.80 (.021)	.00 (.003)	.26 (.022)	.01 (.005)	.46 (.025)	.18 (.020)	.04 (.010)	.02 (.007)	.81 (.020)	.32 (.024)	.38 (.025)	.05 (.011)	.03 (.008)	.00 (.000)	.13 (.017)	.00 (.000)
Khotang	.77 (.022)	.01 (.005)	.32 (.024)	.15 (.019)	.29 (.024)	.39 (.026)	.62 (.025)	.26 (.023)	1.00 (.001)	.54 (.026)	.38 (.025)	.05 (.011)	.02 (.007)	.30 (.024)	.95 (.012)	.69 (.024)
Mugu	.95 (.011)	.02 (.007)	.20 (.020)	.36 (.025)	.26 (.022)	.58 (.025)	.07 (.013)	.08 (.014)	1.00 (.003)	.60 (.025)	.41 (.025)	.11 (.016)	.15 (.018)	.26 (.023)	.75 (.022)	1.00 (.000)
Rukum	.86 (.018)	.02 (.007)	.08 (.014)	.02 (.008)	.06 (.012)	.54 (.026)	.10 (.015)	.15 (.018)	.97 (.009)	.29 (.024)	.60 (.025)	.22 (.021)	.02 (.007)	.36 (.025)	.64 (.025)	.51 (.026)
Sankhuwasabha	.86 (.021)	.01 (.007)	.16 (.022)	.00 (.003)	.12 (.020)	.38 (.030)	.92 (.016)	.27 (.027)	.99 (.006)	.14 (.021)	.13 (.021)	.02 (.009)	.05 (.013)	.26 (.027)	.46 (.031)	.12 (.020)
Saptari	.93 (.014)	.07 (.014)	.21 (.021)	.14 (.018)	.29 (.024)	.52 (.026)	.71 (.024)	.51 (.026)	.98 (.007)	.98 (.007)	.87 (.017)	.21 (.021)	.29 (.024)	.00 (.000)	.00 (.000)	.00 (.000)
Sindhuli	.93 (.013)	.10 (.015)	.16 (.019)	.28 (.023)	.16 (.019)	.45 (.026)	.32 (.024)	.32 (.024)	.95 (.012)	.58 (.025)	.63 (.025)	.05 (.011)	.05 (.011)	.38 (.025)	.72 (.023)	.45 (.026)
Sindhupalchok	.96 (.010)	.07 (.013)	.28 (.023)	.08 (.014)	.47 (.026)	.28 (.023)	.05 (.012)	.11 (.016)	.99 (.006)	.30 (.023)	.53 (.026)	.09 (.014)	.01 (.005)	.22 (.021)	.33 (.024)	.03 (.008)
Siraha	.94 (.013)	.08 (.014)	.29 (.023)	.05 (.011)	.33 (.024)	.11 (.016)	.60 (.025)	.07 (.013)	.96 (.010)	.91 (.015)	.84 (.019)	.10 (.015)	.05 (.011)	.00 (.000)	.00 (.000)	.00 (.000)
Solukhumbu	.87 (.017)	.01 (.005)	.31 (.024)	.19 (.020)	.21 (.021)	.32 (.024)	.13 (.018)	.09 (.015)	.94 (.013)	.13 (.017)	.04 (.010)	.00 (.003)	.03 (.009)	.05 (.011)	.76 (.022)	.66 (.025)
Sunsari	.89 (.016)	.08 (.014)	.15 (.018)	.01 (.004)	.34 (.024)	.09 (.015)	.48 (.025)	.08 (.014)	.85 (.018)	.96 (.010)	.50 (.026)	.03 (.008)	.03 (.008)	.00 (.000)	.00 (.000)	.00 (.000)
Taplejung	.90 (.016)	.02 (.006)	.20 (.020)	.20 (.020)	.03 (.009)	.34 (.024)	.41 (.025)	.16 (.019)	.99 (.005)	.04 (.010)	.53 (.026)	.15 (.018)	.00 (.003)	.76 (.022)	.91 (.014)	.79 (.021)
Terhathum	.71 (.023)	.01 (.005)	.10 (.016)	.11 (.016)	.29 (.023)	.16 (.019)	.31 (.024)	.13 (.018)	.98 (.007)	.03 (.009)	.29 (.023)	.06 (.012)	.18 (.020)	.18 (.020)	.63 (.025)	.22 (.012)
Udayapur	.85 (.018)	.04 (.010)	.07 (.013)	.01 (.004)	.45 (.025)	.35 (.024)	.59 (.025)	.26 (.022)	.97 (.008)	.59 (.025)	.60 (.025)	.30 (.023)	.28 (.023)	.19 (.020)	.46 (.025)	.05 (.011)

N= 8,547 HHs; own analysis, 100%, weighted, standard error of the mean in brackets; Source: PVAT/VACA 2011/12

Table A4: Tetrachoric correlation matrix of deprivation indicators of the Multidimensional Poverty Framework for the HKH region

	Literacy	School attendance	Illness	Heath care	Food consumption	Assets	Dwelling	Electricity	Cooking fuel	Drinking water	Sanitation	Political voice	Social networks	Market	Hospital	Bus stop
Literacy	1.00															
School attendance	0.39*	1.00														
Illness	0.12*	0.08*	1.00													
Heath care	0.22*	0.09*	0.09*	1.00												
Food consumption	0.31*	0.15*	0.01	0.07*	1.00											
Assets	0.28*	0.19*	-0.04	0.28*	0.18*	1.00										
Dwelling	0.16*	0.14*	-0.10*	0.03	0.02	0.25*	1.00									
Electricity	0.28*	0.25*	-0.03	0.22*	0.08*	0.55*	0.32*	1.00								
Cooking fuel	0.39*	0.21*	-0.00	0.30*	0.30*	0.45*	0.49*	0.55*	1.00							
Drinking water	0.18*	0.13*	0.03	0.11*	0.09*	0.08*	0.23*	0.03	0.21*	1.00						
Sanitation	0.28*	0.25*	0.04	0.20*	0.18*	0.39*	0.36*	0.42*	0.54*	0.34*	1.00					
Political voice	0.18*	0.19*	-0.01	0.19*	0.04	0.35*	0.12*	0.26*	0.20*	0.03	0.36*	1.00				
Social networks	0.11*	0.13*	0.08*	0.12*	0.18*	0.20*	0.17*	0.25*	0.16*	-0.06*	0.25*	0.50*	1.00			
Market	0.22*	0.13*	-0.03	0.04	0.06*	0.33*	0.10*	0.40*	0.51*	-0.20*	0.18*	0.10*	-0.00	1.00		
Hospital	0.19*	0.09*	0.03	0.18*	0.05*	0.37*	0.14*	0.43*	0.51*	-0.10*	0.19*	0.00	-0.05*	0.92*	1.00	
Bus stop	0.21*	0.09*	0.06*	0.23*	0.05*	0.33*	0.01	0.39*	0.45*	-0.08*	0.10*	-0.00	-0.01	0.85*	0.85*	1.00

N= 8,547 HHs; tetrachoric correlation coefficients, own analysis; *p <=.05; Source: PVAT/VACA 2011/12

Table A5: MPM-HKH: Censored deprivation headcounts for poverty indicators by district

	Education		Health		Material wellbeing			Energy		Water & sanitation		Social capital		Physical accessibility		
	Literacy	School attendance	Illness	Health care	Food consumption	Assets	Dwelling	Electricity	Cooking fuel	Drinking water	Toilet	Voice	Social networks	Market	Hospital	Bus stop
Bajhang	0.85	0.04	0.11	0.08	0.15	0.48	0.31	0.41	0.88	0.19	0.75	0.31	0.18	0.83	0.86	0.83
Bhojpur	0.69	0.01	0.05	0.09	0.19	0.42	0.63	0.21	0.75	0.31	0.22	0.01	0.10	0.60	0.73	0.65
Dailekh	0.55	0.05	0.09	0.12	0.16	0.40	0.27	0.32	0.58	0.15	0.19	0.10	0.26	0.32	0.21	0.27
Darchula	0.55	0.02	0.03	0.01	0.35	0.40	0.00	0.21	0.55	0.30	0.35	0.07	0.02	0.38	0.50	0.13
Dolakha	0.12	0.00	0.04	0.04	0.08	0.09	0.01	0.00	0.12	0.07	0.05	0.05	0.00	0.01	0.01	0.00
Gorkha	0.40	0.01	0.15	0.16	0.09	0.17	0.02	0.14	0.41	0.25	0.19	0.01	0.00	0.16	0.32	0.16
Humla	0.89	0.07	0.40	0.23	0.49	0.29	0.00	0.41	0.90	0.00	0.46	0.11	0.24	0.82	0.80	0.91
Jajarkot	0.78	0.03	0.03	0.37	0.51	0.64	0.08	0.52	0.79	0.50	0.64	0.10	0.05	0.16	0.53	0.52
Kailali	0.61	0.03	0.12	0.12	0.22	0.43	0.34	0.36	0.61	0.12	0.39	0.40	0.51	0.00	0.14	0.12
Kavrepalanchok	0.20	0.00	0.06	0.01	0.17	0.13	0.03	0.01	0.20	0.13	0.18	0.04	0.02	0.00	0.01	0.00
Khotang	0.64	0.01	0.29	0.15	0.27	0.37	0.55	0.26	0.74	0.47	0.35	0.05	0.02	0.25	0.72	0.53
Mugu	0.81	0.02	0.18	0.31	0.24	0.56	0.07	0.07	0.84	0.57	0.38	0.11	0.14	0.26	0.68	0.84
Rukum	0.55	0.02	0.08	0.02	0.03	0.44	0.08	0.14	0.57	0.27	0.50	0.17	0.01	0.31	0.51	0.42
Sankhuwasabha	0.44	0.01	0.11	0.00	0.08	0.30	0.46	0.26	0.48	0.12	0.11	0.01	0.04	0.20	0.34	0.07
Saptari	0.83	0.07	0.19	0.14	0.27	0.51	0.68	0.49	0.84	0.84	0.84	0.21	0.29	0.00	0.00	0.00
Sindhuli	0.68	0.07	0.14	0.23	0.16	0.44	0.32	0.32	0.68	0.46	0.57	0.04	0.05	0.36	0.58	0.41
Sindhupalchok	0.42	0.06	0.14	0.06	0.28	0.21	0.05	0.10	0.42	0.17	0.35	0.06	0.01	0.15	0.23	0.03
Siraha	0.74	0.08	0.20	0.05	0.31	0.11	0.52	0.07	0.74	0.71	0.71	0.10	0.05	0.00	0.00	0.00
Solukhumbu	0.36	0.01	0.18	0.16	0.17	0.24	0.08	0.07	0.36	0.09	0.03	0.00	0.03	0.02	0.35	0.22
Sunsari	0.53	0.08	0.13	0.01	0.27	0.09	0.41	0.07	0.53	0.52	0.43	0.01	0.02	0.00	0.00	0.00
Taplejung	0.66	0.02	0.18	0.19	0.03	0.29	0.40	0.16	0.68	0.04	0.48	0.13	0.00	0.56	0.67	0.59
Terhathum	0.25	0.01	0.03	0.08	0.11	0.11	0.16	0.10	0.30	0.01	0.18	0.05	0.12	0.13	0.25	0.16
Udayapur	0.65	0.03	0.06	0.01	0.38	0.34	0.51	0.25	0.70	0.42	0.54	0.27	0.27	0.17	0.36	0.05

N= 8,547 HHs; own analysis, 100%, weighted; Source: PVAT/VACA 2011/12

Graph A10: **MPVM-HKH (k=0.20): Poverty vulnerability index value, headcount, and intensity by district**
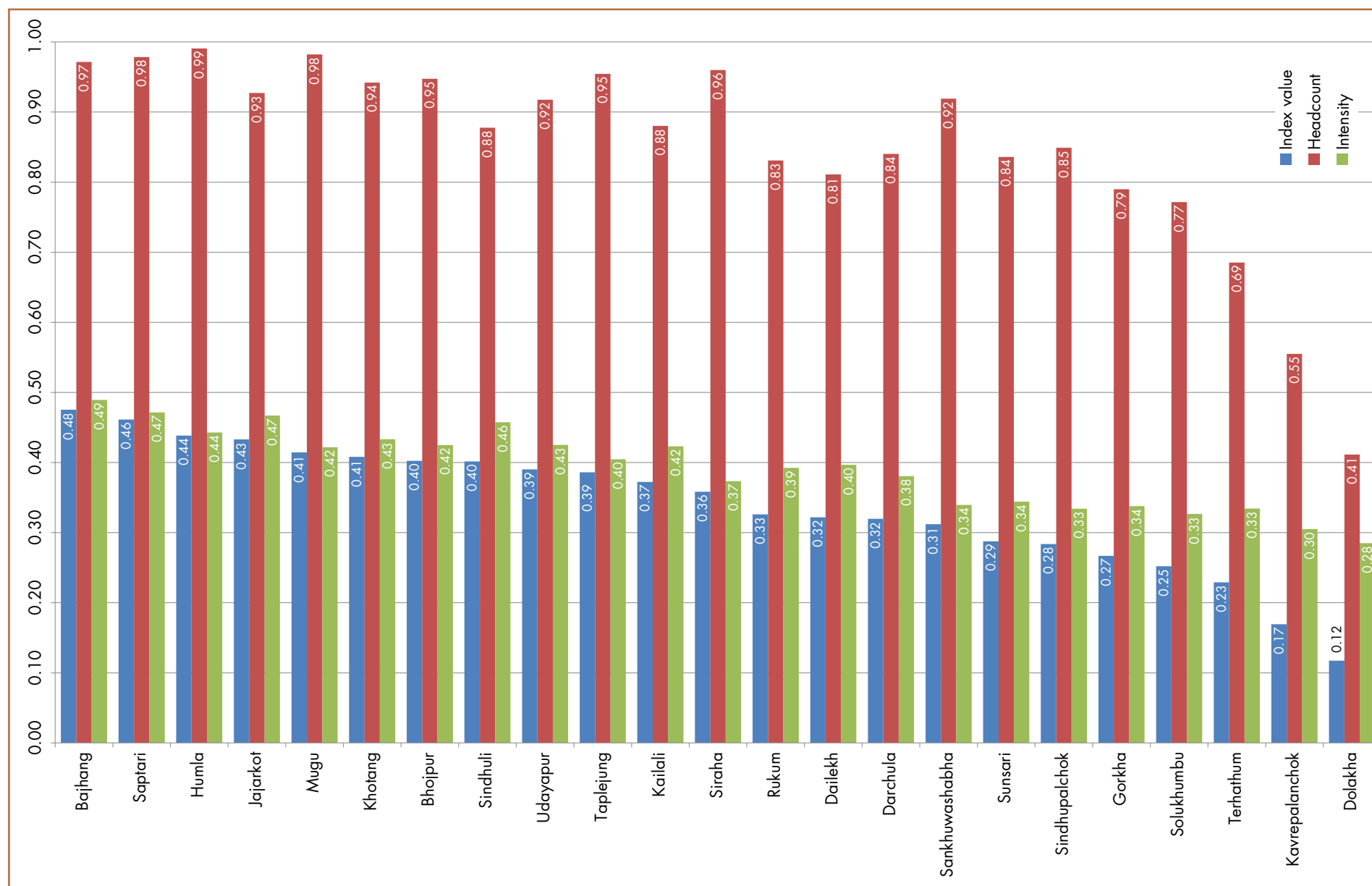
Table A6: **MPVM-HKH (k=20%): Poverty vulnerability index value, headcount, and intensity by district**

