

# **NEPAL LIVING STANDARDS SURVEY REPORT 1996**

## **MAIN FINDINGS VOLUME TWO**



**CENTRAL BUREAU OF STATISTICS  
NATIONAL PLANNING COMMISSION SECRETARIAT  
HIS MAJESTY'S GOVERNMENT  
NEPAL**

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## FOREWORD

It is indeed encouraging to note that the second volume report on **Nepal Living Standards Survey (NLSS)** containing results in areas like Income, Employment, Agriculture and Non-farm Enterprises is published by the Central Bureau of Statistics (CBS). The coincidence that these results are being available at the time of formulating the Ninth Plan is a big welcome. The opportunity now is wide open to making greater use of these data to further analyze and study the inter-relationship of various socio-economic variables, as well as conduct research on various aspects of the people's socio-economic conditions. Timely completion of the survey has also added greater value to both the results and the data set. Besides the use and application of this wealth of information in the planning exercises, its exploitation to the fullest extent should be of concern to all Economists, Researchers, Analysts and Acedemicians alike.

Techniques that were applied in this survey to maintain the quality and timeliness of the results need to be sustained also for future surveys. I wish to emphasize that the Central Bureau of Statistics should develop its capability in line to produce a steady flow of integrated statistics like this on a recurring basis. It is hoped that the Bureau will henceforth conduct surveys regularly on different subjects and plug in the much needed statistical gaps.

Once again, I appreciate and would like to offer my thanks to the World Bank for providing the financial and technical support in making this survey a success. Let me also thank all the persons and the staff of the CBS who were involved in the successful implementation of this survey.



May 1997

Prof. Mangal Siddhi Manandhar

Vice Chairman

National Planning Commission

## **PREFACE**

This is the second volume report on Nepal Living Standards Survey (NLSS), and with its publication the project successfully comes to an end. Both reports have been published within set timetables. The Bureau now offers both reports as well as access to the entire data set for users that are interested to do further research and analysis of the survey results. A number of institutions have access to this data set and are processing and analysing according to their needs.

Side by side, the survey operation also has contributed in the institutional building by strengthening the capability of CBS in conducting sample surveys. Experience gathered from an integrated household survey of this nature certainly will enable CBS manpower to conduct other kinds of sample surveys with greater ease. The need, now, is to focus on a mechanism that ensures a regular flow of information in the future. This allows for a critical and periodic assessment of the poverty situation in the country supplemented by the causes of its happening. Only then might we be in a position strong enough to tackle and alleviate the conditions of the sizable poor in the country properly.

It is also encouraging to note that the survey has successfully used advanced techniques like the use of portable computers and solar panels in the field. This has ultimately facilitated the generation of quality data on a timely basis.

Once again, I would like to thank the World Bank for having provided the much needed support to this project. Similarly, I would also like to extend my thanks to Task Manager Ms. Giovanna Prennushi, Ms. Benu Bidani and Mr. Peter Lanjouw all from the World Bank, Senior Consultant Mr. Juan Munoj, Consultant Mr. Salman Zaidi, and Local consultant Mr. Manik Lal Shrestha for their respective contribution towards the successful completion of the survey.

My thanks are also due to the core team members and the field staff of this project.

May 1997

Keshav Raj Sharma  
Director General  
Central Bureau of Statistics

## Volume 2

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## INCOME

## 1.1 Introduction

This section describes the methodology followed to construct a measure of household income and presents information on income levels, sources, and distribution.

In the first volume of this report, a measure of household consumption was used as an indicator of welfare.<sup>1</sup> Consumption remains a more convincing indicator of well-being than income, for two main reasons. First, the various components of consumption are usually measured more accurately than certain components of income. Second, consumption may be a better proxy for long-term living standards because it may reflect the household's ability to smooth out income fluctuations. In a country which is heavily agricultural, the quality of harvests over the preceding year has a strong bearing on household income. Since harvest variations can be quite large over time, across regions, villages, and even households, one should be cautious in making inferences over long-term living standards based on income figures. Also, an income figure over 12 months might mask considerable variation in flows during the course of the year. It is possible, for example, for a household to face many months of considerable hardship without any cash inflows, and yet not to appear as particularly poor based on an annual income figure. A consumption-based measure of welfare may be better at identifying such situations.

Nonetheless, an income measure can usefully complement a consumption-based analysis of living standards. First, a measure of income will permit to focus on the sources of income of the poor, and thereby gain insight into possible reforms and policies which would succeed in engaging the poor into the broader growth process. Second, it will permit to capture command over resources, and allow one to compare income as a measure of welfare *opportunity* with consumption as a measure of welfare *achievement*.

The definition of income used here is intended to capture the flow of resources which enable a household to achieve its living standard. The 12 months prior to the interview were taken as the relevant accounting period.<sup>2</sup> The main components of income which comprise our measure are: cultivation income, non-crop farm income, income from wage employment, non-farm family enterprise and self-employment income, income from transfers, rental income, and income from other sources. Each income component is itself an aggregation over a number of possible revenues and costs. Box 1.1 lists the components of total household income in detail.

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<sup>1</sup> See Section 1.3 in Volume 1 for details on how the consumption measure was constructed.

<sup>2</sup> For agricultural production, the reference period is the last completed agricultural year, which may extend more than twelve months into the past.

Box 1.1: Components of household income

<i>Main Component</i>	<i>Items to add</i>	<i>Items to deduct</i>
<b>Farm Income</b>	<ul style="list-style-type: none"> <li>+ Value of total crop production (net of share paid to landlord)</li> <li>+ value of by-product production</li> <li>+ net income from renting farm assets (draft animals, tractors, etc.)</li> <li>+ value of sales from non-crop farm production (milk, ghee production, etc.)</li> <li>+ earnings from the sale of livestock</li> <li>+ value of home-produced non-crop consumption</li> <li>+ cash and non-cash rent received from tenants on land leased-out, etc.</li> </ul>	<ul style="list-style-type: none"> <li>- cultivation costs (seeds, fertilizers, hired labor, irrigation, etc.)</li> <li>- maintenance expenditures on farm machinery and buildings</li> <li>- fodder and other livestock expenditures (veterinary services, etc.)</li> <li>- expenditures for the purchase of livestock</li> <li>- cash rent paid to landlords on land leased-in, etc.</li> </ul>
<b>Wage Income</b>	<ul style="list-style-type: none"> <li>+ value of cash and in-kind earnings per year (including daily, piece-rate, and permanent labor) in agriculture</li> <li>+ value of cash and in-kind earnings per year (including daily, piece-rate and permanent labor) outside agriculture</li> </ul>	
<b>Non-Farm Enterprise Income</b>	<ul style="list-style-type: none"> <li>+ gross revenues from home enterprises and self-employment outside agriculture during past 12 months</li> </ul>	<ul style="list-style-type: none"> <li>- wages paid</li> <li>- energy expenditures</li> <li>- expenditures on raw materials</li> <li>- other operating expenditures</li> <li>- share of net revenues paid to partners (or kept by partners)</li> </ul>
<b>Non-Agricultural Rental Income</b>	<ul style="list-style-type: none"> <li>+ income from renting out non-agricultural property</li> <li>+ income from renting out non-agricultural assets</li> </ul>	
<b>Transfers</b>	<ul style="list-style-type: none"> <li>+ income from remittances and transfers received (cash and in-kind)</li> </ul>	
<b>Owner-Occupied Housing</b>	<ul style="list-style-type: none"> <li>+ imputed rent which would have had to be paid to purchase housing services</li> </ul>	
<b>Other Income</b>	<ul style="list-style-type: none"> <li>+ interest earnings and dividends from cash and savings deposits</li> <li>+ interest earnings and dividends from fixed deposits, stocks and shares</li> <li>+ interest earnings and dividends from employee provident fund</li> <li>+ pension income</li> <li>+ commission fees and royalties</li> </ul>	

## 1.2. Construction of Income Aggregates

### Farm Income

**Crop income.** The gross value of crops produced was calculated from section 12.B of the questionnaire, which provides information on quantity harvested, quantity sold, and sale prices by crop. The reported prices were used to calculate the total value of farmers' production. This calculation involved several steps.

