

Working Paper 218

**Seasonal Labour Migration in Rural Nepal:
A Preliminary Overview**

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Abbreviations

C(DR)	Central (Development Region)
DDT	Dichlorodiphenyltrichloroethane: an insecticide which is now banned in Britain and other developed countries.
DR	Development Region
E(DR)	Eastern (Development Region)
FNCCI	Federation of Nepalese Chambers of Commerce and Industry
FW(DR)	Far Western (Development Region)
H	Hill (Ecological Division)
HDI	Human Development Index
IAAS	Institute of Agriculture and Animal Science (Tribhuvan University)
ICIMOD	International Centre for Integrated Mountain Development
INR	Indian Rupees
IoF	Institute of Forestry (Tribhuvan University)
M	Mountain (Ecological Division)
MT	Metric Tons
MW(DR)	Midwestern (Development Region)
NPR	Nepalese Rupees
NTFP	Non-timber Forest Product
PDI	Poverty and Deprivation Index
T	Terai (Ecological Division)
UP	Uttar Pradesh
VDC	Village Development Committee
W(DR)	Western (Development Region)
WFP	World Food Programme

Glossary

Brahmin	Hindu priestly caste (highest caste)
Chhetri	Hindu warrior caste (high caste)
Dalit	lowest Hindu caste
Terai	Southern low-lying plains area of Nepal
Tharu	Original inhabitants of the Terai

Summary

One of the aims of the *Rural Livelihoods Futures* study is the development of appropriate rapid appraisal methods. This is particularly important in areas like seasonal labour migration which are known to be important to rural livelihoods, yet where understanding is particularly scant. A survey was conducted using as key informants a panel of postgraduate students in Nepal. Most of the respondents were agricultural extension officers. The purpose was (a) to test the methodology, and if the results were encouraging (b) to use the data to gain an overview of migration patterns and dynamics and how they fit within a broader livelihoods framework. The data validation exercise produced encouraging results.

Seasonal migration in Nepal results from both ‘push’ (high levels of poverty and food insecurity) and ‘pull’ factors (seasonal employment opportunities elsewhere). The survey shows very complex patterns, with flows mainly going from higher to lower altitudes within Nepal and to better developed areas in India. Agricultural work seems to dominate, but there are important flows for non-agricultural work and some for NTFPs. Many of these flows are of recent origin. Daily wage rates are very variable, but generally lie in the US\$1.50–3.00 range. Wage rates in India are significantly higher than in Nepal, non-agricultural wages are higher than those in agriculture, and wage rates for recent flows are higher than for traditional ones. However the picture here is complicated by the provision of food by some employers but not others.

Migration has been an increasing phenomenon, with both ‘push’ and ‘pull’ factors on the rise. New opportunities in areas like horticulture, dairying and poultry have been arising faster than traditional ones have been disappearing. New opportunities are also coming up in agro-industry, NTFPs and the non-agricultural sector. Tragically, the present insurgency situation has reversed this trend. Livelihood opportunities across a spectrum of activities are diminishing or even disappearing, and the food security situation is steadily worsening both because of actions of the insurgents and by reason of official measures taken to curb them.

A recent study of rural livelihoods and food security issues throws important light on the issue of seasonal migration from a micro perspective. This indicates that in the poorest villages seasonal migration is the main livelihood source for the poor households. Migration is also an increasing phenomenon, with migrants staying away longer. Even in the more prosperous Terai, ‘push’ factors drive the lowest castes to migrate. However, other evidence indicates that outside of the lowest caste migration makes a positive contribution to *Terai* livelihoods, with the ‘pull’ of new livelihood opportunities offering a promising route out of poverty.

In conclusion, seasonal labour migration is too important a topic for policy makers to continue to overlook. The present survey has added to the store of knowledge on seasonal labour migration at the macro level, complementing existing village level studies, but much more needs to be done before concrete new policy measures could be recommended. A fully-resourced study therefore needs to be conducted if the dimensions and dynamics of this important issue are to be properly understood. A first imperative would be to repeat the present study with a larger number of informants. The key informant base should go beyond the public sector and bring in representatives of NGOs and the commercial private sector. It is also imperative to gain a clear picture of the numbers involved in seasonal migration, and this would require working with migrants themselves, using a participatory approach. The micro work already done, together with the findings of the present survey, will be invaluable in guiding this future work.

