WFP
World Food Programme

EUROPEAN COMMISSION
Humanitarian Aid

vam
vulnerability analysis and mapping

Nepal:

Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Data collected in September 2005

Strengthening Emergency Needs Assessment Capacity (SENAC)

Nepal: Comprehensive Food Security and Vulnerability Analysis (CFSVA)

December, 2006

This study was prepared under the umbrella of the "Strengthening Emergency Needs Assessment Capacity" (SENAC) project. The SENAC project aims to reinforce WFP capacity to assess humanitarian needs in the food sector during emergencies and the immediate aftermath through accurate and impartial needs assessments.

For any queries on this document or the SENAC project, please contact ODAN_info@wfp.org or visit www.wfp.org/odan/senac

For information about the VAM Unit, please visit: http://vam.wfp.org

United Nations World Food Programme
Headquarters: Via C.G. Viola 68, Parco de' Medici, 00148, Rome, Italy

For questions or comments concerning any aspect of the survey and this report, please contact:

Mr. Richard Ragan, WFP Nepal	Richard.Ragan@wfp.org
Mr. Siemon Hollema, WFP Nepal	Siemon.Hollema@wfp.org
Mr. Pushpa Shrestha, WFP Nepal	Pushpa.Shrestha@wfp.org
Ms. Erika Joergensen, WFP Bureau for Asia	Erika.Joergensen@wfp.org
Mr. Michael Sheinkman, WFP Bureau for Asia	Michael.Sheinkman@wfp.org
Mr. Samir Wanmali, WFP HQ VAM Unit	Samir.Wanmali@wfp.org
Mr. Jan Delbaere, WFP HQ VAM Unit	Jan.Delbaere@wfp.org
Mr. Siddharth Krishnaswamy, WFP HQ VAM Unit	Siddharth.Krishnaswamy@wfp.org

This document has been produced with the financial assistance of the European Union. The views expressed herein can in no way be taken to reflect the official opinion of the European Union.

Nepal: Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Data collected in September 2005

Table of Contents

Table Index

Map Index

Figure Index

Acknowledgements

This report is the outcome of a collaborative process that began in August 2005 and would not have been possible without the contribution of many individuals and organisations.

First and foremost, however, the World Food Programme (WFP) is grateful for the support of the Government of Nepal—especially the former Vice Chairman of the National Planning Commission, Dr. Shankar Prasad Sharma and the staff of the Central Bureau of Statistics.

Colleagues from UN system agencies and civil society organisations participating in the Food Coordination Committee also provided insights and suggestions during the preparatory and implementation phases of the survey. In particular, thanks go to UNICEF, New ERA and NTAG for their contribution of scales and measuring boards needed for collecting anthropometric data, and for training survey enumerators to capture these data.

Implementing such a survey in Nepal was not without logistical hurdles. Pushpa Shrestha, Puspa Pant, Digambar Dahal, Krishna Pahari and Morten Olesen of the Vulnerability Analysis and Mapping Unit (VAM) in WFP-Nepal deserve recognition for their tireless efforts in ensuring that deadlines were met and problems resolved during the implementation phase, and for their active involvement during the analysis of survey data.

In turn, and in large measure, the survey could never have been implemented without the dedicated participation and professionalism of WFP-Nepal's VAM Field Monitors—especially during the data collection phase. Therefore, appreciation and thanks goes to:

Laxmi Prasad Chaudhary; Raj Kumar Yadav; Prakash Mani Subedi, Parsu Ram Karki; Goma Sanroula; Raju Prasad Neupane; Sunita Raut; Narendra Bahadur GC; Ramesh Prasad Sah; Bharat Thapa; Krishna Kumar Khanal; Bal Bahadur Budha; Chandra Nath Yogi; Som Prasad Tiwari; Sudha KC; Kishor Krishna Bhandari; Birendra Bahadur Chand; Birendra Bahadur Shahi; Bishnu Mani Acharya; Sanita Sainju; Menaka Hamal; Phunzok Lama; Ganesh Padhyay; Narendra KC; Narendra Kumar KC; Netra Prasad Pant; Gyannendra Bahadur Singh; Paras Bahadur Singh, Rabindra Ojha; and Yoga Joshi.

Technical assistance during various stages of the process was provided by Samir Wanmali, Siddharth Krishnaswamy, Livia Peiser, Paola De Salvo, Mark Gordon, Andrea Berardo, Jan Delbaere, Peter Horjus, and Cédric Charpentier from the VAM Unit in WFP Headquarters. WFP is grateful to ECHO which provided the financial resources necessary to implement the CFSVA.

Richard Ragan
Country Director
United Nations World Food Programme
Kathmandu, Nepal

Executive Summary

Introduction

Within a broader organisational effort to better understand vulnerability to food insecurity at the country level, the World Food Programme in Nepal (WFP-Nepal), with the technical assistance of the Vulnerability Analysis and Mapping (VAM) branch of WFP headquarters, undertook a comprehensive food security and vulnerability analysis in Nepal. The effort spanned across a five month period beginning with preparatory activities in August 2005, collection of household and community level data in September 2005, and analysis of these data in November-December 2005.

The objective of the survey was to deepen and expand current knowledge on food insecurity and vulnerability among rural households at the sub-regional level in Nepal. As such, a standard set of questions, developed by WFP, needed to be answered:

- Which populations are vulnerable to hunger and food insecurity?
- Where do they live?
- What are the underlying causes of their food insecurity?
- What types of interventions (food and non-food) are needed to reduce their vulnerability to food insecurity?

The survey was designed to be representative for the three major agro-ecological belts found in Nepal: Mountains, Hills, and *Terai*[1]; and across Nepal's five development regions. Given that the Hill belt is quite heterogeneous in terms of populations and socioeconomic characteristics, that belt was further divided into six socioecological clusters. The latter were constructed using data on elevation, land cover, production patterns and other socioeconomic indicators. The sample was also designed to be representative for these six clusters.

Two types of survey instruments were used to gather data: (a) a household survey aimed at gathering socioeconomic information; and (b) a key informant interview relating to community level information. Using a two-stage probability sampling method, a total of 1,676 households were enumerated and 168 key informant interviews conducted across 168 communities in 43 districts.

The survey also collected information on health and nutrition for 1,359 women of reproductive age (15-49 years) found within sampled households. For those mothers who had children 0-59 months, health and anthropometric data were also collected for these children—1,122 boys and girls. Findings on nutrition are *not meant to be representative* of prevalence rates across sample strata. Rather, such findings serve as an indicative measure to determine whether nutritional status of children is related to the food security status of households.

WFP will utilize the data collected by this survey to guide its future assistance strategy and as a baseline against which changes in food security conditions are monitored through its real-time field surveillance system. At the same time, it is hoped that findings will help the efforts of WFP partners in Nepal—especially among Government, civil society and the UN system.

[1] Plains

Which populations are vulnerable to food insecurity?

There are several factors that contribute towards household food insecurity. There is no one indicator that can universally explain the reasons why certain households are more vulnerable than others. Therefore, a composite set of indicators need to be analysed and interpreted—ranging from food consumption and livelihood strategies to access to key social services such as health and education.

The study found that 27% of households consume a homogeneous and nutritionally-poor diet (Table 1, poor and very poor)—one key element associated with their food insecurity. The latter include a high proportion of households whose main source of income/livelihoods are petty trade, unskilled wage labour, or exploitation/collection of natural resources/handicrafts.

Table 1 – Food Consumption Patterns

Food Consumption Typology	% of households
Very Poor Food Consumption	16%
Poor Food Consumption	11%
Fair Food Consumption	30%
Good Food Consumption	41%
Very Good Food Consumption	3%

These same 27% of households tend to have members who are poorly educated (if at all), possess few productive assets (if any), have limited access to cash remittances, and have larger family sizes.

Around 74% of households having very poor and poor food consumption patterns also do not have any proper sanitation facilities. Additionally, 21% of the very poor food consumption group access water through unprotected wells or springs.

Finally, these same households also had high incidences of underweight among children - 59 months. Of the children living in households with poor and very poor food consumption, 61% and 56% respectively are found within these households are moderately or severely stunted and the same proportion were found to be moderately or severely underweight.

Where do food insecure populations live?

Out of the areas which this study covered, food insecurity[2] was found primarily in the Far west and the MidWest. By WFP zones, which is simply a breakdown of belts, the mountain belt (cluster 5), and cluster 1 (the western portion of the Terai) have the highest prevalence of food insecurity.

What are the underlying causes of food insecurity?

Household vulnerability to food insecurity in Nepal is contingent on two inter-related issues: ***food utilisation and food access.***

Food utilisation is the ability of households, and all their members, to properly absorb food in order to benefit from its nutrient and energy content. This, in turn, is primarily a function of the level of education among household members—especially the head of household—knowledge of care practices, and health and living conditions.

Food access is the ability of households to be able to produce or purchase a sufficient amount and diversity of food items as well as access other goods and services that contribute towards overall well-being. This outcome is dependent upon the types of livelihood strategies being pursued by households and their effectiveness, as well as the ability of such households to recover from periodic shocks. Moreover, food access is also constrained by the chronic poverty that is pervasive throughout Nepal.

The following paragraphs summarise findings relating to food access and food utilisation—emphasising their role and contribution towards household food insecurity.

Livelihoods and Agriculture

Livelihoods and the role of agriculture were found to be critical components of food access. Households were found to employ several livelihood activities (Table 2) simultaneously in

[2] As defined by very poor food consumption.

order to meet household needs and priorities. Therefore one particular livelihood activity is not necessarily better than another.

Rather, households that are vulnerable to food insecurity—in terms of access and utilisation—are *unable to effectively combine primary, secondary and tertiary livelihood activities* in a manner that stabilizes income streams, rendering them more predictable.

Taking the case of agriculture—which was the main livelihood of 25% of households—approximately 89% of households reported having access to land. That is more than the figure (i.e., 78%) found in the Nepal Living Standards Survey 2003/4. However, the size of landholdings ranges from 0.01 hectares to 7 hectares (ha)—with an average of 0.6 hectares.

Around 65% of households reported having acquired land through inheritance, 22% through purchase, and the remaining 12% through renting or share-cropping. The fact that land is divided among all male siblings through inheritance in Nepal is likely to keep landholding sizes low. Indeed, the fact that so few purchase their land implies that the return on investment in agriculture is not sufficiently attractive to change this pattern.

Table 2 - Livelihood Profiles and Principal Livelihood Activities

Livelihood Profile	No. of sampled HH	% HH	Primary Share	Secondary and Tertiary Share
1. Agriculture	371	25%	Sales of crops (76%)	Unskilled labour
2. Unskilled Wage Labour	332	24%	Unskilled wage labour (82%)	Agriculture and livestock
3. Remittances	280	15%	Remittances (81%)	Agriculture
4. Salaried & Skilled Work	291	16%	Salaried/skilled work (84%)	Agriculture, livestock
5. Livestock	172	7%	Sales of livestock (76%)	Agriculture
6. Petty Trade & Commerce	128	6%	Petty trade or commerce (81%)	Brewing, Agriculture
7. Natural Resources & Handicrafts	76	5%	Handicrafts and use of natural resources (61%)	Other activities
8. Government Pension	67	3%	Government assistance (78%)	Agriculture

Across the belts, the greatest proportion of households with access to land was found in the hills, but these households also had the smallest average landholdings (0.6ha). This would imply greater competition for land. The inverse is true for the Terai—the lowest incidence of households reporting access to land, but having the highest average size of landholding (0.9 ha).

Use of input technologies among households having land is minimal. Few producers utilize hybrid seeds: 63% reported using only their own carry-over stock. Less than half of households reporting owning land use chemical fertilizer and most did so only in combination with natural fertilizer (Table 3). Generally speaking, agricultural production patterns are not input-intensive and, given the small size of landholdings, likely to be more subsistence-oriented.

Table 3 - Fertilizer Use Among Farming Households

Type of Fertilizer Used	Percentage of Households (%)
Natural fertilizer only	43 %
Chemical fertilizer only	22 %
Both natural & chemical fertilizer	34%
None	1 %

In this context, it is likely that agricultural production generally does not meet household food requirements. On average, 44% of household food expenditure goes toward cereals. In contrast, expenditure on pulses, vegetables, fruit, milk and eggs is limited. By choice or necessity, households rely on their own production for vegetable and animal products. In the case of the poorest food consumption groups, that does not provide the minimum input of protein and micronutrient-rich foods.

This is a typical characteristic of poor households who spend the little money they have on cereals that are filling and high in energy but low in nutritional value. They lack financial and other resources to increase their own production of either vegetables and animal

products or cereals which would enable them to limit their expenditure on cereal and/or increase their income from sale of produce.

Agricultural households receive limited technical support, such as agricultural extension services, and have limited access to equitable credit. This prevents smallholders from reaping considerable returns on what would be relatively small investments. The Nepal Living Standards Survey 2003/4 suggests a correlation between a household's proximity to an agriculture centre, which provides extension services, and its poverty status: only 17% of the poorest and 53% of the richest quintile is within 30 minutes walking distance of an agriculture centre.

Another problem is the lack of access to improved inputs. For example, the absence of infrastructure to provide hybrid seeds and fertilizers to farmers in remote areas means that most agrochemicals and improved varieties have to be imported from India. The added costs make this an unviable option for smallholder farmers.

The absence of economies of scale in Nepal's agricultural sector discourages the introduction of technology improvement, hampering the sector's capacity to reach its full potential. This pushes agricultural producers to continue to embrace multiple livelihood strategies, not all of which provide stable income streams. The latter are, primarily, unskilled wage labour and remittances. Both of these sources of income are seasonal and food insecure households are not able to effectively combine these three main livelihoods to ensure adequate food access.

Risk Exposure and Coping

Seventy-three percent (73%) of households reported that they had experienced a shock in the past year. Dry spells and/or irregular rainfall (43%) and serious illness in the family (31%) are the most frequently mentioned shocks. Almost half of those reporting family illness also reported that the illness resulted in a loss of both income and assets. Ninety-seven percent (97%) of all households reporting illness indicated that labour resources were diverted away from food acquisition and the household faced difficulties in producing or acquiring sufficient food for the duration of the illness.

Bandhs[3] were often ranked as a major shock, but less regularly and more evenly across the strata. They were most frequently reported in the Hill and Terai belts of the Eastern region. Uniquely, respondents in the Mid-western region tended to list Bandhs together with "conflict" as a risk or shock of the past year.

Covariate shocks, such as dry spells and Bandhs, which affect several households, tend to be tackled through coping strategies that are more sustainable than idiosyncratic shocks, such as illness of a family member, which only affect a small number of households.

The data show that idiosyncratic shocks are disproportionately more damaging to household welfare in both the short and long-term compared to covariate shocks. They tend to result in sale of productive assets, such as land and livestock, or enduring several days without food. This being said, borrowing money is the most common form of response coping strategy reported by households—irrespective of the type of shock.

Nevertheless, this strategy does have a major limitation insofar as households will likely incur debt in the long-run while trying to mitigate and reduce short-term welfare losses such as income and assets. This not only increases household vulnerability to food insecurity, but also moves them toward greater levels of income poverty in the mid- to long-term.

In contrast, the range of coping strategies, which households and whole communities employ for covariate shocks, suggest that they have prior experience and accumulated skills to tackle them. This points to a history of frequent localized hazards and infrequent external assistance in dealing with these in Nepal and stresses the importance of designing external assistance strategies in a manner that appreciates and maintains rather than damages these established collective coping mechanisms.

[3] *Bandhs* are enforced closures of banks, schools, offices and other commercial activity that also involve restrictions in population movements. *Bandhs* can be called by political parties, student associations and trade unions.

Education

Educational attainment is an important factor related to food security. Households of educated members are more likely to be economically mobile, have better health and nutritional status, and are better able to meet their food and non-food needs. Education reduces the intergenerational transmission of poverty, food insecurity and malnutrition

The current generation of adults in Nepal shows low levels of educational attainment and high levels of gender disparity. Sixty two percent (62%) of all household heads—both male and female—reported having no schooling whatsoever. And only 16% reported having some primary schooling.

When disaggregating for gender, 92% of all female heads of households reported not having any schooling as compared to only 59% of their male counterparts. Among adult members of households (≥15 years old), 53% have never received any formal education (68% of women and 38% of men). Future generations are somewhat better off. Among the 6-14 years age cohort, only 17% have never received any schooling. However, gender disparity remains evident as 62% of these are girls—predominantly among households in the Terai and Mountain regions.

Of the remaining 83% of boys and girls aged 6-14 who are attending school, around 11% have missed more than one week of school in the month prior to the survey. The most common explanations provided for absenteeism are illness, insecurity, household chores, and refusal to attend. Only small differences are observed between boys and girls (Table 4).

Table 4 – Reasons for Periodic Absences among 6-14 Year Olds Attending School

Reason for Absence	% of children	% Boys	% Girls
Sickness/Illness of child	42%	44%	39%
(In)security	14%	13%	16%
Household chores	12%	9%	15%
Refusal to go to school	10%	12%	8%
Children have to work	8%	9%	6%
Caring for siblings	5%	2%	8%
School too far away	2%	2%	2%
School fees not paid	2%	2%	2%

Key informant interviews showed that only 40% of communities reported having a functioning secondary school. Furthermore, 75% of all key informant interviews noted that the most common form of transport for community residents was by foot. Around 40% of communities have a motorable road within 45 minutes walking distance.

Therefore, it is likely that households are reluctant to send children for secondary education in neighbouring areas due to the additional costs and the time this takes away from income generation activities and agricultural work.

Expenditures

Food and non-food expenditure can serve as a proxy indicator of household access to food. Generally, a greater share of expenditure going towards food indicates limited access to food because food tends to be cheaper than other goods, such as health care, education or investments in productive assets.

On average, 50% of the households' monthly expenditure covers food. The bulk of monthly food purchases are on cereals (42%), meat (17%), and oil or ghee (12%)

Expenditures on pulses, vegetables, fruits, milk and eggs are quite low.

Figure 1 - Monthly Food Expenditures

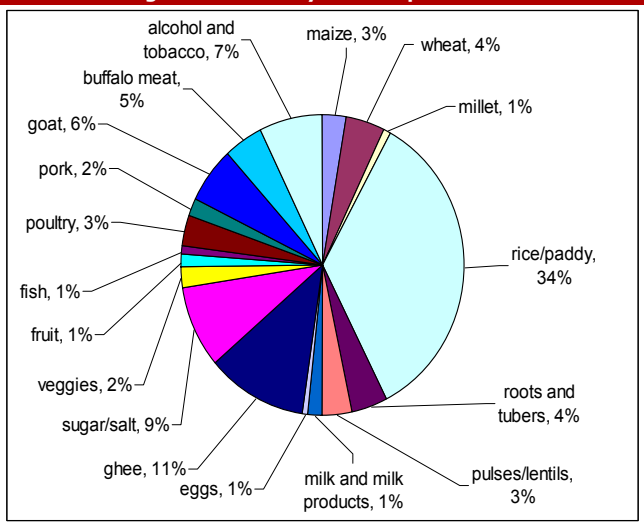
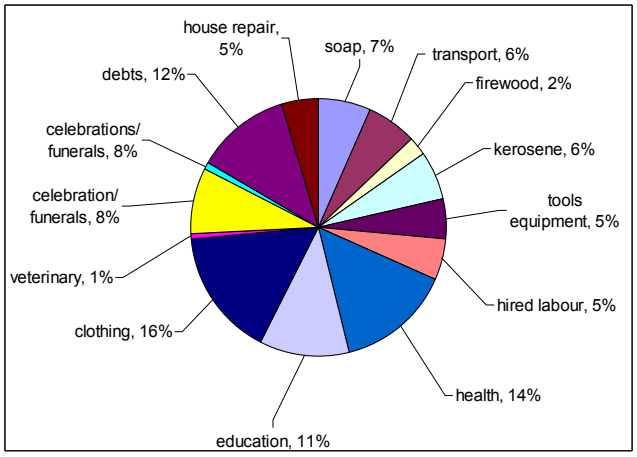


Figure 2 – Monthly Non-Food Expenditures



Non-food outlays, on the other hand, are more evenly distributed across several priority areas (Figure 2). In particular, health and education account for 14% and 11% of non-food expenses, respectively.

At the same time, however, debt outlays are quite high, taking up 12% of monthly expenditures.

Of the total monthly expenditure on a member of a household in the lowest quintile, roughly half will go towards food purchases. This amount is in the range of NRs. 84.00 – NRs. 249.50[4]. Almost half of this tends to be spent on cereals.

Households in the lower end of that expenditure range will be hard pressed to meet food needs and cope with retail price fluctuations.

Credit and Debt

The findings on credit and debt complement information collected on coping strategies and expenditures. The most common sources of credit reported are from friends and relatives (57% of households) and local money lenders (45% of households).

At the same time, 70% of these same households reported that they have purchased food on credit with borrowed money. And a third of those buying food on credit reported having done so more than three times in the three months prior to the survey.

While no quantitative data on interest rates on loans were collected as part of the survey, key informants reported that informal money lenders were charging high interest rates on loan repayments. The reliance on informal sources of credit, the high incidence of taking on credit to buy food, and reports of high interest rates on loans incurred suggests that households might be facing medium-to-long term indebtedness.

Migration

Labour migration is a preferred livelihood strategy among households. Forty-four percent (44%) of households reported that one or more members were away during the time of the survey—which, incidentally, took place during the harvest season in many areas.

Around 71% of these same households had one family member who migrated and 29% reporting having 2 or more members migrating outside of the household pursuing labour opportunities. Long-term migration is an important livelihood strategy given that 72% of households having migrating members reported that the latter are away for more than 9 months.

[4] November 2005 Exchange Rate: 1 USD = 73 NRs.

The most common destination for migrants was reported to be India (39% of households having one or more members there). Internal migration in Nepal was the second most common destination (38%). And finally, 32% of households reported that they had migrating members in countries outside of the sub-continent, especially Saudi Arabia, Qatar, Malaysia and Dubai (in that order of priority).

The median annual remittance to households with a member migrating to another location in Nepal is NRs. 12,000 (approximately USD164), in India NRs. 10,000 (USD137) and in the Middle East (e.g., Saudi Arabia) and other areas NRs. 60,000 (USD822).

Households in the Hill belt reported the highest frequency of migrating members. When looking at these figures in the context of access to agricultural land in this same belt, the monetary incentives to migrate become more apparent. Roughly half of households in the Hills do not have access to land and those that do have access to land have on average landholdings smaller than the average (i.e., < 0.6 ha). The data also show that most migrants are men between the ages of 18 and 30. This group would tend to be the most economically productive household members and those most likely to engage in agriculture if it were a viable option.

Migration is a complex issue which this survey only begins to explore. Factors, such as under- and unemployment are likely to contribute to its upward trend. The same might apply to the intensification of hostile activities by the parties to the armed conflict, the impact of which is hard to quantify. High migration rates could exert particular negative or positive influence upon the social fabric in rural areas. This requires further research that is beyond the scope of this study.

Health and Nutrition among Women and Children

The Body Mass Index (BMI) scores for women match the findings of the 2001 Nepal Demographic and Health Survey (DHS) quite well. The highest incidence of low BMI was found among women in the Terai (39%) of whom 64% fell below the threshold of 45 kg (Table 5).

Table 5 - Body Mass Index Scores and supplements and Care Practices by Agroecological Belt

Belt	N	Mean BMI(kg/m^2)	Low BMI	Vitamin A after birth	Currently breastfeeding
Mountain	223	19.95	30%	23%	45%
Hill	942	20.46	21%	17%	48%
Terai	325	19.23	43%	40%	48%

Overall, a low percentage of women reported receiving a vitamin A capsule immediately after their last birth (Table 6). These capsules are not only given to boost levels of vitamin A in the mother but also to ensure that she passes on the benefits of vitamin A to her newborn child through her breast milk. Women living in the Hill belt reported the lowest frequency of receiving this capsule.

In terms of nutrition indicators, the Terai belt had highest incidence of wasting—17% among children 6-59 months (significantly higher than the Mountain or Hill belts). This is considerably higher than the 13.4% from the 2001 DHS.

Table 6 – Malnutrition and illness among children by Agroecological Belt

Belt	N	Wasting		Underweight				Stunting				Illness in past 2 weeks		
		< -2.00	95%CI	< -2.00	95% CI	< -3.00	95% CI	< -2.00	95 % CI	< -3.00	95% CI	Fever	Diarrhea	Cough
Mountain	177	8%	5, 13	59%	50, 67	13%	9, 19	62%	53, 70	28%	21, 36	46 %	23%	50%
Hill	688	7%	5, 10	43%	38, 48	8%	6, 11	49%	43, 54	15%	12, 19	36 %	17%	37%
Terai	245	17%	12, 24	53%	45, 61	13%	9, 19	41%	34, 49	15%	11, 22	42 %	23%	42%

Irrespective of their location, however, the reported instances of fever, cough and acute respiratory infections were very high. This could be a seasonal phenomenon but warrants concern about their overall nutritional and the food security situation among children.

The mountain belt represented the highest proportion of severely stunted children (i.e., children below 3 standard deviations from the international norm). On the whole, the numbers for severe stunting match the 2001 DHS. The exception is in the hill belt where this survey found 6% fewer severely stunted children (21% vs. 15%) than the DHS.

Water and Sanitation

The majority (66%) of households do not have access to appropriate toilet and sanitation facilities. Across the agro-ecological belts, the Terai have the fewest toilet facilities. The difference between development regions is less pronounced. The Mid West reported the fewest households with facilities (78%) but barely exceeded the Central (75%) and Mid-western (73%) regions.

Access to clean drinking water is an important determinant of food security. Forty-four percent (44%) of households rely on a public water tap. Notably, though, 80% of households had drinking water "on premises" which was defined as: (a) 50 meters uphill or downhill from the household, (b) 100 meters in any horizontal direction, or within 15 minutes of return travel time.

Unprotected wells or streams were reported as the main source of water for 29% of households in the Far west, 15% in the Mid West, 10% in the West, 4% in the Central, and 13% in the Eastern, and among 20% of households in the Mountains, 18% in the Hills, and 4% in the Terai.

While a far greater proportion of housheolds reported access to "safe" public taps across these two strata, the fact that a sizeable number of households use unprotected water sources should warrant concern. Combined with the fact that proper sanitation and toilet facilities are limited among households, there is a risk of communicable disease, diahrrea, worm infestation and overall ill-health among households who use unprotected sources of drinking water. The likely consequences are reduced productivity and increased costs which have negative implications for the household's food security.

What types of interventions are needed?

Improving Food Utilisation

Food Based Programmes: Equity in Health and Education

- ***School Feeding Programmes*** **should be targeted in districts with high concentrations of food insecure households**. The main objective of school feeding programmes would be to increase girl's enrolment in primary education—thereby reducing current and future gender disparity in access to education.
- ***WFP, in particular, should consider continuing a take home ration*** that is comprised of Vitamin A-enriched oils and pulses for ***both*** boys and girls who participate in school feeding programmes. These two food items can help increase the nutritional content of foods consumed by households vulnerable to food insecurity and diversify the types of foods that are consumed.
- ***WFP and the Government of Nepal (GoN) partners should maintain, and consider expanding, their current Maternal and Child Health Care (MCH) programmes.*** If implemented in targeted districts, MCH programmes can dramatically improve the health and nutrition status of pregnant and lactating mothers and children 6-36 months—especially in conjunction with de-worming and iron-foliate supplementation. *A recent follow-up survey of the MCH programme in Makwanpur showed an impressive decrease in malnutrition rates of children 0-36 months and anaemia among women over just two years of implementation.*
- ***Nutrition and care practices should be the main themes of food-for-training activities*** geared towards women of reproductive age. These activities should be part of a broader community-based intervention. A recent study in the Lancet clearly demonstrated the effectiveness of participatory interventions with women's groups on infant mortality in Nepal.[5]

[5] Manandhar, et al. 2004. "Effect of a participatory intervention with women's groups on birth outcomes in Nepal: cluster randomised controlled trial." The Lancet: 364: 970-979.

- ***Food-for-work programmes should concentrate on improving the quality of community water and sanitation systems.*** The particular types of activities could include protecting and rehabilitating water sources—especially public taps, unprotected wells and boreholes—and constructing community latrines.