- i) As a first step, total production was valued at the prices reported for that part of production which was sold. This was possible wherever a farmer sold some of the crop, and the unit of measurement was the same for the harvest and for the output sold, so that the price received could be used to value the total harvest of the crop. However, only a minority of entries in the questionnaire satisfied these conditions.
- ii) Typically, at least some of the crops produced by a given farmer were not sold, or the quantity harvested was recorded in a unit which was different from that reported for the sale of the crop. For example, while a farmer might have harvested 20 *pathis* of wheat, he might have sold 5 kgs of wheat. Even though conversion factors do exist as to the number of *pathis* per kg of wheat, it is not obvious that the same conversion factor should be applied to obtain a price per *pathi*. There may be bulk-purchase discounts, for example.<sup>3</sup> To deal with these cases, average prices were calculated at three progressively higher levels of aggregation. First, a ward-level price schedule was calculated, consisting of the average reported price per crop and per unit of output for each ward, across those households which did report a price for a given crop and unit of output. This schedule was then applied to all observations in the data for which output value could not be calculated directly from the household-level entries. Output values for approximately two-thirds of crop-level entries could be calculated on the basis of the household-level and ward-level information. However, for some crop and unit of output combinations, prices were not available even at the ward level. To deal with these cases, a group-level price schedule was calculated, at a level of aggregation corresponding to the six regional groups defined for the NLSS data. Finally, in the (few) cases where even a group-level price schedule was incomplete, a national average price schedule was calculated as a final, national, level of aggregation. About 97 percent of all entries could be priced using information at the four levels mentioned above: household, ward, group, and national level.
- iii) Of the remaining 3 percent of the cases, roughly 2.5 percent could be dealt with by making a few ad-hoc adjustments.<sup>4</sup> For the last 0.5 percent of the cases it was not

<sup>3</sup> In addition, some crops may go through some processing before being sold; for example, it would be incorrect to apply the price of a kg of rice to a *pathi* of paddy.

<sup>4</sup> In the case of papaya crops, for example, no sales had been recorded in section 12.B at all, so that papaya prices did not feature in any of the price schedules. However, it was possible to obtain the average purchase price of a papaya (at the group level) from the consumption section of the questionnaire, and to apply this price to the papaya harvest in

possible to estimate a value of the harvest, and these entries were therefore left as zeroes.

For those farmers who were renting in land, section 12.B provides details on what fraction of the harvest was given to the landlord as payment for the use of the land. These payments in kind were deducted from the value of total output to estimate the value of output retained by the farmer. The harvest values (net of in-kind rent payments to landlords) were aggregated across crops for each household to obtain a household-level estimate of the value of gross agricultural output per farming household.

The gross agricultural output value was combined with data from Section 12.D which listed the main expenses on cultivation for farming households (irrigation, fertilizers, seeds, etc.), as well as both earnings and expenditures from the rental of farm implements such as tractors, threshers, and draft animals. Cultivation costs and rental expenditures were deducted from the value of the gross agricultural output. Rental earnings and the value of the sale of crop by-products were then added to obtain crop income.

Income from livestock. Sections 12.E1 and 12.E2 provide details on purchases and sales of livestock and sale of livestock products such as ghee, milk, butter, etc., as well as expenses incurred on fodder, veterinary services, etc. Income from livestock was constructed by deducting expenses and expenditures on purchases of livestock from revenues from the sale of livestock and livestock products.

Production of non-crop goods for home consumption. The consumption module provides details on the value of consumption of several home-produced non-crop goods: eggs, milk, ghee, mustard oil, fish, mutton, buffalo and chicken; these amounts were added up to obtain the value of non-crop home production.

Land rental income. For those households renting in land who pay their landlord in cash, rather than in kind, rent payments were collected in section 12.A2. This information is reported at the plot level for each household, for both dry and wet season. These expenditures were aggregated up to the household level to obtain total annual household cash expenditures on land rented in (household payments in kind have already been deducted from the value of gross agricultural output.) Section 12.A1 provides similar information on cash earnings for those households leasing out land, and also includes the value of in-kind payments received. These revenues, minus cash expenditures for land rented in, yielded land rental income.

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those cases where the harvest was recorded in individual units. Similarly, in the case of unspecified cereal crops recorded in *manas*, for which no price information was recorded, we decided to apply conversion coefficients from *manas* into kgs to obtain a measure of the quantity harvested in a unit for which there were recorded prices.

## **Wage Income**

Information for each wage activity performed (often more than one per individual) comes from two sections of the questionnaire: information on time worked from Section 1.C and information on wages and other components of pay from Section 11. Section 11 collects information separately for wage employment in agriculture (Section 11.A) and outside agriculture (Section 11.B), and also distinguishes between work paid on a daily basis, on a longer-term basis, and on a piece-rate basis. Income figures for each activity are aggregated at the individual and household level to obtain total wage income for each household.

- **Daily wage income.** Daily wage income was calculated as the daily wage plus the value of any daily in-kind payment times the number of days worked, plus the value of in-kind payments received for the whole period.
- **Longer-term wage income.** Wage income from work not paid daily in agriculture was calculated as the total cash payment plus daily in-kind payment times the number of days worked plus in-kind payment for the whole period. Outside agriculture, longer-term wage income was calculated as monthly pay and transport allowance times the number of months worked, plus bonuses, tips, allowances, clothing, and other yearly payments.
- **Piece-rate income.** Piece-rate income was calculated as the total cash payment plus daily in-kind payment times the number of days worked plus in-kind payment for the whole period.

## **Non-Farm Enterprise Income**

Information on enterprise earnings comes from Section 13. In section 13.B a balance sheet of net earnings over the preceding 12 months provided a figure for net revenues per enterprise per household. Section 13.A provided information on the share of enterprise profits which the household retained, in the event that the enterprise was owned jointly with other households, and the net revenue figure was thus adjusted for the share retained. Net revenues were aggregated across enterprises to the household level to create non-farm enterprise income.

## **Non-Agricultural Rental Income**

Income received by households for renting out residential property and other assets came from Section 14.C. This constituted non-agricultural rental income.



## **Transfer Income**

Incomes from remittances received by household family members were detailed in section 15.B. These were aggregated up to the household level to obtain a measure of household income from remittances over the past 12 months.

## **Value of Owner-Occupied Housing**

In the same way that the value of home production which is not sold but consumed directly by households should be included in a measure of income, households which live in a house that they own are "earning" an income equivalent to the rent they could charge for renting out their home. Thus the imputed rental value of housing for owner-occupiers, which has already been calculated as part of the consumption aggregation exercise,<sup>5</sup> was included in the income calculation.

## **Other Income**

A residual category of income components was compiled for Section 16 of the questionnaire. This section solicits information from households on their annual earnings from deposits in savings accounts, fixed deposit accounts, treasury bills, stocks and shares, Employee Provident Fund, pensions and commission fees or royalties.

## **Total Income**

Total household income was finally obtained by summing the components of income listed above. Per-capita income figures were obtained by dividing income by household size.

## **Items Omitted from the Income Aggregates**

Net interest income. The NLSS data contains rich information on borrowing and lending amongst households and enterprises in Nepal. Unfortunately, it is not possible to calculate the flow of earnings from money lending without imposing some stringent, and fairly ad-hoc, assumptions. It is similarly difficult to calculate interest payments for those households who report debts. The difficulties stem from a number of factors. First, for both borrowers and lenders, there is a single question on repayments (made and received, respectively) which does not distinguish between interest payments and repayment of principal. A household which has just completed repayment on a loan taken out four years ago, for example, might have repaid all the interest in the first two years, and the principal over the second two years. There is no information on the arrangement which was agreed upon by the borrower and lender. Second, for those households which have not yet completed repayment, or have not yet been repaid, information as to when the final payment is due is often incomplete. This makes it difficult to even impose an arbitrary repayment schedule which would allow one to isolate interest payments from principal

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<sup>5</sup> See section 1.3 in Volume 1 of this report.

repayments. Third, many households report a positive interest rate on the loans they have taken, or the loans they have extended. In the majority of cases, however, repayment at the time of the interview had not been made, even when the loans had been extended several years ago, and the reported interest rates were in annual terms. Typically such loans get rolled over and converted into new loans at the end of each year, with the new principal being lent at the same annual interest rate. It is clear in such cases that no interest payments have been made, or received (although it is not inconceivable that some side payment is required to expedite the granting of this "new" loan). Because of these difficulties, net interest income was excluded from the calculation of total household income.

Farm machinery and housing property. Some households report sales or purchases of farm machinery in Section 12.F. The net proceeds from sales of farm machinery were not included in total income because they represent investment or disinvestment of assets rather than current income (households which make a living from the trade of farm machinery would have reported such income in the non-farm enterprise section of the questionnaire).<sup>6</sup> Similarly, the net proceeds from the sale or purchase of housing were considered as a change in assets and not included in total income.

### 1.3 Levels, Sources and Distribution of Income

Income levels. Table 1.1 reports average household and per-capita income by geographical area. Average household income for the whole of Nepal is NRs. 43,732 per annum, while per-capita income is NRs. 7,690.<sup>7</sup> There are wide variations by geographical area. Incomes are much higher in urban than in rural areas: average urban per-capita income is more than twice average rural per-capita income. Among urban areas, the urban Kathmandu valley stands out as having far higher incomes than the average (more than three times the average for Nepal as a whole in per-capita terms); other urban areas also have higher incomes than the average, but by a much smaller margin. Among rural areas, the western part of the country has lower incomes than the eastern and central part. Per-capita incomes are lower in the Terai than in the Hills, though this result is driven by figures for the western part of the country, as in the eastern/central part incomes are higher in the Terai than in the Hills. The differences between rural areas are far smaller than the differences between urban and rural areas. Note, however, that these are nominal income figures, not adjusted by differences in the cost of living across areas. Once such differences are taken into account, the differences between urban and rural areas narrow a bit, but remain significant.<sup>8</sup>

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<sup>6</sup> Note that, on the contrary, it is quite reasonable to include net income from the sale and purchase of livestock, as quite a few households make a living from raising and selling livestock.