1 Introduction

One of the aims of the *Rural Livelihoods Futures* study is the development of ‘rapid appraisal methods ... for field-use by governments, donors and NGOs to understand better the causes, scope and dynamics of (livelihood) diversification by the poor, and to allow identification of appropriate types and sequences of external support’. It is particularly important that such methods be developed in areas such as seasonal labour migration, which are known to be important to rural livelihoods, but where understanding is scant. An approach using data from Nepal is developed here, but the problem is found elsewhere in South Asia. Studies in Bangladesh and India reveal that there is a high level of seasonal migration and a low level of awareness and understanding about it (Gill, 1991; Rogaly, 1998).

Labour migration has been a feature of Nepalese livelihood strategies for at least 200 years; the first large scale migration being that of men from the hills to join Gurkha regiments. From the late 1950s onwards, after DDT spraying to eradicate malaria, the Terai division of the country (i.e. the southern low-lying plains area) was settled by large numbers of migrants from other parts of Nepal. More recently, migration to the Middle East and Southeast Asia has been growing. The contribution this makes to rural livelihoods is considerable and includes remittances, pensions and reduced pressure on scarce resources, particularly land.

Seasonal migration (also known as labour circulation) has also long been a major feature of livelihoods in rural Nepal (Rose and Scholz, 1980). Probably the oldest form of seasonal migration within the country is transhumance, a process which sees large herds and flocks migrating to summer pastures in the hills and mountains and back to over-winter at lower altitudes. Transhumance has traditionally made a major contribution to livelihoods and food security in the hills and mountains, as the animals (even sheep and goats) are used to transport grain from lower altitudes where it is relatively inexpensive. Other traditional forms of seasonal migration include the collection and sale of non-timber forest products (particularly medicinal herbs), petty trading and migration for agricultural work to take advantage of variation in agricultural seasons. Village-level studies, supplemented by reports of field workers, paint a picture of mass male migration, particularly from the hills and mountains in the western part of the country, with most of the men and older boys leaving the villages after planting the crops and not returning until immediately before the harvest. This contributes to rural livelihoods in these chronically food-deficit districts in three ways. Most importantly it reduces demands on local food supply while simultaneously increasing supply (because the returning migrants bring back food from the plains). This is especially important as the migrants return home in the pre-harvest hungry season. The third contribution is the cash and non-food items migrants bring back.

Yet, while there have been numerous nation-wide studies of longer term migration,¹ there has never been any attempt to document or analyse seasonal migration at the macro level. As a recent literature review observed:

Most surveys appear to overlook seasonal labour migration as a crucial element in local, regional, national, and even international labour markets. Either income from seasonal labour appears simply as ‘wages and salaries’ or as ‘remittances’. But many surveys tend to ignore household members who are not living within the household, and, while those away for six months or more are generally recorded as migrants, those working away for two, three or four months appear to slip between the categories (Seddon and Subedi, 2000 p.58).

¹ These include Acharya (2000), Gurung (1987), Seddon *et al* (n.d.), Seddon *et al* (2000), Seddon and Subedi (2000), and Thapa (1990).

2 The Survey

In order to obtain a rapid overview of the major features of seasonal migration, a rapid appraisal survey was conducted in late 2001/early, 2002 using as key informants a panel of postgraduate students at the Institute of Agriculture and Animal Science (IAAS), Tribhuvan University, Rangsipur, Nepal. It was supervised by Dr Neeraj Joshi, of the Institute's Department of Rural Sociology. The methodology was based on that of an earlier study in Bangladesh conducted by the present author (Gill, 1991; Appendix). A brief questionnaire was prepared and pre-tested on a small sample of postgraduates. The final questionnaire is annexed to this paper. One disappointment is that it proved impossible to obtain estimates of total flows of migrants. An attempt was made to do so, but most of the respondents felt unable to arrive at realistic estimates, so the issue was not pursued.