District	Index value	Headcount (%)	Intensity (%)
Bajhang	0.48	97.1	48.9
Saptari	0.46	97.8	47.1
Humla	0.44	99.1	44.3
Jajarkot	0.43	92.7	46.7
Mugu	0.41	98.2	42.2
Khotang	0.41	94.2	43.3
Bhojpur	0.40	94.7	42.5
Sindhuli	0.40	87.8	45.7
Udayapur	0.39	91.7	42.5
Taplejung	0.39	95.4	40.5
Kailali	0.37	88.0	42.3
Siraha	0.36	96.0	37.3
Rukum	0.33	83.1	39.2
Dailekh	0.32	81.1	39.7
Darchula	0.32	84.0	38.0
Sankhuwasabha	0.31	91.9	34.0
Sunsari	0.29	83.6	34.4
Sindhupalchok	0.28	84.9	33.4
Gorkha	0.27	79.0	33.8
Solukhumbu	0.25	77.1	32.7
Terhathum	0.23	68.5	33.4
Kavrepalanchok	0.17	55.5	30.5
Dolakha	0.12	41.1	28.5
Total	**0.33**	**83.7**	**39.3**

N= 8,547 HHs; own analysis, weighted; Source: PVAT/VACA 2011/12

Table A7: MPVM-HKH (k=20%): Censored deprivation headcounts for poverty vulnerability indicators by districts

	Education		Health			Material wellbeing		Energy		Water & sanitation		Social capital		Physical accessibility		
	Literacy	School attendance	Illness	Health care	Food consumption	Assets	Dwelling	Electricity	Cooking fuel	Drinking water	Sanitation	Voice	Social networks	Market	Hospital	Bus stop
Bajhang	0.93	0.04	0.13	0.08	0.15	0.48	0.31	0.41	0.97	0.19	0.79	0.31	0.19	0.88	0.94	0.87
Bhojpur	0.82	0.01	0.05	0.10	0.20	0.45	0.70	0.22	0.95	0.35	0.22	0.01	0.12	0.67	0.91	0.76
Dailekh	0.74	0.05	0.12	0.14	0.20	0.44	0.29	0.37	0.81	0.17	0.22	0.12	0.31	0.43	0.25	0.35
Darchula	0.81	0.02	0.05	0.01	0.44	0.43	0.00	0.22	0.84	0.37	0.41	0.07	0.02	0.55	0.70	0.17
Dolakha	0.40	0.00	0.13	0.10	0.21	0.18	0.01	0.00	0.41	0.11	0.12	0.09	0.01	0.01	0.02	0.00
Gorkha	0.74	0.01	0.22	0.31	0.21	0.29	0.05	0.19	0.79	0.36	0.26	0.01	0.00	0.18	0.47	0.17
Humla	0.97	0.08	0.40	0.24	0.53	0.30	0.00	0.43	0.99	0.00	0.47	0.12	0.24	0.84	0.82	0.99
Jajarkot	0.90	0.03	0.05	0.39	0.56	0.67	0.08	0.57	0.93	0.55	0.67	0.11	0.06	0.16	0.56	0.55
Kailali	0.86	0.03	0.14	0.13	0.30	0.49	0.36	0.37	0.87	0.14	0.43	0.44	0.65	0.00	0.14	0.12
Kavrepalanchok	0.53	0.00	0.19	0.01	0.36	0.16	0.03	0.02	0.55	0.28	0.35	0.05	0.02	0.00	0.03	0.00
Khotang	0.75	0.01	0.31	0.15	0.29	0.39	0.61	0.26	0.94	0.53	0.38	0.05	0.02	0.30	0.92	0.69
Mugu	0.94	0.02	0.20	0.36	0.26	0.58	0.07	0.08	0.98	0.60	0.41	0.11	0.14	0.26	0.75	0.98
Rukum	0.75	0.02	0.08	0.02	0.04	0.53	0.09	0.15	0.82	0.28	0.60	0.21	0.02	0.36	0.62	0.50
Sankhuwasabha	0.85	0.01	0.15	0.00	0.11	0.38	0.88	0.27	0.92	0.14	0.13	0.02	0.05	0.26	0.43	0.11
Saptari	0.92	0.07	0.21	0.14	0.29	0.52	0.71	0.51	0.97	0.96	0.87	0.21	0.29	0.00	0.00	0.00
Sindhuli	0.86	0.10	0.16	0.27	0.16	0.45	0.32	0.32	0.87	0.57	0.62	0.05	0.05	0.38	0.70	0.45
Sindhupalchok	0.83	0.07	0.26	0.08	0.43	0.27	0.05	0.11	0.85	0.29	0.53	0.09	0.01	0.21	0.32	0.03
Siraha	0.92	0.08	0.26	0.05	0.33	0.11	0.60	0.07	0.94	0.88	0.84	0.10	0.05	0.00	0.00	0.00
Solukhumbu	0.73	0.01	0.30	0.19	0.21	0.32	0.13	0.09	0.75	0.12	0.04	0.00	0.03	0.05	0.69	0.53
Sunsari	0.82	0.08	0.14	0.01	0.30	0.09	0.48	0.08	0.80	0.83	0.50	0.02	0.03	0.00	0.00	0.00
Taplejung	0.87	0.02	0.19	0.19	0.03	0.34	0.41	0.16	0.95	0.04	0.53	0.15	0.00	0.76	0.91	0.79
Terhathum	0.56	0.01	0.07	0.10	0.24	0.15	0.30	0.13	0.67	0.02	0.27	0.05	0.18	0.18	0.49	0.22
Udayapur	0.82	0.04	0.06	0.01	0.43	0.35	0.59	0.26	0.90	0.57	0.60	0.29	0.27	0.19	0.44	0.05

N= 8,547 HHs; own analysis, 100%, weighted; Source: PVAT/VACA 2011/12

Annex D: District Poverty Profiles (continued)

Bhojpur

Table A8: **Bhojpur: Multidimensional poverty index value, headcount, and intensity**

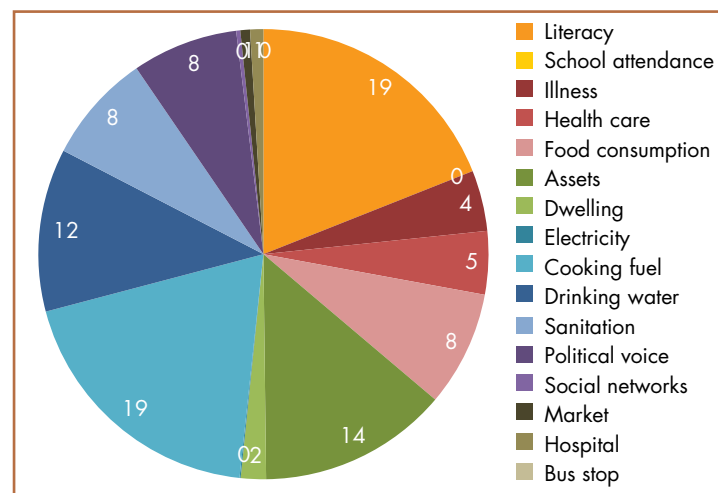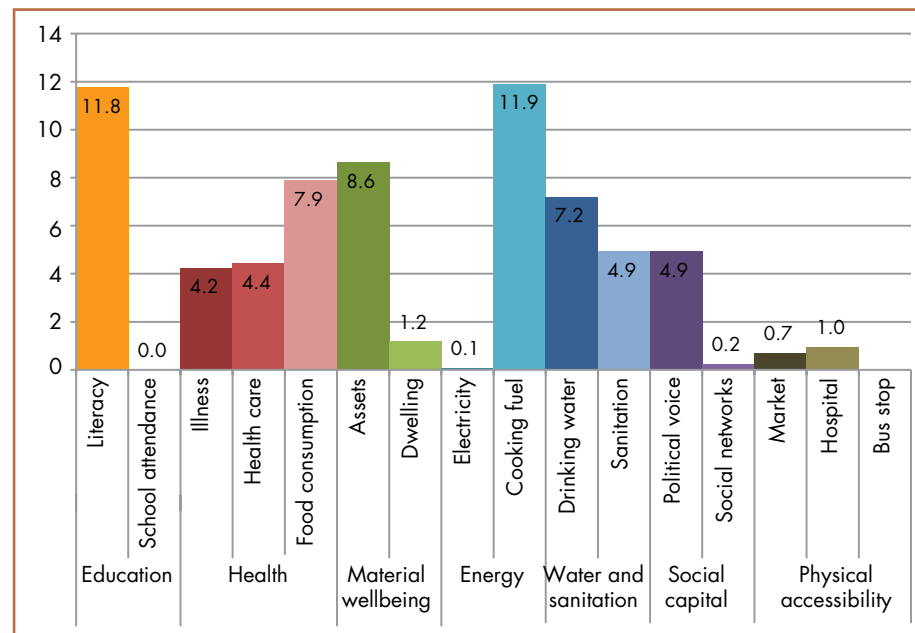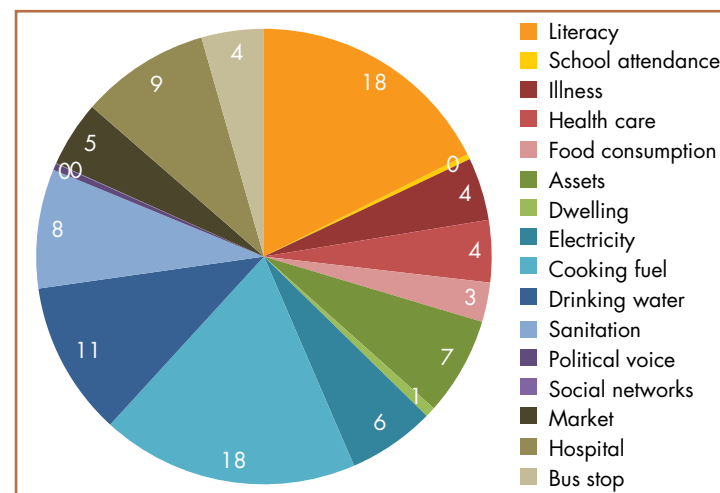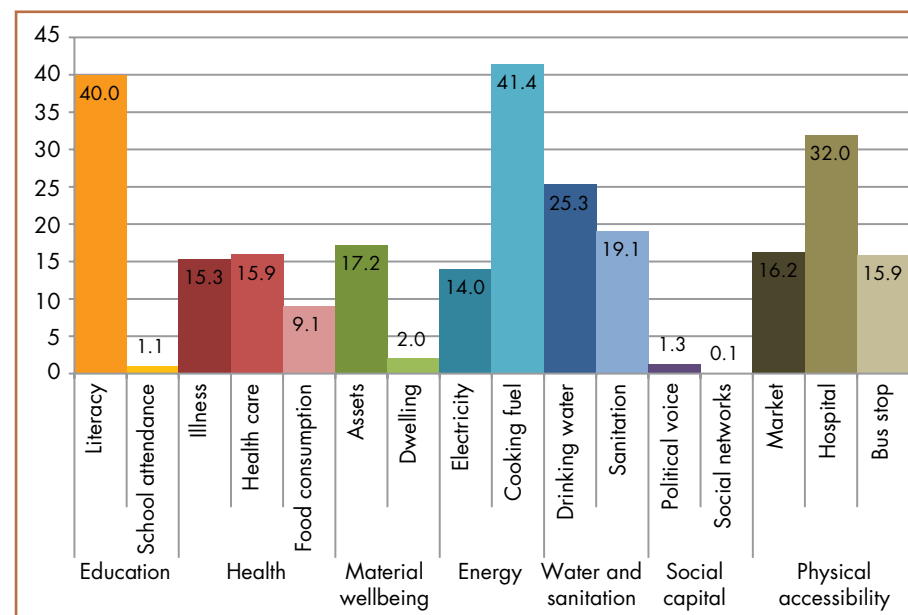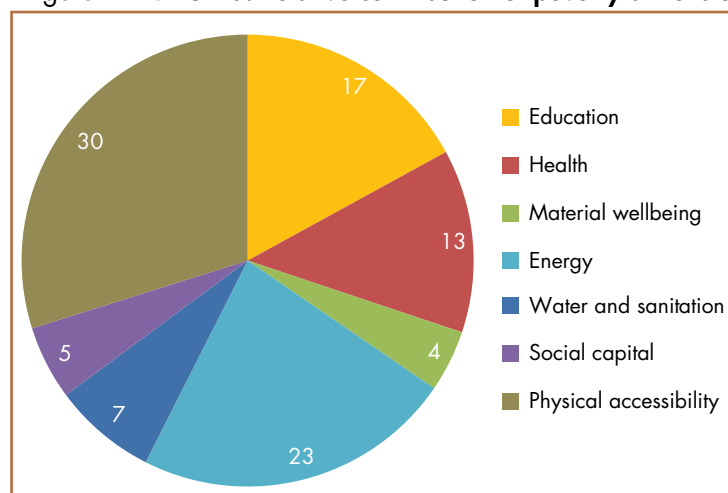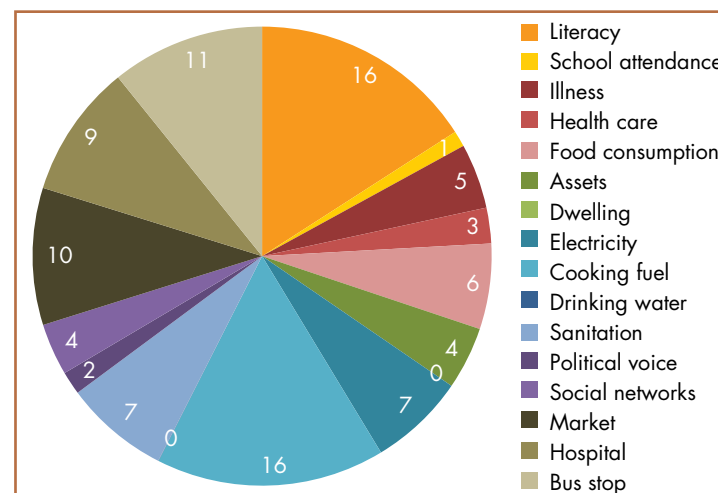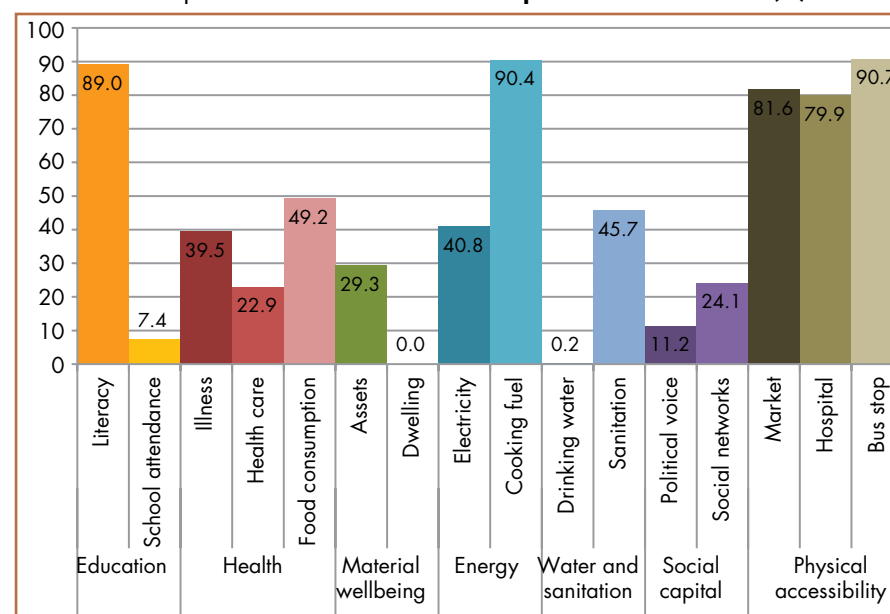| District	Index value	Headcount (%)	Intensity (%)
Bhojpur	0.35	75.4	46.3