<sup>7</sup> Note that these figures are obtained over a sample of 3,345 households; 28 households ( of the sample) were identified as outliers, as nominal their per-capita income was outside a band defined as the median plus or minus five times the difference between the nominal per capita incomes of the 90th and the 5th percentiles. These outliers were excluded from the analysis.

<sup>8</sup> Price indices for different areas of the country were calculated based on the survey data, but they are not reported here. For more information, contact the Household Survey Division of the Central Bureau of Statistics.

**Income sources.** Table 1.2 describes the distribution of household income by source, and indicates what percentage of total household income came from agricultural work, non-agricultural activities, and other sources. Other sources include income from renting out non-agricultural property (buildings, for instance), remittances, the imputed value of owner-occupied housing, and income from other sources (financial assets, pensions, etc.). Roughly three-fifths of income come from agriculture, one-fifth from non-agricultural activities, and one-fifth from other sources. Again, the differences are most marked between urban and rural areas. In urban areas, agriculture accounts for less than one-fifth of income and non-farm activities for more than half. While the share of income from non-farm activities is significantly higher in the urban Kathmandu valley than in other urban areas, the difference between the two is smaller than that between other urban areas and the rural areas. Differences among rural areas are not very marked, with the exception of the Western Terai which exhibits a higher share of income from agriculture.

Interestingly, the distribution of income by source does not change much across the first four consumption quintiles. The top quintile, however, exhibits a markedly different pattern, with a lower share of income from agriculture and higher-than-average shares of income from both non-agricultural activities and other sources.

Table 1.3 looks at the distribution of income by type of work performed, and indicates what percentage of total household income comes from wage work, self-employment, or other sources. Other sources here include the sources listed above, plus income from renting out agricultural land. On average, a third of income comes from wages and salaries, slightly more than half from self-employment, and a fifth from other sources. Reflecting the fact that self-employment is mostly agricultural, the share coming from self-employment is higher in rural than in urban areas; the shares coming from wages and salaries and from other sources are correspondingly lower. Differences across regions reflect the higher availability of wage/salary jobs in the Eastern and Central regions, respectively in agriculture and outside agriculture.

Looking at the distribution by consumption quintile indicates that those in the lower quintiles earn a larger share of their income from wage employment while those in the higher quintiles earn a higher share from other sources; the share coming from self-employment does not vary much.

**Distribution of income.** Tables 1.4 and 1.5 report nominal per-capita income in current Rupees and the cumulative shares of income by decile and quintile. In nominal terms, the bottom 80 percent of households earn 50 percent of total income, while the top 20 percent earn the other 50 percent of income.

Table 1.6 reports the distribution of the population by geographical area and nominal per-capita income quintile. ..

Table 1.1: Nominal Household and Per-Capita Income by Geographical Group  
(Annual Income in 1995/96 Rupees)

	Average Household Income	Average Household Size	Average Per-Capita Income
DEVELOPMENT REGION			
Eastern	40,892	5.5	7,434
Central	52,408	5.6	9,366
Western	39,213	5.6	7,011
Midwest	36,435	6.0	6,038
Farwest	37,307	6.3	5,928
ECOLOGICAL BELT			
Mountain	32,343	5.4	5,938
Hill	44,998	5.3	8,433
Terai	44,518	6.1	7,322
URBAN	86,797	5.4	16,118
Kathmandu	118,939	4.9	24,084
Other urban	65,363	5.7	11,502
RURAL	40,400	5.7	7,075
Eastern Hill/Mountain	41,084	5.4	7,609
Western Hill/Mountain	35,053	5.4	6,534
Eastern Terai	45,284	5.7	7,876
Western Terai	39,308	6.8	5,772
NEPAL	43,732	5.7	7,690

Note: This and the following tables are based on 3345 observations  
(28 outliers were excluded; see footnote 7 in text).

**Table 1.2: Sources of Income:**  
**Shares of Farm, Non-Farm, and Other Income over Nominal Household Income**

	Share of Farm Income	Share of Non-Farm Income	Share of Other Income
<b>DEVELOPMENT REGION</b>			
Eastern	66	22	12
Central	56	26	18
Western	59	19	22
Midwest	71	20	9
Farwest	62	19	19
<b>ECOLOGICAL BELT</b>			
Mountain	62	18	20
Hill	58	24	18
Terai	64	22	14
<b>URBAN</b>	16	54	31
Kathmandu	3	63	34
Other urban	25	47	28
<b>RURAL</b>	65	20	15
Eastern Hill/Mountain	66	20	14
Western Hill/Mountain	60	20	20
Eastern Terai	64	22	14
Western Terai	73	15	11
<b>CONSUMPTION GROUP</b>			
First Quintile	69	19	12
Second Quintile	69	21	10
Third Quintile	64	20	16
Fourth Quintile	63	20	17
Fifth Quintile	47	18	25
<b>NEPAL</b>	61	22	16

**Table 1.3: Sources of Income:**  
**Shares of Wage, Self-Employment, and Other Income over Nominal Household Income**

	Share of Wage Income	Share of Self- Employment Income	Share of Other Income
<b>DEVELOPMENT REGION</b>			
Eastern	33	58	9
Central	30	50	20
Western	25	52	23
Midwest	20	65	16
Farwest	26	54	19
<b>ECOLOGICAL BELT</b>			
Mountain	34	54	12
Hill	22	59	20
Terai	33	50	17
<b>URBAN</b>	36	33	31
Kathmandu	42	24	34
Other urban	32	39	29
<b>RURAL</b>	27	56	17
Eastern Hill/Mountain	25	64	11
Western Hill/Mountain	20	57	23
Eastern Terai	35	48	17
Western Terai	29	57	14
<b>CONSUMPTION GROUP</b>			
First Quintile	35	54	12
Second Quintile	34	52	14
Third Quintile	29	55	16
Fourth Quintile	23	60	17
Fifth Quintile	23	51	26
<b>NEPAL</b>	28	54	18

Table 1.4: Distribution of Nominal Per-Capita Income by Decile

Decile	Mean Income	Decile Share	Cum. Share
I	1,309	1.7%	1.7%
II	2,731	3.6%	5.3%
III	3,493	4.5%	9.8%
IV	4,199	5.5%	15.3%
V	4,932	6.4%	21.7%
VI	5,865	7.6%	29.3%
VII	6,990	9.1%	38.4%
VIII	8,723	11.3%	49.7%
IX	11,774	15.3%	65.0%
X	26,873	34.9%	100.0%
Average	7,690	100.0%	

Table 1.5: Nominal Per-Capita Income by Quintile

Quintile	Mean Income	Quint. Share	Cum. Share
I	2,020	5.3%	5.3%
II	3,848	10.0%	15.3%
III	5,399	14.0%	29.3%
IV	7,856	20.4%	49.7%
V	19,325	50.3%	100.0%
Average	7,690	100.0%	

Table 1.6: Distribution of the Population by Nominal Per-Capita Income Quintile and Geographical Group

Quintile	Kathm.	Other	R-E	R-W	R-E	R-W	Total
		Urban	Hills	Hills	Terai	Terai	
I	0.5	12.2	24.1	23.4	13.6	25.4	20.0
II	1.0	14.5	15.7	24.0	19.9	24.1	20.0
III	4.3	11.9	18.2	20.1	23.3	21.1	20.0
IV	8.8	19.9	20.0	17.4	23.4	19.7	20.0
V	85.4	41.5	22.0	15.1	19.8	9.7	20.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

## EMPLOYMENT STATUS

### 2.1 Definitions

For the purpose of this report, a person was classified as “employed” if he or she worked at least one hour during the seven days prior to the interview. Activities such as working in the fields and tending livestock are considered; activities such as housework, gathering firewood, fetching water, and making mats, baskets, etc. for home use are excluded. A person was classified as “unemployed” if he or she did not work during the previous seven days, and was available and looked for work, or did not look for the following reasons: awaiting reply from an agency, waiting to start a new job, “there is no work”, “don’t know how to look”. Thus, the definition of unemployment includes those transitionally unemployed as well as those who were discouraged. All others who did not work during the previous week and did not look for work for reasons other than those listed above were considered “inactive”.<sup>1</sup>

Note that the NLSS differed from a standard labor force survey in that the reference period was not the same calendar week for all those interviewed. Rather, the seven-day reference period varied from household to household, as the households in the sample were visited randomly over the course of a year. Thus, the figures obtained do not refer to a particular time of the year, but are in a sense “averages” over a year.

### 2.2 Activity Rates and Unemployment Rates

Based on these definitions, 67 percent of the population above 10 years of age was classified as employed, 3 percent as unemployed, and 29 percent as inactive. These figures imply an overall labor force participation rate of 71 percent and an overall unemployment rate of 4.9 percent. Participation rates for males and women were 75 and 66 percent respectively; unemployment rates were 5.6 percent for men and 4.1 percent for women. Women comprised 52 percent of the total labor force.