Non-Food Based Programmes: Equity and Efficiency of Health Care

- UN system agencies, civil society organisations and government partners should encourage the design and implementation of ***community-based participatory health and sanitation programmes***. These programmes could provide the umbrella under which food and non-food activities can be implemented. Given the dearth of community-based clinics, such programmes can develop a network of community-based health workers who could coordinate and implement health and sanitation activities.
- The Ministry of Health and its partners in the UN system, civil society and donor community should consider ***strengthening existing health service centres*** in targeted districts. This would entail providing appropriate equipment and training of hospital workers, primary health-care and community-based workers and other health system support staff.
- ***Civil society organisations (both national and international) should continue and expand current social mobilisation activities with community-based women's groups*** in order to strengthen their capacity to manage community-based development programmes related to health and care practices.

Improving Food Access and Household Livelihoods

Food Based Programmes: Equity in and Efficiency of Livelihoods

- WFP should consider ***generic food-for-training*** activities that can improve the ***basic literacy*** of adults belonging to food insecure households and ***specialised food-for-training*** programmes that emphasize new skills such as ***carpentry and tailoring***.
- Given the low levels of education among adults, the ***generic food-for-training is applicable across all targeted districts***. ***Specialised food-for-training*** activities should focus on ***districts in the Western and Central development regions*** (see Section VI).

Non Food Based Programmes: Equity in Livelihood Inputs

- ***Rural agricultural development programmes*** can help strengthen farming-based livelihoods, especially improvements in areas such as irrigation and other agricultural inputs, farming technology, and access to markets (possibly including roads).
- ***Group-based credit schemes*** should be introduced ***on a pilot basis*** by civil society organisations that have experience in this field. Lessons from neighbouring countries such as Bangladesh and India will be useful in the design and implementation of such efforts.
- The GoN—especially the Ministry of Agriculture—should encourage the ***development of grass-roots cooperatives***. A number of these cooperatives should necessarily target and be run by women.
- ***UN system agencies, bilateral donors and the GoN should revisit and update current integrated rural community development programmes***. Such programmes have had some success—especially in the forestry sector. A greater emphasis should be placed in building up productive assets among food insecure households.

Policy Priorities: Recommendations for Government

- Results of the survey have found that children rarely continue their education beyond the primary level. Part of the problem is related to physical access and availability of secondary schools in sampled communities—especially those with high concentrations of food insecure households. ***The GoN should consider improving access to***

secondary schools while continuing to strengthen the quality of primary education.

- Access to credit is an important contribution and input into ensuring that livelihoods can be productive. However, the survey has shown that, by and large, households gain access to credit from friends and money lenders. ***The GoN should increase the transparency and accessibility to formal sources of credit.*** This can be achieved through a series of policy measures that can regulate credit provision for poorer and food insecure households.
- The level of education and skills of adult members in households vulnerable to food insecurity have been found to be low. At the same time, Nepal faces considerable problems in terms of soft infrastructure (clinics, schools, service centres) and hard infrastructure (roads, electricity). ***The GoN should consider instituting a set of macroeconomic growth policies that are: (a) labour intensive; and (b) focus on broad-based development of both hard and soft infrastructure***. This labour intensive-led strategy can take advantage of Nepal's labour market and meet a national priority identified in several policy documents.
- Awareness of HIV/AIDS is quite high. This being said, South Asia has a rapidly growing HIV-positive population. ***The GoN should invest in scaling-up current AIDS awareness and prevention programmes.***

Part I: Background and socioeconomic context

Section 1.1. History

Newars are thought to have lived in the Nepal Valley since the 4th century AD, developing a Hindu-Buddhist culture and a civilization that thrived on a trade route from India to Tibet. The culture of the kingdom developed as a blend of Hindu-Aryan and Tibetan-Mongoloid people over the course of time. In 1769, Nepal's various kingdoms were unified by Prtihvi Narayan Shah, an ancestor of the present-day king, who was then the king of Gorkha, a principality west of Kathmandu.

The Kingdom, which was consolidated and expanded to lands beyond the present-day borders of Nepal, eventually had a direct confrontation with British India. After the war with the British and the subsequent treaty of 1816, Nepal lost part of its territory but retained its independence. It has maintained its close association with Britain since then and with India since the latter gained independence in 1947.

In 1951, the Nepalese monarch ended the century-old system of rule by hereditary premiers and instituted a cabinet system of government. Reforms in 1990 established a multiparty democracy within the framework of a constitutional monarchy. A Maoist insurgency, launched in 1996 against the monarchy, has gained traction—especially after a negotiated cease-fire between the Maoists and government forces broke down in August 2003.

The security situation gradually deteriorated to the extent that the government was not able to hold elections in 2002. In 2002 the King dismissed the Prime Minister and his cabinet and dissolved the parliament. While stopping short of re-establishing parliament, the king in June 2004 reinstated the most recently elected prime minister who formed a four-party coalition government. The political situation became acute in early 2005, when the entire government was dismissed and a state of emergency declared. The latter was lifted in April 2005. The Government, now headed by the King, has announced plans to hold elections in April 2006, but political uncertainty continues.

Section 1.2. Geography[6], Population and Ethnic Groups

Nepal is a landlocked, predominantly mountainous country bordering China to the north and India to the south, east and west. It has an area of 147,181 square kilometres, average length of 885 km east to west, and average width of 193 Km north to south. The country has an immense variety of topography, ranging from lowland plains in the south with elevation as low as 90 meters to the Himalayan mountain range in the north with elevation as high as 8848 meters.

Given these topographical differences, there are two ways to describe the physical geography of the country. The first corresponds to spatial characteristics and divides the country longitudinally along three belts: mountains, hills, and Terai. These divisions reflect the climatic, ethnic and cultural diversity found within the country. The second division is more along administrative lines for governance purposes: Eastern, Central, Western, Mid West and Far West.

The total population of Nepal is estimated as being 23,151,423 persons, of which 11,563,921 (49.95%) are male and 11,587,502 (50.05%) female. The overall population growth rate is 2.24% per annum (NLSS 2004).

When comparing the population distribution among agro-ecological belts, the Terai has the highest percentage of population, nearly half at 48%, followed by the Hill with 44% of the population. The remaining eight percent are located in the Mountains.

Across regions, the Central region has highest population (35%), followed by the Eastern (23%) and Western (20%). The Mid Western and Far Western regions have relatively low populations of 13% and 9% respectively.

[6] Much of this information comes from the following: Statistical Pocket Book: Nepal 2004 (National Planning Commission Secretariat/Central Bureau of Statistics (HMGN).

Table 5 - Population distribution by development region and belt				
	Terai	**Hill**	**Mountain**	**Total Persons**
Eastern	3,299,643	1,643,246	401587	5,344,476
Central	3,934,080	3,542,732	554,817	8,031,629
Western	1,753,265	2,793,180	24,568	4,571,013
Mid Western	1,230,869	1,473,022	309,084	3,012,975
Far Western	994,596	798,931	397,803	2,191,330
Total Persons	**11,212,453**	**10,251,111**	**1,687,859**	**23,151,423**

Source: Population Monograph of Nepal, Vol. I. CBS, 2003.

Approximately 14% of the total population reside in 58 urban areas of the country—mainly in the Kathmandu valley (Kathmandu Metropolitan city, Lalitpur, Bhaktapur, Kirtipur, and Madhyapur Thimi Municipalities). The Central region has the highest number of urban areas followed by the Eastern, Western, Far Western, and Mid Western regions.

Table 6 - Urban Population by Development Region			
Development Region	**Number of urban areas**	**Population**	**% of the total urban population**
Eastern	14	624,610	19.35%
Central	20	1,605,264	49.73%
Western	12	520,826	16.14%
Mid Western	6	231,375	7.17%
Far Western	6	245,804	7.61%
Total	**58**	**3,227,879**	**100%**

Source: Population Census 2001, National Report, CBS.

There are 103 ethnic/caste groups in Nepal (Population Census 2001, CBS Nepal), living in different parts of the country. Nearly 30% of Nepal's population belongs to either the Chhetri or the Brahmin caste. Magar, Tharu and Tamang are the next major groups accounting for approximately 20% of the population.

Table 7 - Most Common Languages in Nepal[7]	
Language	**% of Population**
Nepali	48.61 %
Maithili	12.30 %
Bhojpuri	7.53 %
Tharu	5.86 %
Tamang	5.19 %

The remaining 50% of the population fall into various castes and a small percentage are also of non-Nepali ethnicity such as Muslims and people who are of Indian origin.

In addition to a very rich diversity of ethnic backgrounds, 92 languages are spoken in Nepal. Table 8 summarises the five major languages spoken in Nepal. Nepali is the most common language with nearly half the population (49%) reporting it to be their mother tongue.

Approximately 12% and 8% of Nepal's population report Maithili and Bhojpuri to be their mother tongues. The 5 languages reported on in the table account for 80% of the population. The remaining 20% report a variety of mother tongues including Sherpa, Newar, Urdu, Hindi and Awadhi.

Section 1.3. Poverty and Livelihoods

Nepal is one of the least developed countries with per capita GDP of USD236 and is ranked 136 out of 177 countries on the Human Development Index (UNDP, 2005). Nepal's poverty is attributed to many factors—high illiteracy, poor health, low level of sanitation, low food grain productivity, high child malnutrition, poor access to basic services and inequities resulting from a tradition-driven social structure. Among the population groups, poverty is highest amongst people of the so-called "lower" castes and indigenous groups.[8]

HMGN spends close to six percent of GDP on rural development and poverty alleviation programs. However, the efficiency and effectiveness of such resources is constrained by poor targeting, funding problems, supply driven investments, high administrative costs and complex procedures.

The Nepal Living Standards Survey (NLSS) conducted by the Government of Nepal for 2003/04 reported a decline in poverty incidence by 11 percentage points from 42 to 31

[7] Population Census 2001, CBS Nepal
[8] National Planning Commission. 2005. *Poverty Reduction Strategy Paper Progress Report.*

percent. It also showed higher poverty level in rural areas. However, the rural-urban disparities are still alarming. The NLSS 2003/04 reported poverty in rural areas at 35% compared to 10% in urban areas. By development region, the incidence of poverty is lowest in the Central region (27%) and highest in the Mid Western region (45%).

Table 8 - Poverty Comparisons 1995/96 and 2003/04

	1995/96 (% of poor)	2003/04 (% of poor)
Nepal	41.8 %	30.8 %
Urban Areas	21.6 %	9.6 %
Development Region		
Eastern Region	38.9 %	29.3 %
Central Region	32.5 %	27.1 %
Western Region	38.6 %	27.1 %
Mid Western Region	59.5 %	44.8 %
Far Western Region	63.9 %	41.0 %
Geographical Areas (Belt)		
Mountain	57.0 %	32.6 %
Hill	40.7 %	34.5 %
Terai	40.3 %	27.6 %

The nominal per capita consumption has grown from NRs. 6,802 in 1995/96 to NRs. 15,848 in 2003/04. (Adjusted to 2003 prices using the CPI[9], this consumption has grown from 11,720 to 15,848 NRs.)

The nominal per capita consumption of the poorest population quintile has also increased from NRs. 2,571 to NRs. 4,913 during the same period (adjusted to 2003 prices using the CPI, this consumption has grown from 4,430 to 4,913 NRs.).

Remittances were a major factor contributing to increases in non-farm income and per capita consumption. In 2003/04, some 31.9 % households were receiving remittances, up from 23.4 % in 1995/96[10].

Agriculture remains the main livelihood strategy of Nepali households. According to the NLSS 2003/04, while agriculture is a major economic sector, land under cultivation is only one-fifth of the total land area. Its share in GDP is more than 35%, although its contribution to GDP growth has been low—contributing less than a quarter of growth during the 1990s.

In the Terai, the main agricultural region, rice is the major food crop. Others include pulses, wheat, and oilseeds. Jute, tobacco, cotton, indigo, and opium are also grown in the Terai, whose forests provide *sal-wood* and commercially valuable bamboo and rattan. In the lower mountain valleys, rice and maize are produced during the summer, and wheat, barley, oilseeds, potatoes, and vegetables are grown in the winter. Maize, wheat, and potatoes are all cultivated at higher altitudes. Substantial quantities of medicinal herbs, grown on the Himalayan slopes, are collected and sold worldwide.

Livestock rearing is second to farming in Nepal's economy; oxen predominate in the lower valleys, yaks in the higher hills and mountains, and sheep, goats, and poultry are commonly held across the country. However, agricultural and rural economic growth remains constrained by inadequate infrastructure, weak irrigation and inefficient input and output markets. Nepal's poor road infrastructure—one of the least developed in the world—prevents the development of markets and hence, the growth of farm and non-farm incomes[11].

Only 15% of Nepal's cultivable land is under year-round irrigation and some estimates suggest that irrigated area may have fallen in the 1990's. Poor cost recovery of operations and maintenance (less than 2%) in surface irrigation and the slow rate of rehabilitation of privately-owned, farmer managed irrigation systems have prevented an expansion of irrigation. Reportedly, the installation of shallow tube wells has also sharply fallen off in recent years.[12]

A critical input, land, is highly fragmented and informal tenancy arrangements deter investment in land. These constraints need to be removed in order to boost agricultural production and productivity[13]. The greatest potential for increased production exists in the Terai, where the flat land is most suitable for modern farming methods. In the Hills there is some potential for improved horticulture that can contribute to family incomes and food consumption needs. However, because the belt is so densely populated, nearly all

[9] CPI from International Labour Organization Bureau of Statistics
[10] *Ibid*.
[11] World Bank. 2002. Infrastructure Location and Development in Nepal.
[12] NLSS 2003/4
[13] World Bank. 2002. "Nepal Development Forum, Economic Update" Washington D.C.: World Bank

available land is already being tilled, and cultivating more land would require cutting down forest, thereby reducing soil fertility and crop yields.

In the mountainous regions, expanding the herds of livestock could be one way to increase farming income. Yak cheese is already being exported to foreign markets, and apple growing is another possible area for exploitation. Non-farming options such as eco-tourism and gathering of herbal medicines are also strong candidates for income generation (New Agriculture on Line Journal, Nepal Country Profile 2001).

Tourism, a chief source of foreign exchange in the last several decades (along with international aid and Ghurkha pensions), has been hurt by the escalation of the conflict with the country's Maoist rebels.

Section 1.4. Infrastructure

Access to service facilities has improved in all aspects as can be seen upon comparing the NLSS data of 2003/04 with those of 1995/96. Access to:

(a). *Health post and hospital:* Approximately 62% of the households have access to a health post and hospital. But the urban-rural gap is large (89% versus 57%). Across the development regions, the Central region has the best access to health services while in the Far-west it was the least (NLSS 2003/04, CBS).

(b). *Bus Stop:* Some 53% of Nepal's households are within 30 minutes reach to the nearest bus stop (plying on all types of roads). About one-fourth of the households take half hour to 2 hours, and for 17% of households, it takes more that 3 hours to reach the nearest bus stop (NLSS 2003/04, CBS).

(c). *Market Centre and Haat Bazaar:* According to the NLSS data only 34 % of households have access to a market centres within 30 minutes of travel. Compared to market centre, access to *Haat Bazaar* (local markets that operates during certain days of the week only) is much better—61% of households in the country are within 30 minutes to the nearest *Haat Bazaar* (NLSS 2003/04, CBS).

(d). *Post Office and Telephone:* Overall, 61% of households are within 30 minutes of access to the nearest post office, while this percentage in the case of nearest telephone services is 54%. But in the case of rural areas, the average time taken by a rural household to reach the nearest post office is more than one hour and nearly two and a half hours in the case of telephones (NLSS 2003/04, CBS).

(e). *Agriculture Centres:* Some 32% of households in Nepal reach the nearest agriculture centre within 30 minutes of time. Access is worse in rural areas, especially in the Hills and Mountains. Access to this facility is strongly associated with household consumption—17% of the poorest quintile is within 30 minutes of access while this figure is 53% among households in the richest quintile (NLSS 2003/04, CBS).

(f). *Commercial Bank:* Twenty eight percent (28%) of households in the country can reach the nearest bank within 30 minutes, and for some 27% of households, it takes over 3 hours (NLSS 2003/04, CBS).

Section 1.5. Education

The overall literacy rate in Nepal is 51% *(NLSS 2003/04)*—this is an improvement from 38% reported in the NLSS of 1995/96. The literacy rates of male and female are 64% and 39% respectively and that of the urban population and rural population are 74% and 46% respectively. Summary statistics on adult literacy and enrolment are presented in table 12 below.

Table 9 - Summary Statistics on Education		
	NLSS – 1995 / 96	NLSS – 2003 / 04
Adult literacy rate, both sexes (15 years and above)	35.6 %	48.0 %
a. Males	53.5 %	64.5 %
b. Females	19.4 %	33.8 %
School ever attended, both sexes (15 years and above)	33.9 %	45.8 %
a. Males	50.2 %	61.2 %
b. Females	19.1 %	32.6 %
Net enrolment at primary school, both sexes	57.0 %	72.4 %
a. Males	67.0 %	77.9 %
b. Females	46.0 %	66.9 %
Net enrolment at lower secondary, both sexes	19.0 %	29.0 %
a. Males	23.0 %	31.1 %
b. Females	14.0 %	26.4 %
Net enrolment at secondary, both sexes	9.0%	15.1 %
a. Males	13.0 %	16.8 %
b. Females	6.0 %	13.4 %
Attendance in private school, both sexes	7.5 %	16.7 %

Studies conducted among school-going children and youth between 6—24 years revealed the following reasons to be the most common for dropping out of school/college *(NLSS 2003/04)*:

- 32 % reported poor academic progress
- 27 % reported help at home, and
- 12 % reported that the education was too expensive.

Section 1.6. Health and Nutrition

Piped water supply is the most common source of drinking water for approximately 53% of households in Nepal. The other common sources of drinking water are tube or borehole (29%), well (9%) and spout water (7%). A small percentage of households also draw water from rivers /streams and other sources (*NLSS/2004*).

Further, based on the 2001 Demographic and Health Survey (2001 DHS), approximately 79% of the households have access to a clean drinking water supply source within 15 minutes of distance. The Terai belt has better access to drinking water (90%) as compared to the Mountain (73%) and Hill (75%) belts.

Across development regions, households in the Central region have the highest access to improved water sources (87%), followed by the Eastern (84%), and the Western (83%) regions. The Mid Western region (70%) had the lowest access to an improved water source.

Well over half of all the households in Nepal lack access to proper sanitation facilities. According to UNICEF's 2005 *State of South Asia's Children,* an estimated 700,000 children died from water and sanitation related ailments. Latrines are available in 47% of boys' school but in only 31% of girls' schools.

Nearly 28,000 children die each year from diarrhoeal diseases alone, and water and sanitation issues account for 72% of all disease cases in the country. These include skin diseases (30%), worm infestation (15%), dysentery (8%), and gastritis (7%). As frequent illness increases the risk of malnutrition, it is not surprising that nine out of 10 Nepali children under five suffer from some form of malnutrition.

Data from the 2001 DHS indicate that nearly one in three children born between 1996 and 2001 is breastfed within one hour of birth and the rate of breastfeeding has nearly doubled during this same time period. Two out of three babies are breastfed within one day of birth, a slight improvement from the 60% rate of 1996.

Part II: Objectives and methodology

Section 2.1. Objectives and conceptual framework

In broad terms, the overall objective of the comprehensive food security and vulnerability analysis is to strengthen the **knowledge base** on issues related to food security and vulnerability in *rural* Nepal. In order to achieve this broader goal, the following questions needed to be answered:

- Who are vulnerable to food insecurity?
- Where do they live?
- What are the causes of their food insecurity?
- What types of interventions are needed to reduce their vulnerability to food insecurity?

In answering these questions, it is hoped that this report can provide WFP and its partners in government, civil society and the UN system guidance and criteria upon which aid resources—both food and non-food—can be targeted.

Such criteria will be based along geographic and socioeconomic lines and should also act as a benchmark against which key indicators critical to food security can be monitored over time.

In designing the study, an analytical framework that combines household food security and livelihoods analyses was used. With respect to food security, three inter-related dimensions are generally considered paramount.

- *Food availability*: the amount of food physically available in a given area;
- *Food access*: access for all members of the household to food supplies through home production, through market purchases, or through transfers from other sources;
- *Food utilisation*: the household's use of the food to which they have access and an individual's ability to absorb and utilise nutrients.

In terms of livelihood security, the study built upon concepts and practice associated with *sustainable livelihoods* and *risk management*. Given that food security is closely related to livelihood security, the study aimed to understand this linkage in the following manner:

- Identifying the range of assets (productive and non-productive) accessible to households and distribution of these assets among households;
- Delineating the livelihood, or income-earning strategies pursued by different households based on asset endowments;
- Identifying the social, economic, natural, political, environmental, and health risks faced by households;
- Determining the frequency of and exposure to (vulnerability) these risks for different types of households; and
- Understanding the outcome of these risks/shocks in terms of their effects on a household's ability to meet food and non-food priorities.

Section 2.2. Data collection tools

The survey was designed to collect quantitative information at the household and individual level and more qualitative data at the community level.

Two different data collection instruments were designed to serve this purpose: a household questionnaire with an anthropometric module and a key informant interview. All instruments were prepared in English, but then were translated into Nepali for data collection purposes.

The **household questionnaire** (see annexes) included modules on household demography, education, health, migration, housing, income activities, household expenditures, household asset ownership, risk exposure and response, agricultural activities, livestock ownership, and food consumption (7-day food frequency). Furthermore, it collected information on woman and child health and nutrition.

For child anthropometry, height and weight/length were measured of all children from 6-59 months of age found within sampled households. This information was used to calculate nutritional indices (z-scores) and then to classify children as being stunted, wasted and/or underweight. The questionnaire also contained questions on antenatal health care, recent morbidity, recent vitamin A supplementation.

The **key informant questionnaire** (see annexes) was used to collect information from key informants, such as local community leaders, teachers, nurses, religious leaders, etc. Usually three knowledgeable community members were gathered for one interview, at least one of them was supposed to be female. The key informant interviews provided an overview of the community access to schools, markets and health facilities, along with main sources of income in the community and migration patterns.

Section 2.3. Sample Frame

Any sample frame for a survey in Nepal would need to take into account the various layers of political, social, administrative and ecological realities. Nepal is divided into a total of 75 districts, which are grouped into five *development regions*: Eastern, Central, Western, Mid Western and Far Western.

Each district has a number of Village Development Committees (VDCs) in rural areas and *municipalities* in urban areas. These VDCs and municipalities are further divided into *wards*: the smallest administrative unit. In rural areas a VDC comprises nine wards, but municipalities can have more.

For some purposes, such as census enumeration, larger wards are split into *sub-wards*, but these are not, in general, well-defined administrative boundaries. Electoral boundaries, or *Ilaka*—collections of VDCs and municipalities—form yet another administrative unit.

Nepal is also divided into three Ecological Zones or *belts*: Mountains, Hills and Terai: which run transversally from east to west and intersect all five development regions. Their vastly different topographies give the three belts quite different characteristics.

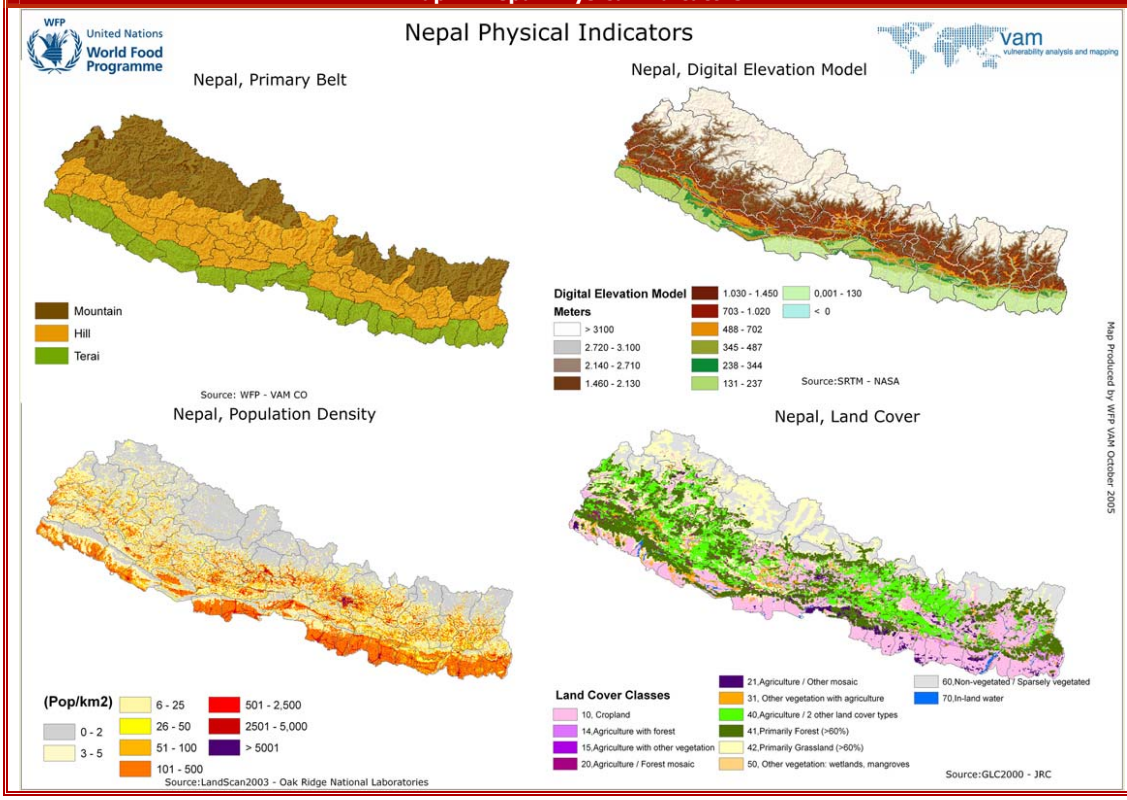
The Mountain belt comprises those parts of the country above 4887 metres in elevation. Its harsh terrain makes communication and transportation difficult, and only 7% of the population live there. The Hill belt, ranging in altitude from 610 to 4887 metres, is much more densely populated and includes the fertile valleys of Kathmandu and Pokhara. The Terai, or plains, are the most fertile part of the country.

The sample frame for this study attempted to incorporate each of these particularities into its design. Initially, a list of 35,085 *wards* and associated population figures was acquired through the Nepal Central Bureau of Statistics (CBS). Wards with populations less than 80 were removed from the frame as there would be a high likelihood of not being able interview a sufficient number of households in order for statistical representation. Likewise, all wards classified as urban by the CBS were removed as the focus of the survey was rural households.

For the purposes of drawing the sample using ward level population data, the two abovementioned strata corresponding with geographic and administrative boundaries within which wards are located were utilised as the sample frame (i.e., Hill, Mountain, Terai and each of the development regions). However, further investigation revealed that the Hill belt (and those development regions within that belt) was extremely heterogeneous in terms of populations, topography, culture and society.

In order to better represent households residing in the Hill agro-ecological belt, physical and socioeconomic data obtained from the National Living Standards Survey from 2003/2004 were used to help identify possible intra-belt variations. These data were re-analysed using principal components analysis to cluster districts with similar characteristics, but different enough that the hill belt could be disaggregated into different *socio-ecological zones/classes* from which sample wards could be drawn. The maps below summarise the main indicators used for the clustering of districts within the hill belt.