The great majority of the respondents were extension officers on study leave from the Department of Agriculture, based in the Agricultural Development Office of various districts. They were supplemented by a few IAAS staff members who were long-term residents of the districts in which they were based (Lamjung and Chitwan). During the analysis it was found that ten questionnaires had been inadequately completed, and these were therefore rejected. Dr Joshi was able to locate nine replacements from the next year's intake, who completed fresh questionnaires. Thus the total panel size was 54. In all, residents of 35 (out of the country's 75) districts were included as respondents. Between them these districts represented all three Ecological Divisions and all five Development Regions of Nepal (see Map 1). Because the respondents were reporting on both in-migration from all over the country and out-migration to all over the country, data were obtained on a total of 60 districts. Details are provided in Table 1.

Table 1 Number and percentage of districts covered in the survey

Ecological Division	Development Region										Total	
	<i>Far western</i>		<i>Mid-western</i>		<i>Western</i>		<i>Central</i>		<i>Eastern</i>			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
<i>Mountain</i>	0	0.0	2	40.0	2	100.0	2	66.7	2	66.7	8	50.0
<i>Hill</i>	4	100.0	7	100.0	10	90.9	7	77.0	5	62.5	33	84.6
<i>Terai</i>	2	100.0	3	100.0	3	100.0	6	85.7	5	100.0	19	95.0
<i>Total</i>	6	66.7	12	80.0	15	93.8	15	78.9	12	75.0	60	80.0

No. = the number of districts in each category for which data are available from the survey;

% = the above number as a percentage of the total number of districts in that category.

The purpose of this study was twofold. The first was to test the methodology to see if it could usefully add to the array of instruments used to examine the causes, scope and dynamics of the livelihood diversification/supplementation strategies of the rural poor. Subject to this being successful, the second aim was to rapidly gain an overview of migration patterns and dynamics and how they fit within a broader livelihoods framework. It is not intended that this methodology should substitute for a long-overdue rigorous assessment of seasonal labour migration and the role it plays in the livelihoods of Nepal's rural poor, but rather as a rapid reconnaissance of the subject, a way of identifying the key issues that ought to be the subject of later and more ambitious research.

3 Data Validation

The approach to validating the survey data was to make one key assumption about seasonal migration, based on both theory and what is already known about migration patterns and flows, and to then test the responses against this.² The assumption is that migrants will tend to flow from poorer and more disadvantaged areas to more prosperous ones, where there are more livelihood opportunities. This is, of course, a reversal of the usual scientific approach of using data to test hypotheses, but it is justified here because it is the data that are under investigation. The method is quite robust, as few would disagree with the basic assumption. Three independently derived sets of statistics were used to test the survey data: a ‘population and deprivation’ index, the level of per capita food production and the level of development of the districts in question.

3.1 Poverty and Deprivation Index

The first is based on a district level Poverty and Deprivation Index (PDI) calculated by the Kathmandu-based International Centre for Integrated Mountain Development (ICIMOD) (Banskota, *et al*, 1997). The index is based on eight indicators. Three represent child deprivation (child illiteracy rate, child labour rate and child marriage rate). A further two are used to measure the concentration of disadvantaged groups (the educationally-disadvantaged ethnic population and the percentage of landless and marginal farm households). The final indicator is per capita production of starchy staples. Unfortunately the district level PDIs are available only in ordinal form (i.e. district rankings), but it is possible to check reported migration flows against these. This shows that in 62% of cases, the flow was from a district with a lower PDI to one with a higher PDI, which is in line with the above key assumption. Moreover, when flows from Nepal to India were examined, it was found that the majority of them were to parts of India with a higher level of development than Nepal, which again supports the assumption (see Table 6 below).