Table 2.1 reports activity status, activity and unemployment rates by gender, development region, ecological belt, geographical group, and consumption quintile. Both participation rates and unemployment rates are higher for males than for females. The Farwest has the highest participation rate and the lowest unemployment rate, an indication of the prevalence of self employment in agriculture. The same holds true for the Mountain belt. Participation rates are

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<sup>1</sup> A few individuals who responded they did not work over the previous seven days because they were on vacation were classified as employed.



much lower and unemployment rates much higher in urban areas than in rural areas. Among the rural areas, the Rural East Terai has the lowest participation rate and the highest unemployment rate. Participation rates decline as consumption increases, while the unemployment rate generally declines but not gradually.

Table 2.2 reports activity status, activity and unemployment rates by age category and education level. As expected, open unemployment is higher among younger workers (10-24). This is true in most geographical groups (Table 2.3), but particularly in the urban Kathmandu valley, other urban areas, and the rural Eastern and Central Terai. Open unemployment is also highest among educated workers, a result consistent with evidence from other countries.

### **2.3 Underemployment**

In order to assess the extent of underemployment, Table 2.4 reports the distribution of those employed by number of hours worked. The data indicate that 21.5 percent of those classified as employed worked less than 20 hours over the previous seven days, 25.5 percent worked between 20 and 39 hours, and 53 percent worked more than 40 hours.

### **2.4 Activity Status on the Basis of Work Done During the Previous Year**

In addition to using a definition of employment based on the last seven days, the survey data make it possible to calculate participation rates based on whether a person worked at all during the year preceding the survey.<sup>2</sup> For the purposes of Table 2.5, individuals were defined as "employed" if they have worked at least one day during the previous year (regardless of the number of hours). Individuals were defined as "unemployed" if they did not work at all, were available and looked for work over the past seven days, or were available but did not look for the same reasons mentioned in Section 2.1. All others who did not work during the previous year, were not available, or did not look for work for other reasons were classified as "inactive". In other words, the definitions are the same as above, but based on the number of days worked during the previous year, rather than on the number of hours worked during the past week. However, the definitions of unemployed and inactive still make use of the information on whether the person looked for work over the previous seven days and why, as in Section 2.1.

Based on this expanded definition of employment, participation rates are, as expected, higher than those obtained using the previous definition, and more so for females than for males. Unemployment rates are lower, less so for females than for males (Table 2.5).

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<sup>2</sup> This appears to be the definition used in the 1991 Population Census.

## 2.5 Main Sector of Employment

The individuals surveyed frequently reported having been engaged in more than one activity during the previous year, and often even over the previous seven days. To deal with such situations, a time-based criterion was used to classify individuals by main sector of employment. The activity on which a person spent the most hours during the previous seven days was defined as "main activity". If an individual reported spending the same number of hours was reported on more than one activity, a criterion based on time spent during the previous year was used: the activity on which the individual spent the highest number of full days (i.e. eight-hour days) during the previous year was selected as the main activity. If an individual reported the same number of hours and full days, the first activity listed was chosen. The sector in which the main activity took place was defined as "main sector of employment".

Overall, over 78 percent of those employed spent the majority of their time in agriculture, 71 percent working as self-employed farmers and 8 percent as agricultural wage laborers. 22 percent were employed outside agriculture, 9.5 percent working as self-employed and 12 percent as wage earners. Women worked predominantly on the farm; their shares of wage employment and self-employment outside agriculture were significantly lower than those of males (Table 2.6).

As expected, Kathmandu and, to a smaller extent, the other urban areas have a much higher share of non-agricultural activities, both wage and self, than rural areas. Among rural areas, the rural Eastern and Central Terai stands out as having a significantly lower share of self-employment in agriculture and higher shares of wage employment in agriculture and self-employment outside agriculture than the average – possibly indicating the beginning of a transition away from subsistence agriculture and into self-employment outside agriculture and wage employment in agriculture. Seen from a different point of view, more than half of all wage employment in agriculture and more than a third of self employment outside agriculture are in the rural Eastern and Central Terai – a reflection of both higher shares and higher population densities in that region. The tabulation by ecological belt does not contain surprises. Perhaps the most interesting feature of the distribution of main sector of employment by per capita consumption quintile is that individuals from all quintiles were involved in self employment in agriculture in roughly equal proportions. Otherwise, the results are as expected: people in the lower quintiles were more likely to be agricultural laborers and less likely to be either wage earners or self-employed outside agriculture than people in the top quintile.

Table 2.1: Activity Status and Unemployment Rates (Based on the Seven Days Preceding the Interview), Population 10 Years and Older, by Gender, Region, Belt, Geographical Group, Consumption Quintile (Percent)

	Employed	Unempl.	Not Active	Total	% Individ.	Participation Rate	Unemploym. Rate
<b>GENDER</b>							
Male	71.0	4.2	24.8	100.0	48	75.2	5.6
Female	63.7	2.8	33.6	100.0	52	66.4	4.1
<b>DEVELOPMENT REGION</b>							
Eastern	64.7	4.5	30.9	100.0	23	69.2	6.4
Central	66.0	3.8	30.2	100.0	35	69.8	5.4
Western	64.9	2.2	32.9	100.0	20	67.2	3.3
Midwest	69.9	3.8	26.3	100.0	13	73.7	5.1
Farwest	78.8	2.0	19.3	100.0	9	80.7	2.4
<b>ECOLOGICAL BELT</b>							
Mountain	79.8	1.7	18.5	100.0	8	81.5	2.1
Hill	67.9	2.6	29.5	100.0	44	70.5	3.7
Terai	64.5	4.5	31.0	100.0	49	69.0	6.5
<b>URBAN</b>	47.3	6.6	46.1	100.0	7	53.9	12.2
Kathmandu	43.7	7.5	48.8	100.0	3	51.2	14.7
Other urban	49.7	6.0	44.3	100.0	4	55.7	10.7
<b>RURAL</b>	68.8	3.2	28.0	100.0	93	72.0	4.4
Eastern Hill/Mtn	73.5	2.0	24.5	100.0	23	75.5	2.6
Western Hill/Mtn	70.1	2.2	27.7	100.0	24	72.3	3.0
Eastern Terai	63.2	5.1	31.7	100.0	29	68.3	7.5
Western Terai	70.3	2.9	26.8	100.0	16	73.2	3.9
<b>CONSUMPTION GROUPS</b>							
First Quintile	70.8	5.0	24.2	100.0	18	75.8	6.6
Second Quintile	68.0	3.5	28.5	100.0	19	71.5	4.8
Third Quintile	66.3	3.7	30.0	100.0	20	70.0	5.3
Fourth Quintile	68.1	2.4	29.5	100.0	21	70.5	3.4
Fifth Quintile	63.6	2.9	33.6	100.0	23	66.4	4.3
<b>NEPAL</b>	67.2	3.4	29.4	100.0	100	70.6	4.9
Number of Individuals					14,649,752		

Table 2.2: Activity Status and Unemployment Rates by Age Category and Educational Attainment  
(Percent)

	Employed	Unempl.	Not Active	Total	% Individ.	Participation Rate	Unemploym. Rate
<b>AGE CATEGORY</b>							
10-14	35.5	3.1	61.4	99.9	19	38.6	7.9
15-19	61.2	4.5	34.3	100.0	14	65.7	6.9
20-24	73.2	6.2	20.6	100.0	11	79.4	7.8
25-44	85.4	3.5	11.1	100.0	32	88.9	4.0
45-59	80.5	2.4	17.1	100.0	14	82.9	2.9
60+	49.35	0.63	50.02	100.0	10	50.0	1.3
<b>EDUCATIONAL ATTAINMENT</b>							
Illiterate	73.48	3.28	23.25	100.0	59	76.8	4.3
Some sch.—Literate	54.94	1.49	43.57	100.0	8	56.4	2.6
Compl. Class 3-5	55.18	3.45	41.37	100.0	15	58.6	5.9
Compl. Class 6-10	60.81	4.41	34.78	100.0	16	65.2	6.8
Above Class 10	68.38	6.79	24.83	100.0	3	75.2	9.0
<b>NEPAL</b>	<b>67.2</b>	<b>3.4</b>	<b>29.4</b>	<b>100.0</b>	<b>100</b>	<b>70.6</b>	<b>4.9</b>
Number of individuals	14,649,752						

**Table 2.3: Unemployment Rates by Geographical Group and Age Category (Percent)**

	10-14	15-24	25-44	45+	Total
<b>URBAN</b>	21.2	21.5	8.6	7.1	12.2
Kathmandu	15.3	27.0	10.0	10.8	14.7
Other urban	22.5	18.2	7.6	4.8	10.7
<b>RURAL</b>	7.5	6.5	3.7	2.2	4.4
Eastern Hill/Mtn	1.1	4.4	3.1	0.2	2.6
Western Hill/Mtn	6.6	5.3	1.8	1.1	3.0
Eastern Terai	14.6	10.6	5.7	5.0	7.5
Western Terai	5.4	5.8	3.3	1.9	3.9
<b>NEPAL</b>	7.9	7.3	4.0	2.4	4.9