Map 1: Nepal Physical indicators



Map 2: Nepal Socioeconomic Indicators

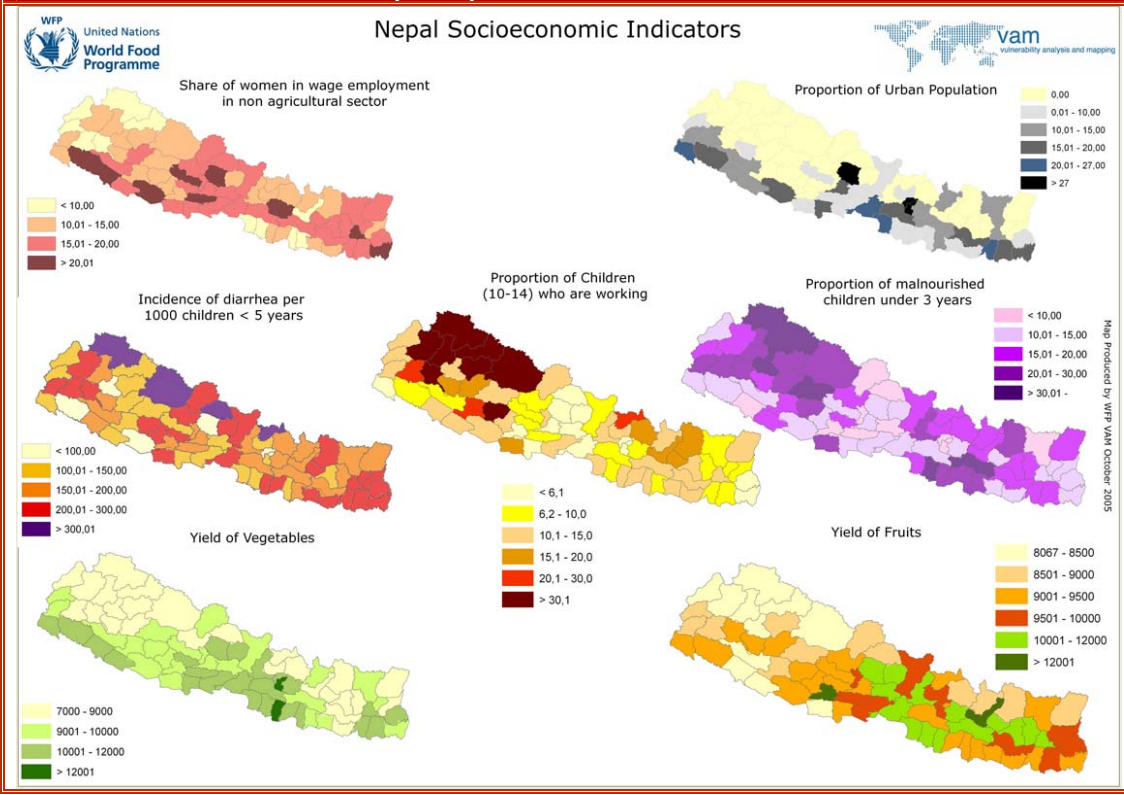
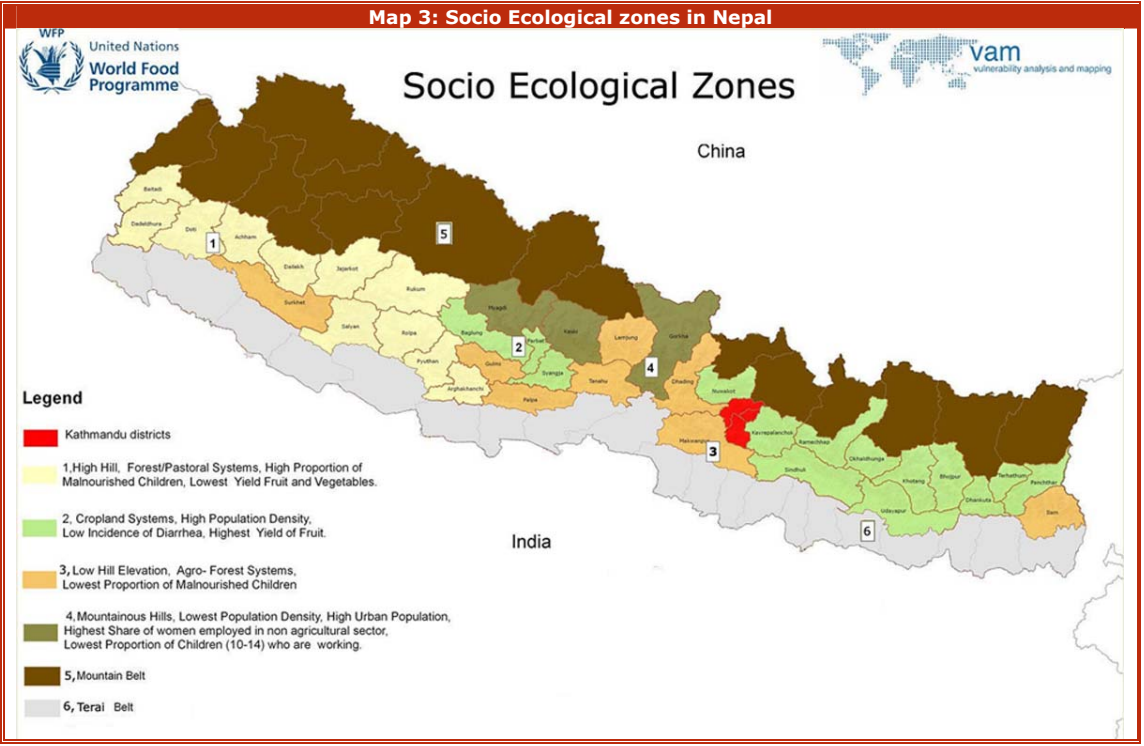


Table 10 – Sample Strata

Belts (3):	WFP Socioecological Zones (6)	Development Region (5)
Mountain	Class1	Eastern
Hills	Class2	Central
Terai	Class3	Western
	Class4	Mid West
	Class5	Far West
	Class6	

Based on the analysis of principal components and clusters, the three strata (and respective sub-strata) presented in the table in the right served as the basis for drawing the sample and presenting survey findings.

Map 3: Socio Ecological zones in Nepal



Based on these strata, a sample was drawn employing a **two-stage cluster sample procedure**. Based on their location within the three categories of zones, wards were randomly selected based on a probability proportional to their population.

In order to draw a sample that is representative for each of the three strata (belt, development region, WFP SE zone), a minimum number of wards (30) were selected for each sub-stratum. For each ward selected, 10 randomly selected households were enumerated. In this manner, the findings would be representative for each of the three sample strata and sub-strata.

A total of 180 wards were selected using this process. However, this number was reduced after discussions with and advice from individuals in the WFP Nepal Country Office who were familiar with the reality on the ground. Wards were then eliminated due to the threat of insecurity or difficulty of access.

The major issue related to physical access is the distance needed to travel from the District headquarters to the sample wards and households. Given poor road networks, travel times range from 6 hours to 2 days. In terms of security, the ongoing conflict between Government and Maoist forces meant that entire Districts and wards that were part of the original sample were inaccessible. Given these realities, replacement wards were chosen based on their population sizes so as to maintain the integrity of the overall sample.

The selection was finalized considering two conditions:

(1) That the sample would remain representative at all 3 levels: by belt, by WFP socio-ecological zones and by development regions; and

(2) The sample was realistic and feasible – in terms of both security and access.

The final sample consists of **1,676 households** spread across **43 districts** in the country (see Map 4 at end of this chapter).

Due to this first condition, not all households in the sample frame had the same chance of being selected for inclusion in the survey. However, the probability of selection of each household is knows, so a system of weights was calculated and used in analysis that compensates for this. The child level data and women of reproductive age data are self-weighting within the household sampling technique, and so the same weights were applied to these datasets. All results are based on this weighted data, except where noted. All statistical tests were run on unweighted data[14].

In the end, 168 wards were sampled across the three strata:

Table 11 – Distribution of Communities Across Sample Strata

Development Regions	Belts			WFP Socio-Ecological Zones					
	Terai	Hills	Mountain	Class1	Class2	Class3	Class4	Class5	Class6
Eastern	6	14	6		6	8		6	6
Central	7	17	4		8	9		4	7
Western		54	6	12	11	2	29	6	
Mid West	7	16	4	7		9		4	7
Far West	10	9	8	9				8	10

Section 2.4. Data collection

The design of the data collection methodology was carried out by the Vulnerability Analysis and Mapping (VAM) units of WFP Rome and WFP Nepal. Data collection was organized and carried by WFP Nepal Field Monitors. A 5-day training session, including training on anthropometric measurement, was held with 30 field monitors. The questionnaires were revised though discussions and then pilot tested for relevance and appropriateness of posed questions.

Thereafter, enumerators were divided into 6 teams, each with a team leader. In each group, two of the enumerators were also responsible for anthropometric measurements. Each team covered a development region with the exception of the Western region which required two teams. The data collection process, the majority of which took place during the first three weeks in September 2005, was regularly monitored by WFP staff members. A debriefing session took place at the end of the data collection phase with all enumerators. The session aimed to identify possible problems/constraints that occurred during data collection process that could hamper data quality or help with the interpretation of results.

Before teams were fielded for data collection, WFP Nepal contacted district level officials to inform them that enumerator teams would be implementing the CFSVA in their region. Team itineraries were furnished along with contact information for responsible persons in Kathmandu. The National Planning Commission also provided assistance, especially in security-related matters, to the field survey teams. This proved to be very useful insofar as all activities were made transparent to avoid misunderstandings.

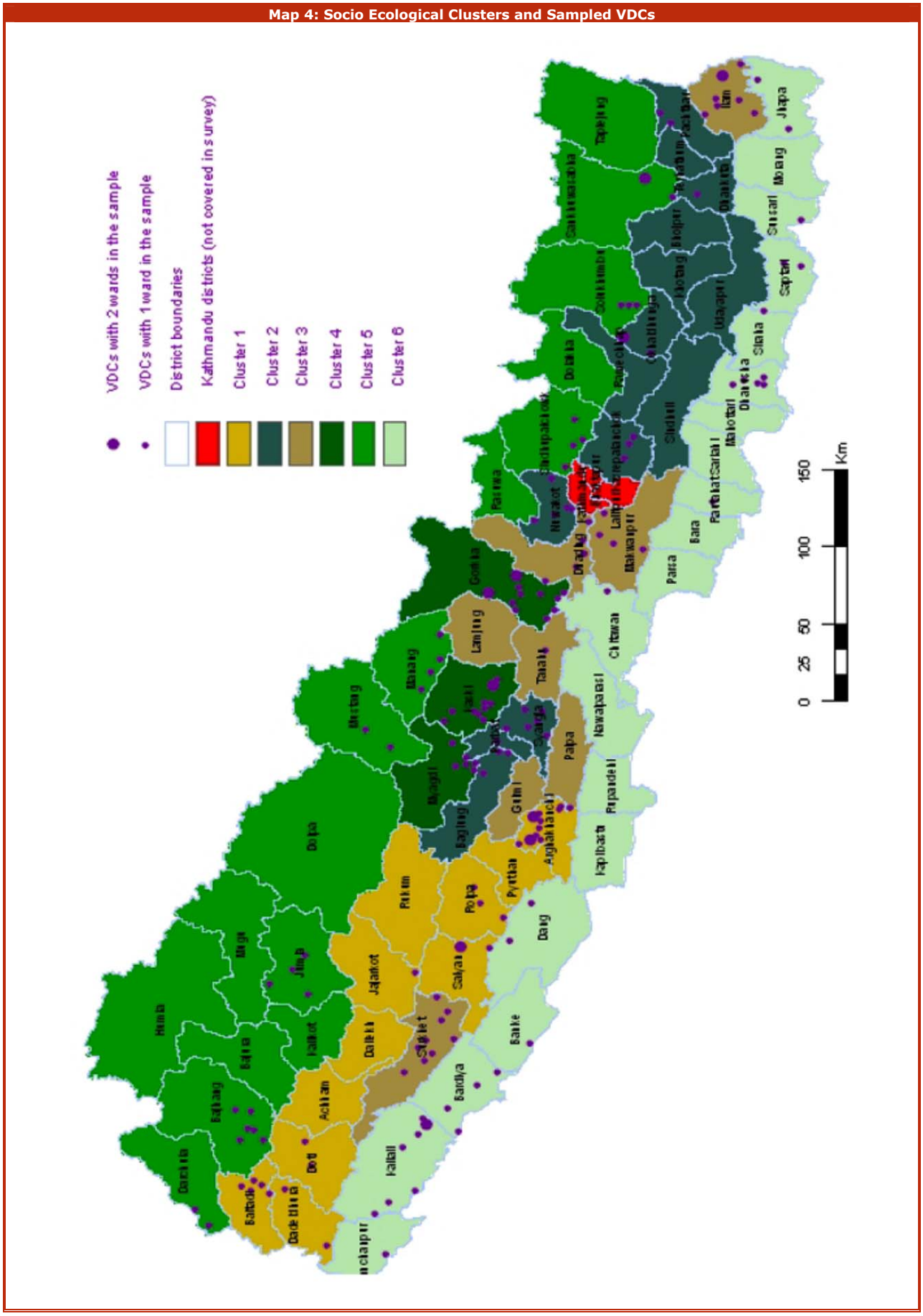
Section 2.5. Data entry and analysis

The Nepal VAM team provided overall coordination and leadership throughout the whole CFSVA process. During the data collection phase, completed questionnaires were sent to Kathmandu on a rolling basis and were entered and cleaned by a team of people employed by WFP Nepal using a custom designed MS Access data entry program. Additional data cleaning, processing, analysis and report writing was undertaken in Kathmandu by a team of VAM staff from the CO and HQ.

All data files were exported and converted into SPSS format. Analysis was conducted using SPSS 11.5. Principal component and cluster analyses (PCA) were done using ADDATI 5.3c software. Calculation of child anthropometric indices was conducted in Nutrisurvey.

[14] SPSS uses a system of pseudo-replication when weights are used. Due to a limitation in the software, this is also applied to the degrees of freedom in statistical tests, rendering the results unreliable.

Map 4: Socio Ecological Clusters and Sampled VDCs



Part III: Survey Results

This section integrates and summarises the major findings from the household and key informant interviews—1,676 households and 168 key informant interviews. Findings are presented for the entire sample and, wherever appropriate and relevant, for specific strata (e.g., agro-ecological belt, development region, socioeconomic cluster).

Section 3.1. Household Demographics

3.1.1 –Household Composition, Status of Head of Household and Caste Affiliation

Table 12 - Sampled Population by Age and Sex

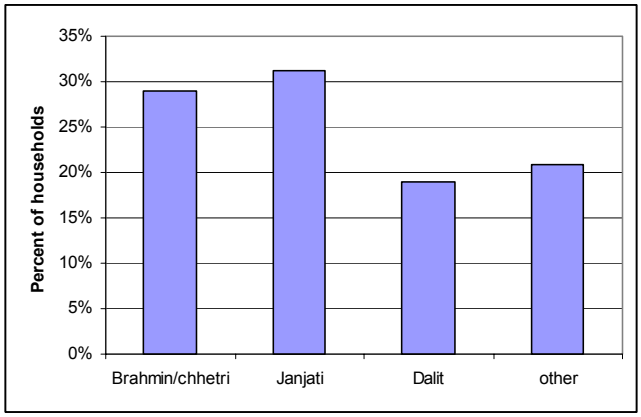
Age Cohort	Male	Female	Total
0-5 years	804	765	1,569
6-14 years	1,236	1,284	2,520
15-19 years	576	618	1,194
20-24 years	514	575	1,089
25-29 years	465	458	923
30-34 years	362	306	668
35-39 years	298	302	600
40-59 years	803	788	1,591
60 years and above	385	345	730
Total	**5,443**	**5,441**	**10,884**

Detailed data on household demographics were collected for all 1,676 sampled households and the 10,884 individuals therein. Individual level data include information on age, sex, education levels, marital status, health, and caste affiliation.

Additional information on the size of the household, sex of the household head and the status of education among children between the ages of 6-14 is also reported.
Overall patterns show an equal distribution of female and male populations (Table 15). Children between the ages of 6-14 constitute the largest age cohort followed by men and women between the ages of 40-59 years.

The mean and median sizes of household are 6.4 and 6 persons, respectively. Ninety percent (90%) of all heads of these households are male with mean age of 47 years. For female heads of households (the remaining 10%), the average age is 52 years. In terms of marital status, 95% of all males who are head of households reported being married. Only 27% of female-headed households reported that they are married and 65% reported that they are widows.

Figure 3 – Caste Affiliation



All sampled households were asked a question on caste affiliation. An initial round of data processing resulted in over 100 sub-castes belonging to four major caste categories: (a) Brahmin/Chhetri; (b) Janjati; (c) Dalit; and (d) "Other". In order to ease analysis of the data, all sub-castes were re-coded and placed into the four categories.
Figure 3 depicts the distribution of caste affiliation. 60% belong to two major castes – Brahmins/Chhetri and Janjati.

Nineteen percent of households reported being Dalits and 21% reported "other". The latter includes households of Muslim, Tibetan or Indian origin.

Sixty-two percent (62%) of all household heads—both male and female—reported having no schooling whatsoever. An additional 16% reported having had some primary schooling. When disaggregating for gender, 92% of all female heads of households reported not having any schooling as compared to only 59% of their male counterparts. Four percent (4%) of male heads of households reported completing primary school as compared to less than one percent of female heads of households.

3.1.2 – Educational Attainment of Household Members

Educational attainment is an essential component of food security. Studies have shown that households whose members are educated are more likely to be economically mobile, have better health and nutritional status, and are better able to meet their food and non-food needs. Moreover, having educated household members also decreases the inter-generational transmission of poverty and food insecurity.

Household data from this survey for members who are not heads of households show low levels of educational attainment and high levels of gender disparity. Among household members above the age of 15, 46% of all individuals have no schooling whatsoever (59% of women and 33% of men). Only four percent (4%) of all individuals above the age of 15 have only completed primary school and six percent (6%) reporting completion of secondary school. Again, when looking at gender within these reported figures, only 2% and 4% of women above the age of 15 have completed primary and secondary schooling, respectively.

For the ***6-14 years age cohort***, which constitute a quarter of all individuals, only 12% of males and 19% of females have no schooling at all. The reasons for non-enrolment are primarily focused illness, work, and refusal to go. For boys the major reason reported was to work in order to generate income.

Fifty seventy percent (57%) have had some primary schooling and 12% reported having had some secondary education. The remaining children have either completed primary school (5%) or completed secondary (1%). These initial figures suggest that there are some disincentives for families to continue schooling beyond the primary level.

Table 16 and Map 5 illustrate boys and girls school attendance patterns across the agro-ecological belts and development regions. Overall, access to primary education is relatively high across the two strata.

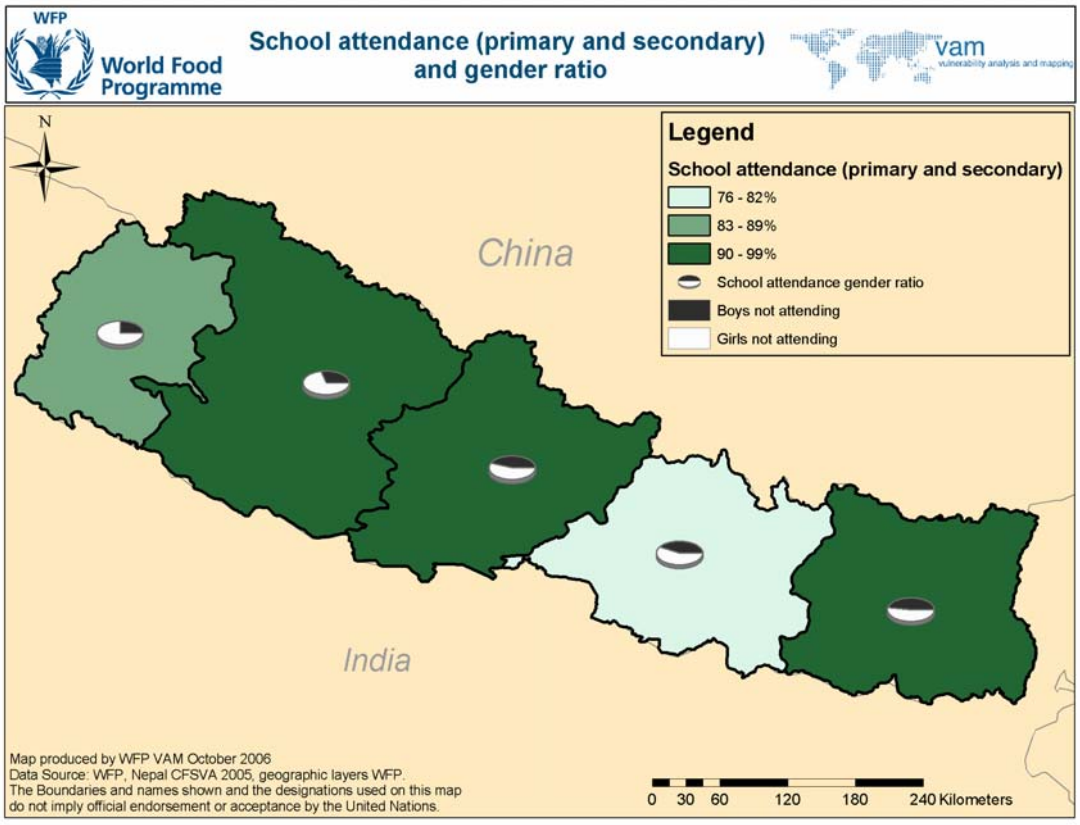
Table 16 – Percent of Children 6-14 Attending School by Gender, Belt and Region

	Hill		Mountain		Terai		Eastern		Central		Western		MidWest		FarWest	
	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G
Attending primary	77	79	75	78	72	69	82	82	66	69	79	75	85	84	73	67
Attending secondary	18	16	19	15	15	11	13	17	19	11	20	23	13	6	21	15
Not attending	5	5	7	7	13	20	6	1	15	20	1	2	3	9	5	17

Results in percentage, B= boys, G= girls

For 6-14 years old currently attending school, parents were asked whether their children had been absent for at least a week in the month prior to the survey and the reasons for said absence. Ninety percent (90%) of all children currently attending school ***had not been absent*** for a week in the month prior to the survey. Of the remaining 10% who indicated their absence from school, 43% were girls.

Map 5: School Attendance and Gender Ratio



Reasons for non-attendance show that 42% reported that their child was too ill to go to school (Table 17). This is followed by 14% of respondents reporting insecurity, 12% reporting the need for children to conduct household chores, and 10% reporting that their child simply refused to go to school. Children 6-14 years old attending school that also reported missing school is too small to disaggregate geographically.

Table 13 – Reasons for Periodic Absences among 6-14 Year Olds Attending School

Reason for Absence	% of children	% Boys	% Girls
Sickness/Illness of child	42%	44%	39%
(In)security	14%	13%	16%
Household chores	12%	9%	15%
Refusal to go to school	10%	12%	8%
Children have to work	8%	9%	6%
Caring for siblings	5%	2%	8%
School too far away	2%	2%	2%
School fees not paid	2%	2%	2%

The final aspect of the inquiry into household demographics relates to the presence of chronically ill or disabled members in households. Twenty six percent of households reported at least one of its members suffering from a disability or a long-term illness. Of these households, 83% have at least one member chronically ill or disabled and 17% reported having two to three members.

Chronic illness is most common among households in the Terai (31%). Between the development zones, the Central zone has a slightly elevated prevalence of households with chronically ill members, at 30%.

Section 3.2. Community Dynamics, Infrastructure and Services

Key informant interviews were implemented in conjunction with household surveys in 168 communities to better understand the broader social, economic and political contexts where sampled households are located. A total of 507 women and men—including teachers, social workers, doctors and community leaders were asked a series of questions on community infrastructure and services, access to local markets, transportation and community migration patterns.

3.2.1 - Access to Education and Health Services

Eighty-six percent (86%) of all key informant interviews indicated that sampled communities have a functioning primary school and 40% of sampled communities reported having a functioning secondary school. Of those communities having neither a primary nor secondary school in their communities, the nearest primary school was on average less than one hour walking distance from the community and the nearest secondary school around 2 hours away on average. There were no major variations of these overall findings when disaggregating for agro-ecological belt or development region.

This being said, the findings do complement household data reported in the previous section on education attainment among children 6-14 years. A higher proportion of children are currently attending primary school versus secondary. Undoubtedly, this is partially due to the proximity of said schools to sampled households.

With respect to health services, especially health posts, only 40% of key informant interviews reported the presence of a functioning health post within their community. Health posts are most common among sampled communities within the Western Region (34%) and lowest among households in the Midwest (9%).

Among communities not having a functioning health post within their communities, 65% reported that the nearest one was less than one hour away by foot; 26% indicated a two hour walk; and 9% reported a three hour walk. The Western region has the greatest number of sampled communities reporting the nearest health center to be between 2-3 hours away.

3.2.2 - Transport, Roads and Markets

A second component of the key informant questionnaire was modes of transport and road access. Seventy-two (72%) of all key informant interviews reported that the major mode of transport for residents in their community is by foot. Fifteen percent (15%) reported using bicycles. However, the latter communities are all located in the Terai as the topography of the hills and mountains makes bicycles an impractical choice of transport. Bus and automobiles were reported by only 11% of sampled communities as the main form of transport and 2% of communities reported using mules.

Mule tracks are the main "road routes" used by households in sampled communities. Ninety-four percent (94%) of key informant interviews reported that the mule tracks were less than 45 minutes walk from their community. Access to motorable roads, however, is more varied. Around 40% of sampled communities are less than 45 minutes, by foot, from a motorable road—although these are predominantly communities in the Terai and Hills, but distributed equally across all development regions. Another 33% reported that the distance to the closest motorable road is between 1-2 hours by foot, again mostly in the Terai and Hills, but concentrated among communities in the Western, Mid West and Far West regions.

The remaining 27% of sampled communities—equally distributed in the Mountain and Hill strata—reported travel times to the nearest road ranging from 3-15 hours by foot, with a median time of 8 hours. Communities in the Mountain belts of the Eastern development region required the most amount of time to reach a motorable road (10-15 hours) followed by communities in the Hill belts of the Western region (5-10 hours).

Only 27% of key informant interviews reported that sampled communities had a daily food market either within or less than 30 minutes away from the community. Approximately 10% reported that they have a periodic (e.g., weekly, monthly) food market close by. The average time to walk to the closest daily food and periodic market is three and four hours, respectively.

The implications of these data are better understood when one takes into account that essential facilities such as health centres are available mostly outside of the community. Therefore, in the absence of adequate transport like buses, cars or bicycles and presence of difficult terrain, people are obliged to walk. Moreover, limited access to food markets nearby implies that transaction costs are likely to be high among households that seek to sell surplus crops or buy other essential food items. These data are not necessarily new findings for Nepal, but rather a re-confirmation that physical remoteness plays an important role in the lives and livelihoods of sampled communities.

3.2.3 - Population Movement Patterns

The final component of the key informant questionnaire was to better understand population movements among sampled communities since 2000. Forty-six percent (46%) of key informant interviews reported that there have been more people leaving their community than joining since 2000. Approximately 33% reported no change in people leaving or joining since 2000. Seventy percent (70%) of the communities reporting high out-migration were located in the Hills. Similarly, the Central and the Western regions saw the highest percentage of communities reporting departure of its residents since 2000.

Ninety-six percent (96%) of all sampled communities reported that residents migrate at one or more points in the year to look for work. The most common period of time is between November and April—reported by 57% of sampled communities and 13% indicated July-September. However, almost 30% of the communities reported that residents migrate year-round.

Seventy percent of all key informant interviews indicated that *non-agricultural wage labour*—presumably in the service sector—was the main type of work that migrants seek when leaving the community. This is followed by agricultural wage labour (12%), income-generating activities (10%), and finally government employment (8%). Lastly, 66% percent of all sampled communities reported that people between the ages of 20-29 years represent the main group migrating from their communities in search of work.

Finally, key informants were asked whether their community had been affected by any *bandhs* in the 6 months prior to the survey. *Bandhs* are enforced closures of banks, schools, offices and other commercial activity that also involve restrictions in population movements. *Bandhs* can be called by political parties, student associations and trade unions.

The data indicate that 53% of all sampled communities reported being exposed to and affected by a *bandh* in the last six months. Disaggregating for development region, the data indicate that communities in the Central, Mid West and Eastern regions have the most communities affected by a *bandh*—17%, 15% and 13%, respectively. Communities in the Western region reported not being affected whatsoever and only 10% of the communities in the Far West report having experienced such *bandhs*.

On average, across all sampled communities, the total number of days where community members faced movement restrictions as a result of *bandhs* is 15 days in the last 6 months. Thirty-four percent of those affected by movement restrictions are located in the Central region and 53% are found in the Hill belt.

Section 3.3. Household migration patterns

It is estimated that around 1.6 million Nepalis have migrated outside of Nepal in order to search for productive employment. Moreover, data from 1997 indicate that remittances in that year alone were estimated as being between NRs. 50-60 billion (nearly USD 1 billion)[15]. Although these figures are eight years old, there is no evidence that shows the value of remittances as diminishing.

The overall goal in presenting data findings in this sub-section is to explain the role of migration in the context of household livelihoods and, more importantly, in the context of food security. Later sections will look at household exposure to external shocks and risks—and the ability (or lack thereof) of households to respond to and manage risk. It is through the analysis of several variables that further light can be shed on whether Nepalese households are migrating because of economic plight or worsening levels of insecurity.