3.2 Per capita food production

Cardinal-level estimates are available on district-level food production. The indicator is per capita production of the country’s principal starchy staples (paddy, wheat, maize, millet, barley and potato) converted to their calorific equivalents. The average for districts from which migrants originate is 2,712 kCal compared with 3,104 kCal for the districts to which they migrate. Statistically, the difference in means is very highly significant.³

3.3 Level of development

Districts of Nepal are commonly categorised by ecological division as ‘mountain’, ‘hill’ and ‘Terai’ – as was shown in Map 1. However for purposes of social protection and other interventions, the Government also classes districts according to their level of development in the following order: ‘remote’, ‘undeveloped’, ‘underdeveloped’, and ‘others’ (here labelled ‘more developed’) (FNCCI, 1999; p.21). ‘Remote’ districts are considered the most disadvantaged. Map 2 shows districts

² A ‘pattern’ is used in the sense of a system of migration which is different from others in respect of any one of the following: district of provenance, district of destination, season, purpose (agricultural work, non-agricultural work, non-timber forest products) and whether the flow is recent or traditional.

³ Analysis of variance; the value of the F-statistic is 20.67 and the level of significance is $p < 0.00001$. Figures for the Kathmandu Valley districts were omitted from this analysis, because (a) despite low per capita food production, availability of foodstuffs is much greater than elsewhere in Nepal, (b) what arable land there is tends to be devoted to higher value crops than those examined here, and (c) these are the most highly industrialised districts in the country and migrants typically come for non-agricultural work.

according to this categorisation. Comparison of Maps 1 and 2 shows that, although there is some overlap with the ecological classification – for example most mountain districts are classified as ‘remote’, while most Terai districts are classed as ‘more developed’ – there are also some marked differences, particularly in the shape of a distinct ‘east-west divide’ which can be seen in Map 2. The migratory patterns reported in the survey are arranged in Table 2 according to the district of provenance and destination of the migrants. Thus, reading across the top row of the Table shows that 9 migration patterns involve movement from one ‘remote’ district to another, while 37 patterns represent movement from a ‘remote’ to a ‘more developed’ district. Combining these cells, it emerges that:

- Movement from a less developed district to a more highly developed one: 54.6%
- Movement between districts at the same level of development: 25.5%
- Movement from a more highly developed district to a less developed one: 19.9%

Table 2 Migration patterns by type of district

From ▼	Remote district		Un-developed district		Under-developed district		More-developed district		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Remote district	9	13.0	8	11.6	15	21.7	37	53.6	69	100.0
Undeveloped district	8	34.8	1	4.3	12	52.2	2	8.7	23	100.0
Underdeveloped district	6	12.2	4	8.2	6	12.2	33	67.3	49	100.0
More-developed district	4	7.3	1	1.8	16	29.1	34	61.8	55	100.0
Total	27	13.8	14	7.1	49	25.0	106	54.1	196	100.0

% = percentage of relevant row total; totals do not always sum precisely to 100 due to rounding.

Examination of flows across the border into India show that:

- (a) the destination of the great majority are cities and states which are more economically developed, sometimes much more so, than any part of Nepal (Table 6 below);
- (b) patterns involving Nepal-to-India flows very much outweigh those in the opposite direction (and India itself is more economically developed than Nepal); and
- (c) the migrants who do come to Nepal from India are nearly all from Bihar, which is one of the poorest and least developed states in the country (Table 7 below).

3.4 Assessment

The outcome of each of the three tests supports the basic assumption. The differences in the statistics emerging from them may not always seem overwhelming large, but the tests must be viewed in a context of multitudinous factors that must influence both the decision to migrate and the particular migration pattern that will be adopted. One is Nepal’s extremely diverse topographic and climatic patterns, and these give rise to differences in cropping patterns, and therefore in the timing of labour requirements, that will generate ‘push’ and ‘pull’ factors for seasonal migration. These may have little to do with relative levels of economic development. Again, people in the poorest households and districts are sometimes unable to migrate at all because they lack the financial capital to fund the trip, and/or the social capital to ensure employment at the other end (Tiway et al, 2002; [2] p.8, p.10; [4] p.9). Even when the poor do decide to migrate, they may not be in a position