N= 382 HHs; own analysis, weighted; Source: PVAT 2011

Figure A1: **Bhojpur: Relative contribution of poverty dimensions (%)**
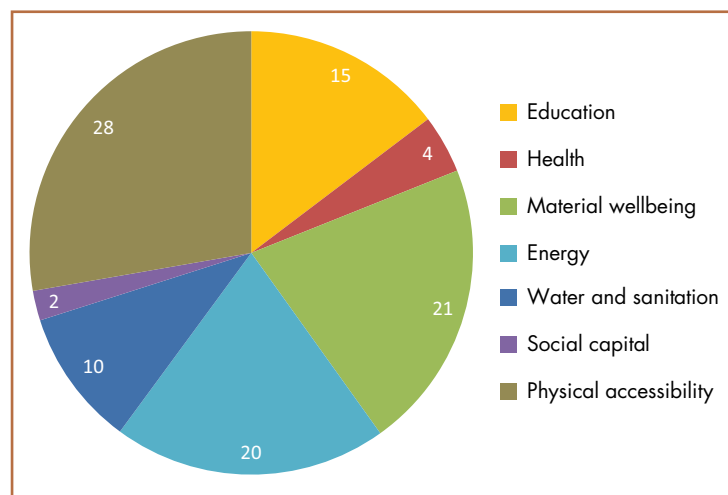
N= 382 HHs; own analysis, weighted; Source: PVAT 2012

Figure A2: **Bhojpur: Relative contribution of poverty indicators (%)**
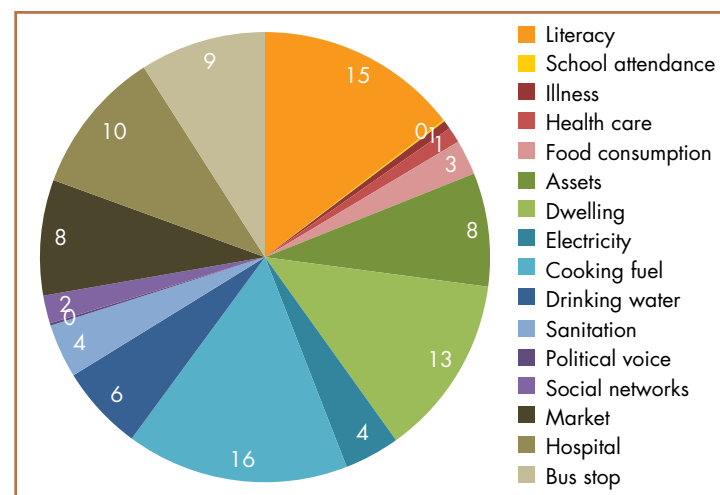
N= 382 HHs; own analysis, weighted; Source: PVAT 2012

Graph A11: **Bhojpur: Censored deprivation headcounts (%)**
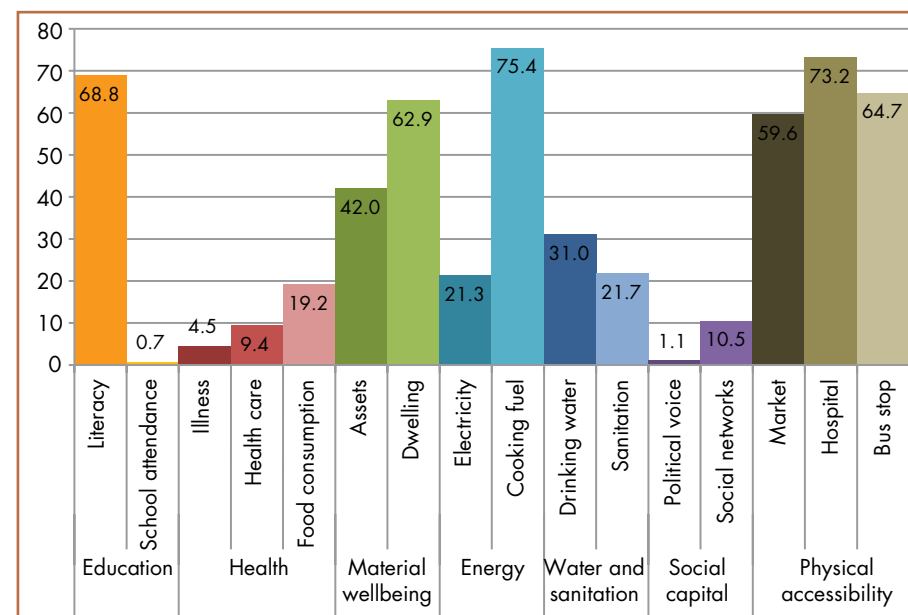
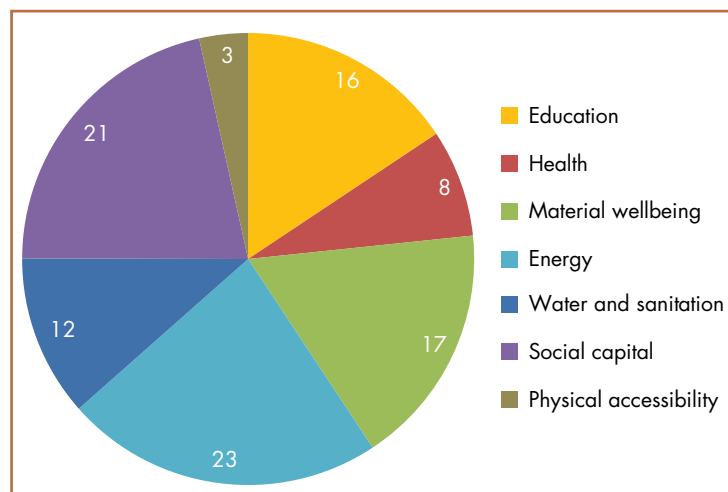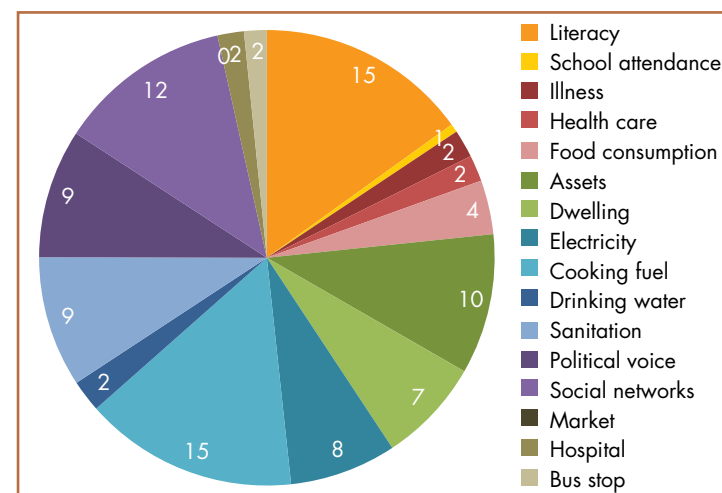N= 382 HHs; own analysis, weighted; Source: PVAT 2012

Dailekh

Table A9: **Dailekh: Multidimensional poverty index value, headcount, and intensity**

District	Index value	Headcount (%)	Intensity (%)
Dailekh	0.26	58.2	44.8

N= 384 HHs; own analysis, weighted; Source: PVAT 2012

Figure A3: **Dailekh: Relative contribution of poverty dimensions (%)**
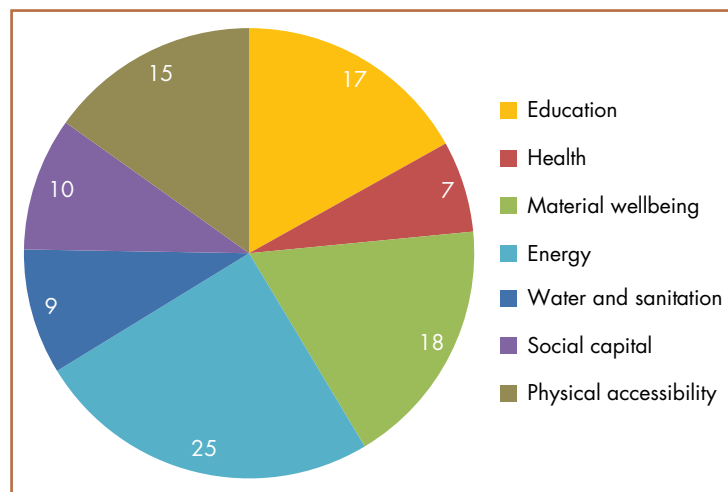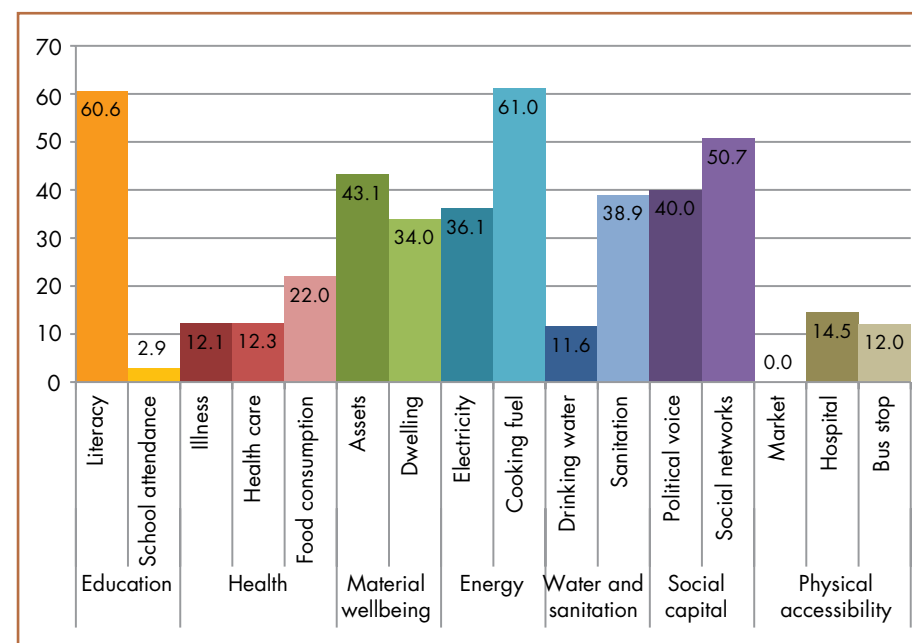

N= 384 HHs; own analysis, weighted; Source: PVAT 2012

Figure A4: **Dailekh: Relative contribution of poverty indicators (%)**
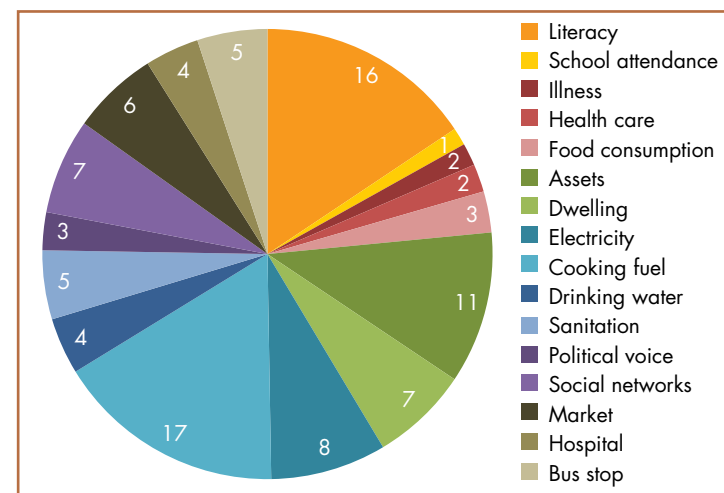
N= 384 HHs; own analysis, weighted; Source: PVAT 2012