Household respondents were asked a series of inter-related questions that aimed to elicit information on: (a) whether households had members who were living and working outside or their community; (b) where these members are currently living or working; (c) estimations of annual remittances from these members; (d) the length of time members are away in the last year; and (e) the sex and age of these individuals.

[15] David Seddon. 2005. "Nepal's Dependence on Exporting Labour." Washington D.C.: Migration Policy Institute

3.3.1 – Overall Trends in Migration

Approximately 44% of households reported having *one or more* family members who are currently living and working outside of the community. Of these households, 71% have one family member who was currently migrating.

Table 14 – Percent of households with one or more members migrating

Hill	45%
Mountain	36%
Terai	46%
Eastern	38%
Central	43%
Western	52%
Mid West	49%
Far West	44%

A further 20% stated that 2 members of their family had migrated, and 9% of the households reported 3 or more members having left the household. Of the 71% reporting one migrating member, 34% ***also reported*** that this member was the head of household.

Table 14 depicts the desegregation of this initial figure by agro-ecological belt and development region. As is seen, the Hills and Terai have the highest proportion of households with migrating members. By development region, migration is paramount in the West and Mid West.

There are several potential factors that might encourage migration across the belts. In the **Hill** areas of Nepal, the average size of land is smaller than that available among households in the Terai or Mountain regions (see Section 3.5). Thus, households in this belt may have greater labour availability at their disposal since smaller plots of land would not require the attention of all family members.

In the **Terai**, *underemployment and unemployment* is probably the main reason for migration. While unemployment rates have come down from 4.9% in 1995 to 3.8% in 2004, unemployment has been increasing over the past few years, especially in Kathmandu which has an unemployment rate of 10.8% (Nepal Living Standards Survey 2004). As urban underemployment and unemployment rates increase and rural agriculture cannot generate sufficient food or income, migration to nearby or neighbouring countries becomes an attractive option.

For households in the **Mountain** belt, migration is probably due to *lack of enough livelihood generating opportunities.* This is compounded by their physical isolation and lack of basic infrastructure. This implies that migration is not simply a coping strategy, but, in many cases, the most feasible livelihood option.

3.3.2 – Destination of Migrants

For households who reported on migration, 39% indicated that the main destination is India, 38% stated Nepal and 32% reported a destination outside of the Indian subcontinent. The data confirm that those with only one main destination are households **with only one member who is migrating**. Those with multiple destinations, naturally, are households with at least two or more members who have migrated. Of the destinations labelled "Other", the main countries, in priority order, are Saudi Arabia, Qatar, Malaysia and United Arab Emirates.

Table 15 summarises the main destinations of households in each belt and development region. India is the main destination for households in the Terai and within the Mid West and Far West regions.

Table 15 – Main destinations of migrants by belt and development region (% of households with migrating member(s) in each strata)

	Hill	Mountain	Terai	Eastern	Central	Western	MidWest	FarWest
India	43%	36%	35%	35%	10%	55%	66%	78%
Nepal	39%	58%	32%	53%	41%	26%	26%	28%
Other	23%	14%	47%	29%	56%	27%	27%	3%

The proximity to North-East India and the porous border makes India a preferred destination in terms of reduced transport costs and limited entry barriers. Households in the Mountain belt tend to have their members migrate internally in Nepal as do households in the Central and Eastern regions. A little over half of households in the Central region have members migrating outside of the sub-continent.

3.3.3 – Months Away from Home

Figure 4 – Months Away from Home by Agro-ecological Belt

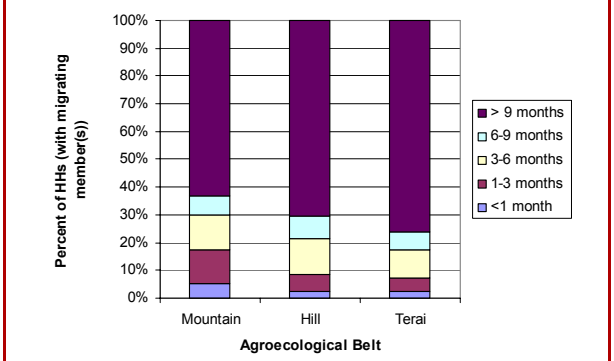
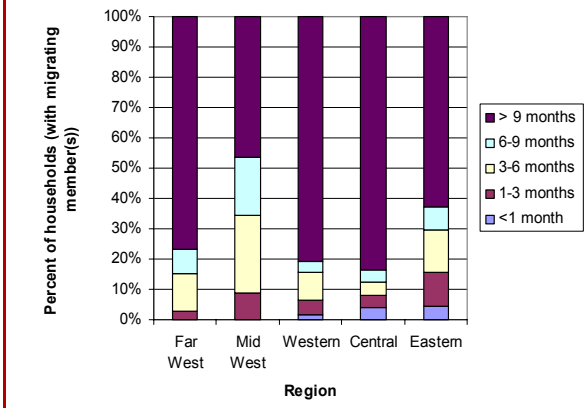


Figure 5 – Months Away from Home by Development Region



With respect to the number of months migrants spend away from their family, 72% of all households with migrating member(s) reported that the member is away for more than 9 months a year. Another 19% of households reported members who migrate spend between 3 – 9 months away. And nine percent (9%) of the households reported that family members who migrated returned before 3 months.

When delineating findings along the two main strata, findings mirror averages with one notable exception (Figures 4 and 5).

3.3.4 – Age and Gender of Migrants

Households also reported on the age and sex of the migrating family member. As there could be more than one member migrating (i.e., household has more than one response option), the data findings are based on multiple responses (i.e., percentages do not add up to 100%). Sixty-one percent (61%) of households reporting one or more family members currently migrating also reported that the member(s) was a male aged 18-30 years. Another 35% reported that the person was a male between 30–50 years.

Only 13% of households reported a migrating member to be a boy below the age of 18. The majority of this group worked in India. This data complements findings from the key informant survey (see previous section) wherein 65% of the communities reported migrating workers to be males between 20–30 years of age.

Less than nine percent (8%) of all households reporting on migration stated the migrating member to be a woman; 3% of households report migrating member to be a woman 18-30, and 4% age 30-50.

3.3.5 – Remittances

Among households with one or more migrating members, a median of NRs. 15000 (USD 205) was remitted to households by migrating members in the past year[16]. Depending on the location of the migrating member, however, the amount varies considerably. For example, the *median* value of remittances received by households with a member migrating internally in Nepal is NRs. 12,000 (USD164). Households with a member in India received *median* remittances of NRs. 10,000 (USD137). Finally, households with a member outside of the Indian sub-continent (i.e., Saudi Arabia, Qatar, Malaysia), *median* remittances total NRs. 60,000 (USD822).

It is interesting to note that households with family members working elsewhere in Nepal receive a higher median amount of money than households whose member(s) have migrated to India. Generally speaking the assumption is that a migrant would move out of the country mainly because of greater returns offered. However this is not the case when we compare the average remittances from India and Nepal. This could imply that a main reason for immigration to India is that it is easier to obtain jobs.

This adds credence to the earlier offered assumption that unemployment is a main reason for households especially from the Terai to send these members to India. While a great

[16] November 2005 Exchange Rate: 1 USD = 73 NRs.

difference is not seen in median remittances between India and Nepal, the disparity when comparing households with migrants within the Indian sub-continent and those outside are staggering. The latter group of households receives five times the amount of median remittances as households with migrants in Nepal and over six times as much as households with members in India.

This is mainly due to household members migrating to countries like Saudi Arabia, Dubai and Malaysia. The latter are host to large numbers of migrants from Asia—mainly Nepal, India, Bangladesh and Sri Lanka—who work in the service, construction and oil sectors.

Table 16 - Mean Annual Remittances by belt and region

Strata	Median (NRs.)	Mean (NRs.)
Mountain	11,464	23,991
Hill	12,000	31,552
Terai	26,758	39,355
Total	**15,000**	**34,215**
Far West	12,000	19,419
Mid West	15,000	26,571
Western	15,000	38,660
Central	40,000	49,706
Eastern	0	18,302
Total	**15,000**	**34,215**

The main incentive for such migrants is that salaries offered for such employment are considerably higher relative to salaries for similar employment in South Asia.

When comparing the mean and median remittance receipts by strata (Table 20), the data show that households in the Terai receive the largest monetary benefits. This corresponds to the data that indicates a high proportion of households from this belt report having one or more migrating members and that 14% of these same households report Qatar and Saudi Arabia as the main destinations.

In terms of development regions, the Western region has the highest total remittance receipts—again in line with the fact that around a fifth of all households in the West have family members working outside of the Indian sub-continent.

3.3.6 – Importance of Migration

The data on migration patterns one clear trend: *there is a strong monetary incentive to have one or more members migrate in search of employment*. There is also a clear indication that the characteristics of those who migrate are usually men between the ages of 18-30. This age cohort is traditionally the most economically productive segment of any population and the most capable of physical labour.

What is most surprising, however, is that these data were collected at the beginning of the harvest season (September 2005) when labour is in high demand. This fact gives rise to two related hypotheses:

- That landholdings are small and, therefore, given mean size of households (i.e., 6 persons) fewer members are needed to work the fields; and
- If landholdings are small, the productivity of agriculture is limited and households are hedging on the fact that sending a member outside of the community will increase the likelihood of an additional, more substantive, income stream.

These two hypotheses will be examined in greater detail in Section 3.5 (Agriculture and Land Use Patterns). However, given what is known about the rural economy in Nepal and the general decline in the contribution of agriculture to it, migration does offer a viable route for meeting household needs.

Section 3.4. Housing and amenities

3.4.1 – Housing Materials

Ninety-six percent (97%) of households reported that they own the dwellings in which they live. Of the remaining fraction that indicated that they *rent* their housing, their mean monthly expenditure on rent amounted to NRs. 651. In terms of ***housing materials***, 61% has walls made from mud-bonded bricks and stones followed by 27% reporting walls made of wood and bamboo, and nine percent with walls of cement bonded bricks.

Roofing was more varied and evenly distributed across households, with 32% of having tiles or slate roofs, 22% reporting CGI sheet roofing, and 32% with straw thatched roofs.

Finally, 80% of households indicated they had earthen floors, followed by about 16% with floors made from a combination of earth and stone.

Disaggregating ***within and among*** agro-ecological belts, 91% of households in the Mountain belt reported having walls made of mud-bonded bricks as compared to 88% of households in the Hill belt and 22% within the Terai.

3.4.2 – Rooms and Crowding

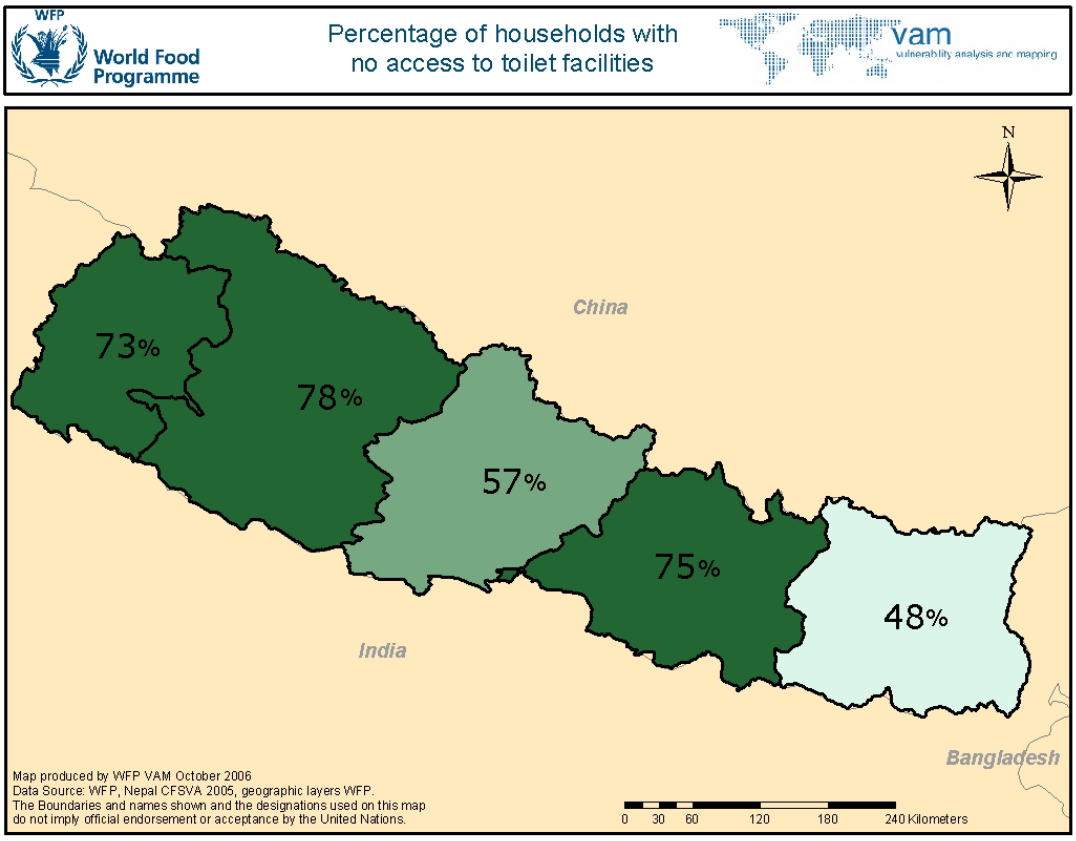
There is little variation with respect to the ***number of rooms per household and the number of people sleeping in each house***. On average, households have 2.8 rooms per house and 6.1 people sleeping in each house. However, at least two rooms are used for living and cooking, which means that *at any given time six people are sleeping in the remaining room*—a measure of crowding. Slight variations arise when looking at agro-ecological belts and development regions. Households in the Terai had highest crowding ratio—6.7 persons to 2.9 rooms—as compared to the 5.9 people and 5.8 people to 2.8 rooms in the Mountains and Hills, respectively.

3.4.3 – Toilet Facilities

Table 17 - Percent of Households with Access to Toilet Facilities by Belt and Region

Facilities	Mountain	Hill	Terai	Far West	Mid West	Western	Central	Eastern
Flush latrine	10%	15%	19%	11%	3%	20%	16%	23%
Trad. pit latrine	20%	16%	4%	8%	13%	15%	4%	21%
Open pit (no walls)	13%	6%	5%	7%	6%	7%	4%	8%
Communal latrine	<1%	1%	<1%	2%	<1%	1%	1%	<1%
None/Bush	57%	61%	72%	73%	78%	57%	75%	48%

Map 6: Household Toilet Facilities



66% of the households reported that they do not have any ***toilet facility*** whatsoever and use the outdoors. Of the remaining households, 16% and 12% indicated that they have access to flush latrines and traditional pit latrines, respectively. When looking at the

distribution of toilet facilities, households in the Terai reported the highest incidence of no facilities whatsoever. A fifth of households in the Mountain belt reported having access to traditional pit latrines, and just under a fifth of households in the Hills reported access to flush latrines.

Across development regions, 73% of households in the Far West, 75% in the Central region and 78% in the Mid West regions do not have any toilet facilities. Households in the Western and Eastern regions had the greatest access to flush latrines. Table 21 and Map 6 illustrate the main findings.

3.4.4 - Sources of Lighting and Cooking Fuel

Two thirds of households (66%) reported that kerosene was their main source of ***lighting***, followed by 26% of households reporting electricity as their main source of lighting. The remaining *main* sources of lighting reported by households were pinewood (4%) and solar panels (2%).

Figure 6 – Sources of Lighting by Belt

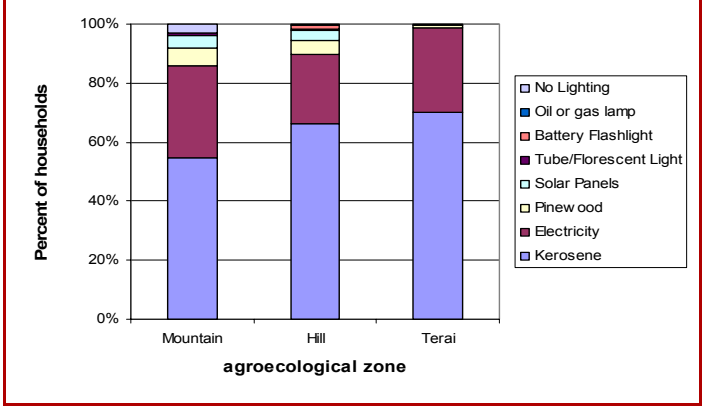
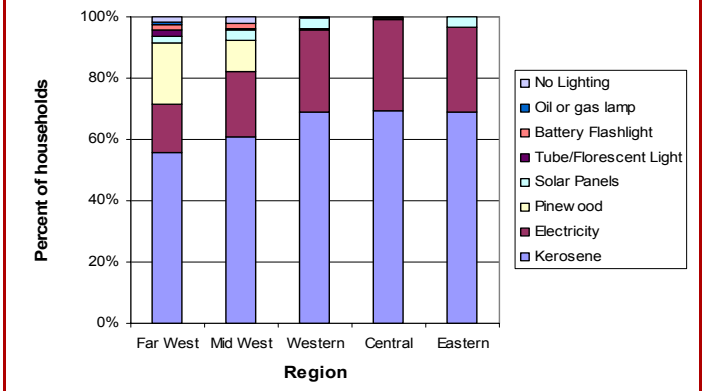


Figure 7 - Sources of Lighting by Development Region



Seventy-eight percent (70%) of households in the Terai reported using kerosene while access to electricity was highest in the Mountains. Looking across development regions (Figure 7), households in the Far West reported the least use of electricity (16%) and the highest use of and pine-wood (20%).

Ninety-three percent (95%) of households indicated that they incur monthly costs for lighting. On average, households spend NRs. 139 per month on lighting. Expenditures are, on average, highest among households in the *Terai* and least in the Mountain. Among the development regions, households in the Central Region incur, on average, the highest lighting costs per month—NRs. 158 whereas the least amount paid is among households in the Far West—NRs. 88.

With regards to ***cooking fuel***, 86% of all households reported using wood. The remaining 14% of households relied primarily on dung and gas (bio and cylinder).

Mean monthly expenditures on cooking fuel are NRs.116. Wood is mostly collected by households rather than bought; costs are much higher for households who rely on gas, kerosene, and electricity as the main source of cooking fuel.

3.4.5 – Access to Drinking Water

Access to clean water is an important component of food security—especially relating to food utilisation. Almost 44% of households reported that the main source of water was a ***public tap***. Table 22 summarises the main sources of water for households by belt and region.

Seventy-seven percent (77%) of households in the Terai rely on tubewells or boreholes with pumps—a source that neither the Hills nor Mountain belts use. This is, perhaps, an indication that this type of water source requires operational maintenance and financial inputs that are not necessarily available among housholds in other belts.

Table 18 - Main Sources of Water by Belt and Region (% of households)

Source of water	Mountain	Hill	Terai	Far West	Mid West	Western	Central	Eastern
Public Tap	60%	65%	15%	37%	51%	75%	41%	26%
Tubewell/Bore hole with pump	0%	0%	77%	19%	14%	0%	47%	44%
Protected dug well or spring	11%	9%	1%	15%	3%	5%	6%	4%
Unprotected dug well or spring	12%	13%	1%	18%	12%	7%	3%	11%
Pond, river, stream, lake	8%	4%	0%	10%	3%	3%	1%	2%
Vendor	0%	1%	3%	0%	9%	0%	0%	0%
Private/Own tap	9%	8%	4%	1%	8%	10%	1%	12%

While a far greater proportion of housheolds reported access to "safe" public taps in the Mountain and Hill areas, the fact that a sizeable number of households use unprotected water sources should warrant concern. Combined with the fact that proper sanitation and toilet facilities are limited among sampled households (see previous section), there is a risk of communicable disease, diahrrea, worm infestation and overall ill-health among households who use unprotected sources of drinking water.

In terms of distance to the nearest water sources, this study used Nepali standards to measure "water access". In this context, water sources are considered "on premises" if the spatial/temporal distance from a housheold to said water source is: (a) either 50 meters uphill or downhill; (b) 100 meters in any horizontal direction; or (c) 15 minutes in total to fetch water and return to the housheold.

Using these standards, the survey found that irrespective of the actual water source, 80% had drinking water "on premises." For the remaining households, the mean time required to reach and return from the nearest water source was 30 minutes.

3.4.6 – Housheold Asset Holdings

Assets—be they are physical, natural, social, financial or human—are essential elements of household livelihoods. Assets are, in essence, the inputs into household livelihood strategies. As such, they represent the ability or inability of a household to engage in specific activities that can secure food and other basic needs.

The number and combination of different assets owned by a household is often used as a proxy indicator for households' wealth and, therefore, is related to household food security. A greater variety of current asset holdings usually indicates that a household has more purchasing power. Moreover it signifies that the household has not been forced to sell assets in the past to meet household needs and that it *may* be able to buffer itself against shocks occurring in the future.

However, not all assets are equal in terms of their utility to sustain household livelihoods. Some assets have a greater inherent value than others insofar as they facilitate economic productivity (e.g. land, livestock, credit, tools) whereas others can be considered non-productive or basic assets as they relate more to living standards (e.g., beds, tables, televisions).

Previous and subsequent sections examine different asset holdings within a particular context (i.e., human assets in terms of levels of education). This section, however, intends to explain the ownership patterns of three types of productive and non-productive assets: ***physical*** (e.g., beds, radios, bicycles), ***natural*** (e.g., livestock) and ***financial*** (e.g., credit access).

Beginning with **physical assets**, sample respondents were asked if the household possessed one or more of 12 physical household assets.

During the data analysis phase, physical asset holdings were separated into two groups:

- Productive assets that can be used to generate income: sewing machines, bicycles, motorcycle, automobiles, bullock carts and farming tools (e.g., hoes, axes, shovels); and
- Non-productive basic assets: beds, tables, fans/heaters, radio/tape players, televisions and refrigerators.

With respect to *non-productive assets*, the most common across all households are beds (78%), and radio/tape players (58%). The assets least commonly held are refrigerators (1%), fans/heaters (14%) and televisions (17%).

In terms of *productive assets,* 95% of households own farming tools. However among other productive assets, reported holdings are quite low. For example, only six percent of households own a bullock cart, six percent a sewing machine, and 24% a bicycle.

With regards to the total number of physical assets held by households (both productive and non-productive), the average is 3.2. Looking beyond the averages, 37% of households reported ownership of 1-2 assets, 46% reported ownership of 3-4 assets, and around 17% indicated they owned 5 or more assets (maximum of 12).

Data also indicate that there is no co-linear growth relationship in terms of the ratio of productive to non-productive assets across the ownership categories mentioned above. As the total number of assets possessed by a household increases, the number of productive assets remains the same.

For example, of the 46% of households holding 3-4 total assets, most report that only one of these assets are productive—presumably agricultural tools. For the 17% having 5-7 assets, almost none of these same households reported that they had at least three productive assets out of seven.

Delineating the overall findings by different strata confirm the overall trend. First, there is no variation within the two strata from the average for total number of assets owned: it remains three per household. Second, it is evident that *aside from agricultural tools*, households across both development regions and agro-ecological belts have greater ownership of non-productive assets.

This implies that in terms of *basic living standards*, households possess ***some*** of the necessary assets such as beds, tables, radios and, in some cases, televisions.

The propensity to own more non-productive assets as compared to productive ones should not be understated, or undervalued. Assets such as radios and televisions are important mediums of communication that enable households to be better informed about public life and public affairs. In this way, households are much more likely to be aware of broader events within Nepal that might have a direct bearing on their own lives and livelihoods.

Table 19 – Asset Holdings by Region (% of households reporting ownership)

		Far West	Mid West	Western	Central	Eastern
Non-productive assets	Bed	68%	77%	76%	81%	80%
	Table	20%	18%	26%	30%	37%
	Fans/Heaters	3%	2%	3%	9%	14%
	Radio/Tape	61%	60%	73%	53%	55%
	Refrigerator	1%	0%	0%	0%	4%
	Television	8%	7%	12%	16%	21%
Productive assets	Agricultural tools	99%	98%	98%	93%	92%
	Sewing Machine	4%	7%	4%	5%	8%
	Bicycle	12%	20%	0%	37%	27%
	Motorcycle	0%	0%	1%	3%	2%
	Automobile	0%	0%	0%	0%	0%
	Bullock Cart	7%	6%	0%	8%	6%

Looking specifically at productive assets and their distribution across strata, bicycles are most commonly held in the Eastern, Central, Mid West and Far-West. However, when comparing these findings across agro-ecological belts, the Terai contains over half of all households reporting bicycle ownership. This is not entirely surprising as the topography of the Hills and Mountains makes it difficult to use bicycles.

Bullock carts are owned primarily by households in the Terai (21%,). Such carts are important for agriculture in terms of reducing manual labour and transport, and transaction costs for households engaged in crop cultivation.

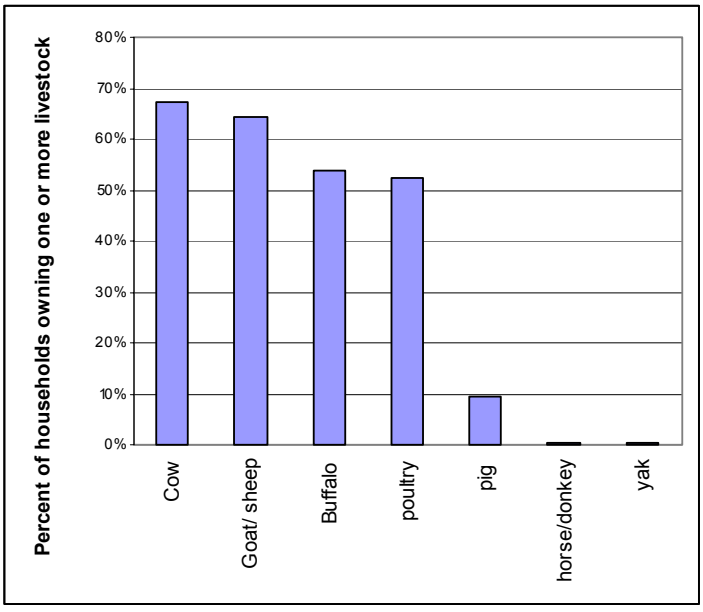
Table 20 – Asset Holdings by Belt (% of households reporting ownership)

		Mountain	Hill	Terai
Non-productive assets	Bed	71%	75%	83%
	Table	19%	25%	35%
	Fans/Heaters	2%	2%	16%
	Radio/Tape	63%	65%	49%
	Refrigerator	0%	0%	3%
	Television	12%	10%	20%
Productive assets	Agricultural tools	100%	98%	90%
	Sewing Machine	6%	4%	9%
	Bicycle	0%	2%	56%
	Motorcycle	0%	0%	4%
	Automobile	0%	0%	0%
	Bullock Cart	0%	1%	13%

Livestock, in general, can be considered as productive assets. Households rely on livestock both as a form of savings and investment as well as a source of food. Household survey respondents were asked whether their households owned one or more types of the livestock described in Figure 8.

94% owned some livestock. Of the 67% of households reporting cow/bullock ownership, 25% reported having two heads and 11% reported having three heads.

Figure 8 - Percentage of Livestock by Household



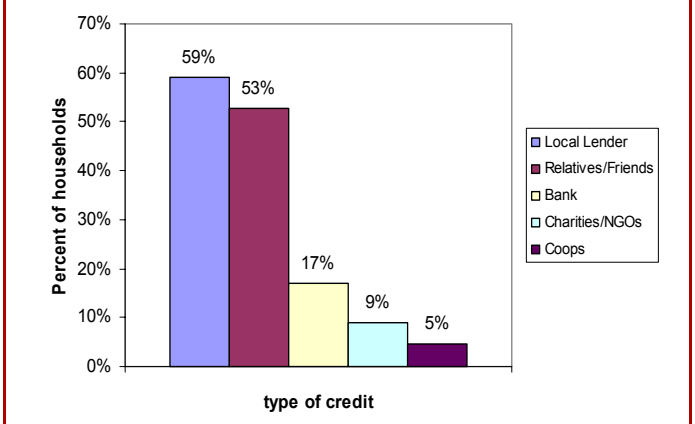
Among households reporting owning bufallo (54%), over three-quarters reported having between 1-2 animals. Goat/sheep and poultry ownership was the most varied in terms of absolute holdings. The average among owners of poultry is seven and the median four. For goats/sheep, the average number is 2.5. Overall, there are some interesting relationships among households that own poultry and goats/sheep. For example, for all households owning one head of cattle, they also possess at least three chickens or other poultry.