to go outside their own district, or at best they may be able only to go to a neighbouring district. The attraction of migrating only locally will include lower transaction costs, better knowledge of income-earning opportunities and better social contacts. Map 2 shows that districts at the same level of development tend to cluster together, so that when people migrate to neighbouring districts they are often migrating to districts at the same level of development as in their own. The phenomenon of people migrating to 'remote' districts from districts that are in the 'more developed' category is often connected with the trade in non-timber forest products. People travel from all over Nepal, and even from India, to collect high value NTFPs, particularly medicinal plants, many of which are to be found only in remote mountain forests.

The 'null hypothesis' (i.e. that there is no relationship between migration patterns and the difference in levels of poverty and deprivation comparing districts of provenance and districts of destination) can therefore be rejected. The underlying conclusion must be that at least the majority of respondents (a) understand a significant amount about seasonal migration patterns in their districts and (b) reported them accurately. It is therefore valid to proceed with examination of the survey data and to draw some tentative conclusions about both migratory flows and directions for future research in this area.

4 The Basis of Seasonal Migration in Agriculture

Traditionally, seasonal migration patterns were dominated by agriculture, and the country's wide ecological diversity is the key explanatory factor. As indicated earlier, it is customary to identify three ecological 'divisions' in Nepal (mountain, hill and Terai), and each district is officially assigned to one of these divisions. Sharp contrasts between agro-ecological conditions in these three divisions create both 'push' factors that motivate people to migrate seasonally in search of short-term livelihood opportunities, and 'pull' factors that create such opportunities elsewhere.

Table 3 Ecological divisions of Nepal

	Mountains	Hills	Terai
Altitude range (mamsl)*	3,000 to 8,840	300 to 3,000	60 to 300
Climate	Temperate to alpine	Temperate to subtropical	Subtropical to tropical
Topography	Steeply sloping mountains with valleys and river basins	Sloping with valleys and river basins; cultivated terraces on the hills	Plains: part of the Gangetic floodplain
Dominant agricultural system	Livestock-based	Cereals, horticulture, livestock	Cereals, cash crops, livestock
Surface area (% of Nepal)	22.7	50.2	27.1
Cultivated area (% of Nepal)	0.3	48.1	51.6
Population (% of Nepal)	7.3	44.3	48.4

Source: based on FAO (2002) Table 3.1

* metres above mean sea level

4.1 'Push' factors

Table 3 shows the basic agro-climatic characteristics of the three divisions. One point that is immediately apparent from this table is the highly disadvantaged status of mountains with respect to crop production capacity. While the hills and Terai have roughly the same ratio of population to cultivated area, the mountains have 7.3% of the country's population but only 0.3% of its cultivated area. This is worsened by the fact that, because of its climate, mountain districts have a long growing period and a short growing season, so that potential for multiple cropping is very low.⁴ Moreover, above 3,000m not only does the number of different crops that can be grown decline significantly, but soils are generally leached out and poor, and this adversely affects yields. The outcome is that mountain districts are chronically deficit in the production of staple foodstuffs. This, in combination with their poor transport infrastructure, means they are also chronically food-deficit. Table 4 gives a basic cereal balance sheet for the country, which shows the extent of the deficit in the mountains.⁵ Table 4 also shows that, despite the fact that the Terai and hills are roughly equal in terms of per capita endowment of arable land, this is not reflected in equal per capita food production. The reason is that, compared to the hills, the Terai's land productivity is significantly higher, its growing season is longer, its growing period for the same crop is shorter, its use of fertiliser and fertiliser-responsive varieties is higher. It also has most (62%) of the country's irrigated area. Thus the Terai is the only food-surplus area in the country and 'push' factors operate less strongly here than in the other two divisions.

⁴ The *growing season* is the number of consecutive months during the year that are available for active plant growth as a result of favourable temperature and moisture conditions. The *growing period* is the length of time required to produce a useable crop.