Graph A12: **Dailekh: Censored deprivation headcounts (%)**
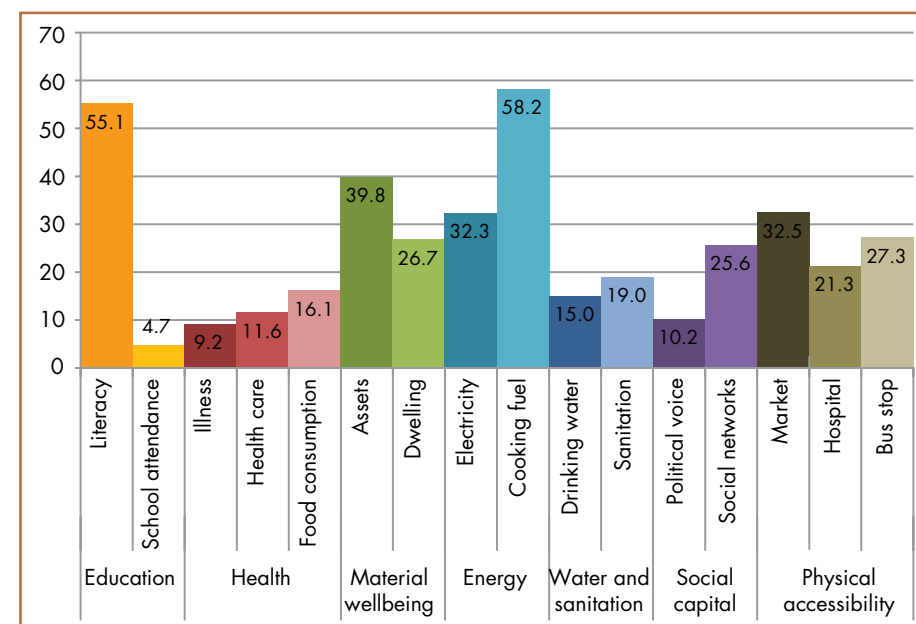
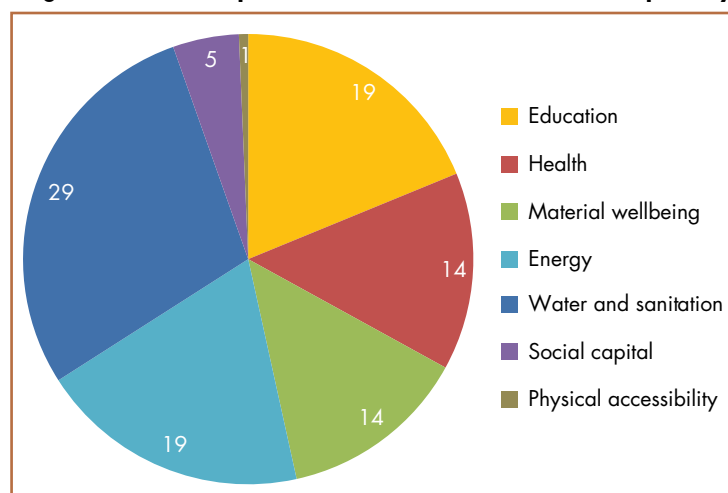N= 384 HHs; own analysis, weighted; Source: PVAT 2012

Darchula

Table A10: **Darchula: Multidimensional poverty index value, headcount, and intensity**

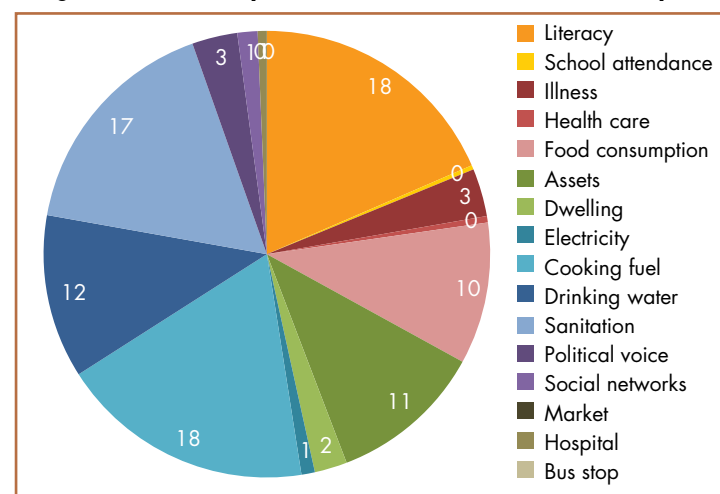| District	Index value	Headcount (%)	Intensity (%)
Darchula	0.24	54.9	44.2

N= 352 HHs; own analysis, weighted; Source: PVAT 2012

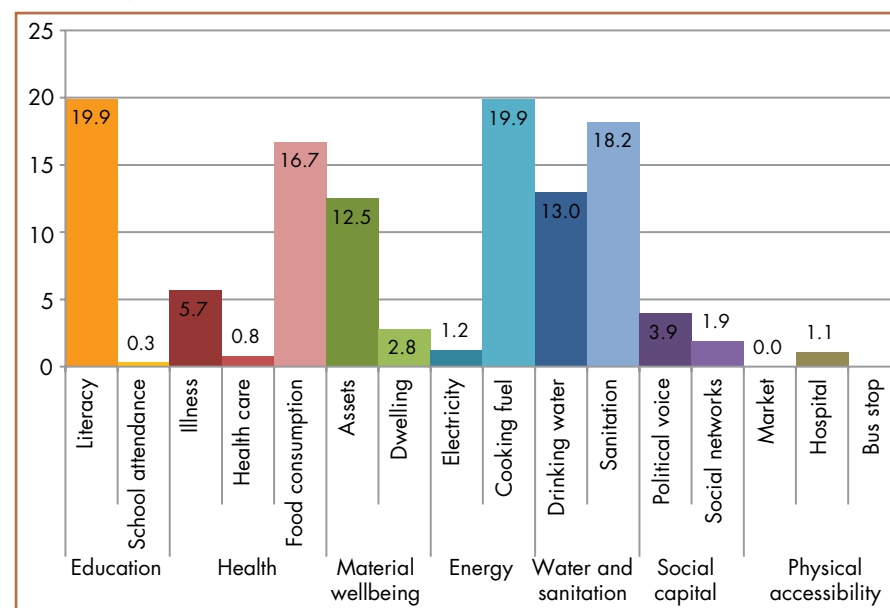Figure A5: **Darchula: Relative contribution of poverty dimensions (%)**
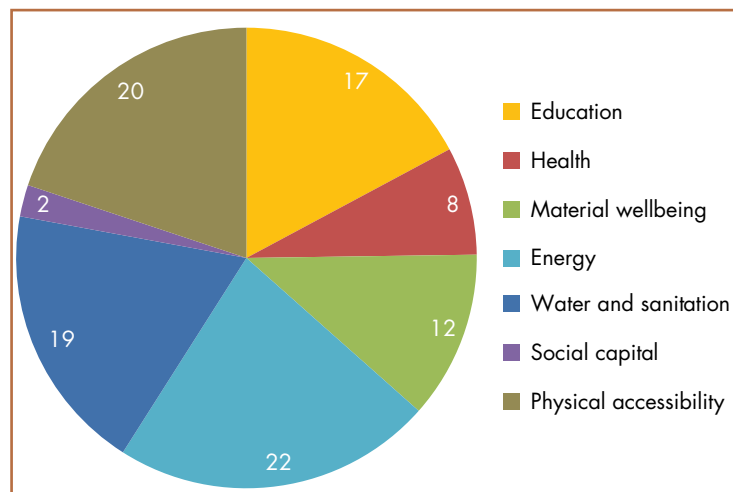
N= 352 HHs; own analysis, weighted; Source: PVAT 2012

Figure A6: **Darchula: Relative contribution of poverty indicators (%)**
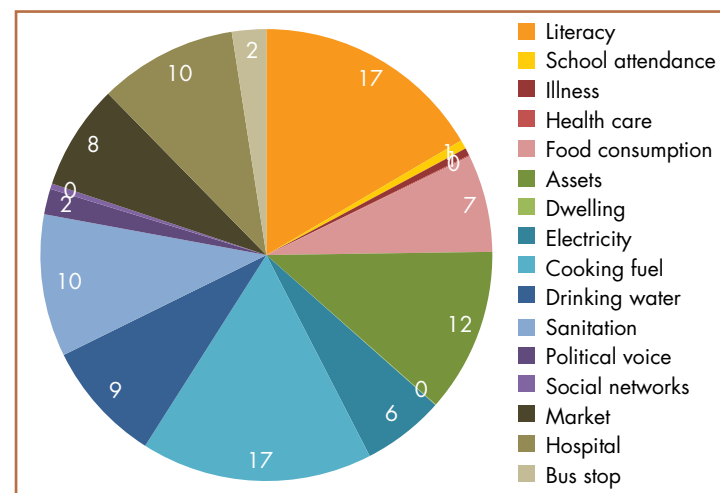
N= 352 HHs; own analysis, weighted; Source: PVAT 2012

Graph A13: **Darchula: Censored deprivation headcounts (%)**
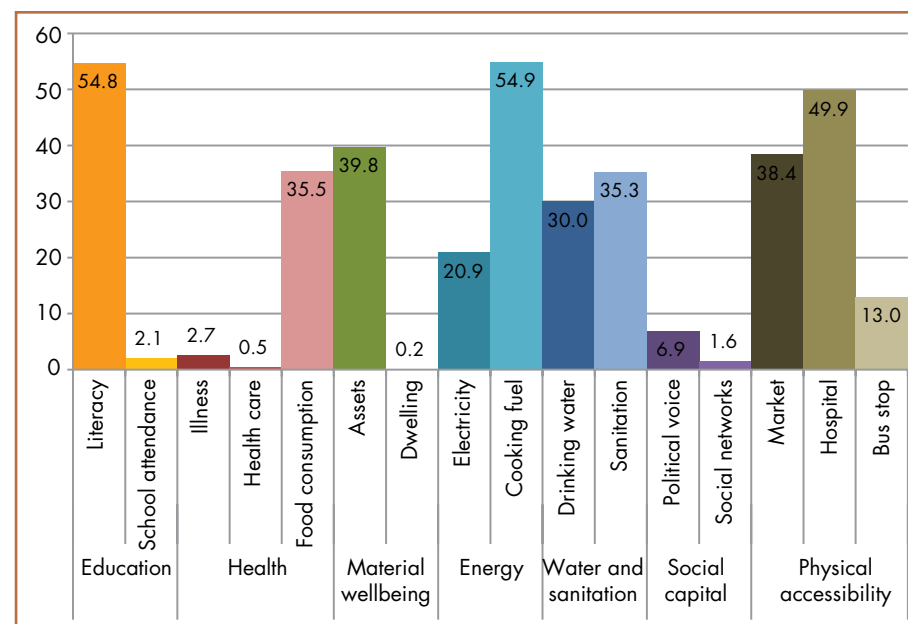
N= 352 HHs; own analysis, weighted; Source: PVAT 2012

Dolakha

Table A11: Dolakha: Multidimensional poverty index value, headcount, and intensity

District	Index value	Headcount (%)	Intensity (%)
Dolakha	0.04	11.9	37.8

N= 385 HHs; own analysis, weighted; Source: VACA 2011/12

Figure A7: Dolakha: Relative contribution of poverty dimensions (%)

Education
Health
Material wellbeing
Energy
Water and sanitation
Social capital
Physical accessibility
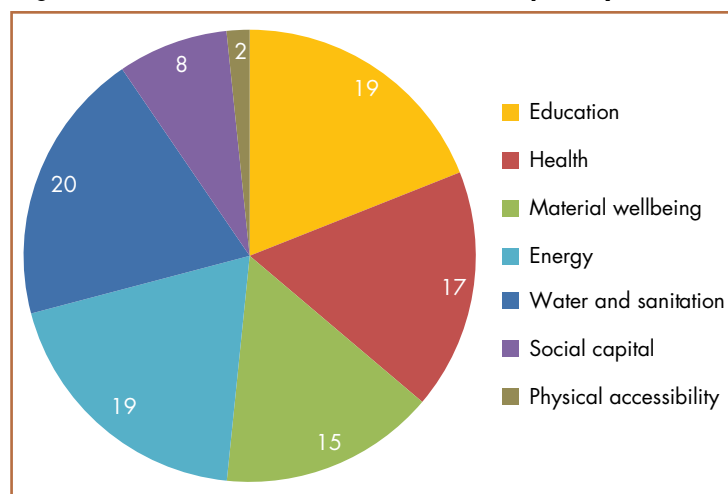
N= 385 HHs; own analysis, weighted; Source: VACA 2011/12

Figure A8: Dolakha: Relative contribution of poverty indicators (%)

Literacy
School attendance
Illness
Health care
Food consumption
Assets
Dwelling
Electricity
Cooking fuel
Drinking water
Sanitation
Political voice
Social networks
Market
Hospital
Bus stop

N= 385 HHs; own analysis, weighted; Source: VACA 2011/12

Graph A14: Dolakha: Censored deprivation headcounts (%)
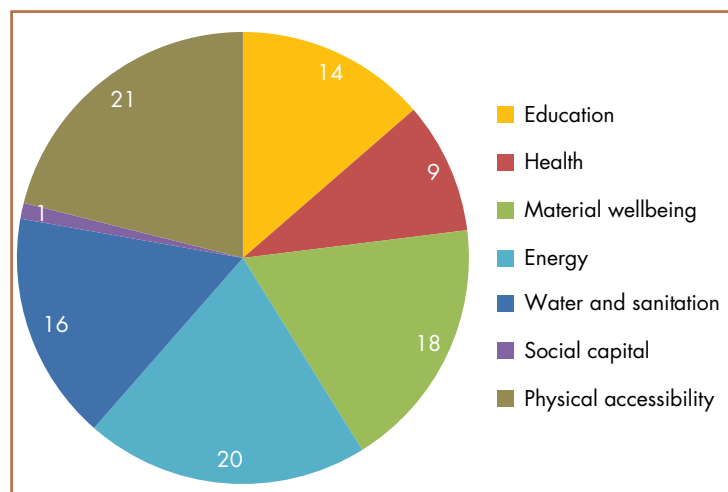

N= 385 HHs; own analysis, weighted; Source: VACA 2011/12

Gorkha

Figure A10: **Gorkha: Relative contribution of poverty indicators (%)**

Table A12: **Gorkha: Multidimensional poverty index value, headcount, and intensity**