A similar ratio appears for households owning buffaloes. Households that own at least 2 buffaloes also have at least four goats and/or sheep. Buffalo ownership is highest for households in the Hills and the Western development region (Table 25). Households in the hill belt are more likely to own goats/sheep and poultry than their Mountain and Terai counterparts. Households living in the Eastern, Western, and mid-west show the highest levels of poultry ownership.

Table 21 – Major Livestock Holdings by Belt and Region (% of Households Reporting Ownership)

Livestock type	Moun-tain	Hill	Terai	Far West	Mid West	Western	Central	Eastern
cows	77%	70%	62%	86%	73%	60%	60%	72%
buffaloes	54%	66%	39%	60%	47%	67%	56%	44%
goats/sheep	66%	70%	57%	62%	67%	53%	69%	65%
poultry	60%	70%	29%	29%	71%	66%	41%	58%
pigs	14%	11%	6%	6%	13%	15%	2%	16%

Figure 9 – Access to Credit



The final dimension to be investigated in this section is **access to credit.** *Ninety-six percent (96%)* of all households reported that they have access to one or more types of credit. There is no large variation of this overall figure across the two major strata (i.e., belt and region) Figure 9 depicts the various types of credit reported by these households. The most common types of credit are reliance on friends and relatives and local lenders—53% and 59%, respectively.

Banks, NGOs and cooperatives are the remaining sources of credit, accounting for 17%, nine and five percent, respectively. It is apparent that households rely more on *informal* channels than formal ones. Two supplementary questions were asked of survey respondents: (i) do households often purchase food on credit or borrow money to purchase food; and (ii) how often was food purchased with borrowed money or credit in the three months prior to this survey.

Of the total proportion of households that reported having access to credit, 70% indicated that they purchase food with credit or borrowed money. Of these households, ***30%*** indicated that they had obtained food with credit or borrowed cash on ***more than three occasions in the three months prior to the survey***; 21% reported having done so on three occasions; 29% reported using purchasing food with credit/borrowed cash on two occasions in the last three months; and 19% reported having purchased food with credit or borrowed money once in the past three months.

Twenty-four percent of all households in the Mountains reported borrowing cash or credit on more than three occasions to purchase food. Nineteen percent (19%) of all households in Hill and 23% of those in the Terai reported the same. By region, 35% of all households in the Eastern region reported this borrowing frequency, followed by 20% in the Mid-West region, 19% in the West, 16% in the Far West, and 18% in the Central region.

Using data on productive assets and livestock holdings, households who have bought food on borrowed cash or credit ***more than three times*** in the last three months also have the following types of asset holdings:

- These households have, on average, only 3 assets in total—of which 1 on average is a productive asset (i.e., agricultural tools);
- Ninety-one percent (91%) of these same households do not have any pigs; 48% have no poultry; 34% have no goats/sheep; 51% have no buffaloes; and 35% have no cows; and
- Of those that do possess some productive livestock, the mean number for each category is quite low—a maximum of only two animals for each livestock category mentioned in the previous bullet point.

The high incidence of borrowing credit and cash among these households and the dearth of both productive assets and livestock holdings suggests that income streams are also limited constraining the ability of households to repay debts. Key informant interviews also noted that local money lenders charge high interest rates on their loans with implies

an additional burden on households that might result in further indebtedness, placing them in a downward spiral of impoverishment.

Section 3.5. Land use and agricultural production

3.5.1 – Access to Land & Average Size of Agricultural Holdings

More than 89% had access to some arable land and practised agriculture. This is an increase from the figure of 78% was reported in the 2003/04 Nepal Living Standards Survey, and similar to the 83% reported in the 1995/1996 Nepal Living Standards Survey. The average size of agricultural land holding per household was 0.6 Hectares (with a wide variation in size from 0.01 hectares to a maximum of 7 hectares.

That the average size of land for households in the Mountains is 0.47hs, the lowest across all three belts and also lower than the average of 0.6 hectares. In the Terai, these households had the highest average land holdings of 0.78 hectares. In the hills the average is 0.51ha. There is no significant difference between the Hill and the Mountains, but the Terai has a significantly higher ($p<.001$) average land holding than the other belts.

In the Terai, there are greater options in terms of sources of income—not least the skilled and unskilled wage opportunities in neighbouring India. This implies a lesser degree of reliance on agriculture as the main source of food and income in this belt. This, perhaps, explains lower percentage of households from the Terai reporting access to agricultural land (despite the higher population density of the Terai) and the slightly higher than average size of holdings among these same households.

Respondents who reported having access to agricultural land were asked how they acquired this land: a) inheritance; b) renting from a landlord; c) sharecropping; or d) purchase. Findings indicate that a small percentage of households used a combination of one or more of the main access modalities. However, the most common access was by inheritance (65%), then 21% by purchase and around 11% of the households rented or sharecropped their land.

3.5.2 – Irrigation

Households were asked about the main source of irrigation for their land. Approximately 64% of the households practising agriculture report rain-fed agriculture. Twenty six percent (26%) reported irrigation, the primary source of which is rivers (natural sources), followed by canals/dams, and then pumps.

Many households would use a combination of natural sources and irrigation sources. Households would naturally try to have the least dependence on pumped water and canals as this would increase their input costs (cost of PVC pipes, pumps, maintenance costs of pipes, irrigation systems etc).

The type of irrigation source is also a function of the geographic location of the household. A household located in the hills close to a river has a better access to natural sources than a household located in the Terai, were pumps and canals are often the only options.

In the Mountain belt, among households practicing agriculture, 59% rely on rainfall, 30% on river, and the rest canals/dams. In the hill belt, 70% rely on rainfall, 24% on rivers, and the rest on canals and dams. In the Terai, 57% rely on rainfed, 23% on canals/dams, 12% on rivers, and 8% on pumps. Very few households in any area rely on springs.

3.5.3 – Crops Cultivated

Respondents who reported practising agriculture were asked to state the variety of crops they cultivated. Given that several options were possible, multiple response analysis was used to analyse and report on the data (i.e., percentages do not add up to 100%). The main findings for households are:

- 70% cultivate rice;
- 67% cultivate maize;
- 55% cultivate wheat;
- 33% cultivate millet;
- 12% cultivate pulses/lentils/beans; and
- 11% cultivate potatoes.

Of those households that reporting farming activities, 34% indicated that maize is their primary crop, 41% rice, and only 14% reported that wheat was the main crop. This implies that multi-cropping is a common phenomenon—especially with regards to cereals. Nearly three-quarters of all households practising agriculture planted at least three crops—often a mixture of maize, rice and wheat.

3.5.4– Kitchen Gardens

The 87% of households reporting access to some land were then asked if they had a kitchen garden. Approximately 74% of these households answered positively. 97% of households having kitchen gardens cultivated vegetables, 22% potatoes and 23% fruits. It is to be noted that 5% of households with kitchen gardens reported growing maize.

3.5.5 – Source of Seeds

From the data it is evident that households relied on their own stocks/resources to obtain seeds (only two surveyed households reported sourcing seeds from the government/NGOs/INGOs). Further, less than 1% of the households resorted to borrowing or exchange among other households to obtain seeds. The most common methods of accessing seeds were:

- **Own stock** – Approximately 63% of the households reported saving and using their own stock as seed.
- **Purchase and own stock** – 22% of the households used a combination of purchase and own stock to obtain their seeds.
- **Purchase** – 13% of the households depended on only purchase for their seeds.

Among development regions, proportion of farmers sourcing seeds from their own stock was the highest in the Western region (84%) and lowest in the Eastern region (50%). The Eastern region had the highest percentage of farmers (21%) purchasing seeds.

3.5.6– Fertilizers: Use and Source

Information was collected to ascertain the use of both chemical and natural fertilizers. 43% of households with access to land report using only natural fertilizer. This can be linked to the average size of land available for a household. Households, especially in the hills, who have access to less than 0.5 hectares of land, would not, usually, invest money on agrochemicals—preferring instead to use natural animal waste. 34% of all farming households used both chemical and natural fertilizers while 19% of the households used only chemical fertilizers. The households using either chemical or chemical and natural fertilizers have, on average, slightly but significantly larger land holdings than those using just natural fertilizers. This may be confounded by the fact that larger land owners are richer, and therefore able to afford chemical fertilizers.

Table 22 - Fertilizer Use Among Households

Type of Fertilizer Used	% of Households
Natural fertilizer only	43 %
Chemical fertilizer only	22 %
Both natural & chemical fertilizer	34 %
None	< 1 %

Chemical fertilizer was mostly widely used in the Hill belts of the Central, Eastern and Western regions.

The Far West region reported the least use of chemical fertilizers (either only or in combination with natural). The Terai reported the highest percentage use of chemical fertilizers.

3.5.7 – Pesticides: Use and Source

Only 37% of all farming households reported the use of chemical pesticides or herbicides. The geographic areas of use of pesticides were similar to that of chemical fertilizers. It can be seen from the data that most pesticide usage was among households in the Terai belt. The highest number of households reporting the use of pesticides was from the Central region. Approximately 97% of all households using pesticides purchased it.

3.5.8 – Access to Markets and Market Prices

Key Informant questionnaires conducted in 168 communities contained a component on market access. Key informants were asked if there were permanent or periodic food markets within or near their communities. A little over a quarter of sampled communities

had a daily (or permanent) market within 30 minutes, while a lesser percentage of communities reported a periodic food market 3-4 hours away by foot. These data suggest that:

- Most communities do not produce enough to warrant the existence of a permanent market within the community. It is possible that markets dependent on the supply cycle are more frequently found around the end of the harvest season.
- Smaller communities do not have markets and its members generally travel to a larger community nearby to sell or buy foodstuffs.
- Both the above points would mean that most communities would have one or two small shops providing other essential commodities like matches, paraffin, charcoal, cigarettes, and OTC (Over the Counter) drugs such as aspirin.
- Since most communities do not have a market, a sizeable percentage of time of the members of the household (usually women) would be utilized in accessing the nearest market to source essential items.

Table 23 - Percentage Increase in Retail Prices 1994 – 2004 (%)[17]

	Nominal change	Adjusted for CPI
Rice	55%	-13%
Wheat *	96%	27%
Maize *	121%	44%
Mustard oil	89%	7%
Ghee (purified)	96%	11%
Potato	22%	-31%
Chicken	61%	-9%
Milk	76%	-1%

A look at cereal and food commodity prices over the past decade clearly shows that nominal prices have steadily been increasing. However, when adjusted for the Consumer Price Index, these changes are tempered- large increases are seen only in wheat and maize.

3.5.9 – Access to Markets and Market Prices

Table 24 - Nepal, Average Urban Consumer Price Inflation (%) (2000-2005)*

		CPI	Cereals	Pulses	Vegetables	Oil	Sugar	Non-Food Items
National (2000-05)	Nominal	-	0.1	2.2	4.3	6.8	6.5	4.8
	Real**	3.5	-3.5	-1.4	0.8	3.3	3.0	1.2
Kathmandu (2003-05)***	Nominal	-	-0.7	-2.2	-6.6	9.1	4.4	4.4
	Real	2.2	-2.9	-4.4	-8.9	6.8	2.1	2.2
Terai (2003-05)	Nominal	-	0.5	-0.1	-17.8	5.6	4.3	3.9
	Real	1.4	-0.9	-1.5	-19.2	4.2	2.9	2.5
Hills (2003-05)	Nominal	-	0.9	-0.7	-12.1	5.7	4.3	3.5
	Real	1.5	-0.5	-2.2	-13.6	4.2	2.8	2.0

Source: Estimates Based on Nepal Rastra Bank
*Figures on Moutain Area Not Available **Deflated by CPI
*** Available years fro Kathmandu, Terai and Hills are 2003 - 2005

A look at recent price development shows that the overall consumer price increase (CPI) is most probably due to the price increase of non-food items. The prices of food items (cereals, pulses and vegetables) have slowed-down both in nominal and real terms, except for sugar and oil. The price decline of cereals is less in the hills than in *Terai* and Kathmandu as opposed to the price decline of vegetables which is higher in the hills and *Terai* than in Kathmandu.

Basic food commodity prices are determined both by the supply from *Terai* region as well as by demand from Kathmandu Valley[18]. *Terai* region represents the major production area and it also constitutes an entry point to Indian produces. Therefore, it plays a price stabilizing effect on the entire markets of the country through import and domestic production, especially for rice. As a major consumption area, Kathmandu valley plays an important role in determining the national price, through demand. However, this demand effect is contained by (formal and informal) import from India, especially for the most consumed rice varieties (coarse and medium rice) (Action Aid Nepal, 2006). In general, the price of coarse and medium rice declined over the last five years (2000-2005), as

[17] Source: Statistical information on Nepali agriculture 2004, Ministry of Agriculture / HMG Nepal. Note: Percentage increase refers to the Nepali Rupee per Kilogram of commodity increase
* For the time period 1994 - 2000
[18] WFP/FAO (2006), *Nepal Agricultural Market Study*, May.

opposed to other cereals such as fine rice, wheat flower and lentil[19]. On the Indian side of the border, coarse and medium rice varieties are reported to be cheaper by 10-30 percent, compared to the national average retail price of rice in Nepal (WFP/FAO *Nepal Agricultural Market Study,* 2006). The import of such cheap rice may have contributed to the decline of their domestic retail price in Nepal[20].

Table 24 - Nepal, Average Price of Selected Cereals (2000-2005)

	Average Price (Rs/Kg)	Growth Rate (%)	Coefficient of Variation (%)
Rice Coarse	17.1	-7.8	6.2
Rice Medium	22.3	-2.4	4.6
Rice Fine	34.3	1.4	3.5
Wheat Flour	18.6	8.4	7.7
Lentil Broken	41.8	3.0	2.3

Source: Estimates Based on Nepal, Department of Agriculture, Agricultural Marketing Information Bulletins

Consumers living in mountain and hilly regions are worse off, considering the spatial price differential of rice. On average, the retail prices of coarse and medium rice are higher by 71 and 58 percent in the mountain areas than in *Terai* areas, over the last three years (2002-2005). The price differential ranges from one-third to one-fourth (respectively), in comparison with the national average price. Besides, the poor agricultural productivity, high transportation costs due to the difficult terrain, the high price in these regions is compounded by long lasting conflict and frequent droughts affecting the area.

Nepal, Average Price Differentials by Region (2002-2005)

	Region	Rice Coarse	Rice Medium	Rice Fine
Price (Rs/Kg)	Mountain (A)	27.3	32.2	45.0
	Hills (B)	18.2	24.5	36.0
	Terai (C)	16.4	20.8	30.8
	NEPAL (D)	20.7	25.9	37.6
Price Differentials (%)	(A-C)	70.8	57.6	53.7
	(A-D)	32.6	24.2	20.0
	(B-C)	13.1	19.5	21.3
	(B-D)	-11.9	-5.1	-4.2

Source: Estimates Based on Nepal, Department of Ag., Agriculturak Malrketing Information Bulletins

Section 3.6 – Livelihood Activities and Sources of Income

Rural households engage in many livelihood activities that help them secure food, income and other services. More often than not, ***a combination of specific activities*** is utilized by households to meet one or more household priorities (e.g., food, income, access to services). In this context, enumerated households were asked to identify from 16 potential options, the *four main activities* that—when combined—provided them with food consumed directly by the household and annual income. In turn, respondents were asked to estimate the relative contribution of each activity towards annual income and food consumed by the household or a combination of the two.

3.6.1 – Multivariate analysis of livelihood and income-earning activities

Given that several sets of activities constitute the income and livelihood portfolio of households, it is necessary, for purposes of analysis, to determine which types of combinations are common. Using principal component (PCA) and cluster analysis, eight homogeneous livelihood classes (or profiles) were created based on *how much each individual activity contributed to annual household income.*

[19] Data from the Department of Agriculture indicate that retail transaction of maize is minimal.
[20] The report released by Action Aid (2006) indicates a stagnation of rice prices.

Of the 1,674 households for which data are available on this theme, the four main Livelihood Profiles are: the households that rely primarily on **agriculture** for their annual income, households depending predominantly on **unskilled wage labour,** households depending principally on **remittances** and those relying on **salaried and skilled work**. The remaining four classes or household livelihood profiles are fewer in terms of numbers, but important nonetheless: households looking to **petty trade and commerce** to ensure their income streams, those relying on **livestock sales** households depending on **government assistance such as pensions** and, finally, those living of the **use of natural resources (e.g., non-timber forest products) and manufacturing handicrafts.** Table 28 summarises these groups and the share of income generated from primary, secondary and tertiary sources.

3.6.2 – Characteristics of Livelihood Classes

Table 25 - Contribution of Livelihood Activities to Annual Income

Livelihood Profile	% HH	Primary Share	Secondary Share	Tertiary Share(s)
1. Agriculture	25%	Sales of crops (75%)	Unskilled labour (11%)	Salaried work, livestock (9%)
2. Unskilled Wage Labour	24%	Unskilled wage labour (83%)	Agriculture and livestock (7%)	Livestock, portering (5%)
3. Remittances	15%	Remittances (79%)	Agriculture (7%)	Unskilled labour, livestock (9%)
4. Salaried & Skilled Work	16%	Salaried/skilled work (78%)	Agriculture (9%)	Unskilled labour, livestock (9%)
5. Livestock	7%	Sales of livestock (71%)	Agriculture (11%)	Remittances, unskilled labour (10%)
6. Petty Trade & Commerce	6%	Petty trade, commerce, brewing (76%)	Agriculture (9%)	Livestock, Remittances, unskilled labour (10%)
7. Natural Resources & Handicrafts	5%	Handicrafts and use of natural resources (21%)	Begging (15%)	Agriculture, livestock, other, unskilled labour (55%)
8. Government Pension	3%	Government assistance (71%)	Agriculture (15%)	Salaried/skilled work, remittances (9%)

As can be seen, most of the livelihood classes/groups rely on one activity for over 70% of their total annual income. In order to assess the effectiveness of these activities in providing reliable and stable access to income, findings from previous sections (e.g., contribution to direct food consumption, assets, size of household, credit access, agriculture) were cross-tabulated with each group.

The first step was to determine the distribution of the eight livelihood classes across sample strata. Table 29 summarises the results. Agriculture-based households are most concentrated in the Terai and Eastern region—27% and 47% respectively. Remittance-based households are most prevalent in the Hill and Terai belts and Western and Far West regions. Households belonging to the salaried/skilled-based livelihood group live primarily in the Mountain and Hill and less in the Eastern Region. Unskilled wage labour, as a homogenous class, is evenly distributed across all strata—suggesting that it comprises a core supplementary activity even for those who do not receive a large share of income from its use as a livelihood strategy.

Table 26 – Distribution of Livelihood Classes by Belt and Region (%households in each strata)

	Mountain	Hill	Terai	Far West	Mid West	Western	Central	Eastern
Agriculture	23%	24%	27%	9%	17%	7%	26%	47%
Unskilled Labor	28%	21%	28%	19%	21%	26%	23%	29%
Remittance	10%	14%	16%	23%	18%	21%	15%	5%
Salary and Skilled Work	19%	18%	12%	22%	21%	19%	16%	9%
Livestock Based	7%	11%	2%	12%	10%	10%	7%	1%
Government Assisted	1%	4%	1%	1%	2%	9%	1%	0%
Petty Trade and Commerce	7%	4%	7%	9%	4%	5%	6%	5%
Natural Resource and Handicraft	5%	4%	6%	5%	8%	3%	5%	4%

A second step was to compare the mean and median land size for each homogenous livelihood class. While all of the classes have agriculture as one of their combined income earning activities, there are varying degrees of reliance on this component for food and income.

Table 27 - Size of landholdings by livelihood class

Landholding	Hectares (Mean)	Hectares (Median)
Agriculture Based	1.0	0.7
Unskilled Labour Based	0.3	0.3
Remittance Based	0.5	0.4
Salary and Skilled Work Based	0.5	0.4
Livestock Based	0.5	0.4
Government Assisted	1.3	0.6
Petty Trade and Commerce Base	0.5	0.3
Natural Resource and Handicraft Based	0.3	0.2

As shown in Table 28, households belonging to the ***Agricultural based livelihood*** class have the largest median land size.

The households within the group would most probably have to move periodically since over time as natural resources are depleted—this implies gaining access to new forests that might be on protected and conserved lands.

For households belonging to the ***petty trade/commerce, salaried/skilled wages*** and ***government assisted*** groups, by virtue of their sources of livelihood and income, are likely to engage in more specialised forms of employment that bring higher levels of monetary remuneration. Households of these livelihood groups reported that more of their consumed food is purchased...

Households belonging to the ***remittance-based*** *and* ***unskilled wage labour livelihood group*** are also not likely to extensively cultivate their landholdings, but rather rely on family members sending back remittances and finding daily or monthly work. Cross-tabulating this group with data on migration patterns indicates that 92% of households relying on remittance-based livelihoods have one member who is currently migrating.

On the other hand, the small size of landholdings for households belonging to the ***agriculture and livestock classes*** is more troublesome. As noted in the previous section on Agriculture and Land Use Patterns, though the majority of households have access to land, its productivity is questionable.

Given that average sizes of landholdings are small, there are biophysical limitations on yields constraining profitable returns on investments. Moreover, given that much of the productive labour force within the household is likely migrating, there is also a strong likelihood that agriculture and livestock-based livelihoods will be geared towards low-input subsistence farming.

This suggests that in absolute terms, income generated specifically through agriculture or livestock is bound to be insufficient. However, with respect to food acquisition, the data suggest that the source of food consumed directly by these households is from their own production more frequently than other labour-based livelihoods. In turn, it is likely that livestock sales and earnings from activities that constitute the tertiary share of income contributors (i.e., remittances, unskilled labour) will fill in income and food gaps for households belonging to this class.

3.6.3 – Distribution of livelihood classes across expenditure quintiles

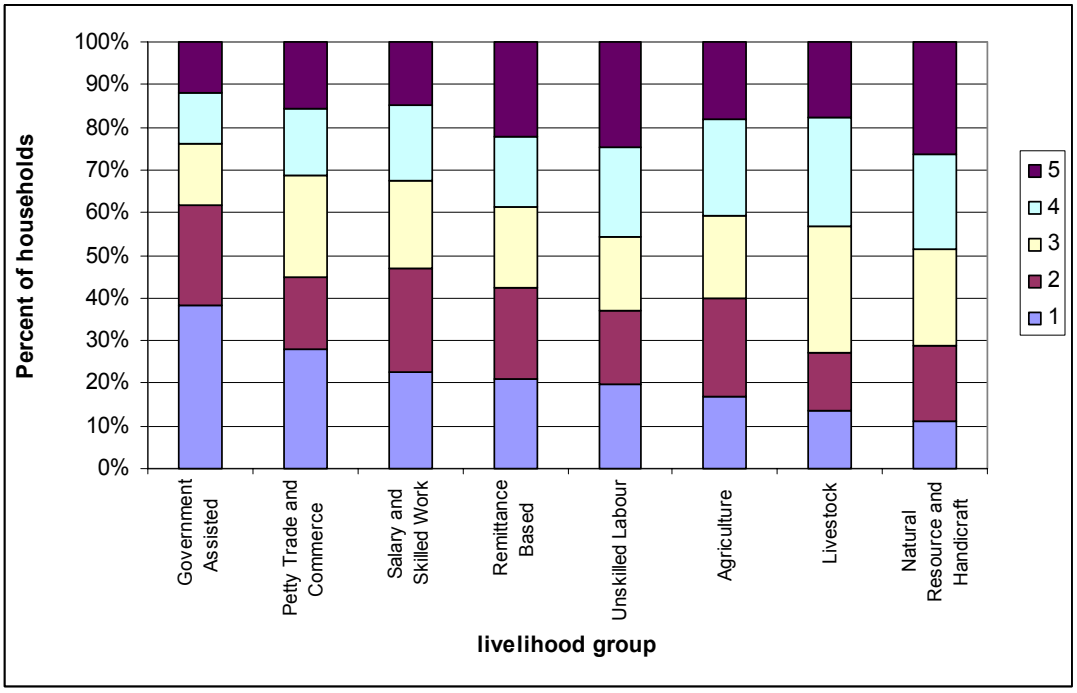
Since respondents were not asked to quantify the monetary contribution of each livelihood activity, expenditure data were collected and are useful in understanding the "monetary location" of livelihood classes within expenditure quintiles. This provides a proxy picture of whether income streams are able to generate sufficient resources to sustain household purchases of essential needs.

A more detailed discussion of household expenditures takes place in the next section. However, the aim is to determine the composition of each expenditure quintile in terms of its inclusion of one or more livelihood classes. The 1st and 5th quintiles can be defined as the bottom and top 20% of households with the least and most per capita expenditures (on food and non-food), respectively.

The livelihood groups with dis-proportionately high numbers of households belonging to the lowest expenditure quintile (1) are: Government assisted (38%), Petty trade and

commerce (28%), and Salary and skilled work (23%). However, households in each of these livelihood groups are also present in higher quintiles.

Figure 10 – Livelihoods Groups Across Expenditure Quintles



This suggests that households in the lowest quintile—irrespective of livelihood class—are unable to effectively combine their primary, secondary and tertiary livelihood activities in order to generate predictable and stable income streams. The inverse is true of households belonging to the same classes, but in higher expenditure quintiles.

The data indicates that households use a combination of activities to secure food and income. The way in which these activities are combined, however, is the key to their effectiveness. It is certain that household in the higher quintiles have several external sources upon which they draw (e.g., migrating family members, better education levels, adequate initial asset holdings) in order to hedge risk and ensure a greater predictability of income streams. These factors determine the economic mobility of households—irrespective in which livelihood class they belong.

Section 2.6. Section 3.7 – Household Expenditure Patterns

3.7.1 – Expenditure Patterns and Food Security

Data on expenditure for food and non-food items, such as education, health transport, etc. were collected to better understand household resource allocation. Monthly food and non-food expenditures can also serve as proxy indicators of the level of household access to food.

Generally speaking, the higher shares of total expenditures going towards food, the greater the likelihood that a household has poor food access. Food, on average, is cheaper than other goods such as health care, education or investments in productive assets such as livestock.

Thus, for households that have low levels of income and cannot produce enough food for themselves, buying food becomes, *de facto,* the main priority. As such, household resources will go towards ensuring that a minimum level of food is acquired in order to meet household needs. This, when compared to outlays on non-food priorities, will naturally result in a higher proportion of resources allocated to meet these food needs.

This would not necessarily be a problem if a greater variety and diversity of foods were purchased. However, studies indicate that food insecure households will purchase cereals over other food items because they are cheaper and more filling. This means that not only

are food expenditures high, but they are also targeted towards items with high energy and low nutritional value.

For households reliant on their labour as a source of livelihood, foods that are more filling and which provide energy are rightly valued. However, this comes at the cost of having diets that can result in poor nutrition and micronutrient deficiencies among children and adults—especially women.

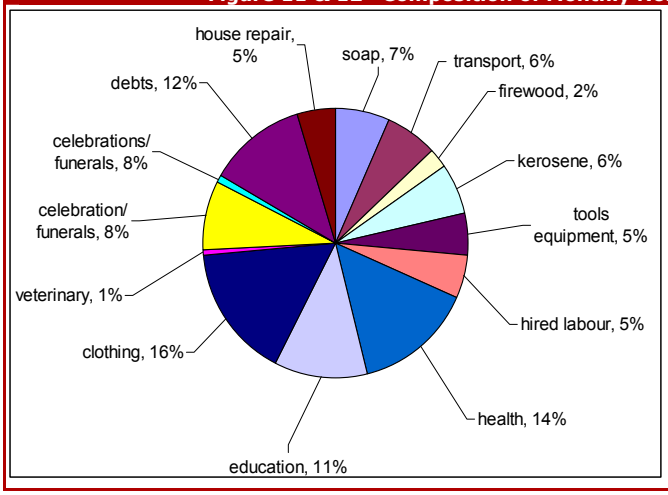
Each of the issues discussed above point to the types of choices that households must make when deciding how to allocate scarce resources. The outcome of their choices is, perhaps, best reflected (quantitatively) through their expenditures. Thus, an analysis of these outlays is a critical input in determining the types of households that are likely to be vulnerable to food insecurity.