⁵ The food balance situation is not as negative as the cereal balance situation, because both potatoes and the pseudo-cereal, buckwheat, are important staples in the mountains (and to a lesser extent in the hills), and these are not included in the official food balance sheets. Nevertheless, even when these crops are included, the mountains are still chronically food-deficit.

Table 4 Cereal production-consumption balance by ecological division (mid 1990s)

Division	Cereal production (thousand MT)	Cereal consumption (thousand MT)	Surplus/deficit	
			thousand MT	percent
Mountain	163	290	-128	79.0% deficit
Hill	1,340	1,831	-491	36.6% deficit
Terai	1,895	1,761	134	7.1% surplus
Nepal	3,398	3,883	-485	14.3% deficit

Totals do not always sum precisely due to rounding.

Source: Gill (1996) Table 1.2

Table 5 Effect of altitude on cropping patterns and cropping calendars for cereals

	Crop	Transplanting/sowing	Harvesting
Mountains	Wheat	October-November	September
	Barley	October-November	September
Hills 2000– 3000m	Late paddy	June	October/November
	Summer maize	March to May	August/September
	Wheat	September	April
	Millet	August	December
	Barley	November	April/May
Hills below 2000m	Early paddy	April/May	July/August
	Late paddy	July	November
	Winter maize	August/September	October/November
	Summer maize	March to May	August
	Spring maize	February/March	April
	Wheat	November/December	April
	Millet	July/August	November/December
	Barley	October/November	April
Terai (up to 300m)	Irrigated early paddy	March/April	June
	Irrigated wheat	December	March/April
	Rainfed wheat	November/December	April
	Irrigated main season paddy	June/July	November
	Rainfed main season paddy	July	November/December
	Irrigated main season maize	March/April	June/July
	Rainfed main season maize	April	August/September
	Rainfed main season maize	October/November	February/March

Based on Tiwary et al (2002) Table 1 (hills and mountains) and Gill (1996) Figure 4.8 (Terai)

4.2 'Pull' factors

Table 5 shows some representative cropping calendars for cereal crops at various altitude regimes. A number of salient features emerge from this. First the number of crops that can be grown declines with increasing altitude range. (In addition to cereals the Terai produces many other crops, including vegetables and a range of industrial crops such as jute, sugarcane and tobacco not shown in this listing.) Second, the growing period clearly increases with altitude. Thus a crop of rainfed wheat takes around five months in the Terai, but ten or eleven months above 3,000m. A crop of barley takes 6–6½ months in the lower hills, 7–7½ in the higher hills and 10½–11 months in the mountains. Within the Terai the influence of irrigation can also be seen in terms of reducing the cropping period by perhaps two weeks. More importantly, it permits the crop to be established earlier, during the period of uncertain rainfall that precedes the monsoon rains, thus widening the window for establishing the next crop. More importantly still, it permits a crop to be taken during the dry winter season. All of this creates seasonal diversity in cropping patterns and therefore complementarity in labour demand, and 'pull' forces for seasonal migration.

5 Migration Patterns

Maps 3 to 8 show the patterns of seasonal migration, as derived from the survey, in terms of district of provenance and destination of each migratory pattern. These are classified by: (a) season of the year, (b) type of work done (very broadly defined), and (c) whether the flow is traditional or recent. Clearly, even though this information is far from complete, the situation that emerges is very complex. Several important patterns can nevertheless be discerned.