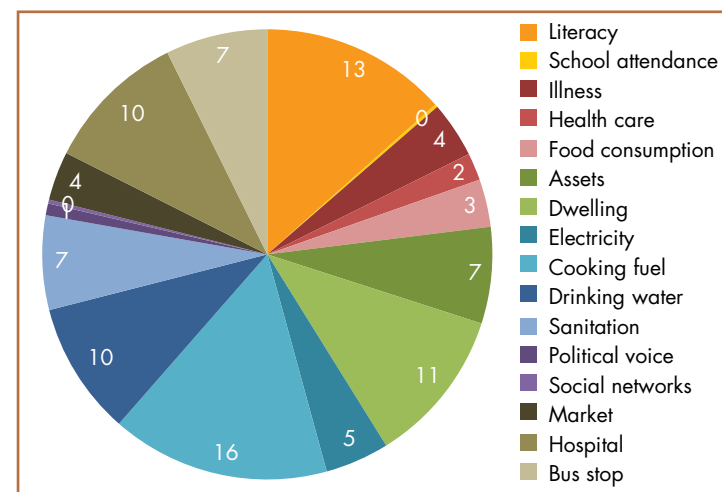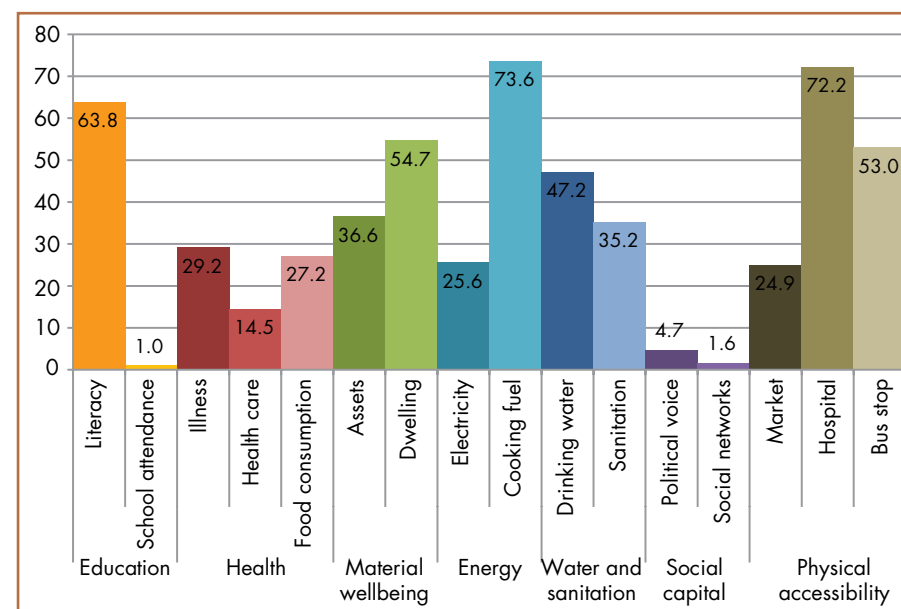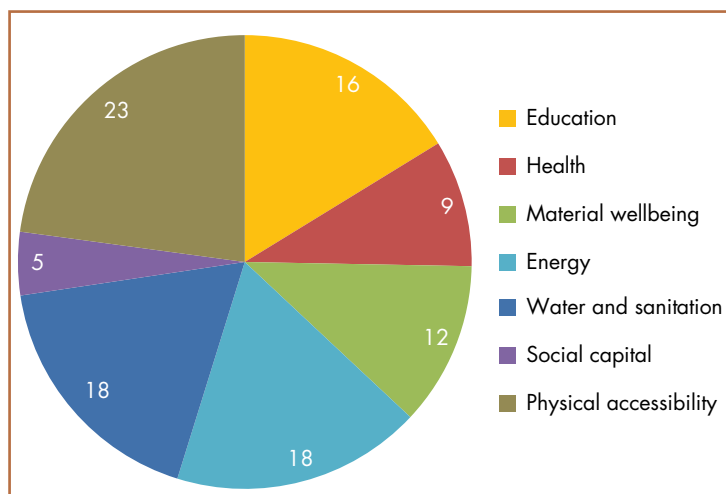| District	Index value	Headcount (%)	Intensity (%)
Gorkha	0.17	41.4	39.8

N= 371 HHs; own analysis, weighted; Source: PVAT 2011

Figure A9: **Gorkha: Relative contribution of poverty dimensions (%)**

N= 371 HHs; own analysis, weighted; Source: PVAT 2011

N= 371 HHs; own analysis, weighted; Source: PVAT 2011

Graph A15: **Gorkha: Censored deprivation headcounts (%)**

N= 371 HHs; own analysis, weighted; Source: PVAT 2011

Humla

Table A13: **Humla: Multidimensional poverty index value, headcount, and intensity**

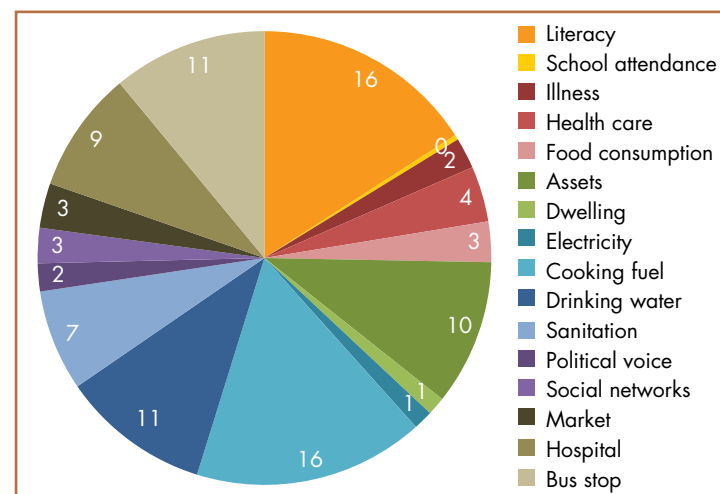| District	Index value	Headcount (%)	Intensity (%)
Humla	0.41	90.7	45.7

N= 362 HHs; own analysis, weighted; Source: PVAT 2011

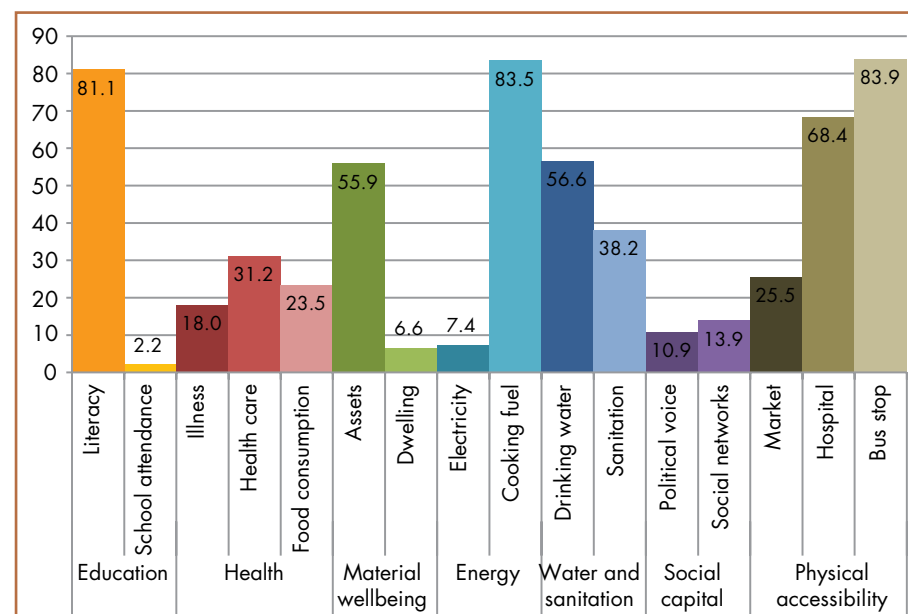Figure A11: **Humla: Relative contribution of poverty dimensions (%)**

N= 362 HHs; own analysis, weighted; Source: PVAT 2011

Figure A12: **Humla: Relative contribution of poverty indicators (%)**

N= 362 HHs; own analysis, weighted; Source: PVAT 2011

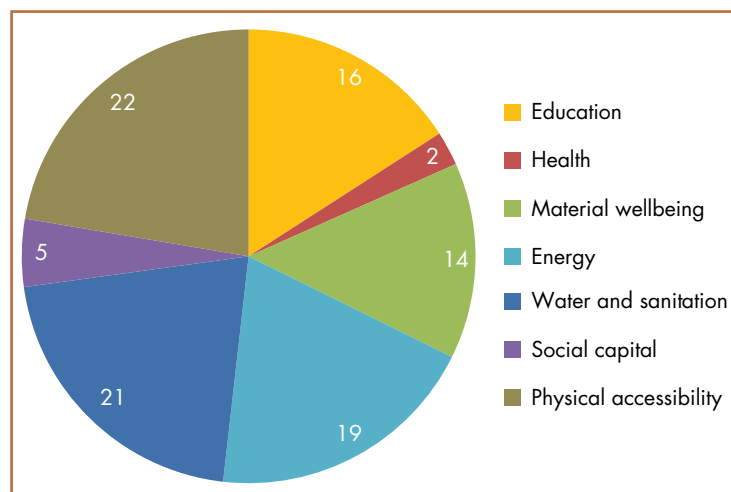Graph A16: **Humla: Censored deprivation headcounts (%)**

N= 362 HHs; own analysis, weighted; Source: PVAT 2011

Kailali

Table A14: **Kailali: Multidimensional poverty index value, headcount, and intensity**

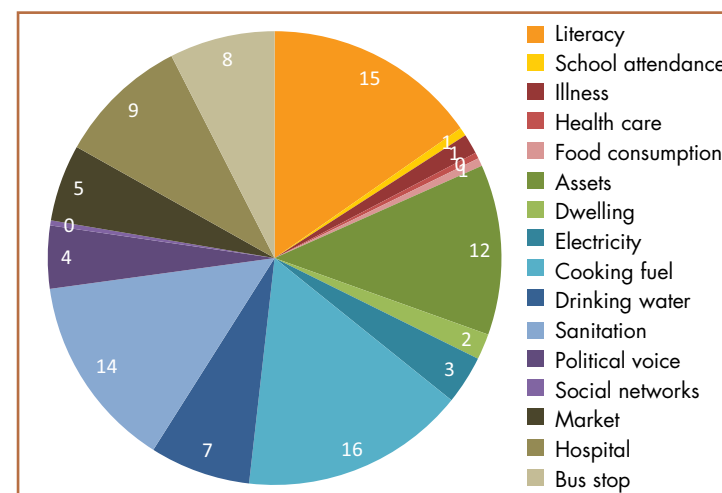| District	Index value	Headcount (%)	Intensity (%)
Kailali	0.31	61.6	49.5

N= 382 HHs; own analysis, weighted; Source: PVAT 2011

Figure A13: **Kailali: Relative contribution of poverty dimensions (%)**
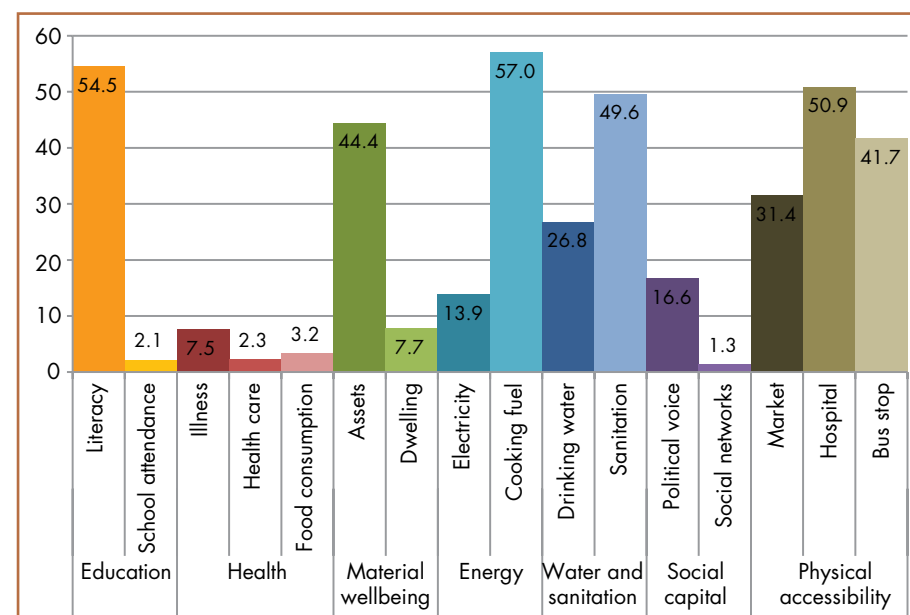

N= 382 HHs; own analysis, weighted; Source: PVAT 2011

Figure A14: **Kailali: Relative contribution of poverty indicators (%)**

N= 382 HHs; own analysis, weighted; Source: PVAT 2011

Graph A17: **Kailali: Censored deprivation headcounts (%)**

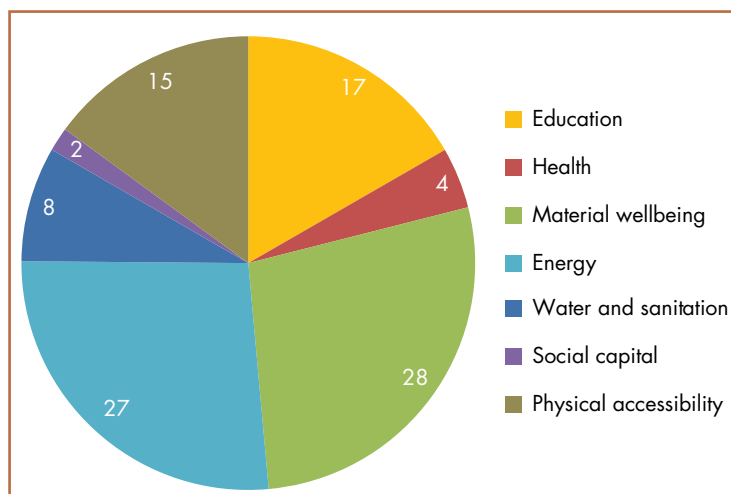N= 382 HHs; own analysis, weighted; Source: PVAT 2011

Kavrepalanchok

Table A15: **Kavrepalanchok: Multidimensional poverty index value, headcount, and intensity**

District	Index value	Headcount (%)	Intensity (%)
Kavrepalanchok	0.08	20.3	38.6

N= 385 HHs; own analysis, weighted; Source: VACA 2011/12

Figure A15: **Kavrepalanchok: Relative contribution of poverty dimensions (%)**

N= 385 HHs; own analysis, weighted; Source: VACA 2011/12

Figure A16: **Kavrepalanchok: Relative contribution of poverty indicators (%)**

N= 385 HHs; own analysis, weighted; Source: VACA 2011/12

Graph A18: **Kavrepalanchok: Censored deprivation headcounts (%)**

N= 385 HHs; own analysis, weighted; Source: VACA 2011/12

Khotang

Table A16: Khotang: Multidimensional poverty index value, headcount, and intensity