**Table 2.4: Distribution of Employed Individuals by Number of Hours Worked (Percent)**

	up to 19 hours	20-39 hours	40+ hours	Total
<b>URBAN</b>	15.1	22.7	62.3	100
Kathmandu	8.0	24.3	67.8	100
Other urban	19.2	21.8	59.1	100
<b>RURAL</b>	21.9	25.7	52.4	100
Eastern Hill/Mtn	13.4	22.6	64.0	100
Western Hill/Mtn	24.4	27.9	47.8	100
Eastern Terai	26.3	28.8	44.7	100
Western Terai	23.4	21.8	54.8	100
<b>NEPAL</b>	21.52	25.56	52.92	100

Table 2.5: Activity Status and Unemployment Rates (Based on Year Preceding the Interview) by Gender, Region, Belt, Geographical Group, Consumption Quintile (Percent)

	Employed	Unempl.	Not Active	Total	% Individ.	Participation Rate	Unemploy. Rate
<b>GENDER</b>							
Male	78.2	0.9	20.9	100.0	48	79.1	1.1
Female	71.4	1.0	27.7	100.0	52	72.3	1.4
<b>DEVELOPMENT REGION</b>							
Eastern	73.55	0.98	25.47	100.0	23	74.53	1.33
Central	73.40	1.16	25.44	100.0	35	74.56	1.58
Western	71.94	0.50	27.56	100.0	20	72.44	0.69
Midwest	79.54	1.23	19.23	100.0	13	80.77	1.54
Farwest	81.45	0.55	18.0	100.0	9	82.0	0.60
<b>ECOLOGICAL BELT</b>							
Mountain	83.52	0.66	15.82	100.0	8	84.18	0.79
Hill	73.54	0.90	25.56	100.0	44	74.44	1.22
Terai	74.29	1.02	24.68	100.0	49	75.32	1.37
<b>URBAN</b>							
Kathmandu	51.57	4.38	44.05	100.0	7	55.95	8.49
Other urban	48.04	5.29	46.67	100.0	3	53.33	11.01
	53.85	3.79	42.36	100.0	4	57.64	7.03
<b>RURAL</b>							
Eastern Hill/Mtn	76.50	0.67	22.83	100.0	93	77.17	0.87
Western Hill/Mtn	78.75	0.48	20.77	100.0	23	79.23	0.60
Eastern Terai	75.46	0.69	23.84	100.0	24	76.16	0.91
Western Terai	73.78	0.94	25.28	100.0	29	74.72	1.27
	79.82	0.39	19.79	100.0	16	80.21	0.48
<b>CONSUMPTION GROUPS</b>							
First Quintile	80.49	1.21	18.30	100.0	18	81.7	1.5
Second Quintile	76.53	0.64	22.84	100.0	19	77.17	0.83
Third Quintile	74.57	1.18	24.25	100.0	20	75.75	1.58
Fourth Quintile	74.60	0.55	24.85	100.0	21	75.15	0.74
Fifth Quintile	68.61	1.12	30.27	100.0	23	69.73	1.63
<b>NEPAL</b>	74.7	0.9	24.4	100.0	100	75.6	1.2
Number of Individuals					14,655,501		

**Table 2.6: Main Sector of Employment by Gender, Region, Belt, Geographical Group, Consumption Quintile (Percent)**

	Wage in AG	Wage outside AG	Self-empl. in AG	Self-empl. outside AG	Total
<b>GENDER</b>					
Male	13.3	16.3	59.8	10.7	100
Female	11.1	2.7	81.6	4.6	100
<b>DEVELOPMENT REGION</b>					
Eastern	17.3	8.6	66.4	7.8	100
Central	12.3	11.5	66.4	9.8	100
Western	11.1	8.7	72.3	8.0	100
Midwest	10.1	9.6	75.7	4.6	100
Farwest	5.5	6.1	84.8	3.6	100
<b>ECOLOGICAL BELT</b>					
Mountain	8.4	7.5	80.9	3.3	100
Hill	5.9	11.1	75.3	7.7	100
Terai	18.5	8.4	64.7	8.4	100
<b>URBAN</b>	5.2	37.8	26.0	31.0	100
Kathmandu	0.3	53.1	12.6	34.0	100
Other urban	8.0	28.8	33.8	29.3	100
<b>RURAL</b>	12.6	8.0	73.1	6.4	100
Eastern Hill/Mtn	5.1	8.3	81.5	5.1	100
Western Hill/Mtn	7.9	8.9	77.4	5.7	100
Eastern Terai	23.1	7.9	59.8	9.2	100
Western Terai	12.0	6.2	77.5	4.4	100
<b>CONSUMPTION GROUPS</b>					
First Quintile	18.8	7.9	68.8	4.5	100
Second Quintile	14.8	8.3	70.9	6.1	100
Third Quintile	15.5	7.5	70.0	7.0	100
Fourth Quintile	8.0	9.1	76.6	6.4	100
Fifth Quintile	4.7	14.4	66.9	14.0	100
<b>NEPAL</b>	12.2	9.5	70.7	7.7	100
Number of Individuals					10,942,054

## Section III

### AGRICULTURE

#### 3.1 Background Information

According to the 1991/92 National Sample Census of Agriculture in Nepal (NSCA), there were around 2.7 million agricultural holdings<sup>1</sup> operating over 2.6 million hectares of land (nearly 18 percent of the total area of the country). A majority of farms (about 61 percent) belonged to Khet<sup>2</sup> land category. Per capita holding area was only 0.14 hectares. Fragmentation of operated land, on the other hand, was high: average number of parcels per holding was more than 4 and average size of a parcel was only 0.24 hectares.

In the NSCA, agricultural holdings were grouped into two categories: land holdings and holdings with no land. Holdings with land were those which cultivated 0.013 hectares or more of land during an agricultural year. Holdings with no land, on the other hand, were those with two or more cattle (or the equivalent of other livestock and poultry birds) and less than 0.013 hectares of land cultivation. Agricultural households mentioned in this section relate to a similar concept as defined for the purpose of the NSCA. Discussions on land and crops data is based on agricultural households with cultivated land (agricultural land households) while that on livestock include all agricultural households with or without land cultivation (agricultural households).

#### 3.2 Characteristics of Household Head

Agricultural holder is the person in an agricultural household who exercises management control over the operations of the holding. In Nepal, the holder is usually the same person as the household head. In the NSCA, 96 percent of the holders were the household heads. The NLSS did not collect separate information on holders. This description relates to the heads of agricultural land households.

Table 3.1 reports selected characteristics of the heads of households having land cultivation. The overwhelming majority of agricultural household heads in the country were men-headed; women-headed agricultural households representing below 15 percent of all agricultural households. Amongst geographical regions, women-headed agricultural households were more common in hills and less prevalent in Tarai. Amongst

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<sup>1</sup> For the purpose of the 1991/92 Agricultural Census, an agricultural holding was defined as an economic unit of agricultural production under single management, covering both land and livestock.

<sup>2</sup> Khet land generally means the low land where water remains on the surface or on the upper soil layer making the land suitable for paddy cultivation.



development regions, the proportion of women-headed households was highest in mid western development region (above 18 percent) and least in eastern region (less than 9 percent). Except for the western rural mountains and hills, women-headed households were more common in the urban Kathmandu valley compared to other rural and urban areas.

The median age of agricultural household heads was around 43 year. Amongst development regions the median age of household heads varied from 41 year in far-west to 45 year in west region. Amongst the geographical regions, median age did not vary much. Similarly, there was not a big difference between the median ages of household heads of rural and urban areas.

The literacy rate of heads of households with land was about 39 percent (which is comparable with the literacy rate of all household heads in the country). The literacy rate was lowest in mid-west region (33 percent) and was highest in eastern region (48 percent). In the mountains, the rate was lowest while it was highest in the hills. The rate was the lowest in the rural west Tarai. Interestingly, the literacy rate was higher in other urban areas than in the urban Kathmandu valley.

### **3.3 Number of Agricultural Households**

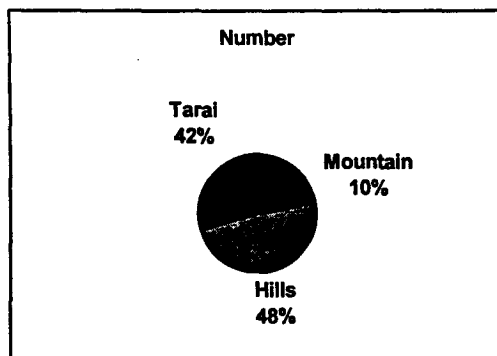
A majority of households in Nepal are agricultural households. In 1995/96, agricultural land households represented 83 percent of total households in the country (Table 3.1). The proportion was even higher when all agricultural households were considered. Over 98 percent of households in the mountains operated land, compared with 88 percent in the hills and 76 percent in the Tarai. The proportion of agricultural land households was comparatively higher in eastern parts of the country. In the urban Kathmandu valley some 12 percent of households operated land. Except for eastern rural Tarai, proportion of households operating land was 90 percent and more.