Table 6 Patterns of seasonal migration to India from Nepal

To: State/city	From: District (Development Region/Ecological Division)
Andhra Pradesh	Doti (FW/H)
Bihar	Parsa (C/T)
Bombay	Doti (FW/H), Jajarkot (MW/H), Myagdi (W/H), Siraha (E/T)
Calcutta	Myagdi (W/H)
Delhi	Baitadi (FW/H), Bara (C/T), Dadeldhura (FW/H), Doti (FW/H), Jajarkot (MW/H), Jumla (MW/M), Morang (E/T), Myagdi (W/H), Siraha (E/T)
Gujrat	Dadeldhura (FW/H)
Haryana	Sunsari (E/T), Dhanusa (C/T)
Himachal Pradesh	Baitadi (FW/H), Banke (MW/T), Lamjung (W/H)
Punjab	Baitadi (FW/H), Bara (C/T), Chitwan (C/T), Dadeldhura (FW/H), Dhanusa (C/T), Kabhre (C/H), Sunsari (E/T), Jumla (MW/M), Mahottari (C/T), Morang (ET), Rupandehi (W/T), Siraha (E/T), Sunsari (E/T)
Sikkim	Lamjung (W/H)
Uttar Pradesh	Baitadi (FW/H), Banke (MW/T), Dadeldhura (FW/H), Jumla (MW/M), Lamjung (W/H), Rupandehi (W/T)
West Bengal	Kaski (W/H), Morang (E/T)
Not stated	Achham (FW/H), Baitadi (FW/H), Dang (MW/T), Dolakha (C/M), Gorkha (W/H), Manang (W/M), Mustang (W/M), Palpa (W/H), Pyuthan (MW/H), Ramechhap (C/H), Sunsari (E/T), Surkhet (MW/H), Tanahun (W/H), Udayapur (E/H)

Development Regions: FW = Far Western; MW = Midwestern; W = Western; C = Central; E = Eastern
Ecological Divisions: M = Mountains; H = Hills; T = Terai

Perhaps the most striking is that fact that such labour circulation is not limited to flows within Nepal: there is also considerable seasonal migration in both directions across the Indian border (see Map 9). Table 6 shows a fairly diverse pattern in this respect, with migrants going to India from all five development regions and all three ecological divisions of Nepal. The Punjab emerges as the major rural destination for Nepalese migrants,⁶ while Delhi is the most important urban one. Punjab, together with Haryana and Uttar Pradesh (both also represented in the Table), are major green revolution states in India, and this is known to have created heavy seasonal labour demand, which is met by in-migration from other parts of India. The present study makes it clear that migrants from all over Nepal join these flows. The work done by Nepalese in-migrants in these states is dominated by wheat and rice. The main pattern is based on the migrants arriving in time for the wheat harvest and post-harvest operations on this crop. They are then involved in land preparation for, and transplanting of, the subsequent rice crop. Another less important, but still significant, Nepal-India flow that emerges from the data is to Himachal Pradesh. This is one of India's most important horticultural states, and Nepalese migrants work on apples, potatoes and other vegetables. Road building emerges as an important source of seasonal non-agricultural work in rural areas of India. In urban areas work is dominated by low skilled occupations, particularly general labouring, factory jobs and rickshaw pulling – although some migrants reportedly engage in trade. In Indian cities

⁶ Although the Punjab includes important urban areas, the migrants reported as going to this state were also reported as working primarily in agriculture; hence Punjab is described here as a rural destination.

Nepalese men, probably benefiting from the reputation of the Gurkhas, are in high demand for work as security guards and night watchmen. This also shows up in the survey.

There are also reverse flows of seasonal migrants from India to Nepal. Poverty-stricken Bihar, which borders on one of the more prosperous parts of Nepal (the eastern Terai), has traditionally been a major source of seasonal labour supply to Nepal. A large number of respondents reported in-migration from this state, and this is reflected in Table 7, which is dominated by Bihar-based patterns. Nepalese farmers value Bihari in-migrants as industrious and skilful; they work on a variety of crops, but primarily on all stages of rice production, and in jute growing and on-farm processing.

Table 7 Patterns of seasonal migration to Nepal from India

To: District (Region/Ecological Division)	From: State/City
Bara (C/T), Chitwan (C/T), Dadeldhura (FW/H), Dhanusa (C/T), Lamjung (W/H), Mahottari (C/T), Morang (E/T), Palpa (W/H), Sunsari (E/T)	Bihar
Banke (MW/T)	Punjab
Banke (MW/T), Chitwan (C/T), Dadeldhura (FW/H), Palpa (W/H), Rupandehi (W/T)	Uttar Pradesh
Dhanusa (C/T)	West Bengal
Bara (C/T), Dang (MW/T), Gorkha (W/H), Palpa (W/H), Siraha (E/T), Sunsari (E/T), Surkhet (MW/H)	Not specified

Regions: FW = Far Western; MW = Midwestern; W = Western; C = Central; E = Eastern.
Ecological Divisions: H = Hills; T = Terai.