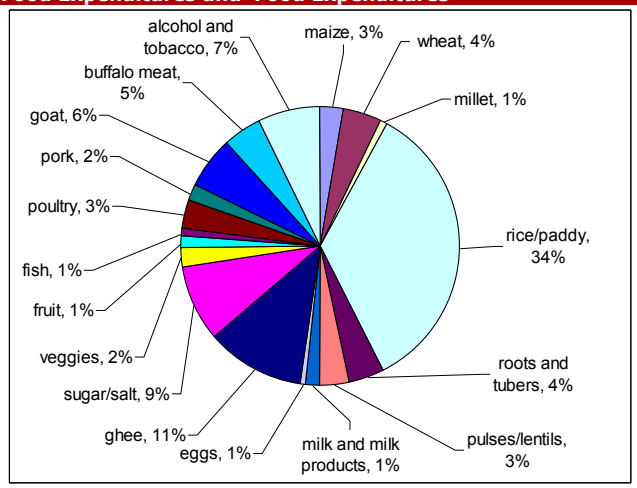
Households were asked to report on a range of food and non-food expenditures (e.g., health, education, meat, fish, vegetables, rice, etc.). All food expenditures were based on a one-month recall period and non-food expenditures were based on a six-month recall period. The reason for different recall periods is because many non-food items are bulk outlays that happen once in six months. For example, school fees are usually paid for at the beginning of the term. Health and medical costs also tend to be one-off payments for treatment or medicine. This being said, all non-food expenses were then adjusted into one-month outlays so as to allow for comparisons with food expenditures.

One caveat before moving on to the data findings: care must be taken in interpreting outputs from food expenditures analyses due to the fact that, in some cases, households may have a lower share of food expenditures because they rely on their own production. Similarly, better off households may spend a high proportion on costly food items (e.g., meat), which increases the percentage they spend on food. Therefore, it is important not only to understand the generalities of expenditure patterns, but also to investigate what types of items are being prioritised.

3.7.2 – Monthly food and non-food expenditures

Figure 11 & 12– Composition of Monthly Non-Food Expenditures and Food Expenditures





In the month before the survey, the monthly expenditures (both food and non-food) for all households averaged NRs. 6606 (90 USD). Of this total, 50%, on average, goes towards food purchases. Figures 11 and 12 illustrate the composition of food and non-food outlays.

With respect to food expenditures, on average, the bulk of the outlays go towards *cereals* (42%)—in particular rice. Meat (chicken, mutton, pork and buffalo) accounts for 17%, followed by oil/ghee (11%). Expenditures on pulses, vegetables, fruits, milk and eggs are quite low—indicating that they are available through livestock holdings and own production. The emphasis on cereal purchases also indicates that households do not produce sufficient quantities of such crops. This, again, is in line with the findings on agriculture and land use patterns—especially given average size of landholdings and land productivity. Non-food outlays, on the other hand, are better distributed across several priority areas. In particular, health and education account for 14% and 11% of non-food expenses.

Generally speaking, these figures indicate that households are able to meet key non-food priorities that are conducive to improved food security. On the other hand, debt repayments are, on average, 12% of all non-food expenses. Again, this particular finding supports conclusions in previous sections with regard to borrowing money to purchase food.

3.7.3 – Per capita expenditures and quintiles

Table 28 – Per Capita Expenditures and Size of Household

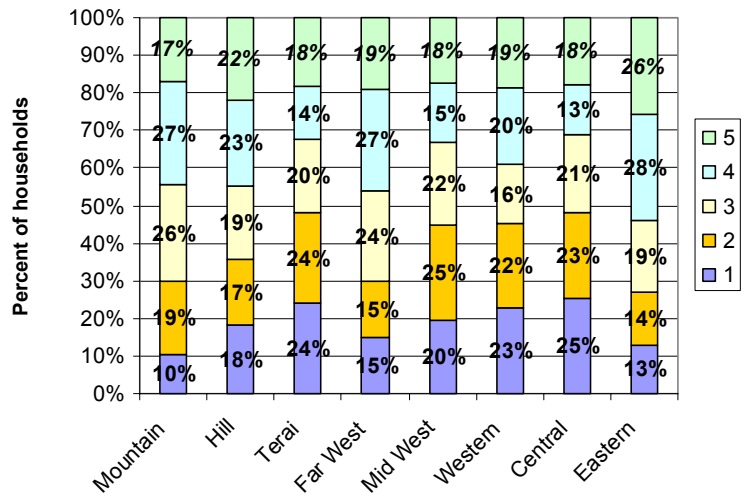
Per Capita Expenditure Quintile	Mean HH Size	Mean Monthly Total Per Capita Expenditure (NRs.)
1	6	183
2	6	358
3	7	627
4	6	1136
5	7	3367

The above explanation provides a relative picture of the distribution of food and non-food expenditures. The relative percentages of each did not vary by development region or agro-ecological belt.

One of the constraints in providing relative figures, however, is that it does not sufficiently capture differences in household size. For this reason, data were re-organized according to per capita expenditures and per capita expenditure quintiles. The lowest quintile represents the bottom 20% of households in terms of total per- capita monthly expenditures whereas the highest quintile is the opposite: the top 20% of households in terms of their total per capita monthly expenditures.

When comparing the mean number of household members in each quintile, the averages are between 6 and 7. Moreover, households in the highest quintile allocate, on average, seventeen times more money per month on each individual household member than their counterparts in the lowest quintile.

Figure 13 – Per Capita Food Expenditure Quintiles by Belt and Region



When looking at monthly per capita food and non-food expenditures, the figures are very similar. Households in the lowest per capita food expenditure quintile spend, on average, NRs. 183 on every person in their household. When viewed in this light, the percentage shares of food and non-food expenditures (and associated items) become much more revealing.

The amount of money available for purchasing food and other services is quite small. For example, of the total monthly expenditure provided for one individual belonging to a household in the lowest quintile (i.e., NRs. 183), of which NRs 70 goes towards buying food. And of almost half of that NRs. 70 will go towards purchasing only rice. This places a considerable burden on households that can neither produce sufficient quantities of food nor earn enough money to purchase this food.

Looking specifically at the distribution of *per capita food expenditure quintiles* across sample strata (Figure 13), we see that the Terai has the highest proportion of households in falling in the lowest quintile (24%), followed by households in the hills (18%). When looking across the development regions, the Central region has the most households in this same quintile, followed by households in the West. Conversely, when analysing households who have greater amounts of disposable income on hand to purchase food (i.e., those in the upper quintiles); the Hill belt has the greatest proportion of such households (22%). Among development regions the Eastern has the highest, with 27% of households in those regions falling into the uppermost expenditure quintile.

3.7.4 – Expenditures and livelihood profiles

Table 29 provides a summary of per capita expenditures (total, food and non-food) for each livelihood class. Households relying on government assistance, salaried and skilled work have the lowest total monthly per capita expenditures with NRs 702 and NRs870, respectively.

Households relying on agriculture and petty trade and commerce have greater shares of their monthly per capita expenditures going towards non-food items—65% and 66%, respectively. This suggests that food is most likely accessed through own production, but the actual quantity is likely to be low given productivity of agriculture and exposure to covariate shocks such as drought and crop diseases.

Table 29 – Per Capita Expenditures of Livelihood Classes (NRs)

	Per Capita Total Expenditures	Per Capita Food Expenditures	Per Capita Non-Food Expenditures
Agriculture	1407	427	983
Unskilled Labour	1181	503	679
Remittance	1038	472	566
Salary and Skilled Work	870	368	502
Livestock	1036	427	609
Government Assisted	702	296	407
Petty Trade and Commerce	1056	371	685
Natural Resource and Handicraft	1102	486	616

Overall, analysis of expenditures indicates that food and non-food expenditures are balanced in relative terms. Expenditure items important for food security, such as health and education, are receiving attention from households, but there are also indications that the level of spending (around 14% and 11%, respectively, of non-food expenditures) may not increase.

This is because another considerable portion of monthly outlays are, on average, going towards debt repayments. Given the propensity of households to borrow cash or use credit to purchase food, non-food expenditure trends will likely see sizable increases in the share of debts. With respect to food expenditures, cereals dominate. This reflects the inability of households to produce the staple food crop preferred by Nepalese households. Nevertheless, the data also indicate that other cereals such as wheat, millets and barley are being grown and directly consumed by households. While the quantities of these cultivated crops are likely to be low, the amount of additional income spent on such cereals is kept to a minimum.

Section 3.8– Shocks and coping strategies

Shocks are defined as events that have negative consequences for individuals, households, or communities. They can be of natural, economic, political, or social nature. The present analysis differentiates between ***covariate*** and ***idiosyncratic*** shocks. Covariate refers to shocks that affect a number of households, whole communities or geographically- defined areas, such as natural disasters, pandemics or civil insecurity. Idiosyncratic shocks affect individual households and their members, such as loss of employment or illness/death of a household member.

Risk is defined as the likelihood of a particular shock to occur. For example, communities in earthquake-prone areas are at greater risk of experiencing an earthquake.

Response and coping strategies are defined as the ways a community, household, or individual adjust their livelihood strategies in response to a shock or risk. Coping strategies may involve short-term changes in behaviour as switching diets, consuming less expensive foods or borrowing money. When normal coping and response strategies are exhausted, households will use negative crisis strategies, such as selling productive assets (e.g. female livestock). Repeated shocks and the use of crisis strategies to manage their effects can lead to increased vulnerability and a decrease in food security at the individual and household levels.

Households were asked if they had experienced one or more of 18 shocks—10 covariate and 8 idiosyncratic—in the past 12 months. They were then requested to rank the *four* most important shocks according to their level of impact. For each of the main shocks, respondents were requested to report whether the effect had reduced their ability to produce or purchase enough food to eat for the period of the shock—***excluding shortages experienced during the seasonal hunger period***. Second, for each

reported shock, households were asked to indicate whether the outcome had resulted in a loss of income, loss of assets or a combination of the two. Thirdly, households were asked which coping strategies were employed to manage and mitigate the effects of the shock on their households. And finally, a question was posed as to whether the household had recovered from the effects of the shock[21].

3.8.1 – Household Risk Exposure

Approximately 28% of households reported that they were not exposed to any shock whatsoever in the last 12 months. For the outstanding 73%, multiple response analysis techniques were employed and three shocks/risk factors emerged from the data as being the most important: (a) drought/irregular rains (43%); (b) serious illness of a family member (44%); and (c) periodic food shortages in both availability and access terms (21%).

This being said, there was considerable variation when these data were disaggregated across sample strata. Then, five supplementary risk factors were reported by households (with less frequency and among fewer households): (i) *bandhs*; (ii) death of household member; (iii) loss of employment; (iv) crop diseases; and (v) livestock disease.

Viewed in this light, it is possible to delineate the covariate and idiosyncratic shocks. With respect to the former, drought, periodic food shortages, crop diseases and livestock diseases can be described as covariate risks. On the other hand serious illnesses of household members, death of household members and loss of employment of household members are idiosyncratic.

It is highly likely that periodic food shortages—as a reported shock—is, actually, a result or effect of other shocks reported by households rather than the physical unavailability of or access to food acting in isolation. Moreover, periodic food shortages are frequent in specific seasons (e.g., lean hunger period just before the harvest). In either case, there is a case to be made that this particular shock, as reported by households, is a combination of seasonal food shortages and second order outcome of other reported shocks (e.g., drought, serious illness, crop disease, etc).

Bandhs, too, affected households in the two strata, with the Eastern region reporting the most cases in terms of development regions and the Terai with respect to the belt strata. The linkage between *bandhs* and the ongoing conflict between government and Maoist forces is somewhat tenuous given that the majority of households reporting this as a shock in the Eastern region. This suggests that the *bandhs* are focused more along economic lines (i.e., called for by trade unions) rather than political.

[21] It should be noted that reported shocks and impacts are subject to the perception of the respondent. In other words, what one household might perceive as a shock might not be reported by the next even though it experienced worse adverse effects. In this sense the household data can depict trends but figures are only indicative.

Table 31 – HH Exposure to Shocks by Belt and Region (% of total HHs in each strata)

Type of shock		Mountain	Hill	Terai	Far West	Mid West	Western	Central	Eastern
Covariate Shocks	Drought/No Rain	53%	31%	26%	31%	18%	7%	44%	38%
	Floods	0%	1%	12%	1%	1%	0%	14%	2%
	Landslides/Erosion	1%	4%	1%	1%	1%	2%	2%	4%
	Crop disease	1%	4%	2%	2%	1%	0%	1%	7%
	Livestock disease	5%	3%	3%	9%	2%	1%	2%	4%
	Food shortages	22%	10%	20%	9%	20%	1%	16%	23%
	Bandh	4%	7%	16%	2%	2%	0%	8%	28%
	Conflict	1%	2%	2%	2%	6%	0%	0%	4%
Idiosyncratic Shocks	Serious illness of hh member	27%	19%	46%	37%	16%	5%	33%	49%
	Death of working hh member	5%	2%	1%	3%	1%	0%	2%	3%
	Loss of employment for hh member	0%	1%	2%	0%	0%	0%	2%	1%
	Reduced income of hh member	2%	1%	4%	1%	3%	0%	4%	1%

3.8.2 – Effects of Risks on Household Welfare

Grouping the reported shocks into covariate and idiosyncratic, the task at hand is to determine the relative effects of these events on household welfare. The data indicate little variation of the effects across sample strata—suggesting similar welfare outcomes according to each shock irrespective of geographic location.

Main Covariate Shocks

Sixty-nine percent (69%) of households exposed to ***drought/irregular rainfall*** report that the net effect was loss of income. Only seven percent of households exposed to this risk report a loss of physical assets and livestock, but 24% reported a combination of income and asset losses. Controlling for variations in food access and availability in the lean hunger season, over 95% of these same households indicate that exposure to drought decreased their ability to produce or purchase sufficient food to tide them over the duration of the drought.

As noted above, households reporting ***periodic food shortages*** are probably referring to temporal periods associated with other shocks and seasonal shortages of food. In this context, these findings need to be interpreted carefully so as not to not presume physical unavailability or inability to purchase food. Eighty-five (85%) of these households reported that such food shortages resulted in a loss of income—strengthening the argument that production patterns had failed as a result of another event. Eleven (11%) reported a loss of both income and assets, while only four percent indicated that they had lost only assets.

Main Idiosyncratic Shocks

Approximately 51% of households that reported having a ***serious illness of one or more household members*** in the last 12 months reported that this had resulted in a loss of both income and assets. Another 42% reported only income losses and 7% only asset losses. In turn, 97% indicated that the serious illness diverted labour and expenditures away from food—resulting in difficulties for these households to produce or acquire sufficient amounts of food for the period of the illness.

The data indicate an even distribution of welfare outcomes among households reporting ***death of a working household member***. A little over a third indicate that they experienced welfare losses whereas the remaining two-thirds report loss of assets and loss of a combination of assets and income, respectively. These households indicated that they

experienced difficulties in producing or buying enough food for the period soon after the death.

3.8.3 – Risk management and coping strategies

Households are not passive in the face of shocks, but rather employ a series of risk management and coping strategies aimed at reducing or mitigating negative welfare outcomes. Not all of these strategies are successful insofar as they may be positive in the short-run, but create additional problems in the long-term. In order to better understand how households deal with the main shocks, each household was asked to report on the actions it had taken in the wake of each main shock.

As is seen in Table 34, ***borrowing money*** is the most common form of strategy—irrespective of shock. Nevertheless, this strategy does have a major limitation insofar as households will likely incur debt in the long-run while trying to mitigate and reduce short-term welfare losses such as income and assets.

Table 34 – Risk Management and Coping Strategies by Type of Shock (% of household responses to main shock)

	Drought	Crop Disease	Livestock Disease	Food Shortages	*Bandhs*	Serious Illness of hh member	Death of working hh member	Loss of job for hh member
Purchased food on credit	25%	22%	3%	22%	16%	11%	0%	17%
Borrowed food from neighbors	9%	22%	3%	13%	37%	4%	7%	0%
Relied on less expensive/preferred foods	14%	28%	15%	27%	18%	3%	0%	0%
Reduced size/portion of daily meals	9%	0%	0%	10%	5%	1%	7%	0%
Worked for food only	5%	6%	0%	9%	3%	1%	0%	0%
Went for days not eating	1%	0%	0%	11%	3%	2%	7%	17%
Borrowed money	45%	50%	69%	52%	47%	69%	73%	67%
Spent savings	17%	11%	31%	0%	3%	24%	20%	0%
Migration (< 6 months)	4%	6%	0%	5%	3%	1%	0%	33%
Migration (> 6 months)	4%	0%	3%	4%	0%	4%	7%	0%
Sold goats/chickens	3%	0%	3%	1%	3%	5%	0%	0%
Sold cows/bullocks	3%	17%	0%	1%	3%	4%	7%	0%
Sold land	1%	0%	0%	1%	0%	1%	7%	17%

Covariate shocks such as drought, crop and livestock disease, food shortage and *bandh* elicit a greater frequency and range of food-based coping strategies as opposed to idiosyncratic shocks such as illness or death of working household members and loss of employment for household members.

Not all food-based response strategies are "coping" in the strict sense of the term. Rather, these actions are mostly aimed at consumption smoothing. For example, relying on less expensive or less preferred foods or reducing the size and number of meals per day are likely to be common phenomena regardless of whether households have faced a shock or not. Such strategies are practiced in high-income, food secure countries as well.

However, sales of productive assets such as land, livestock sales—particularly of cows and bullocks—and going days without eating are definitely signs of distress. Although the latter strategies are utilised with less frequency and among a fewer number of households, they warrant concern given that they are also coupled with borrowing money and spending savings. This implies that not only are households increasing their vulnerability to food and livelihood insecurity (i.e., sales of assets and going days without eating), but also moving towards greater levels of income-poverty. In this context, it is evident that idiosyncratic shocks are disproportionately more damaging to household welfare in both the short and long-term as compared to covariate shocks.

Other data collected as part of this module reinforce this hypothesis. Households were asked whether they had completely recovered, partially recovered or not recovered at all from the loss of income, assets or both precipitated the shock. 36%, 56% and 83% of households reporting a serious illness of a family member, death of a working household member, and loss of employment for a family member, respectively, indicated that they had not recovered from the shock. Conversely, the figures for households not having recovered from drought, crop losses through diseases, livestock losses through diseases, and *bandhs* are respectively 25%, 10%, 23% and 12%.

The trend is similar also for households who have *partially recovered* from the main shocks. Households reporting the four main covariates shocks also indicated that 60% had partially recovered from drought, 69% from crop losses, 56% from livestock losses, and 39% from loss of income as a result of *bandhs*. On the other hand, only 46% of households who had a member serious ill, 31% of households with a death of a working member, and 17% of household who had members losing their jobs claimed that they had partially recovered from the fallout.

3.8.4 – Risk exposure and coping among livelihood groups

In looking at selected shocks and their outcomes across a selected range of livelihood groups/classes discussed in Section 3.6, it is possible to surmise how the primary, secondary and tertiary sources of income and livelihood were affected by the major reported risks/shocks. Fourty percent of households reporting drought as the main shock belong to both the agriculture-based and livestock-based livelihood groups, compared to only 19% belonging to the petty trade and commerce based livelihood group.

Therefore, the income and asset losses as a result of drought for unskilled, skilled and remittance-based households are marginally less in comparison with households in the agriculture-based livelihood group. All of these households also relied on borrowing money as a coping strategy to meet short-term needs showing that those dependent on agriculture as their primary source of income are also likely to have become more indebted as a result of drought.

Households grouped into petty trade and commerce disproportionately affected by *bandhs* (11% of households in this livelihood group cited this as the main shock). For both groupings, movement restrictions were the main factor affecting their ability to cultivate their fields and/or look for daily wage labour. The shock itself seems to have only a short-term negative effect as almost 89% of households reporting this event have completely or partially recovered the income lost during this period.

Section 3.6. HIV/AIDS

The main objective of the HIV/AIDS section in the questionnaire was to obtain an approximate idea about the awareness of the disease, its prevention and the prevailing beliefs related to its transmission. Thus the emphasis of this section of the questionnaire was on gauging what people knew about HIV and its prevention.

The respondent was given a choice of various options ranging from accurate (the use of condoms can prevent AIDS) to completely baseless (avoiding mosquito bites will prevent one from getting AIDS). This was followed by questions that required more knowledge / awareness about the disease such as "Can the AIDS virus be transmitted from a mother to child during delivery?"

Approximately 61% had heard of HIV or AIDS. The remaining 39% stated that they had never heard nor had any knowledge of this illness. The three most common precautions offered by the respondents to avoid being infected with the disease were to use condoms, staying faithful to one's partner and to avoid promiscuous partners. Only 44% of respondents who had heard of HIV stated that abstaining from sex was an effective way to avoid being infected with it.

Table 30 - Responses on various precautions to avoid AIDS	
What can a person do to avoid getting HIV or the virus that causes AIDS?	**Percentage of Respondents (%)**
Abstain from sex	44%
Use condoms	78%
Stay faithful to one partner	64%
Avoid sex with prostitutes	44%
Avoid sex with persons who have many partners	54%
Avoid sex with persons who inject drugs intravenously	20%
Avoid blood transfusions	37%
Avoid injections	31%
Avoid sharing of razors / blades	29%
Avoid kissing	8%
Avoid mosquito bites	12%
Seek protection from a traditional practitioner	1%
Note: Respondents offered multiple responses, Total number of respondents = 1033	

As can be seen from Table 30, among the households who have heard of AIDS, the specific knowledge of the disease and its prevention is relatively high. Over three-fourths of these households stated that the use of condoms helped prevent AIDS. Sexual fidelity was the other practice commonly advocated. Positively, a relatively low percentage of households advocated common fallacies such as the avoidance of kissing or mosquito bites as a way of preventing infection.

Further, it is important to note that, only 1% of the households reported seeking the help of a traditional practitioner for treatment or protection for AIDS.

Among the respondents aware and knowledgeable about AIDS; the majority were from the Central and Western region. This could be due to a combination of various reasons – higher level of education in these regions, greater number of government extension / awareness programs in the region, greater NGO presence etc.

3.9.1 - Transmission of HIV / AIDS

Respondents who had heard of HIV / AIDS were also asked questions to test their knowledge on how AIDS was transmitted. A range of questions were asked, for example, "Can people reduce their chances of getting the AIDS virus by using a condom every time they have sex?" and the respondent could answer "Yes", "No" or "Don't know".

Table 31 - Responses on various ways by which HIV/AIDS is transmitted				
	Yes	**No**	**Don't know**	**Total**
Can people reduce their chances of getting the AIDS virus by having just one sex partner who is not infected and who has no other partners?	90%	6%	4%	100 %
Can people reduce their chances of getting the AIDS virus by using a condom every time they have sex?	84%	9%	7%	100%
Can people get the AIDS virus by sharing food with a person who has AIDS?	32%	54%	14%	100%
Is it possible for a healthy-looking person to have the AIDS virus?	75%	10%	15%	100%
Can the AIDS virus be transmitted from a mother to a child?	75%	13%	13%	100%
Can the AIDS virus be transmitted from a mother to her child during pregnancy?	78%	6%	16%	100%
Can the AIDS virus be transmitted from a mother to her child during delivery?	65%	13%	22%	100%
Can the AIDS virus be transmitted from a mother to a child by breastfeeding?	57%	22%	20%	100%
Note: Total number of respondents = 1033				

From the above it is very clear the knowledge on HIV is relatively high. People are aware of not only basic knowledge such as the use of condoms but also more complex information such as the possibility of the mother infecting her child with the virus during delivery. However, nearly 32% of the respondent who were aware of AIDS also believed that one can get infected by sharing food with a HIV+ person.

It is evident that a high percentage of households in Nepal are aware of AIDS and have a relatively good knowledge about the disease, its causes and its prevention. This could be

due to government sponsored information campaigns carried out through media (print, radio and television), extension / outreach programs and also due to the efforts of local and international NGOS and development organizations. Thus this report encourages the concerned organizations to continue with their efforts and further spread awareness and understanding.

3.9.2 - AIDS Awareness across the Agro-ecological Zones

The Hills exhibited the highest awareness of HIV/AIDS with 63% of all households in this belt reporting an awareness of the disease. Sixty percent (60%) of all households in the Terai reported having some knowledge of the disease while in the mountains half of all the households reported having heard about AIDS / HIV.

Table 32 - AIDS Awareness Among the Households across the Agro-ecological Zones

		Mountain	Hill	Terai
Have you ever heard of an illness called AIDS? (%)	YES	50%	63%	60%
	NO	50%	37%	40%

However while the awareness of AIDS among the households of the Hills is the highest; this belt also had the highest percentage of households that did not report the use of condoms as a precaution to avoid AIDS. Among households in the Hill belt that reported an awareness of AIDS, 27% did not report condoms as a safety precaution by which the disease can be avoided.

Among the households reporting some awareness of AIDS in the Mountain and Terai belts, the percentage citing use of condoms as a precaution was lower – 11% and 18% respectively. Across all 3 belts 90% of the households that had heard of HIV or AIDS reported "limiting sex to one partner" as an effective precaution against the disease.

Similarly across the 3 belts between 73% and 78% of the households (in each belt) reported that it was possible for a healthy looking person to be suffering from AIDS. Regarding questions on the transmission of the disease: between 72% and 82% of the households (in each belt) reported that the disease can be transmitted from a mother to her child. Over 75% of the households in each belt also stated that the disease can be transmitted from the mother to her child during pregnancy.

3.9.3 - AIDS Awareness across the Development Regions

The Central and Western regions exhibited the highest awareness of HIV/AIDS with 69% and 72% of all households in these 2 regions reporting an awareness of the disease. AIDS awareness was the lowest in the Mid-Western region – less than half of all the households in this region reporting having heard of the disease.

Table 33 - AIDS Awareness Among the Households across the Development Regions

		Eastern	Central	Western	Mid-west	Far-West
Have you ever heard of an illness called AIDS? (%)	YES	53%	69%	72%	46%	53%
	NO	47%	31%	28%	54%	47%

Despite the awareness of AIDS being among the highest among the households of the Western region; 43% of households having heard of HIV/AIDS in this region did not report the use of condoms as a precaution to avoid HIV/AIDS. By contrast, in the Central region, only 16% of the households omitted the reporting of condoms as a safety precaution from their response.

There was some small disparity in responses across the regions with regards to respondents providing the response that limiting sex to one partner/staying faithful to one partner was a way to avoid getting HIV/AIDS. Around half of the households reporting awareness of the disease in each of the 3 regions – Western, Mid Western and Far Western - cited this was an effective precaution against the disease. However among households in the Eastern and Central regions; only 24% and 26%, respectively, of the households reported this to be an effective precaution.

Across the regions between 70% and 79% of the households (in each region) reported that it was possible for a healthy looking person to be suffering from AIDS. Regarding

questions on the transmission of the disease: approximately between 77% and 84% of the households in the Eastern, Central and Far-western regions reported that the disease can be transmitted from a mother to her child. However this figure was lower among the households of the Western and Mid-west regions – 63% – 67% of the households reported the disease can be transmitted from a mother to her child. However over 75% of the households in each belt also stated that the disease can be transmitted from the mother to her child during pregnancy.