District	Index value	Headcount (%)	Intensity (%)
Khotang	0.35	73.6	47.7

N= 365 HHs; own analysis, weighted; Source: VACA 2011/12

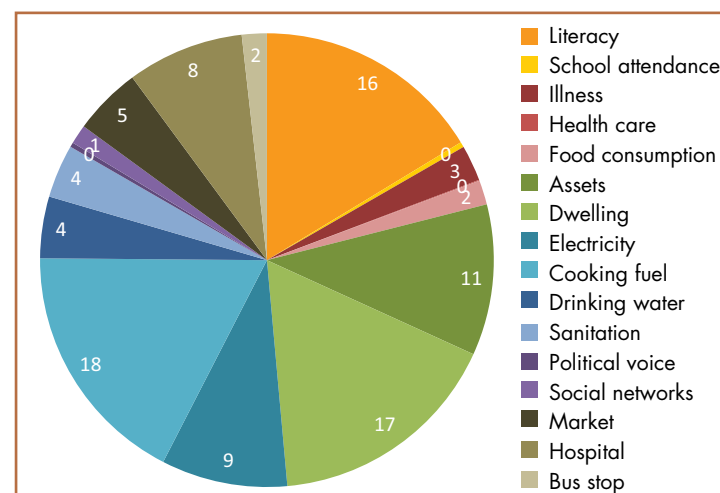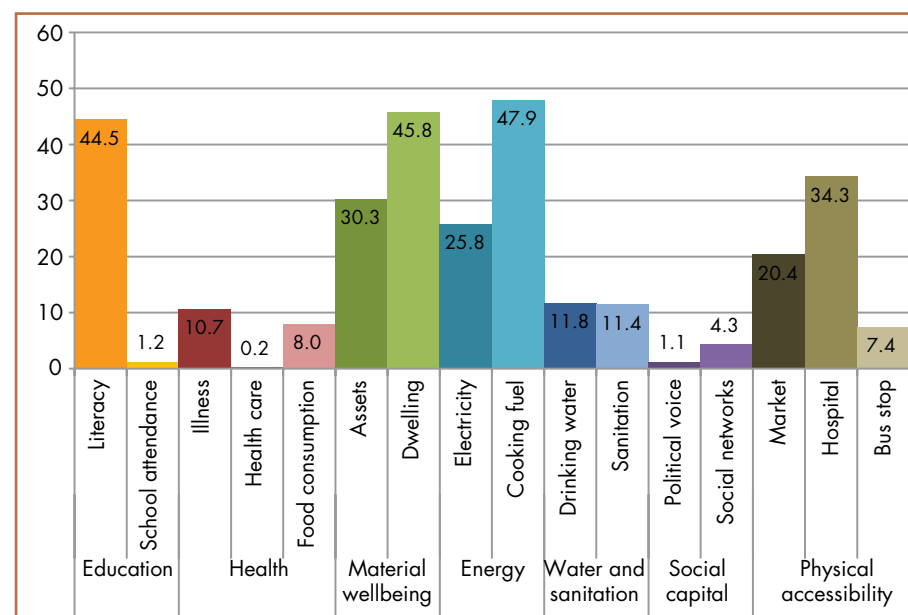Figure A18: **Khotang: Relative contribution of poverty indicators (%)**

N= 365 HHs; own analysis, weighted; Source: VACA 2011/12

Figure A17: **Khotang: Relative contribution of poverty dimensions (%)**

N= 365 HHs; own analysis, weighted; Source: VACA 2011/12

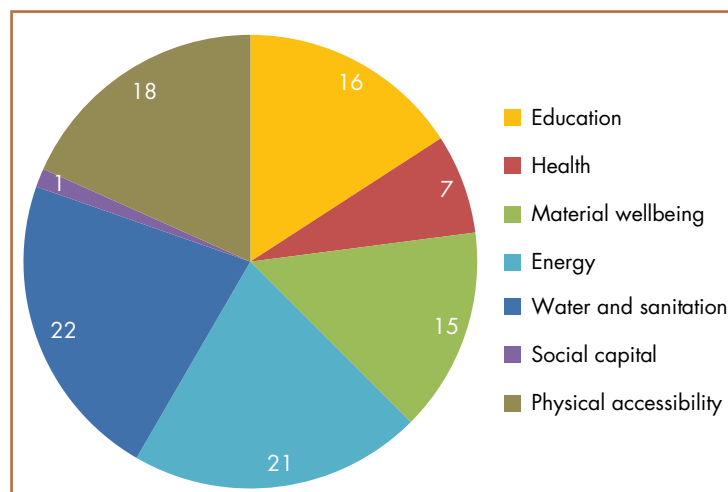Graph A19: **Khotang: Censored deprivation headcounts (%)**

N= 365 HHs; own analysis, weighted; Source: VACA 2011/12

Mugu

Table A17: **Mugu: Multidimensional poverty index value, headcount, and intensity**

District	Index value	Headcount (%)	Intensity (%)
Mugu	0.37	83.9	44.5

N= 384 HHs; own analysis, weighted; Source: PVAT 2012

Figure A19: **Mugu: Relative contribution of poverty dimensions (%)**

N= 384 HHs; own analysis, weighted; Source: PVAT 2012

Figure A20: **Mugu: Relative contribution of poverty indicators (%)**

N= 384 HHs; own analysis, weighted; Source: PVAT 2012

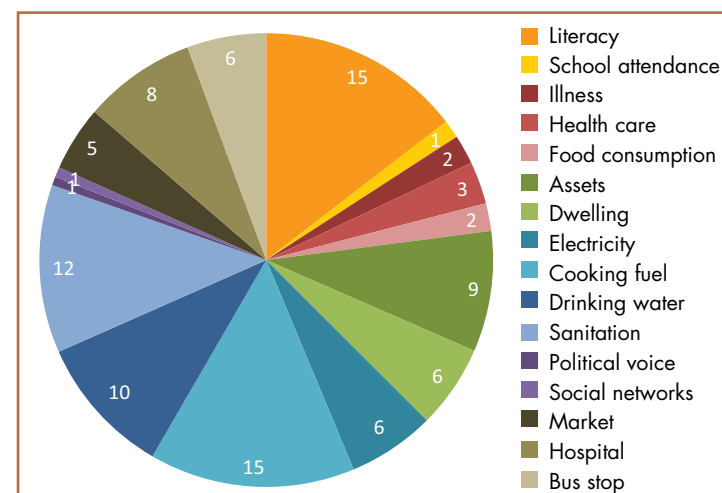### Graph A20: **Mugu: Censored deprivation headcounts (%)**

Rukum

Table A18: **Rukum: Multidimensional poverty index value, headcount, and intensity**

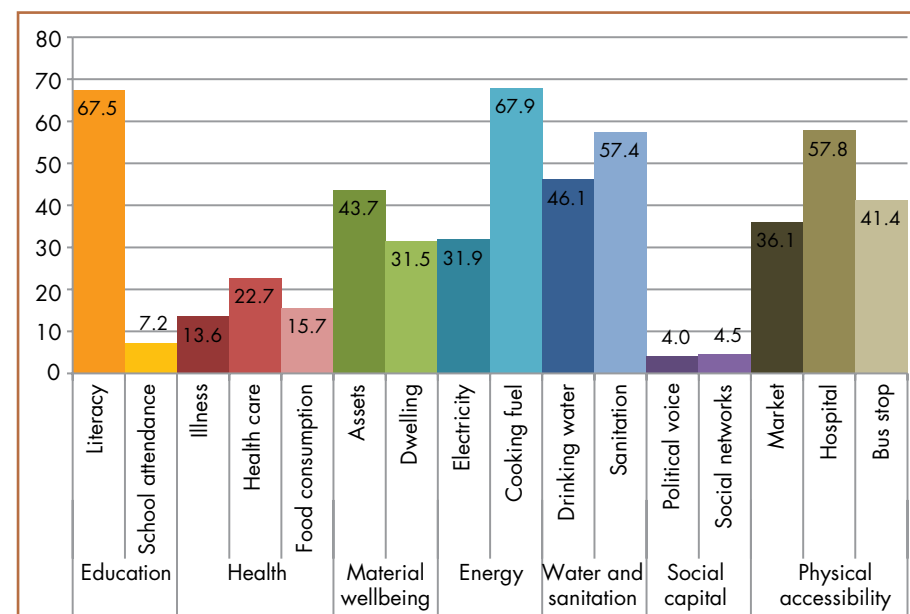| District	Index value	Headcount (%)	Intensity (%)
Rukum	0.26	58.0	45.0

N= 375 HHs; own analysis, weighted; Source: PVAT 2012

Figure A21: **Rukum: Relative contribution of poverty dimensions (%)**

N= 375 HHs; own analysis, weighted; Source: PVAT 2012

Figure A22: **Rukum: Relative contribution of poverty indicators (%)**

N= 375 HHs; own analysis, weighted; Source: PVAT 2012

Graph A21: **Rukum: Censored deprivation headcounts (%)**
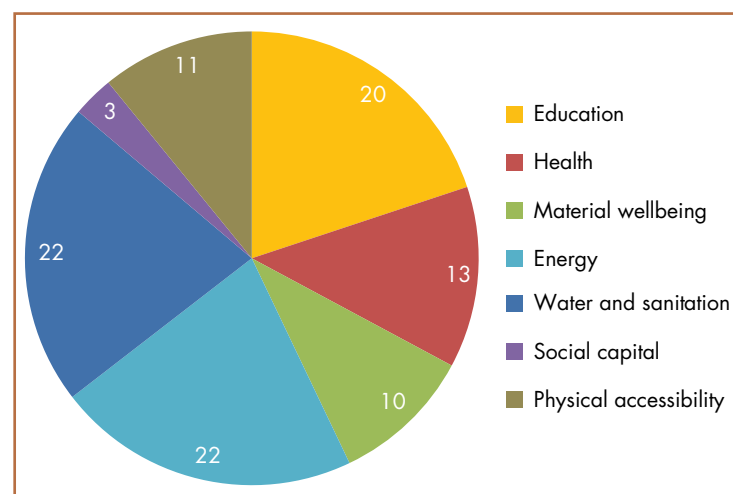

N= 375 HHs; own analysis, weighted; Source: PVAT 2012

Sankhuwasabha

Table A19: **Sankhuwasabha: Multidimensional poverty index value, headcount, and intensity**

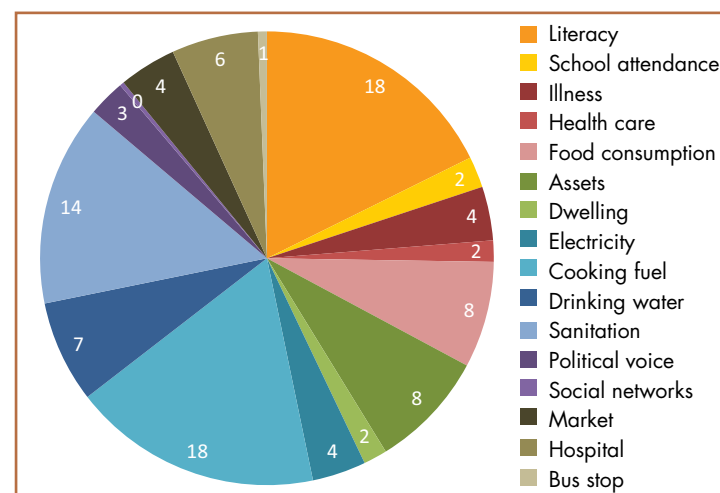| District	Index value	Headcount (%)	Intensity (%)
Sankhuwasabha	0.20	47.9	41.5

N= 268 HHs; own analysis, weighted; Source: PVAT 2011

### Figure A23: **Sankhuwasabha: Relative contribution of poverty dimensions (%)**

Legend:
- Education
- Health
- Material wellbeing
- Energy
- Water and sanitation
- Social capital
- Physical accessibility

N= 268 HHs; own analysis, weighted; Source: PVAT 2011

Figure A24: **Sankhuwasabha: Relative contribution of poverty indicators (%)**

Legend:
- Literacy
- School attendance
- Illness
- Health care
- Food consumption
- Assets
- Dwelling
- Electricity
- Cooking fuel
- Drinking water
- Sanitation
- Political voice
- Social networks
- Market
- Hospital
- Bus stop

N= 268 HHs; own analysis, weighted; Source: PVAT 2011

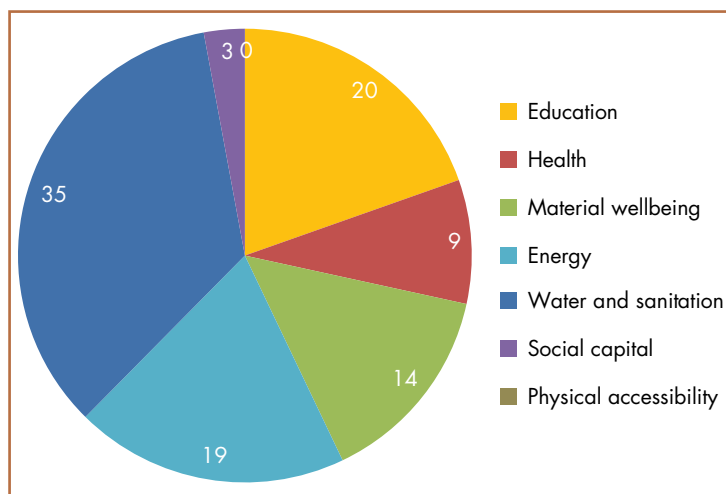### Graph A22: **Sankhuwasabha: Censored deprivation headcounts (%)**

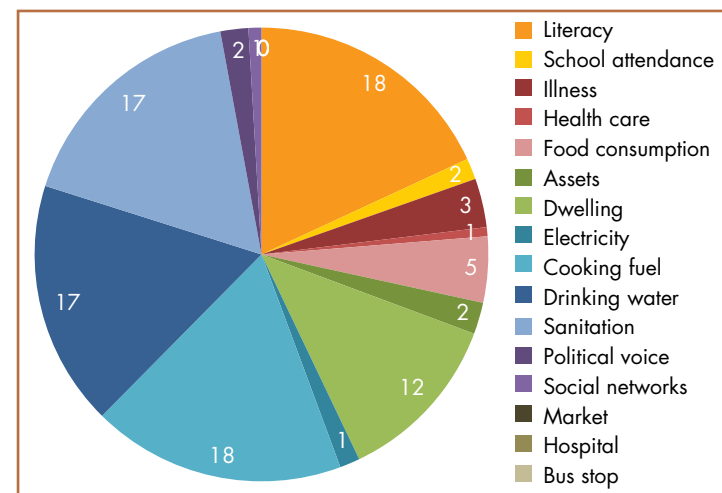N= 268 HHs; own analysis, weighted; Source: PVAT 2011

Sindhuli

Table A20: **Sindhuli: Multidimensional poverty index value, headcount, and intensity**

District	Index value	Headcount (%)	Intensity (%)
Sindhuli	0.35	67.9	51.2

N= 380 HHs; own analysis, weighted; Source: PVAT 2012

Figure A24: **Sankhuwasabha: Relative contribution of poverty indicators (%)**

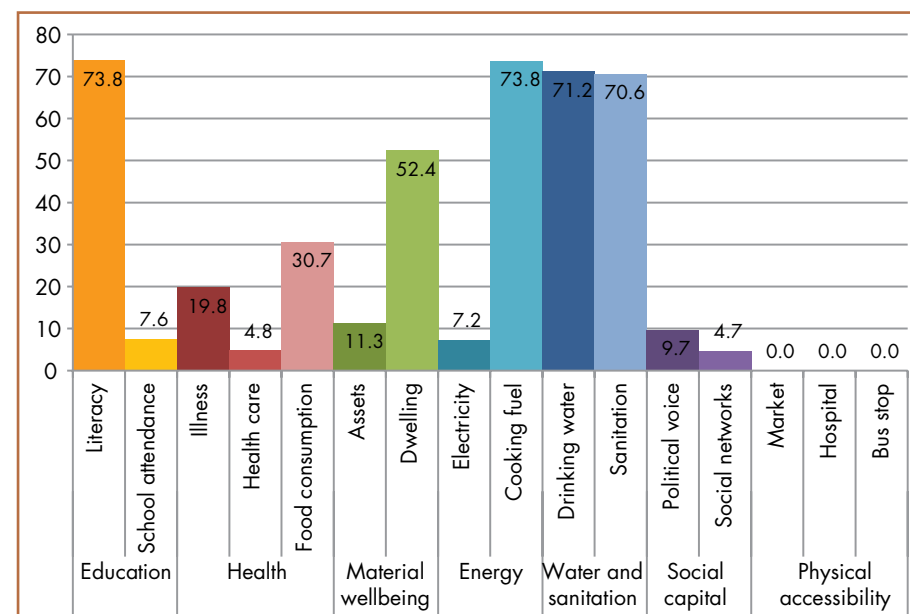N= 380 HHs; own analysis, weighted; Source: PVAT 2012