Households operating land were concentrated in the hills and the Tarai (Table 3.2). Of the total households operating land, 48 percent were in the hills compared with 42 percent in the Tarai and only 10 percent in the mountains. In the rural Nepal, highest proportion was in the western mountains and hills.

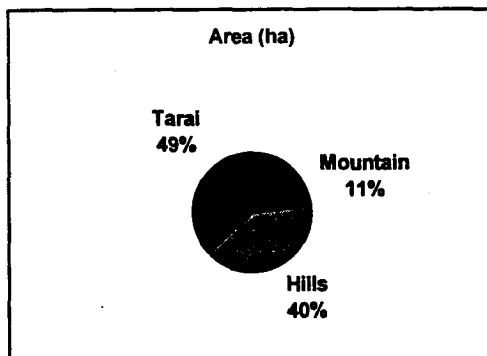
### **3.4 Area of Agricultural Land**

In terms of area of agricultural land operated, the story is different. Of the total area of all area operated, some 49 percent area belonged to Tarai region (Table 3.2). Amongst the development regions, the eastern region contained the highest proportion of operated land and the proportion decreased towards the western parts of the country. In the urban areas, the proportion of land area operated was only one percent of the total.

**Figure 3.1**  
Distribution of Agricultural Households



**Figure 3.2**  
Distribution of Area of Land Operated



Figures 4.1 and 4.2 show the distribution of number of agricultural households operating land and area of land operated by geographic region. In the Tarai belt, there were 42 percent of the total agricultural households operating land and they occupy 49 percent of the operated area of the country.

### 3.5 Size of Agricultural Land

According to the NLSS, average size of farm land for Nepal was 1.09 hectares (Table 3.2); slightly higher than 0.96 hectares reported in the NSCA. Farm sizes tended to be larger in Tarai; the average size in the Tarai was 1.3 hectares while it was only 0.9 hectares in the hills. Farm sizes were smaller in the rural central region of the country. As expected, farm sizes were smaller in urban areas compared with rural areas of the country. One of the reasons for this might be the diversion of agricultural land to other uses in urban areas.

### 3.6 Land Fragmentation

The number of parcels<sup>3</sup> in total operated area by a household gives an indication of land fragmentation. There were an average of 3.8 parcels per agricultural land area operated

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<sup>3</sup> A parcel is generally defined as a piece of land physically separated from other land belonging to the area operated by a household. A parcel may consist of one or more adjacent plots or field.

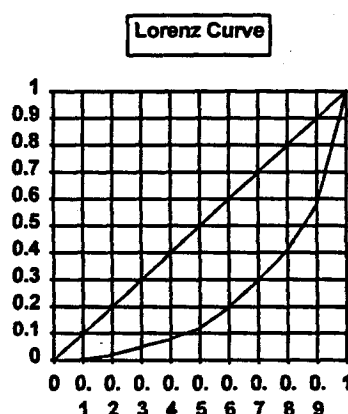
(Table 3.2). Fragmentation was more pronounced in western parts of the country. Amongst geographic regions, fragmentation was highest in the mountains and lowest in the Tarai belt. In rural areas, fragmentation was lower in the east Tarai compared with other parts of the country.

### 3.7 Land Area Distribution

Table 3.3 reports the distribution of farm size and area of different land category. The distribution of land area is generally analyzed by calculating the concentration index. The concentration index is the area between Lorenz curve and the diagonal as a proportion of the total area under the diagonal. The value of this index varies from zero (when all households have the same area) to unity (when the total agricultural area of a country is operated by one household). Figure 4.3 presents the Lorenz curve for total operated land; the proportion of land is shown on the y-axis and the proportion of agricultural households operating land is shown on the x-axis.

According to the NLSS, the concentration index for the total land operated was 0.54. This reflects the presence of large number of small farms in the country. The bottom 40 percent of agricultural households operated only 9 percent of total agricultural land area (Tables 3.3 and 3.4). The top 6 percent of agricultural households, on the other hand, occupied more than 33 percent of total land. Distributions of Khet land and irrigated land were even more uneven. The concentration indices for Khet area and irrigated area were 0.56 and 0.60 respectively.

Figure 3.3



Index of dissimilarity is another summary measure of the difference between size distributions of number of agricultural households and land area. Indices of dissimilarity of total operated area, Khet area and irrigated area in comparison with the distribution of total agricultural households by farm size were 40.53, 42.91 and 44.67 respectively. Size distributions of Khet area and irrigated area in comparison with total operated area, on the other hand, were 4.56 and 5.57 respectively.

Table 3.4 shows the distribution of agricultural versus non agricultural households by nominal per capita consumption deciles. For agricultural households, proportion was lower for top two deciles compared with non agricultural households. The proportions of households falling in top two deciles together for all households, agricultural households and non agricultural households were 25, 23 and 36 percent respectively.

### 3.8 Farm Size Distribution

There were 40 percent small farmers (operating less than 0.5 ha of land) and 13 percent large farms (with 2 ha and more land) in the country (Table 3.5). There were more smaller farmers in the hills than in the mountains and the Tarai. The Tarai contained comparatively higher percent of agricultural households operating 2 ha and more area of land. Amongst development regions, far west region contained more small farms compared with other regions. A majority of agricultural households (77 percent) in the Kathmandu valley urban area operated less than 0.5 ha of land.

Table 3.6 presents land area distribution corresponding to the number of agricultural household distribution shown in Table 3.5. The largest 13 percent of agricultural households operated 48 percent of agricultural land in the country. In the Tarai, 20 percent largest farmers occupied more than 55 percent of agricultural land. The condition was not better even in the hills and mountains. In the hills, there were only 7 percent of the total agricultural households each operating 2 ha and more land and the total land operated by them was 36 percent of total land in that belt.

### 3.9 Land Tenure

Tables 3.7 and 3.8 provide information regarding land tenure status in Nepal. A majority of households in Nepal own agricultural land. Of the total agricultural households 95 percent households owned land in 1995/96. Six percent of the households (owning land) rented out some or all of their land to others on different contractual bases. 29 percent of agricultural households, on the other hand, rented in some land from others and operated together with the land owned by them. About 5 percent of agricultural households operating land did not own any land but operated land owned by others on different contractual bases. Urban areas of the Kathmandu valley contained highest proportion (12 percent) of agricultural households operating rented in land only. In rural areas, the east Tarai had 10 percent of agricultural households which did not operate owned land. Amongst development regions, far western region had no tenants operating rented in land alone.

About 85 percent of agricultural land in the country was owner operated<sup>4</sup> and 15 percent was rented in from others (Table 3.8). Renting of land was more common in eastern part

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<sup>4</sup> Total operated area = Area owned by household members- Owned area rented out to others + Area rented in from others = Area owned and operated + Area rented in from others.

of the country. Amongst geographic regions, renting of land was more common in Tarai; especially in the east Tarai. Some 7 percent of total operated land was rented out to others. Renting out land was more common in urban areas except for the Kathmandu valley. It was also common in eastern parts of the Tarai. Interestingly, both types of renting (e.g., in and out) were more common in eastern Tarai.

### **3.10 Crops**

Cereals dominate the cropping patterns in Nepal. Rice is the most common and important crop in the country and maize comes in the second position. Wheat cultivation is gaining popularity in recent years. Millet and barley are common in the mountains and the hills. Lentil and soybeans are common legumes grown. Mustard is prominent among major oilseed crops. Potato is another major crop of the mountains and the hills. Winter and summer vegetables are grown in the hills and the Tarai. Different kinds of fruits are grown in different parts of the country.

A majority of agricultural land in Nepal is used for temporary crops. Temporary crops include crops with an under-one-year growing cycle and which must be newly sown or planted for further production after the harvest. In terms of the number of growers, the principal crops in the country are: rice, maize, wheat, millet, green vegetables, potato, mustard, lentil, soy, black gram, barley, chili, cow pea, garlic and onion. Among high value crops, cardamom, ginger, turmeric and vegetable seeds are the most common. Sugarcane is more common in Tarai while tea is planted in eastern hills. Amongst fruits, orange, mango, guava, banana and papaya are the most common. Apple is planted in the high hills.

Table 3.9 presents the percentage of agricultural households cultivating more common crops in the country. In 1995/96, some 76 percent of agricultural households cultivated main paddy. Percentage of maize and wheat growers was 66 for each crop. Some 40 percent of agricultural households were millet and mustard growers. Similarly some 35 percent of agricultural households cultivated winter potato and summer vegetables each. Amongst geographic regions, main paddy, winter potato and mustard were more common in Tarai. Summer maize was more common in the hills compared with the other two belts. Millet was mainly grown in the mountains and hills. Mustard was popular in the east Tarai.