Part IV: Women and Child Nutrition and Health

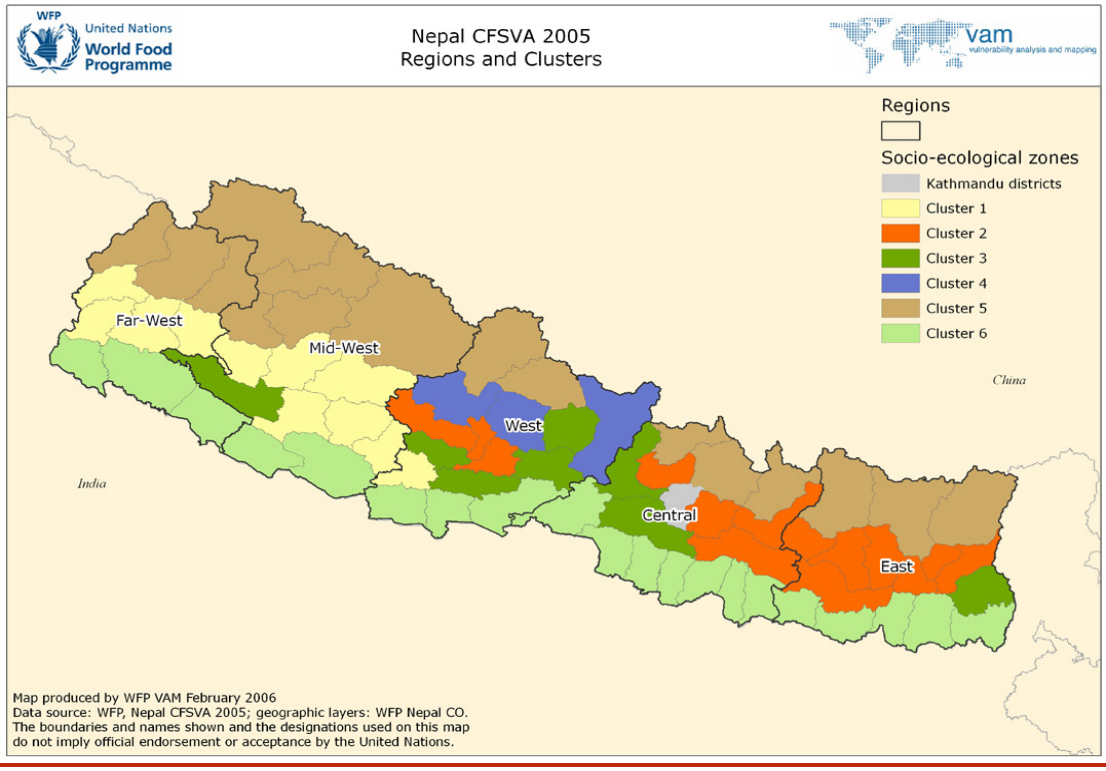
The key findings of the household survey for nutrition and health of women of reproductive age (15-49 years) and children (0-59 months) are presented in the following sections. Findings are presented according to all sample strata—with special emphasis on the six WFP socio-ecological clusters given that these cut across development regions and agro-ecological belts. It should be noted that the objectives of the CFSVA are different from a pure nutrition survey. ***Therefore, the findings on nutrition are not meant to be representative of prevalence rates across sample strata.*** Rather, such findings serve as an *indicative* measure to determine whether nutritional status of children is related to the food security status of households.

By way of reminder, six homogeneous socio-ecological clusters were created to disaggregate districts in the Hill belt given the high degree of socioeconomic and topographic diversity among populations within that agroecological belt. Four of the six clusters relate to the Hill belt and the remaining two are similar to the Mountain and Terai agro-ecological belts. As such, these clusters represent the third stratum used for sampling communities and households (refer to the Methodology section for more details on the sample frame).

The socio-ecological clusters can be best characterised in the following manner (see Map 7 for illustration):

- Cluster 1: districts within the Hill belt that cut across both the Far-West and Mid-West development regions;
- Cluster 2: districts within the Hill belt found in the Eastern, Western and part of the Central development regions;
- Cluster 3: the most spatially distributed cluster of districts within the Hill belt—located in the Far-West, Mid-West, Western, Central and Eastern development regions;
- Cluster 4: districts in the Hill belt but within Western development region;
- Cluster 5: districts found primarily in the Mountain belt across all development regions; and
- Cluster 6: districts found in the Terai belt across all development regions.

Map 7: Region and Clusters



Section 4.1. Women's Health and Nutrition

During the household survey, information on reproductive history, health and hygiene were collected for 1,359 women comprising all sample strata. Women under 18 years and pregnant women were excluded from the analysis of BMI. Looking at body mass index (BMI), the highest incidence of low BMI (<18.5 kg/m2) is reported among 43% of women living in the Terai.

Table 34 - Body Mass Index Scores by Agroecological Belt

Belt	N	Mean BMI(kg/m^2)	Low BMI
Mountain	223	19.95	30%
Hill	942	20.46	21%
Terai	325	19.23	43%

The data also showed significant relationships between BMI and incidence of illnesses among women in the two weeks before the survey (Table 40). Women were more likely to have low BMI and low BMI if they have had an episode of diarrhoea or fever in the two weeks prior to the survey. However, despite being significant, this difference between mean BMI is so small as to not be very important. However, the difference in prevalence of low BMI does show some more important significant differences.

Table 35 – BMI and Incidence of Illness

Diarrhea	BMI (kg/m^2)	Low BMI	Fever	BMI (kg/m^2)	Low BMI
yes	19.34	38%	yes	19.21	41%
no	19.99	30%	no	20.17	27%
Significance (p)	***< 0.001***	***< 0.01***	***Significance (p)***	***< 0.001***	***< 0.001***

Overall, a low percentage of women reported receiving a vitamin A capsule immediately after their last birth (Table 36). These capsules are not only given to boost levels of vitamin A in the mother but also to ensure that she passes on the benefits of vitamin A to her newborn child through her breast milk while the child's immune system is developing.

Women living in households in the 1st socio-ecological cluster (Hills in the Far West and Mid-West regions) had reported the lowest incidences of receiving vitamin A supplements after their most recent birth, but had the highest incidence of breastfeeding. In terms of care practices, almost all women respondents in the 6th cluster (i.e., all women in the Terai) indicated that they never boil their drinking water.

Table 36 – Key Health and Nutrition Indicators

SE Cluster	Vitamin A after birth	Currently breastfeeding	Never boil drinking water	Sleep under mosquito net
1	10%	51%	92%	6%
2	23%	49%	83%	22%
3	15%	46%	88%	35%
4	25%	39%	84%	35%
5	23%	45%	84%	9%
6	40%	48%	95%	72%

In looking at the relationship among BMI, care practices and other health factors, the data are quite revealing. For example, women who have used mosquito nets are significantly less likely to have suffered from recent fever *($p < 0.01$)* or recent bouts of diarrhoea *($p < 0.01$)* and women who always boil their water are significantly more likely *($p < 0.001$)* to have higher BMI scores.

Section 4.2. Child health and nutrition

For the entire sample, 1,122 children 0-59 months found in sampled households were measured and weighed, and their ages determined in order to calculate prevalence of

wasting, stunting and underweight. Table 42 summarises the findings across agroecological belt.

Surprisingly, the highest reported incidences of wasting were in the Terai, with 17% of children being affected. This figure might be due to the fact that for these same children, 42% had a fever in the two weeks prior to the survey and 23% reported having diarrhoea.

Children who were severely stunted (<-3.00 z-scores) were found in the Mountain belt, severely underweight in the mountain and Terai. Irrespective of where children live, instances of fever and cough are both quite high.

Some caution should be employed when using these data as confidence intervals are quite large. This being said, nutritional findings can still be a useful indicative guide when combined with other household level data (see Section 6).

Table 37 – Malnutrition and illness among children by Agroecological Belt

Belt	N	Wasting		Underweight			Stunting				Illness in past 2 weeks		
		%	95% CI	< -2.00	95% CI	< -3.00	95% CI	< -2.00	95% CI	< -3.00	95% CI	Fever	Diarrhea	Cough
M	177	8	5, 13	59%	50, 67	13%	9, 19	62%	53, 70	28%	21, 36	46%	23%	50%
H	688	7	5, 10	43%	38, 48	8%	6, 11	49%	43, 54	15%	12, 19	36%	17%	37%
T	245	17	12, 24	53%	45, 61	13%	9, 19	41%	34, 49	15%	11, 22	42%	23%	42%

When looking at malnutrition measures across age groups, the findings indicate that wasting (<-2.00 SD) is highest in the 12-17 month age cohort. Underweight is highest in the 12-17 month cohort as well as the 24-35 month group whereas stunting is found among children between 18-47 months (three cohorts).

Table 38 – Malnutrition across age cohorts (in months)

Age groups	Wasting		Underweight		Stunting	
	< -2.00	< -3.00	< -2.00	< -3.00	< -2.00	< -3.00
6 to 11	12%	3%	31%	9%	26%	10%
12 to 17	27%	2%	62%	18%	35%	14%
18 to 23	13%	3%	48%	9%	57%	18%
24 to 35	9%	1%	62%	16%	50%	20%
36 to 47	12%	0%	49%	10%	53%	15%
48 to 59	9%	0%	40%	5%	47%	18%

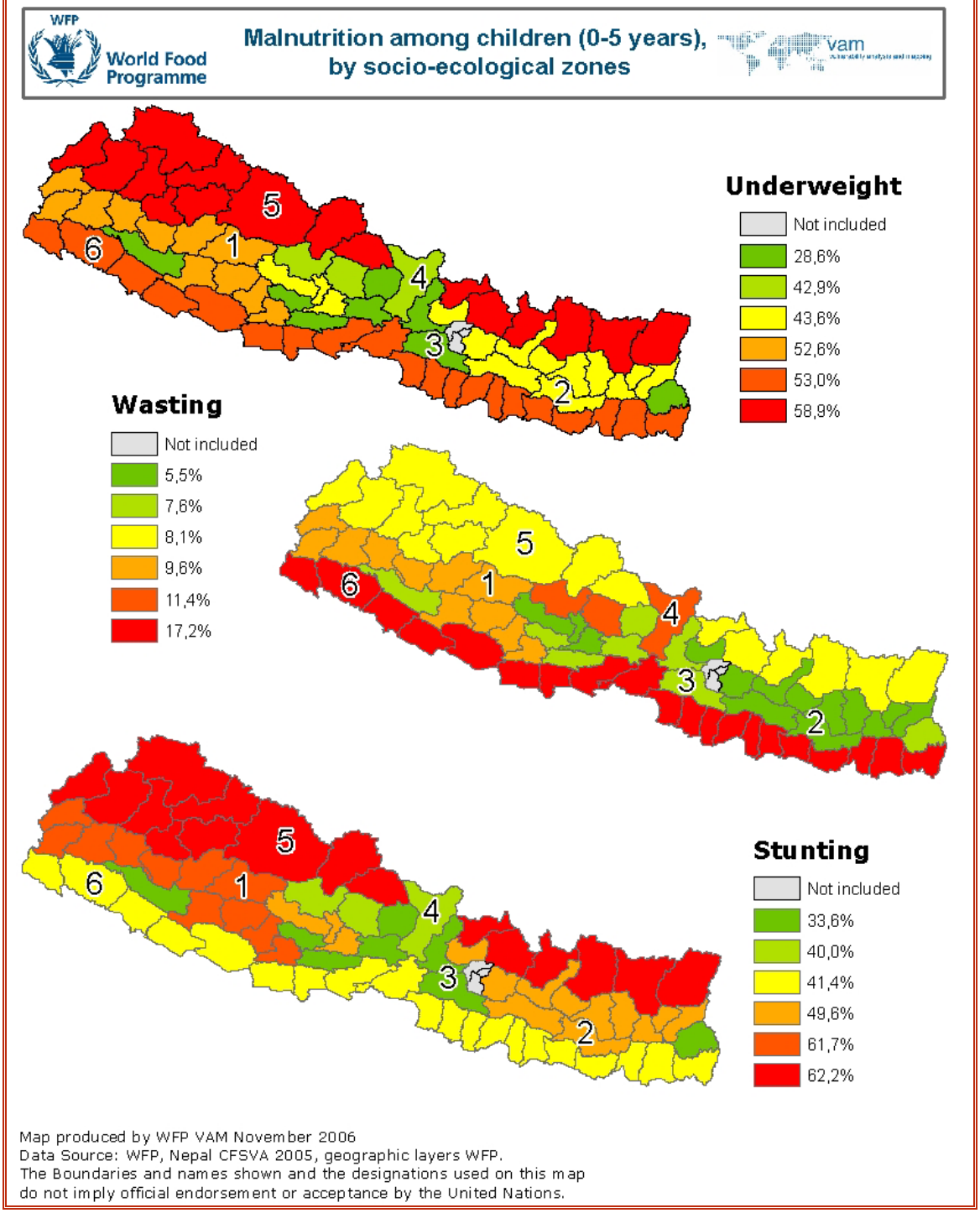
When looking across WFP socio-ecological clusters (Table 39 and associated maps below), wasting is highest in the 6th, 1st and 4th clusters—17%, 10% and 10%, respectively. Underweight and stunting is quite high in the 5th cluster—which corresponds with the findings above by agroecological belt as this cluster mainly overlaps with the Mountain belt.

Table 39 – Malnutrition across WFP socio-ecological clusters

SE Cluster	Wasting		Underweight		Stunting		
	%	95% CI	%	95% CI	%	95% CI	N
1	10	6, 16	53	44, 61	62	53, 70	185
2	5	3, 10	44	35, 52	50	41, 58	162
3	8	5, 12	28	19, 40	34	23, 46	190
4	10	6, 16	43	35, 51	39	32, 47	156
5	8	5, 13	59	50, 67	62	53, 70	177
6	17	12, 24	53	45, 61	41	34, 49	250

It is important to note that the Map 8 is meant to depict findings by socio-ecological zone as a whole and not for specific districts found within each zone.

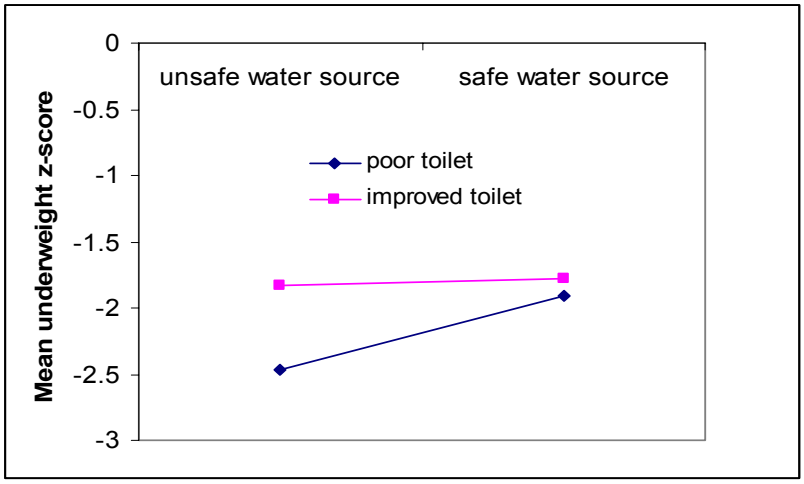
Map 8: Malnutrition among Children (0-5 years), by socio-ecological zone



When looking at other factors contributing towards poor health and nutrition among enumerated children, household level data were examined—especially those related to water supply and toilet type. When water supplies are categorized as safe and unsafe, and toilet types are classified as improved or poor, an interaction is seen.

This interaction, illustrated in Figure 14, indicates that children in households with both an unsafe water source and poor toilet facilities have a significantly lower mean underweight z-score than children living in households with safe water source and/or improved toilet facilities. 25% of children under 5 years of age live in households with both safe water and improved toilet, and 8% of children live in households with an unsafe water supply and poor toilet facilities.

Figure 14 – Mean stunting z-score and Access to water and toilet



These findings highlight a set of structural problems related to overall health and sanitation conditions in Nepal. When other household level data were analysed to understand determinants of malnutrition, there were no strong correlations with the size of household, migration patterns, or asset holdings.

Part V: Household food consumption patterns

Household food consumption profiles were developed, using information on dietary diversity and the consumption frequency of staple and non-staple foods as well as the sources of staple foods consumed.

Section 5.1. Frequency of consumption and dietary diversity

The number of different food items from different food groups consumed by a household reflects its dietary diversity and provides a measure of the quality of the household diet. The variety of foods/food groups consumed by household members is *one* proxy indicator of household food security.

Cross-country research undertaken by the International Food Policy Research Institute (IFPRI) has demonstrated that dietary diversity is highly correlated with caloric and protein adequacy, percentage of protein from animal sources (high quality protein) and household income and expenditure.[22]

In the field of nutrition, different food items are divided into a number of 'food groups', of which a combination should be consumed on a daily basis to ensure a nutritionally adequate diet. These key food groups are: cereals, legumes and oilseeds, tubers and roots, vegetables and fruit, animal products, oil and fats.

Sampled households were asked to report on household (not individual) food consumption patterns in the week prior to the survey.

Table 40 - Food items based on weekly consumption

1.	**Maize**	**8.**	**Milk/curd**
2.	**Rice/Paddy**	**9.**	**Pulses**
3.	**Other cereals (millet/wheat/barley)**	**10.**	**Vegetables**
4.	**Roots and tubers**	**11.**	**Fruit**
5.	**Fish**	**12.**	**Oil /ghee/ butter**
6.	**Meat**	**13.**	**Sugar/salt**[23]
7.	**Eggs**		

Specifically respondents were was to provide information on: (a) the frequency of consumption (0 to 7 days) of 13 food items belonging to 7 food groups; and (b) the source of the food that is consumed (e.g., own production, purchase, gifts). Food items used for data are shown in table on the left.

Section 5.2. Methodology for analyzing food consumption data

Because there is the need to analyze several variables simultaneously, multivariate statistical techniques are used, specifically principal component analysis (PCA) followed by cluster analysis[24].

The goal of the analysis is to group, or cluster, households that share a particular food consumption pattern. The advantage of running a cluster analysis on principal components and not on the original variables is that clustering takes place on the relationships among variables rather than on discrete individual variables. PCA was run on the frequency of consumption of the above mentioned food items.

Oil/ghee/butter and sugar/salt were considered as *supplementary variables—not principal components* due to the very high percentage of households reporting their consumption on a daily/frequent basis—less than 3% of households reported that they **did not** consume

[22] For further information consult the IFPRI website: http://www.ifpri.org
[23] The fact that sugar and salt were combined into the same food category during the data collection gives some problems about the interpretation of their consumption. Although both sugar and salt play an important role in the diet improving palatability, they are very different in term of nutrients.
[24] The software used for multivariate analyses is ADDATI 5.3c, developed by Silvio Griguolo, IUAV Venice, Italy, freely available at http://cidoc.iuav.it/~silvio/addati_en.html

these items on a daily basis. In this sense, these two variables are considered constant and *non-active* in the principal component analysis.

Cluster analysis was run on 8 principal components, which explained about 84% of the variance of the original dataset. Such a high level of consistency with the original complexity of the dataset ensures a good reflection of the relationships among variables. It guarantees also that particular combinations of variables' values (frequencies of consumption of single food items) are maintained and not smoothed too much through a high data reduction approach. In other words, cluster analysis will group together households that have a similar relationship among the frequencies of consumed foods as expressed in the principal components.

5.2.1 - Household food consumption groups and profiles

Based on this analytical approach, seven distinct profiles of households were identified being characterized by their different food consumption patterns. These seven profiles were then summarized into five distinct food consumption groups and given an average score or ranking The food score[25] was calculated for each food consumption group to help in the process of establishing cut-offs that would assign each group a particular rank—i.e., the lower the score, the poorer the pattern of food consumption.

Table 41 - Food Consumption Groups

Food Consumption Groups	Profile	% of HH	Types of food times consumed	Average Food Score
Very poor food consumption	1	15%	Maize, vegetables, oil, sugar/salt	43
Poor food consumption	2	11%	Rice, other cereals, sugar/salt, pulses, and some dairy products (e.g., milk, cheese)	47
Fairly good food consumption	3.1	25%	Maize, rice, milk, vegetables, oil, sugar/salt	48
	3.2	5%	Rice, fish, vegetables, oil, sugar/salt	68
Good food consumption	4.1	35%	Rice, other cereals, tubers, milk, pulses, vegetables, oil, sugar/salt	63
	4.2	6%	Rice, maize, tubers, milk, pulses, vegetables, fruit, oil, sugar/salt	74
Very good food consumption	5	3%	Rice, tubers, meat, milk, pulses, vegetables, oil, sugar/salt	86

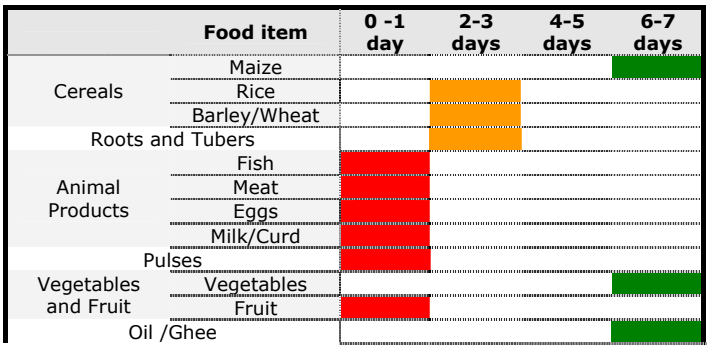
While from an analytical standpoint, this Food Score helped differentiate groups of households, there were also instances when two groups had similar scores—as is the case for households belonging to the very poor and poor food consumption categories. In this event, the groups were differentiated based on the diversity of items consumed rather than their frequency.

It is interesting to note that most households reporting frequent consumption of both oil and sugar. This factor somewhat inflates the food score.

The characteristics of each food consumption group are outlined below.

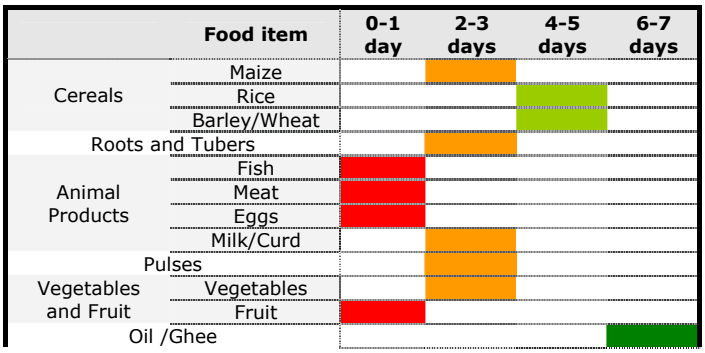
1. *Very poor food consumption patterns*: Households belonging to this particular consumption group represent **15% of households**. These households can be characterised as having a homogeneous and almost certainly nutritionally inadequate diet. Households in this group rarely, if at all, consume any animal products and pulses—both important sources of proteins. Maize is consumed on a daily basis and is complemented with rice, barley and tubers. Vegetables are consumed daily, but overall carbohydrates are even more frequently consumed. It is very likely household members—especially children—have problems with deficiencies in certain micronutrients.

[25] The food score formula is the sum of the weighted frequency (maximum frequency of 7) of each food group (staple foods*2, pulses*3, meat/fish/eggs*4, fruit*1, vegetables*1, oil*0.5, sugar*0.5, and milk*0.5)



In terms of food sources, around 80% of households reported accessing maize through own-production and 90/% reported the same for vegetables they consumed. Rice was reported to be purchased by around 90% of households. Oil/ghee and sugar/salt are always purchased.

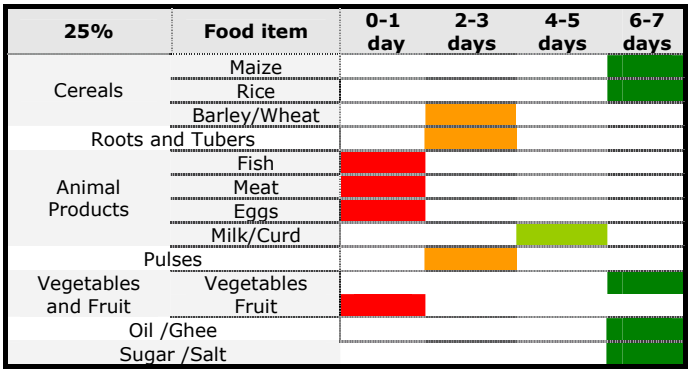
2. *Poor food consumption patterns*: **Eleven percent (11%)** of households were found to have poor food consumption patterns. Rice and barely/wheat are consumed frequently as are roots and tubers (between 2-3 days week). The key difference from households the previous group was the consumption of milk products and pulses—providing households with a minimum level of protein.



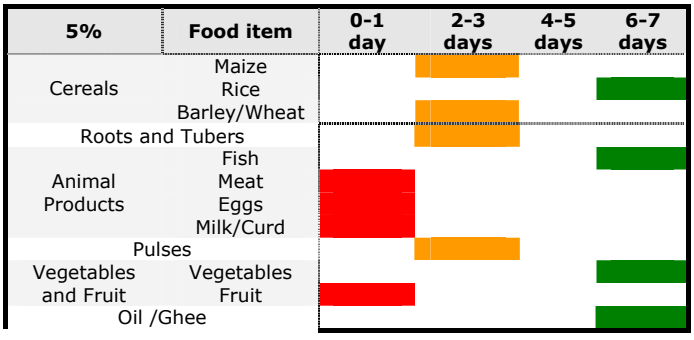
However, the lack of fresh vegetables in the diet also implies the risk of micronutrient deficiencies.

Around 65% of households purchase the rice they eat and wheat is accessed through purchases for around 35% of households. Maize and tubers are mostly from own production.

3. *Fairly good food consumption patterns:* **T**his group constitutes **30%** of households and can be broken down into two sub-groups. The first sub-group corresponds to 25% of households whereas the second accounts for 5%. As can be seen in the tables below, the diets of both groups are much more diversified. Daily consumption of rice, vegetables, oil and sugar/salt was reported.

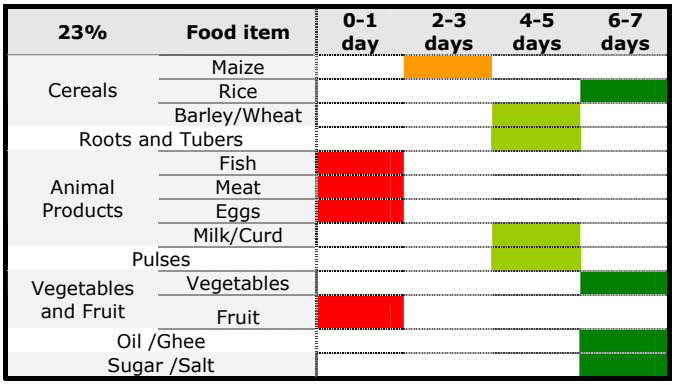


The key difference between the two sub-groups is that the second sub-group reported daily consumption of fish whereas the households in the first sub-group rely more on milk and milk products. Being able to consume at least one fixed animal protein on a daily and regular basis indicates good levels of consumption frequency that complement dietary diversity.



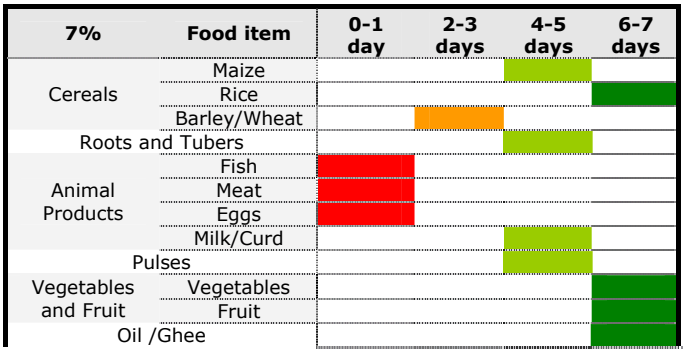
90% of households grow maize for own consumption whereas 98% reported purchasing the rice they eat. Pulses are purchased by almost 40% of households in this group whereas 49% reported that the milk and milk products were from own production. For the small number households eating fish, almost all (96%) caught the fish themselves.

4. *Good food consumption patterns:* Households with good food consumption were found among a total 40% of the households.



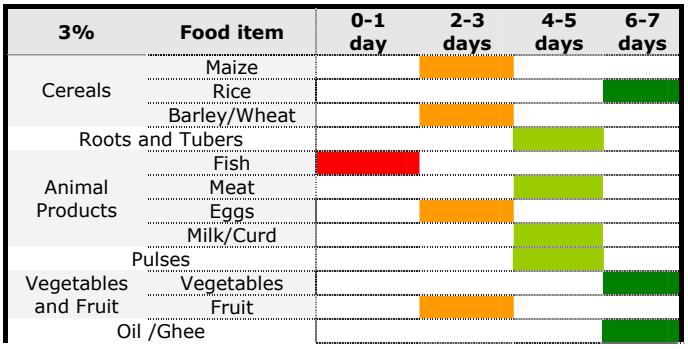
Again, there were two sub-groups that fall into this category. The first constitutes 35% of the group and the second 6%.
Overall, the data indicate that households have high dietary diversity in terms of the number of different items consumed as well as frequency of consumption of those particular items.

Rice, vegetables, oil and sugar/salt are daily eaten while other cereals, tubers or roots, milk/curd and pulses are eaten very frequently (5 days per week on average).