Figure A25: **Sindhuli: Relative contribution of poverty dimensions (%)**

N= 380 HHs; own analysis, weighted; Source: PVAT 2012

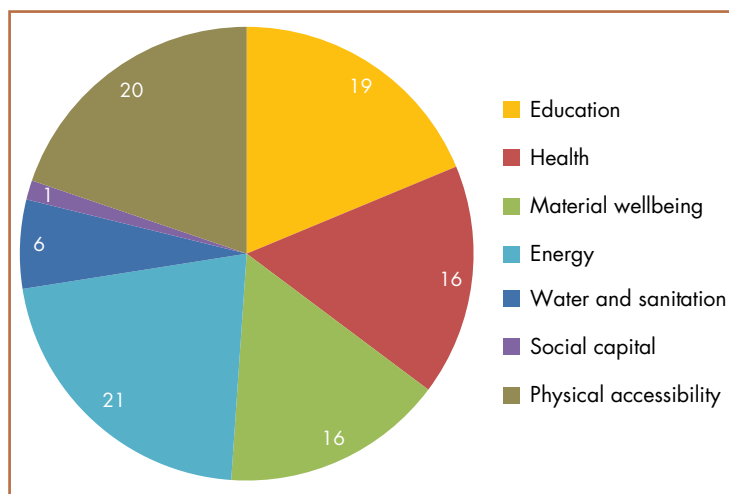Graph A23: **Sindhuli: Censored deprivation headcounts (%)**

N= 380 HHs; own analysis, weighted; Source: PVAT 2012

Sindhupalchok

Table A21: **Sindhupalchok: Multidimensional poverty index value, headcount, and intensity**

District	Index value	Headcount (%)	Intensity (%)
Sindhupalchok	0.17	42.2	41.2

N= 382 HHs; own analysis, weighted; Source: PVAT 2011

Figure A27: **Sindhupalchok: Relative contribution of poverty dimensions (%)**

N= 382 HHs; own analysis, weighted; Source: PVAT 2011

Figure A28: **Sindhupalchok: Relative contribution of poverty indicators (%)**

Graph A24: **Sindhupalchok: Censored deprivation headcounts (%)**
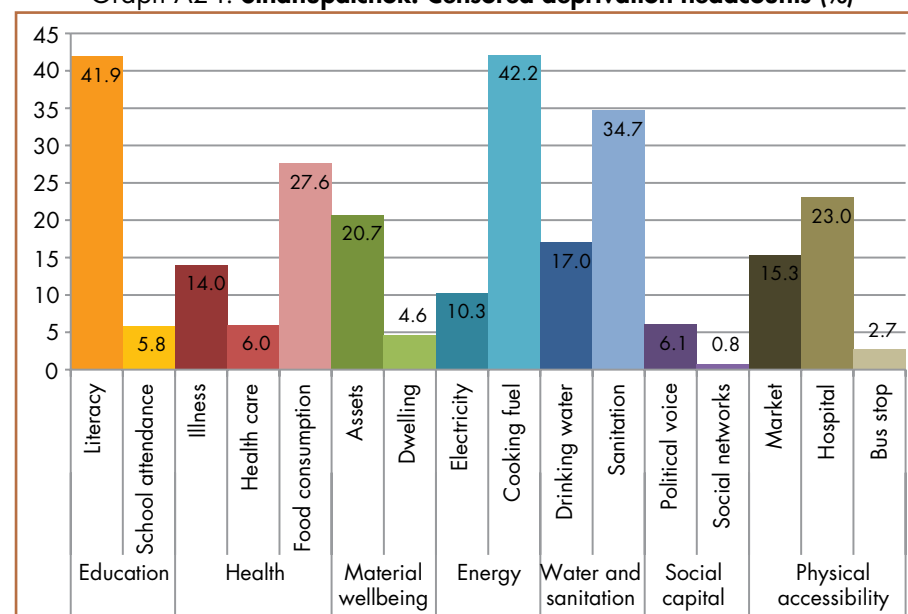
N= 382 HHs; own analysis, weighted; Source: PVAT 2011

Siraha

Table A22: **Siraha: Multidimensional poverty index value, headcount, and intensity**

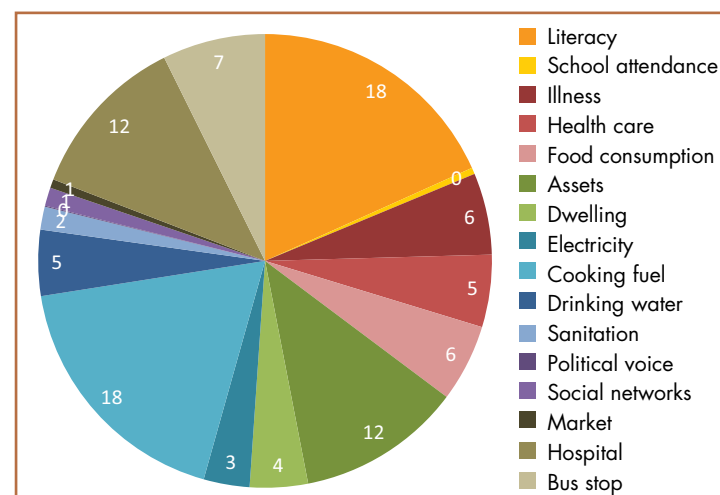| District	Index value	Headcount (%)	Intensity (%)
Siraha	0.30	74.1	40.4

N= 383 HHs; own analysis, weighted; Source: VACA 2011/12

Figure A29: **Siraha: Relative contribution of poverty dimensions (%)**

N= 383 HHs; own analysis, weighted; Source: VACA 2011/12

Figure A30: **Siraha: Relative contribution of poverty indicators (%)**

N= 383 HHs; own analysis, weighted; Source: VACA 2011/12

Graph A25: **Siraha: Censored deprivation headcounts (%)**

Solukhumbu

Table A23: **Solukhumbu: Multidimensional poverty index value, headcount, and intensity**

District	Index value	Headcount (%)	Intensity (%)
Solukhumbu	0.14	36.1	39.4

N= 374 HHs; own analysis, weighted; Source: PVAT 2012

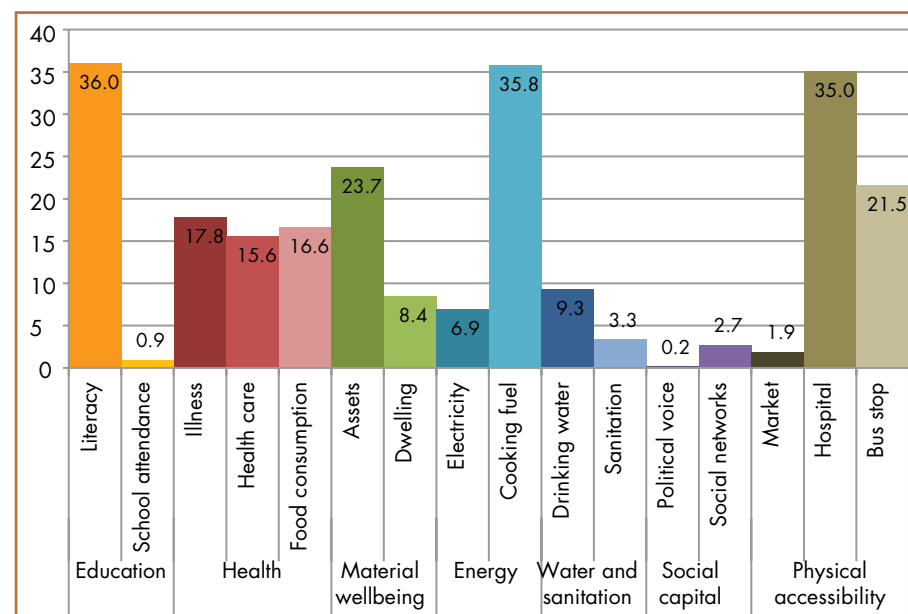Figure A31: **Solukhumbu: Relative contribution of poverty dimensions (%)**

N= 374 HHs; own analysis, weighted; Source: PVAT 2012

Figure A32: **Solukhumbu: Relative contribution of poverty indicators (%)**

N= 374 HHs; own analysis, weighted; Source: PVAT 2012

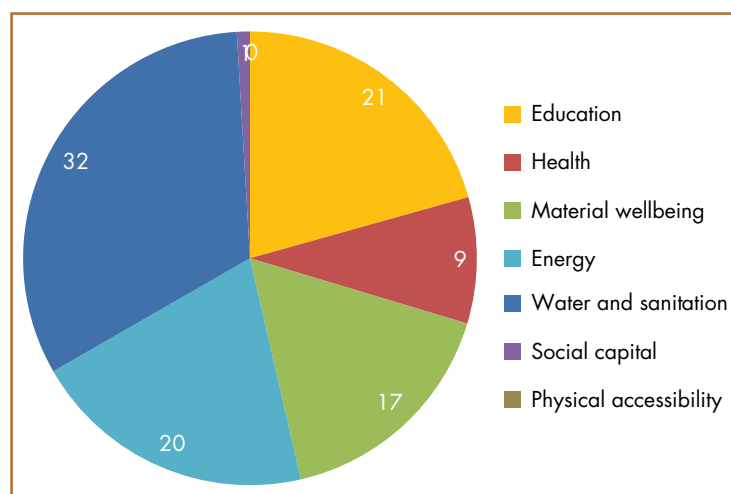Graph A26: **Solukhumbu: Censored deprivation headcounts (%)**

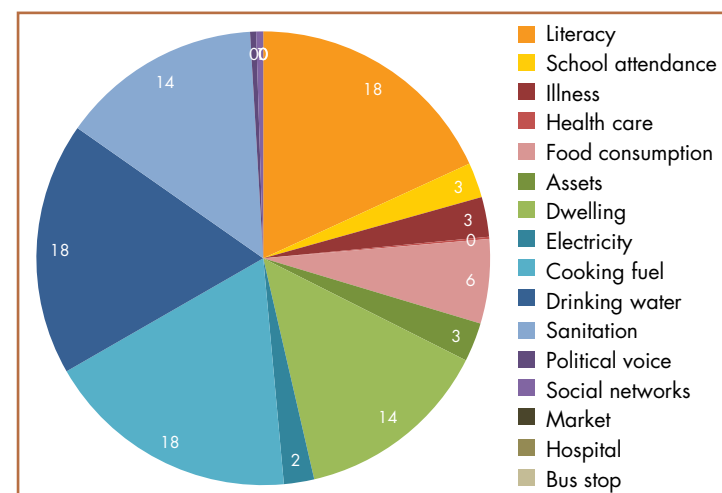N= 374 HHs; own analysis, weighted; Source: PVAT 2012

Sunsari

Table A24: **Sunsari: Multidimensional poverty index value, headcount, and intensity**

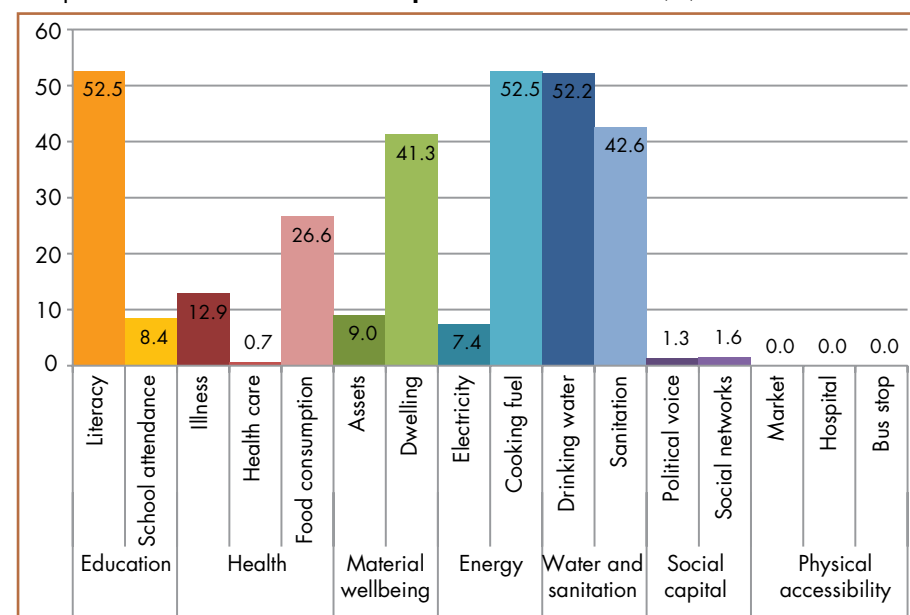| District	Index value	Headcount (%)	Intensity (%)
Sunsari	0.21	52.5	40.2

N= 385 HHs; own analysis, weighted; Source: VACA 2011/12

Figure A33: **Sunsari: Relative contribution of poverty dimensions (%)**

Education 21
Health 9
Material wellbeing 17
Energy 20
Water and sanitation 32
Social capital 1
Physical accessibility 0

N= 385 HHs; own analysis, weighted; Source: VACA 2011/12

Figure A34: **Sunsari: Relative contribution of poverty indicators (%)**

Literacy 18
School attendance 3
Illness 3
Health care 0
Food consumption 6
Assets 3
Dwelling 14
Electricity 2
Cooking fuel 18
Drinking water 18
Sanitation 14
Political voice 0
Social networks 0
Market
Hospital
Bus stop

N= 385 HHs; own analysis, weighted; Source: VACA 2011/12

Graph A27: **Sunsari: Censored deprivation headcounts (%)**

Literacy (Education) 52.5
School attendance (Education) 8.4
Illness (Health) 12.9
Health care (Health) 0.7
Food consumption 26.6
Assets (Material wellbeing) 9.0
Dwelling (Material wellbeing) 41.3
Electricity (Energy) 7.4
Cooking fuel (Energy) 52.5
Drinking water (Water and sanitation) 52.2
Sanitation (Water and sanitation) 42.6
Political voice (Social capital) 1.3
Social networks (Social capital) 1.6
Market (Physical accessibility) 0.0
Hospital (Physical accessibility) 0.0
Bus stop (Physical accessibility) 0.0