### **3.11 Irrigation**

For the purpose of the NLSS, irrigation refers to purposively providing land with water, other than rain, for crop production (a similar definition of irrigation was adopted in the NSCA). Nearly 40 percent of agricultural land was irrigated; up from 34 percent in 1991/92 (Table 3.2). Amongst development regions, eastern region recorded the highest proportion of irrigated land in the total operated land. The western development region

ranked second in the proportion of land irrigated. Amongst the geographical regions, the proportion of irrigated area varied from a low of 27 percent in the mountains to the high of 47 percent in the Tarai. In rural areas, western Tarai contained highest proportion of agricultural land irrigated.

### **3.12 Improved Seeds**

Only a small portion of farmers use improved seeds. Improved seeds<sup>5</sup> reported in the NLSS was the improved varieties supplied mainly by the Agricultural Inputs Corporation (AIC) of Nepal. Figures from the NSCA are not comparable due to differences in definitions. According to the NLSS, improved seeds were more common for wheat and winter vegetables. Except for vegetable crops, use of improved seeds was more prevalent in the eastern parts of the country (Table 3.10). The percentage of farmers using improved seeds was 5, 8, 8 and 10 for main paddy, wheat, winter potato and winter vegetable crops.

### **3.13 Chemical Fertilizers**

Percent of growers using chemical fertilizers is presented in Table 3.11. For the purpose of the survey, the "use" was limited to fertilizers purchased over an agricultural year and it excluded fertilizers received from land owner and other sources (e.g., barter). Hence, these data are not strictly comparable with the NSCA data.

About 55 percent of rice growers in Nepal used chemical fertilizers in 1995/96 (Table 3.11). Some 67 percent of rice growers in Tarai used fertilizers compared with 47 percent in the hills and 26 percent in the mountains. Use of fertilizers in rice cropping was most common in central region, especially in the Kathmandu valley and least prevalent in far west region.

Almost one half of wheat growers and about a quarter of summer maize growers used chemical fertilizers in the respective crops. A majority (90 percent) of wheat growers in the urban Kathmandu valley used chemical fertilizers. About 14 percent of winter potato growers used fertilizers.

Except for maize, chemical fertilizers were more extensively used in the Tarai. Except for mustard, farmers in central region used more fertilizers while the use was least in the far west region.

### **3.14 Equipment**

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<sup>5</sup> Seeds that the farmers kept from last year's harvest were not included in "improved variety" even if the farmer at one point had purchased "improved variety" seeds.

Mechanization of agriculture in Nepal is at a very low level. Some 64 percent of agricultural households with land owned the most common agricultural implement - a plough (Table 3.12). On the day of enumeration, less than one percent of agricultural households with land owned tractor. Similarly, nearly one percent of farmers owned a thresher. 3 percent of farmer households owned pumping sets. About 16 percent of farmers had bins and containers for grain storage.

### **3.15 Livestock Raising**

Livestock is an integral part of Nepali farming system. A majority of agricultural households keep livestock. Livestock ownership is high in the mountains. The overall density of livestock per hectare of cultivated land is very high. Cattle are most common followed by goats and sheep. Chaunri and yak are raised in the mountains. The average number of livestock per agricultural household is comparable to the average household size. Poultry farming on commercial basis is relatively new enterprise in Nepal.

Table 3.13 reports the percent of households with livestock and poultry. Table 3.14 presents the herd size while Table 3.15 presents the proportion of households by number of livestock head. A comparison of Table 3.2 with Table 3.16 reveals that the distribution pattern of households with cattle closely follows the distribution pattern of agricultural households.

Some 73 percent of agricultural households kept cattle (Table 3.13) in 1995/96. Cattle ownership was significantly high in the mountains; 85 percent of agricultural households in the mountain kept cattle compared with 72 percent in each of the other two belts. Similarly, cattle ownership was high in central and western development regions, compared with other regions.

Buffaloes were more common in the hills compared with the other two belts. Amongst development regions, buffalo ownership was more prevalent in western region, particularly in the western mountains and hills (69 percent). Eastern region had the lowest rate (43 percent) of buffalo ownership.

Goats and sheep were common throughout the country; slightly more prevalent in the hills. In eastern parts of the country, the ownership rate was relatively high. Pigs were also kept throughout the three geographical regions. Piggeries were more common, however, in eastern mountains and hills. Pig ownership was low in the central and the western regions. Eastern mountains and hills and western Tarai were significantly notable for pig raising.

Poultry birds keeping was more common in the hills; 57 percent of agricultural households in the hills kept poultry birds, compared with only 42 percent of households

in the Tarai. Compared with other livestock ownership, poultry birds were more common in the Kathmandu valley.

The average herd sizes of cattle, buffalo and goat and sheep were 3.3, 2.2 and 4.1 respectively (Table 3.14). Cattle herd size was higher in mid and far western regions. The herd size for each of cattle, buffalo, goat and sheep and pig was relatively high in the mid west region. Average number of poultry birds was highest in the Tarai and lowest in the mountains. Cattle and buffalo herd sizes were relatively high in western Tarai while goat and sheep herd size was highest (4.9) in east Tarai.

Table 3.1: Selected Characteristics of Agricultural Land Household Heads

	Percent of Agricultural Households with Land	Percent of Women- headed Households	Literacy of Agricultural Household Heads	Literacy of All Household Heads	Median Age (yr.) of Agri. Household Heads
<b>DEVELOPMENT REGION</b>					
Eastern	76.35	8.96	47.99	44.52	45
Central	77.94	8.15	34.82	38.54	44
Western	89.73	18.21	43.13	42.17	45
Midwest	89.95	15.54	33.03	32.22	42
Farwest	96.80	13.70	34.12	34.57	41
<b>ECOLOGICAL BELT</b>					
Mountain	98.04	13.64	30.12	30.12	43
Hill	87.97	16.46	42.65	45.65	44
Tarai	75.59	6.69	37.27	35.22	44
<b>URBAN</b>					
Kathmandu	12.04	13.25	52.83	79.61	44.5
Other urban	45.98	11.34	69.00	62.84	45
<b>RURAL</b>					
Eastern Mountain/ Hill	94.96	10.91	40.86	41.85	44
Western Mountain/Hill	94.67	20.53	39.75	39.58	43
Eastern Tarai	72.78	5.58	37.34	34.52	45
Western Tarai	89.04	8.43	33.00	30.44	45
<b>TOTAL</b>	<b>83.10</b>	<b>12.10</b>	<b>39.19</b>	<b>39.58</b>	<b>43</b>



Table 3.2: Selected Characteristics of Agricultural Land

	Agricultural Land Households	Area of Agricultural Land	Percent of Area Irrigated	Average Size of Agricultural Land (ha)	Average Number of Parcels
<b>DEVELOPMENT REGION</b>					
Eastern	21.43	27.64	50.72	1.43	2.78
Central	32.97	26.06	31.00	0.81	3.46
Western	22.32	18.48	40.10	0.87	4.55
Midwest	13.16	14.32	37.79	1.21	4.93
Farwest	10.13	13.50	34.55	1.41	4.84
<b>ECOLOGICAL BELT</b>					
Mountain	9.69	10.73	27.04	1.22	5.46
Hill	48.51	40.23	34.36	0.89	3.80
Tarai	41.80	49.04	46.62	1.29	3.34
<b>URBAN</b>					
Kathmandu	0.43	0.15	52.71	0.41	1.83
Other urban	2.41	1.94	49.34	0.75	2.15
<b>RURAL</b>					
Eastern Mountain/Hill	27.01	24.87	39.12	1.03	3.71
Western Mountain/Hill	30.01	25.54	26.64	1.00	5.08
Eastern Tarai	25.22	27.33	42.89	1.19	2.85
Western Tarai	14.93	20.17	51.03	1.50	4.31
<b>TOTAL</b>	<b>100.00</b>	<b>100.00</b>	<b>39.59</b>	<b>1.09</b>	<b>3.76</b>

Table 3.3: Distribution of Agricultural Land Households and Area of Land

Farm size	Number of Agricultural Households	Area of Agricultural Land	Area of Khet (Wet) Land	Area of Irrigated Land
Under 0.1 ha	6.44	0.28	0.17	0.17
0.1 - 0.2 ha	9.87	1.26	1.08	0.77
0.2 - 0.5 ha	23.59	7.10	5.87	5.01
0.5 - 1.0 ha	26.24	16.96	16.13	15.51
1.0 - 2.0 ha	20.98	26.56	28.03	24.83
2.0 - 3.0 ha	6.67	14.76	15.63	15.15
3.0 - 4.0 ha	2.38	7.34	8.36	7.60
4.0 - 5.0 ha	1.67	6.75	7.43	9.39
5.0 - 10.0 ha	1.61	10.14	10.67	10.62
10.0 ha & over	0.55	8.84	6.64	10.94
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

Table 3.4: Distribution of Number of Households by Nominal Per-Capita Consumption Decile