90% of all households eating maize are accessing the staple from own production. Rice is produced by 60% of reporting households and 40% purchased it. Pulses emanate from own production for around 40% of households and close to 53% rely on purchases. Milk and milk products are produced by 54% of households, while a fifth purchase these food items.

5. **Very good food consumption – consumption of meat (3%):** A small group of households presented high dietary diversity characterized by frequent consumption of meat, which was eaten often along with milk/curd and eggs. Pulses and tubers/roots were also often consumed, while rice, vegetables, oil/ghee/butter and sugar/salt remained daily staples. Maize and other cereals were sometimes eaten, supplementing the rice consumption.



Beside the large number of accessed items, meat was the distinguishing feature. Although consumption of milk and milk products is traditional, very few households reported to consume meat and this consumption was positively related with the number and the frequency of other food items, which clearly pointed out the better quality of those households' diet.

Part VI: Household Food Insecurity Profiles

Section 6.1 – Profiles of food insecure households

Based on the findings presented above, there are some initial patterns emerging that can help explain some of the factors that contribute to household vulnerability to food insecurity. The first factor is food consumption. In simple terms, households that are able to consume a number of different foods on a frequent basis are likely to be more food secure than others.

It is evident that households belonging to the two poorest food consumption groups do not have diverse diets given that the bulk of what is consumed are cereals. However, food consumption alone will not be sufficient in explaining why these households are vulnerable to food insecurity. Additional information is needed that can help explain *why* these households have such poor consumption patterns as compared to their counterparts in other food consumption groups.

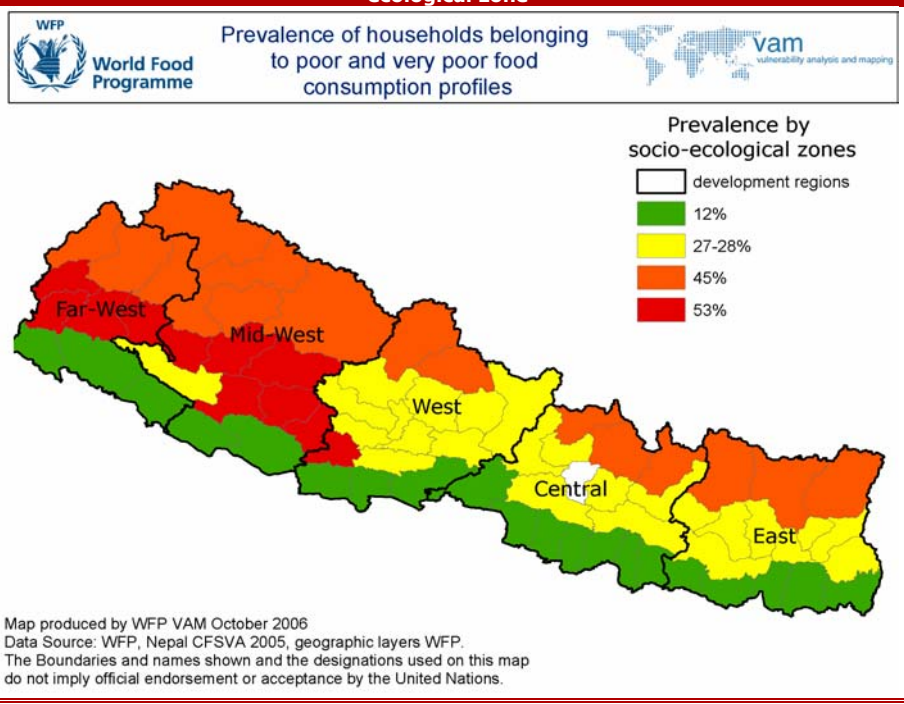
6.1.1 – Spatial distribution of food consumption groups

An initial step was to look at the spatial distribution of food consumption groups across the sample strata. By socioecological zone/cluster, the highest concentrations (on average) of households having very poor and poor food consumption patterns are in the 5th and 1st clusters. In terms of Development Regions, the highest concentrations of these households are found in the Far West and Mid West (Table 48 and Map 9).

Table 42 - Distribution of food consumption groups across WFP socio-ecological clusters

SE Clusters	Very poor food consumption patterns	Poor food consumption patterns	Fairly good food consumption patterns	Good food consumption patterns	Very good food consumption patterns	Total
1	29%	25%	19%	26%	2%	100%
2	27%	2%	42%	27%	3%	100%
3	19%	9%	50%	18%	4%	100%
4	24%	3%	37%	29%	6%	100%
5	27%	18%	32%	18%	6%	100%
6	1%	11%	20%	65%	3%	100%
Total	16%	11%	30%	40%	3%	*100%*

Map 9: Prevalence of HH belonging to poor and very poor food consumption profiles by socio-ecological zone



6.1.2 - Livelihoods and Poor Food Consumption Patterns

The second step is to look at the whether household livelihoods can help explain better the reasons *why* households have poor food consumption patterns (Table 49). The main types of livelihood activities pursued by households in these two groups are: (a) natural resource exploitation and handicrafts; (b) unskilled wage labour; and (c) petty trade and commerce.

Table 43 - Food Consumption (FC) and Livelihood Groups

	Very Poor FC	Poor Food FC	Fairly Good FC	Good FC	Very Good FC
Agriculture	13%	8%	27%	49%	3%
Unskilled Wage Labour	17%	13%	36%	32%	1%
Remittance	9%	10%	30%	44%	7%
Salary/Skilled	19%	14%	25%	40%	3%
Livestock	26%	5%	40%	28%	1%
Gov't Assisted	23%	2%	33%	35%	7%
Petty Trade/Com	15%	8%	26%	49%	2%
Natural Resources and Handicraft	15%	23%	18%	38%	6%

As was presented in the previous section on livelihoods, households tend to have two additional activities complementing their primary source of food and income. Households engaged in unskilled wage labour, petty trade and natural resources/handicrafts receive, on average, 79%, 74% and 56% of their annual income, respectively, from these primary sources. At the same time, these same households rely on the combination of agriculture and a small amount of remittances to make up the balance.

It is, perhaps, the erratic nature of the primary source of income—seasonal and low paying—and unreliability of their secondary and tertiary sources that contributes to poor food consumption patterns. For example, with respect to agriculture, the average size of landholdings of households belonging to the very poor and poor food consumption groups is below the average—0.6 ha.

By comparison, households having good and very good food consumption have land sizes on average above the average—0.94 ha and 0.95 ha, respectively. If looking at the median size of land, the picture does not improve: households in the two worst food consumption groups have 0.3ha and 0.26 ha. Those in the two best food consumption groups have median landholdings of 0.46ha and 0.59ha.

Given the limited productivity potential of land, it is not surprising that the main crops cultivated and being consumed on a frequent basis are maize and vegetables. It is also reasonable to assume that these items are grown and eaten in small quantities. All other food items that are eaten are purchased—again with the assumption of being done so in small quantities.

In this context, households are likely to be vulnerable not only to food insecurity, but also livelihood insecurity (i.e., unable to effectively combine livelihood strategies).

6.1.3 – Expenditure, Credit and Poor Food Consumption Patterns

Table 44 – Per Capita Expenditures among Food Consumption (FC) Groups

Food Consumption Groups	Per Capita Total Expenditures (NRs)
Very poor FC	969
Poor FC	1065
Fair FC	1296
Good FC	1108
Very Good FC	964

Although households with very good food consumption have similar per capita expenditure and similar averages to those with poor food consumption, they only constitute 7% of households. Between 39% and 59% of all food consumption groups have a household member living or working outside the community.

Of households that do have migrating members, annual remittances are, on average, NRs. 17,330 for households with very poor food consumption and NRs. 22,766 for those with poor food consumption. In comparison, households with good and very good food consumption are remitted, on average, NRs. 47,759 and NRs. 43,904, respectively.

6.1.4 –Gender, Education and Health Factors

There are no apparent relationships between food consumption and the gender of a head of household. On average, between 7% and 11% have a female household head. On the other hand, education levels of head of households do have a relation with food consumption patterns.

Approximately 64% of heads of households with very poor food consumption do not have any schooling whatsoever, and 60% of heads of households with poor food consumption reported the same.

Around 74% of households having very poor and poor food consumption patterns also do not have any proper toilet or sanitation facilities, compared to only 45% of those with very good food consumption. 21% of the very poor food consumption group access water through unprotected wells or springs, much higher than the overall average of 8%.

In terms of malnutrition among children, 61% of children living in households with very poor food consumption and 56% in households who have poor food consumption patterns are stunted. There appears to be a slight relationship in mean stunting z-score, where children in better food consumption classes tend to have a higher underweight z-score than those with worse food consumption.

6.1.5 – Multivariate analysis of other key factors

Using ordinal logistic regression analysis techniques, a series of models were created to determine whether there were some causal explanations to why certain households were more likely to be food insecure than others. Some factors did not show any significant effect. These include size of household, use of fertiliser or age of the head of household.

However, there were some close relationships that confirm the analysis presented in the previous paragraphs. For example, households with land sizes above average and who possess kitchen gardens are less likely to be vulnerable to food insecurity.

The following factors showed no significant relationship with respect to nutritional status: the sex of the child, whether the child is still breastfeeding, whether the child has received Vitamin A supplement; and whether the child has vaccinations for measles. However, age plays an important role with respect to different types of malnutrition among children. Wasting is worst among children between 18-36 months and stunting prominent among children 18-48 months. Moreover, the models show that it is much more likely for children to be stunted or wasted if their mothers have a low BMI or have had more than one pregnancy.

Part VII – Recommendations for programme interventions

Section 7.1. Overall Conclusions

There are many factors that contribute to household food insecurity in Nepal. In large part these factors are structural in nature. The overall conclusion of the survey, however, is that household vulnerability to food insecurity in Nepal is contingent on two inter-related issues: **food utilisation and food access.**

Food utilisation is the ability of households, and all their members, to properly absorb food in order to benefit from nutrient and energy content. This, in turn, is primarily a function of the level of education among household members—especially the head of household—knowledge of care practices, and health and living conditions.

Food access is the ability of households, and their members, to be able to produce or purchase a sufficient amount and diversity of food items as well as access other goods and services that contribute towards overall well-being. This outcome is dependent upon the types of livelihood strategies being pursued by households and their effectiveness, as well as the ability of such households to recover from periodic shocks. Moreover, food access is also affected by the chronic poverty that is pervasive throughout Nepal.

On both fronts, the survey found notable problems among households and communities. The specific conclusions around these two issues—and their subcomponents—are outlined in the following paragraphs.

7.1.1 - Food Utilisation: Health and Education Matter

Access to proper sanitation, health services and clean water are important subcomponents of food utilisation. Access to health services was relatively poor. More than half of all the communities sampled reported the lack of a health service centre within the community. Further, for most of these communities, the nearest health centre was one to two hours away by foot.

Compounding a lack of physical access to health clinics, there is evidence that health conditions are exacerbated by a lack of access to proper toilet and sanitation facilities and fresh water. Approximately 66% of households reported that they do not have any toilet facility whatsoever and use the outdoors.

Almost 44% of all households reported that the main source of water was a public tap. Unprotected wells or streams were reported as the main source of water for a combined 11% of households.

While a far greater proportion of households reported access to "safe" public taps the fact that a sizeable number of households use unprotected water sources should warrant concern. Combined with the fact that proper sanitation and toilet facilities are limited among households, there is a risk of communicable disease, diarrhoea, worm infestation and overall ill-health among households who use unprotected sources of drinking water.

Health risks and epidemics from water borne diseases greatly reduce human productivity, increase a household's costs and diminish the ability of households to generate sustainable livelihoods. Not surprisingly, and confirming the importance of health factors, 30% of households indicated that in the past year one or more of their family members has been seriously ill or injured, which can potentially divert household labour away from productive and care giving activities.

Chronic malnutrition (stunting and underweight) is a common phenomenon in South Asia and particularly in Nepal. Findings from this survey show that the trend is not reversing. On average, 49% of all children 0-59 months enumerated are underweight and 46% stunted (< - 2.00 SD). Severe underweight and stunting rates (< -3.00SD) are 11% and 16%, respectively. The data also indicate that access to safe water and toilet facilities is one of the major determinants of underweight status.

Educational attainment is the second key component of food utilisation. Studies have shown that households whose members are educated are more likely to be economically mobile, have better health and nutritional status, and are better able to meet their food and non-food needs. Moreover, having educated household members also decreases the inter-generational transmission of poverty and food insecurity.

Unfortunately, household data from this survey for ***adults*** show low levels of educational attainment and high levels of gender disparity. Sixty-two percent (62%) of all heads of households—both male and female—reported having no schooling whatsoever. And only 16% reported having some primary schooling.

When disaggregating for gender, 92% of all female heads of households reported not having any schooling as compared to only 59% of their male counterparts. Four percent of male heads of households reported completing primary school as compared to less than 1% of female heads of households.

Among adult members of households found who are ***not*** heads of household, 46% have never received any formal education, 59% among women, and 33% among men. Only four percent (4%) of all individuals above the age of 15 have completed primary school and six percent (6%) reporting completion of secondary school. Again, when looking at gender within these reported figures, only 4% and 2% of women above the age of 15 have completed primary and secondary schooling, respectively.

Eighty-six percent (86%) of all key informant interviews indicated that sampled communities have a functioning primary school and 40% of sampled communities reported having a functioning secondary school. Of those communities having neither a primary nor secondary school in their communities, the nearest primary school was less than one hour walking distance from the community and the nearest secondary school around 2 hours away.

For the ***6-14 years age cohort***, which constitute nearly a quarter of all individuals, only 12% of males and 19% of females have no schooling at all. The reasons for non-enrolment are generally illness, work, and refusal to go.

The remaining 81% of children 6-14 reported having had some schooling. Fifty-seven percent (57%) have had some primary schooling and 12% reported having had some secondary education. The remaining 15% have either completed primary school (14%) or completed secondary (1%). These initial figures suggest that there are some disincentives for families to continue schooling beyond the primary level.

The low levels of education among adults—especially heads of households—poses two main problems: (a) the inability of working adults to access higher paying jobs that are, by definition, geared towards more educated and skilled workers; and (b) the risk that children will not be afforded opportunities for education beyond the primary level. Both of these problems can perpetuate the spiral of food insecurity and hunger.

7.1.2 - Food Access: Livelihoods Matter

Food access in Nepal is, primarily, dependent on the ability of rural households to effectively combine a set of livelihood strategies that help them secure food, income and other services. Under the umbrella of livelihoods, several intertwined sub-factors such as assets, remittances access to credit, and expenditure patterns are central.

The survey found four important conclusions as they relate to livelihoods and food access. The ***first*** is that food insecure households are asset poor—both in terms of physical assets and livestock. With respect to *non-productive assets*, the most commonly held ones across all households are beds (78%), and radio/tape players (58%). The assets least commonly held are refrigerators (1%), fans/heaters (14%) and televisions (17%).

In terms of *productive assets,* 95% own farming tools. However among other productive assets, reported holdings are quite low. For example, only six percent of households own a bullock cart, six percent a sewing machine, and 24% a bicycle. With respect to livestock (a productive asset), 94% owned some combination of livestock.

Data also indicate that there is no co-linear growth relationship in terms of the ratio of productive to non-productive assets. In other words, as the total number of assets possessed by a household increases, the number of productive assets remains the same.

More than 89% of households have access to some arable land. However, average size of landholdings is 0.6 hectares. Coupled with the small land size is the fact that inputs into agriculture are marginal—very few households have access to irrigation, pesticides and/or fertilisers. This places a constraint on both land productivity for agriculture and livestock rearing.

The ***second*** main conclusion is that in the absence of productive assets and inability to generate sufficient food or income from agriculture, other livelihood activities such as unskilled wage labour are not able to fill the gaps as they are low-paying and seasonal—implying erratic and unpredictable income streams.

The notable exceptions are households who receive a small, yet important, amount of money from remittances. Almost half of all households indicated that they had one or more members migrating within Nepal, in India or in Middle-Eastern countries such as Saudi Arabia, Qatar or the United Arab Emirates.

On average, households with members in the Middle-East receive higher median remittances than households with migrants in Nepal or in India. Given low levels of agricultural productivity and underemployment, migration is emerging as a viable livelihood strategy insofar as remittances allow households to cover income shortfalls needed to access food and other services.

Ninety-six percent (96%) of all households reported that they have access to one or more types of credit. The most common types of credit are ***informal***—reliance on friends and relatives and local lenders—59% and 53%, respectively. Banks, NGOs and cooperatives round off the credit sources accounting for 17%, 9% and five percent, respectively.

However, of those households that reported having access to credit, 72% indicated that they borrowed money or used credit to purchase food. Of these households, ***30%*** indicated that they had done so on ***more than three occasions in the three months prior to the survey.***

Expenditure data are in line with the above findings insofar as debt repayments constitute, on average, 12% of all monthly non-food expenditures. Moreover, households allocate, on average, 50% of monthly expenditures on food—of which 42% goes towards cereals, especially rice. Generally speaking, the higher shares of total expenditures going towards food, the greater the likelihood that a household has poor food access. Food, on average, is cheaper than other goods such as health care, education or investments in productive assets such as livestock.

Thus, for households that have low levels of income and cannot produce enough food for themselves, buying food becomes, *de facto,* the main priority. As such, household resources will go towards ensuring that a minimum level of food is acquired in order to meet household needs. This, when compared to outlays on non-food priorities, will naturally result in a higher proportion of resources allocated to meet these food needs.

Finally, the ***third*** main conclusion emanating from the survey is that households whose livelihoods are not able to meet basic needs are also unable to withstand and recover from external shocks and stresses.

Sixty-nine percent (69%) of households exposed to ***drought/irregular rainfall*** report that the net effect was loss of income and approximately 46% of households stating that they had a ***serious illness of one or more household members*** in the last 12 months had resulted in loss of income and assets. On average, 97% of households exposed to these particular shocks reported that the shock had diverted labour and expenditures away from food—resulting in difficulties for these households to produce or acquire sufficient amounts of food for the period of drought or illness.

Borrowing money is the most common form of response/coping strategy for households—*irrespective* of shock—further compounding their debt problem as they try to mitigate and reduce short-term welfare losses such as income and assets.

In terms of recovery, 36% of those households that experienced an illness in the family reported that they had not recovered from the loss of income and/or assets. In comparison, only 25% of those experiencing drought reported not being able to recoup income losses.

In this context, it is likely that idiosyncratic shocks such as chronic illness are disproportionately more damaging to household welfare in both the short and long term as compared to covariate shocks such as drought/erratic rains.

7.1.3 – Recommendations for Action

Based on the key conclusions and the findings in Section VI (Household Food Insecurity Profiles), **around 26% of households are said to be vulnerable to food insecurity and hunger—having access, utilisation and consumption problems.**

The main objective of this study's recommendations is to improve the food security status of these households and others who have similar characteristics as they are most at risk now and in the foreseeable future. Recommendations for action are, therefore, divided into three main categories: (a) geographic targeting of resources; (b) food and non-food based programme options; and (c) policy priorities.

1. Geographic targeting of resources

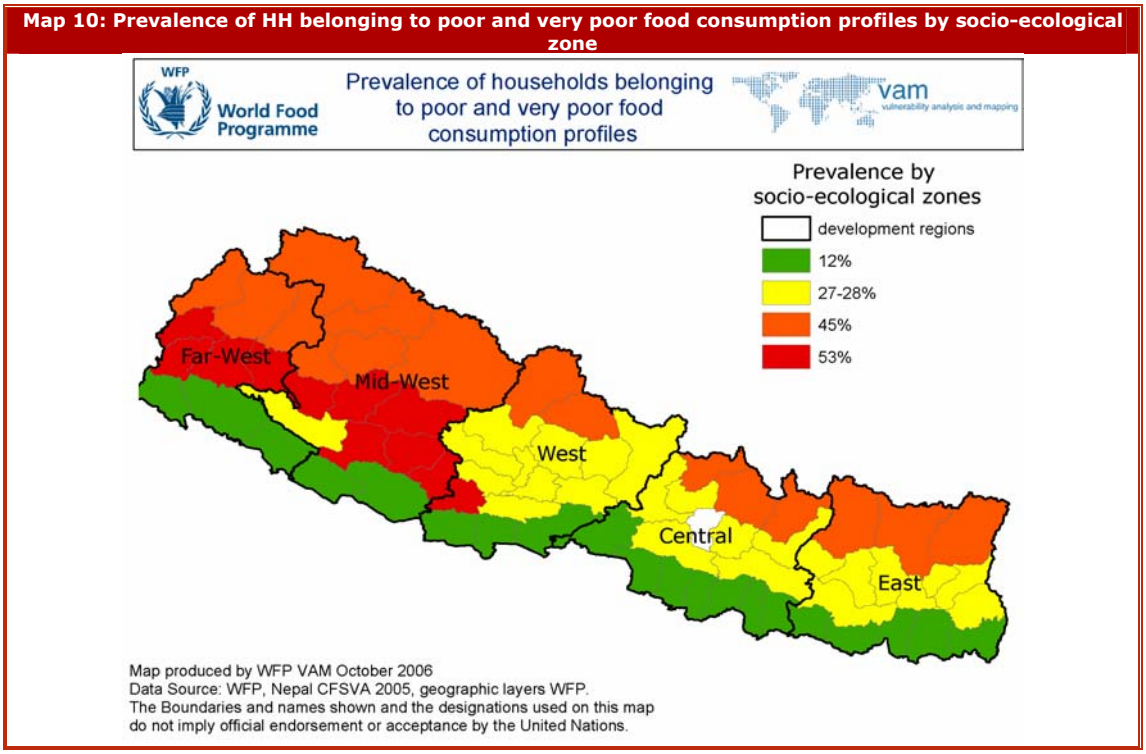
Given that financial resources are scare, ***the first recommendation is to use the findings from this survey to geographically target areas that have the highest concentration of households most vulnerable to food insecurity.***

It should be noted that the food insecurity profiles of sampled households in a particular district are not exact replicas of profiles associated with **all** households found in that district. This is because in some districts more households were sampled than others—in order to ensure that findings would be representative for populations at the level of development region, agroecological belt and WFP socio-ecological clusters/zones.

This being said, there is a good degree of confidence in the recommendations for geographic targeting given the fact that the data highlighting the causes of household food insecurity (i.e., access, utilisation and consumption) among sampled populations have a strong geographic distribution, and can be generally applied to populations across the sampled strata (i.e., belt, region, cluster/zone).

The map below illustrates the areas thought to be the most food insecure. Looking at development region, the Far west, and the MidWest have the highest prevalence of food insecurity. By WFP zones, which is simply a breakdown of belts, the mountain belt (cluster 5), and cluster 1 (the western portion of the Terai) have the highest prevalence of food insecurity.

Map 10: Prevalence of HH belonging to poor and very poor food consumption profiles by socio-ecological zone



2. Food and Non-Food Programme Options

The main challenge for food and non-food assistance programmes is to address the causes of household vulnerability to food insecurity. In this context, there are two broad

typologies of interventions that can be employed: (a) equity focused programmes; and (b) efficiency focused programmes.

The former aims to reduce the vulnerability of targeted households by facilitating greater access to social services and improving knowledge of food security issues among these same households. Efficiency-focused interventions are geared towards improving the efficiency of service providers and increasing the productivity of household livelihoods.

All programme recommendations should be concentrated in districts with high concentrations of food insecure households.

Improving Food Utilisation

Food Based Programmes: Equity in Health and Education

- ***School Feeding Programmes* should be targeted in districts with high concentrations of food insecure households**. The main objective of school feeding programmes would be to increase girl's enrolment in primary education—thereby reducing current and future gender disparity in access to education.
- ***WFP, in particular, should consider continuing a take home ration*** that is comprised of Vitamin A-enriched oils and pulses for ***both*** boys and girls who participate in school feeding programmes. These two food items can help increase the nutritional content of foods consumed by households vulnerable to food insecurity and diversify the types of foods that are consumed.
- ***WFP and Government of Nepal (GoN) partners should maintain, and consider expanding, their current Maternal and Child Health Care (MCH) programmes.*** If implemented in targeted districts, MCH programmes can dramatically improve the health and nutrition status of pregnant and lactating mothers and children 6-36 months—especially in conjunction with de-worming and iron-foliate supplementation. *A recent follow-up survey of the MCH programme in Makwanpur showed an impressive decrease in malnutrition rates of children 0-36 months and anaemia among women over just two years of implementation.*
- ***Nutrition and care practices should be the main themes of food-for-training activities*** geared towards women of reproductive age. These activities should be part of a broader community-based intervention. A recent study in the Lancet clearly demonstrated the effectiveness of participatory interventions with women's groups on infant mortality in Nepal.[26]
- ***Food-for-work programmes should concentrate on improving the quality of community water and sanitation systems.*** The particular types of activities could include protecting and rehabilitating water sources—especially public taps, unprotected wells and boreholes—and constructing community latrines.

Non-Food Based Programmes: Equity and Efficiency of Health Care

- UN system agencies, civil society organisations and government partners should encourage the design and implementation of ***community-based participatory health and sanitation programmes***. These programmes could provide the umbrella under which food and non-food activities can be implemented. Given the dearth of community-based clinics, such programmes can develop a network of community-based health workers who could coordinate and implement health and sanitation activities.
- The Ministry of Health and its partner in the UN system, civil society and donor community should consider ***strengthening existing health service centres*** in targeted districts. This would entail providing appropriate equipment and training of hospital workers, primary health-care and community-based workers and other health system support staff.
- ***Civil society organisations (both national and international) should continue and expand current social mobilisation activities with community-based women's groups*** in order to strengthen their capacity to manage community-based development programmes related to health and care practices.

[26] Manandhar et al. 2004. "Effect of a participatory intervention with women's groups on birth outcomes in Nepal: cluster randomised controlled trial." The Lancet: 364: 970-979.

Improving Food Access and Household Livelihoods

Food Based Programmes: Equity in and Efficiency of Livelihoods

- WFP should consider ***generic food-for-training*** activities that can improve the ***basic literacy*** of adults belonging to food insecure households and ***specialised food-for-training*** programmes that emphasize new skills such as ***carpentry and tailoring***.
- Given the low levels of education among adults, the ***generic food-for-training is applicable across all targeted districts***. ***Specialised food-for-training*** activities should focus on ***districts in the Western and Central development regions*** (see Section VI).

Non Food Based Programmes: Equity in Livelihood Inputs

- ***Rural agricultural development programmes*** can help strengthen farming-based livelihoods, especially improvements in areas such as irrigation and other agricultural inputs, farming technology, and access to markets (possibly including roads).
- ***Group-based credit schemes*** should be introduced ***on a pilot basis*** by civil society organisations that have experience in this field. Lessons from neighbouring countries such as Bangladesh and India will be useful in the design and implementation of such efforts.
- The GoN—especially the Ministry of Agriculture—should encourage the ***development of grass-roots cooperatives***. A number of these cooperatives should necessarily target and be run by women.
- ***UN system agencies, bilateral donors and the GoN should revisit and update current integrated rural community development programmes***. Such programmes have had some success—especially in the forestry sector. A greater emphasis should be placed in building up productive assets among food insecure households.

3. Policy Priorities: Recommendations for Government

- Results of the survey have found that children rarely continue their education beyond the primary level. Part of the problem is related to physical access and availability of secondary schools in sampled communities—especially those with high concentrations of food insecure households. ***The GoN should consider improving access to secondary schools while continuing to strengthen the quality of primary education.***
- Access to credit is an important contribution and input into ensuring that livelihoods can be productive. However, the survey has shown that, by and large, households gain access to credit from friends and money lenders. ***The GoN should increase the transparency and accessibility to formal sources of credit.*** This can be achieved through a series of policy measures that can regulate credit provision for poorer and food insecure households.
- The level of education and skills of adult members in households vulnerable to food insecurity have been found to be low. At the same time, Nepal faces considerable problems in terms of soft infrastructure (clinics, schools, service centres) and hard infrastructure (roads, electricity). ***The GoN should consider instituting a set of macroeconomic growth policies that are: (a) labour intensive; and (b) focus on broad-based development of both hard and soft infrastructure***. This labour intensive-led strategy can take advantage of Nepal's labour market and meet a national priority identified in several policy documents.
- Awareness of HIV/AIDS is quite high. This being said, South Asia is has a rapidly growing HIV-positive population. ***The GoN should invest in scaling-up current AIDS awareness and prevention programmes.***