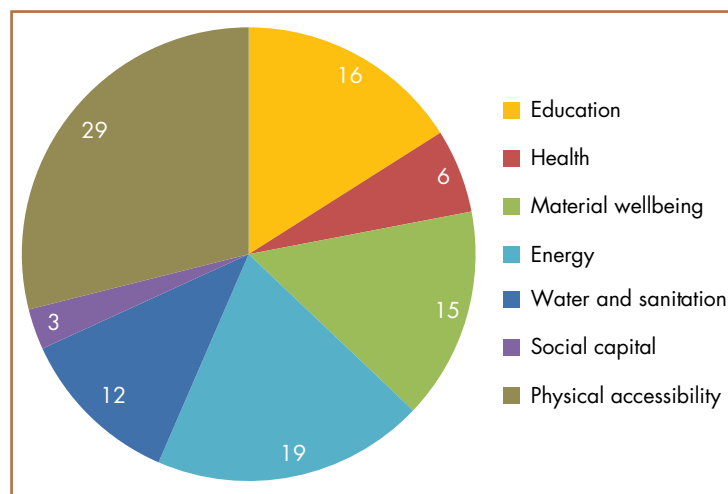N= 385 HHs; own analysis, weighted; Source: VACA 2011/12

Taplejung

Table A25: **Taplejung: Multidimensional poverty index value, headcount, and intensity**

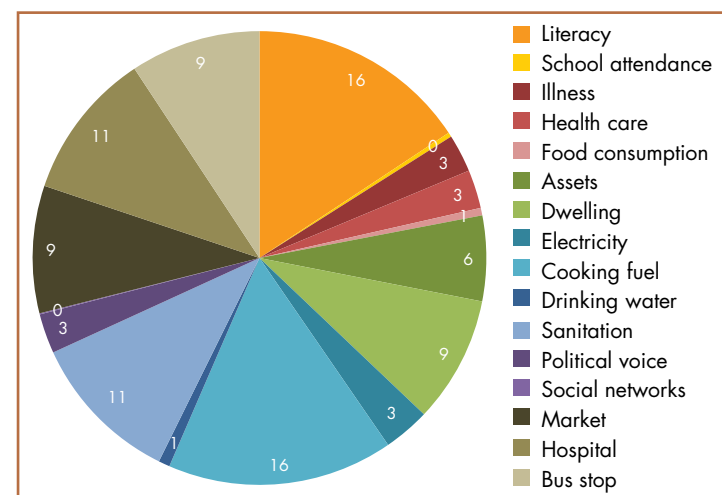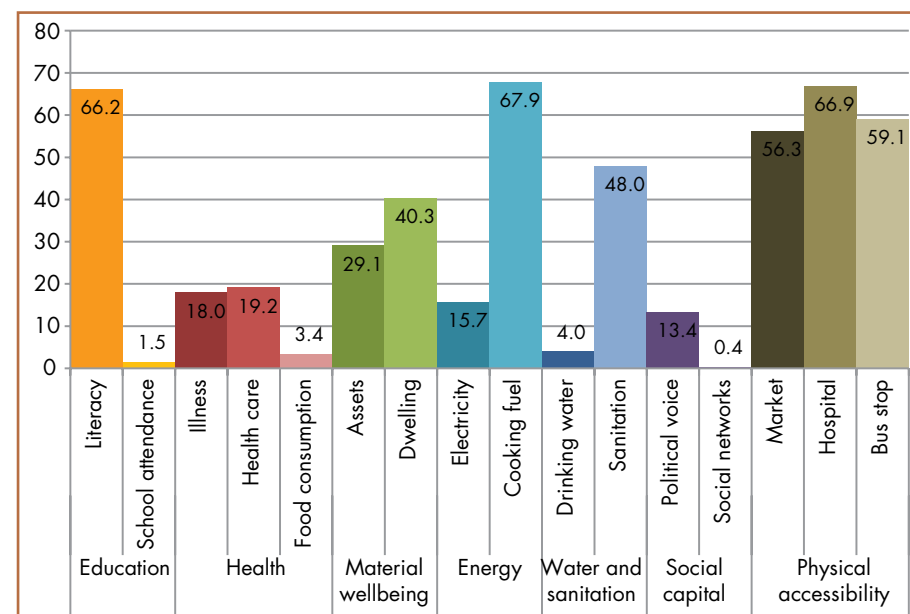| District	Index value	Headcount (%)	Intensity (%)
Taplejung	0.31	68.2	45.6

N= 384 HHs; own analysis, weighted; Source: PVAT 2012

Figure A36: **Taplejung: Relative contribution of poverty indicators (%)**

N= 384 HHs; own analysis, weighted; Source: PVAT 2012

Figure A35: **Taplejung: Relative contribution of poverty dimensions (%)**

N= 384 HHs; own analysis, weighted; Source: PVAT 2012

Graph A28: **Taplejung: Censored deprivation headcounts (%)**
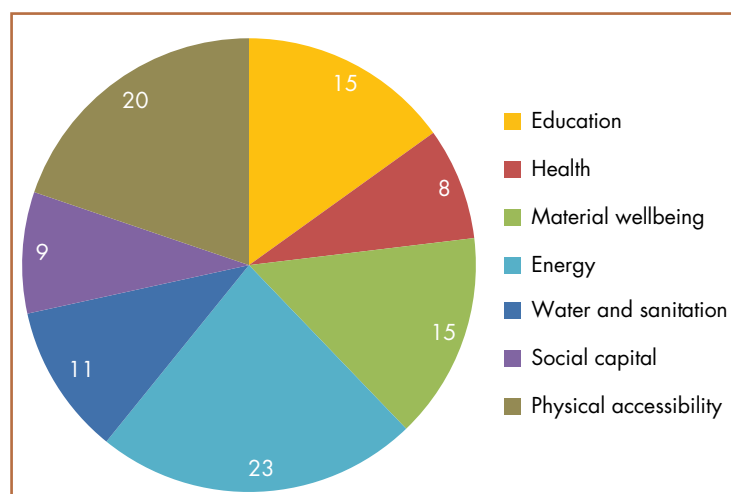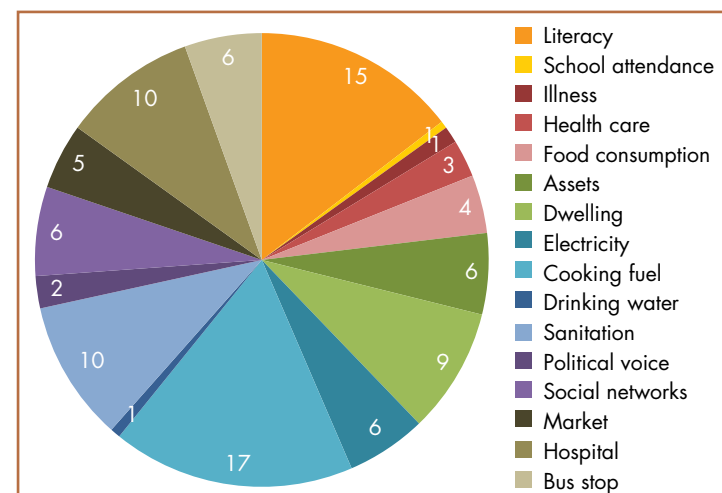
N= 384 HHs; own analysis, weighted; Source: PVAT 2012

Terhathum

Table A26: **Terhathum: Multidimensional poverty index value, headcount, and intensity**

District	Index value	Headcount (%)	Intensity (%)
Terhathum	0.13	29.9	43.1

N= 375 HHs; own analysis, weighted; Source: PVAT 2011

Figure A37: **Terhathum: Relative contribution of poverty dimensions (%)**

- Education
- Health
- Material wellbeing
- Energy
- Water and sanitation
- Social capital
- Physical accessibility

N= 375 HHs; own analysis, weighted; Source: PVAT 2011

Figure A38: **Terhathum: Relative contribution of poverty indicators (%)**

- Literacy
- School attendance
- Illness
- Health care
- Food consumption
- Assets
- Dwelling
- Electricity
- Cooking fuel
- Drinking water
- Sanitation
- Political voice
- Social networks
- Market
- Hospital
- Bus stop

N= 375 HHs; own analysis, weighted; Source: PVAT 2011

Graph A29: **Terhathum: Censored deprivation headcounts (%)**

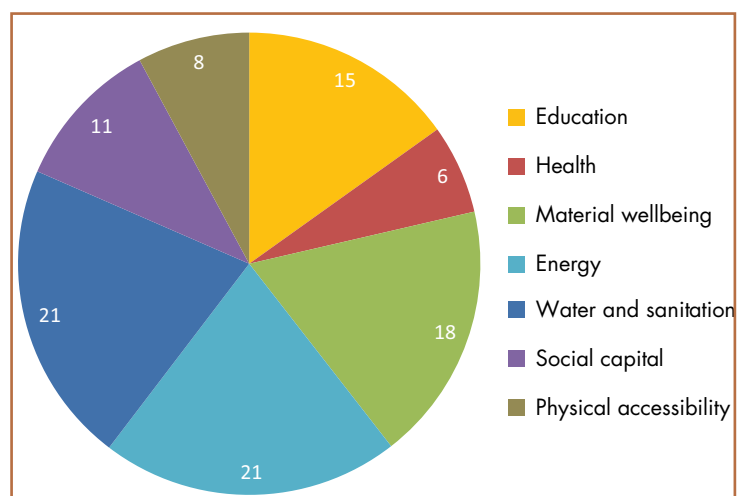
N= 375 HHs; own analysis, weighted; Source: PVAT 2011

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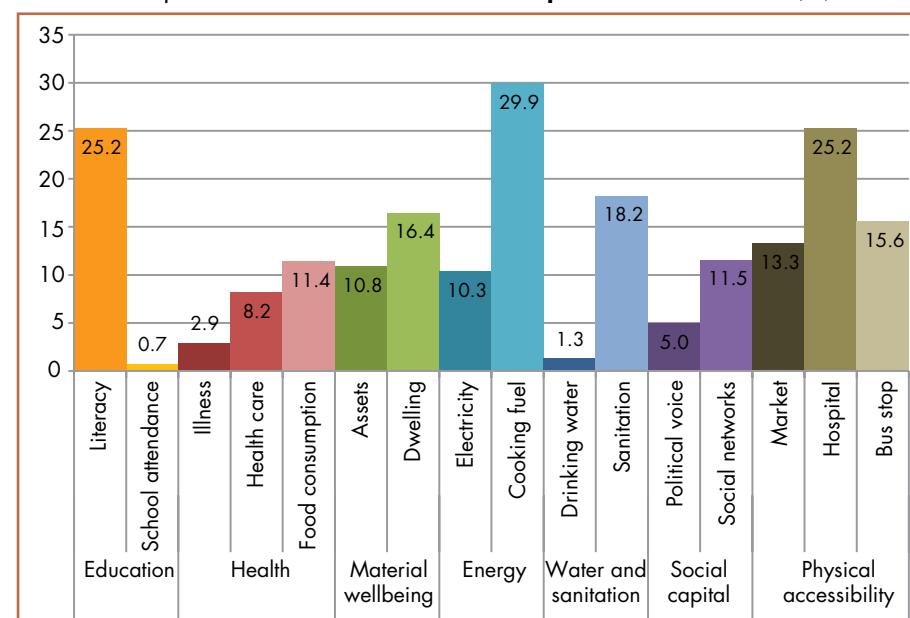
Udayapur

Table A27: **Udayapur: Multidimensional poverty index value, headcount, and intensity**

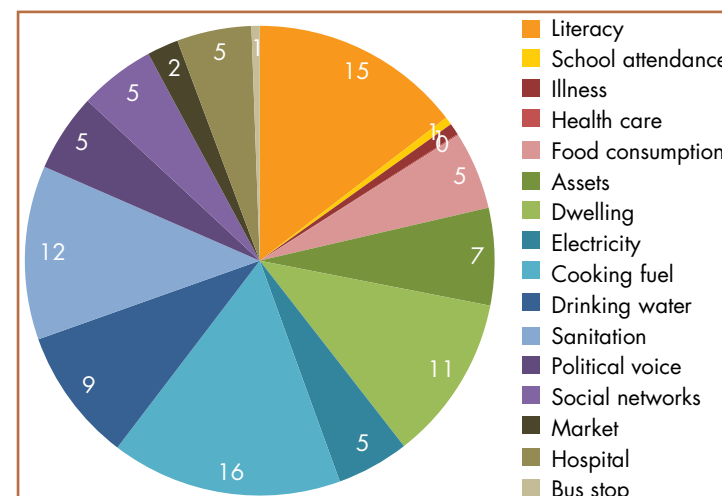| District	Index value	Headcount (%)	Intensity (%)
Udayapur	0.33	70.1	47.6

N= 384 HHs; own analysis, weighted; Source: VACA 2011/12

Figure A39: **Udayapur: Relative contribution of poverty dimensions (%)**
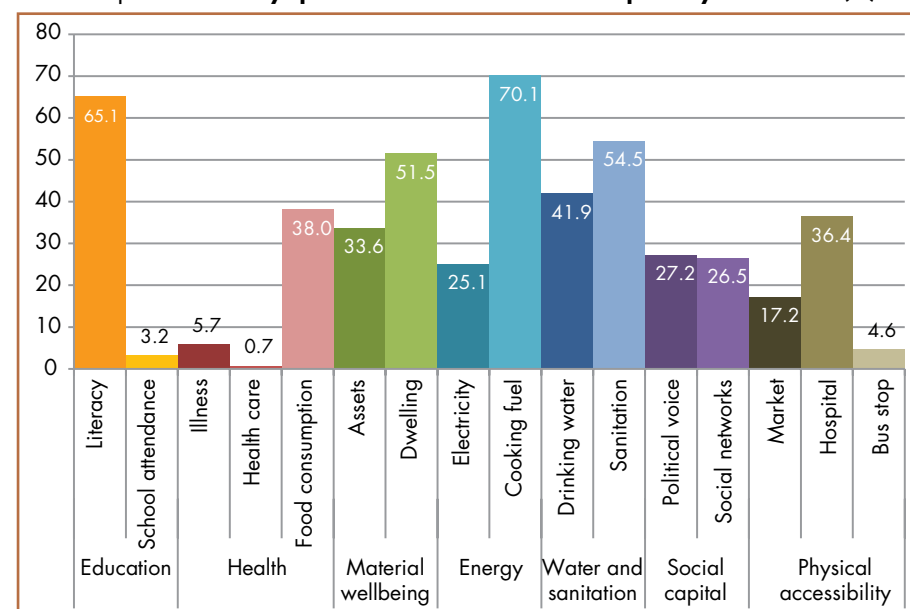

N= 384 HHs; own analysis, weighted; Source: VACA 2011/12

Figure A40: **Udayapur: Censored deprivation headcounts (%)**

N= 384 HHs; own analysis, weighted; Source: VACA 2011/12

Graph A30: **Udayapur: Relative contribution of poverty indicators (%)**

N= 384 HHs; own analysis, weighted; Source: VACA 2011/12

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