Decile	All Households	Non Agricultural Households	Agricultural Households		All
			With Land	Without Land	
I	8.36	7.27	8.64	5.05	8.55
II	8.68	7.72	8.57	18.69	8.84
III	8.34	7.32	8.49	9.33	8.52
IV	8.82	6.67	9.28	5.87	9.19
V	9.57	7.39	9.77	16.45	9.95
VI	10.21	9.85	10.37	6.67	10.27
VII	10.90	8.40	11.41	8.70	11.38
VIII	10.42	9.58	10.74	4.20	10.56
IX	11.82	9.53	12.35	7.35	12.22
X	12.87	26.26	10.38	17.68	10.57
Total	100.00	100.00	100.00	100.00	100.00

Table 3.5: Distribution of Agricultural Households with Land

	Size			Total
	Less than 0.5 ha	0.5 ha to 2.0 ha	2.0 ha and over	
DEVELOPMENT REGION				
Eastern	28.75	51.70	19.55	100.00
Central	44.20	47.14	8.66	100.00
Western	43.54	46.72	9.74	100.00
Midwest	38.12	45.53	16.35	100.00
Farwest	46.15	39.51	14.34	100.00
ECOLOGICAL BELT				
Mountain	41.60	44.30	14.10	100.00
Hill	45.81	47.57	6.62	100.00
Tarai	33.18	47.07	19.75	100.00
URBAN				
Kathmandu	77.47	21.40	1.13	100.00
Other urban	56.55	32.51	10.94	100.00
RURAL				
Eastern Mountain/Hill	39.33	52.65	8.02	100.00
Western Mountain/Hill	49.30	42.74	7.97	100.00
Eastern Tarai	35.23	46.33	18.43	100.00
Western Tarai	27.64	49.85	22.52	100.00
TOTAL	40.13	47.04	12.82	100.00

Table 3.6: Distribution of Agricultural Land Area

	Size			Total
	Less than 0.5 ha	0.5 ha to 2.0 ha	2.0 ha and over	
<b>DEVELOPMENT REGION</b>				
Eastern	5.08	39.31	55.61	100.00
Central	12.10	53.70	34.20	100.00
Western	11.53	50.08	38.39	100.00
Midwest	7.85	37.97	54.18	100.00
Farwest	7.36	29.09	63.56	100.00
<b>ECOLOGICAL BELT</b>				
Mountain	9.03	34.88	56.09	100.00
Hill	12.41	51.45	36.13	100.00
Tarai	5.80	38.81	55.39	100.00
<b>URBAN</b>				
Kathmandu	32.86	54.91	12.23	100.00
Other urban	13.95	34.31	51.74	100.00
<b>RURAL</b>				
Eastern Mountain/Hill	10.12	53.01	36.87	100.00
Western Mountain/Hill	12.91	42.91	44.17	100.00
Eastern Tarai	6.60	40.66	52.74	100.00
Western Tarai	4.30	37.05	58.65	100.00
<b>TOTAL</b>	<b>8.81</b>	<b>43.48</b>	<b>47.72</b>	<b>100.00</b>

Table 3.7: Percentage of Households with Owned Land, Renting-out Land and Renting-in Land

	Percent of Households with Owned Agricultural Land	Percent of Households Renting - out Land	Percent of Households Renting - in Land	Percent of Households Renting - in Land only
<b>DEVELOPMENT REGION</b>				
Eastern	95.48	7.90	34.50	4.52
Central	92.09	4.12	32.56	7.91
Western	96.49	6.54	24.54	3.51
Midwest	96.89	9.93	27.93	3.11
Farwest	100.00	5.44	13.94	0.00
<b>ECOLOGICAL BELT</b>				
Mountain	97.36	6.19	26.48	2.64
Hill	97.47	6.23	22.58	2.53
Tarai	92.15	6.57	36.30	7.85
<b>URBAN</b>				
Kathmandu	87.56	8.85	48.06	12.44
Other urban	93.86	12.71	16.97	6.14
<b>RURAL</b>				
Eastern Mountain/Hill	97.03	5.11	28.70	2.97
Western Mountain/Hill	98.11	7.13	17.97	1.89
Eastern Tarai	89.73	5.86	39.00	10.27
Western Tarai	95.93	6.88	34.16	4.07
<b>TOTAL</b>	<b>95.23</b>	<b>6.37</b>	<b>28.69</b>	<b>4.77</b>

Table 3.8: Percentage of Owned Land, Rented-out Land and Rented-in Land

		Owned and Operated Land as a Percent of Total Operated Land	Rented - In Land as a Percent of Total Operated Land	Owned and Operated Land as a percent of Total Owned Land	Rented-Out Land as a Percent of Total Owned Land
<b>DEVELOPMENT REGION</b>					
Eastern		78.18	21.82	87.51	12.49
Central		84.55	15.45	94.93	5.07
Western		86.26	13.74	95.81	4.19
Midwest		83.67	16.33	94.31	5.70
Farwest		97.35	2.65	96.38	3.62
<b>ECOLOGICAL BELT</b>					
Mountain		89.43	10.57	97.02	2.98
Hill		89.09	10.91	95.91	4.09
Tarai		80.07	19.93	90.02	9.98
<b>URBAN</b>					
Kathmandu		80.40	19.60	95.73	4.27
Other urban		86.76	13.24	73.73	26.27
<b>RURAL</b>					
Eastern Mountain/Hill		84.57	15.43	96.21	3.79
Western Mountain/Hill		93.67	6.33	96.10	3.90
Eastern Tarai		78.18	21.82	87.06	12.94
Western Tarai		82.19	17.81	96.54	3.46
<b>TOTAL</b>		<b>84.70</b>	<b>15.30</b>	<b>93.21</b>	<b>6.80</b>

Table 3.9: Percentage of Agricultural Households Cultivating Selected Crops<sup>1</sup>

	Main Paddy	Summer Maize	Wheat	Millet	Winter Potato	Mustard	Summer Vegetables
<b>DEVELOPMENT REGION</b>							
Eastern	76.84	55.08	54.12	45.06	38.43	25.24	42.47
Central	70.79	56.86	60.08	37.40	30.38	35.43	30.09
Western	75.52	65.82	64.54	51.58	39.45	43.88	45.01
Midwest	78.83	92.04	83.57	31.50	43.18	65.38	28.88
Farwest	88.74	88.44	94.72	50.09	27.51	46.33	26.84
<b>ECOLOGICAL BELT</b>							
Mountain	70.62	84.79	74.33	83.30	27.55	27.59	46.08
Hill	68.54	92.01	57.65	64.37	25.78	35.02	41.92
Tarai	85.94	92.20	74.40	8.17	48.67	49.08	25.85
<b>URBAN</b>							
Kathmandu	72.25	35.50	47.43	0.00	33.99	6.81	33.23
Other urban	65.63	57.61	39.98	19.80	18.79	29.07	26.06
<b>RURAL</b>							
Eastern Mountain/Hill	65.84	89.72	46.76	69.53	27.72	30.29	46.12
Western Mountain/Hill	72.19	92.74	73.93	67.07	24.61	37.77	39.40
Eastern Tarai	81.49	20.50	71.17	11.33	40.82	32.63	24.24
Western Tarai	94.67	50.47	83.53	3.17	65.37	78.40	29.76
<b>TOTAL</b>	<b>76.02</b>	<b>66.31</b>	<b>66.40</b>	<b>42.71</b>	<b>35.52</b>	<b>40.18</b>	<b>35.60</b>

<sup>1</sup> Data are based on the 1994/95 Agricultural Census.

Table 3.10: Percentage of Growers using Improved Seeds in Selected Crops

	Main Paddy	Wheat	Summer Maize	Winter Potato	Mustard	Winter Vegetables	Summer Vegetables
<b>DEVELOPMENT REGION</b>							
Eastern	1.30	11.44	2.71	6.39	0.07	1.95	0.76
Central	5.73	9.20	6.88	11.97	5.03	16.54	7.79
Western	7.54	8.23	5.17	8.87	3.92	9.48	8.73
Midwest	7.12	6.29	2.67	3.61	0.00	11.56	5.76
Farwest	2.25	2.69	2.97	0.00	0.91	0.00	1.45
<b>ECOLOGICAL BELT</b>							
Mountain	1.78	5.93	4.00	3.90	0.00	0.78	0.55
Hill	5.03	5.08	4.34	7.10	1.46	7.92	7.07
Tarai	5.48	11.00	5.14	8.45	3.75	15.04	4.77
<b>URBAN</b>							
Kathmandu	2.20	0.00	5.01	4.68	0.00	17.32	13.20
Other urban	5.87	12.01	12.64	3.74	10.36	11.63	16.46
<b>RURAL</b>							
Eastern Mountain/Hill	3.88	5.66	4.59	8.18	1.57	5.96	4.14
Western Mountain/Hill	4.95	5.05	3.97	4.82	1.03	7.18	6.98
Eastern Tarai	3.71	13.11	6.22	10.67	4.74	18.62	4.81
Western Tarai	8.06	7.85	3.10	6.36	2.65	10.43	4.97
<b>TOTAL</b>	<b>4.95</b>	<b>7.96</b>	<b>4.46</b>	<b>7.63</b>	<b>2.53</b>	<b>9.97</b>	<b>5.56</b>