When disaggregated to the State level, the migration patterns that emerge from the study tend to be unidirectional: for example there is little Nepalese migration to Bihar and little migration from Punjab to Nepal to match the multiple flow pattern in the opposite direction. As noted earlier, this supports the assumption that labour flows from poorer to richer areas. Uttar Pradesh emerges as something of an exception to this rule, as there are numerous reports of labour flowing in both directions. However this could be explained by the nature of the State, the western part of which is much more prosperous than the eastern part – the part that borders on Nepal. It is therefore possible that Nepalese labour migrates to the western (green revolution) part of UP, while in-migrants come from the eastern part, but the survey provided insufficient detail to test this hypothesis. Two other points are worth noting about Table 7. First, with the exception of Bihar, the number of reported patterns is much fewer (and the number of reports of in-migration are also fewer) than in Table 6. The second point is that, whereas people migrate to India from all parts of Nepal, Indian migrants work overwhelmingly in the Terai: there are few reports of them working in the hills and none of them travelling to mountain districts. Again this supports the view that people migrate from poorer to richer areas.

Table 8 Patterns of seasonal migration in Nepal by type of work

Pattern	Type of work (no. of observations)			Total
	<i>Agricultural</i>	<i>NTFP</i>	<i>Other non-agricultural</i>	
Mountain-to-Mountain	0	0	0	0
Mountain-to-Hill	14	2	5	21
Mountain-to-Terai	4	0	3	7
Mountain-to-India	0	0	6	6
Hill-to-Mountain	9	1	1	11
Hill-to-Hill	36	0	17	53
Hill-to-Terai	45	0	15	60
Hill-to-India	9	0	30	39
Terai-to-Mountain	0	1	0	1
Terai-to-Hill	9	0	9	18
Terai-to-Terai	36	0	10	46
Terai-to-India	23	0	18	41
India-to-Mountain	1	0	0	1
India-to-Hill	5	2	3	10
India-to-Terai	29	0	1	30
Total	220	6	118	344
Summary:				
<i>Lower-to-higher altitude</i>	24	4	13	41
<i>Higher-to-lower altitude</i>	72	2	59	133
<i>Within same altitude</i>	124	0	46	170

Note: Each observation represents a different inter-district pattern with respect to any one of the following: (a) provenance, (b) destination, (c) season, (d) type of work performed and (e) whether the pattern is new or traditional.

Table 8 shows migration patterns between the three ecological divisions of Nepal and between Nepal and India. The following points are salient.

5.1 Migration from the mountains

Reports of this are relatively scanty, which is explained by the fact that relatively few respondents were based in mountain districts (Map 1). Moreover, because communications are so difficult in these districts, agricultural extension staff are less likely to be able to work far from district headquarters, so that many flows are likely to be unknown to them. This may explain why the survey did not pick up on the seasonal flows connected with transhumance, although another factor is that it was not possible to include any livestock extension staff in the survey.⁷

⁷ In Nepal livestock extension is run from the district livestock offices, whereas crop extension is run from the district agricultural development offices, each under a different department of the Ministry of Agriculture. There were no district livestock development officers on post-graduate study at IAAS at the time the study was conducted.

Table 9a Patterns of agricultural migration in Nepal by season (number of observations; includes NTFPs)

Pattern	Season			Total
	<i>Spring/summer</i>	<i>Monsoon</i>	<i>Winter</i>	
Mountain-to-Mountain	0	0	0	0
Mountain-to-Hill	3	6	7	16
Mountain-to-Terai	1	1	2	4
Mountain-to-India	0	0	0	0
Hill-to-Mountain	2	5	3	10
Hill-to-Hill	7	18	11	36
Hill-to-Terai	9	18	18	45
Hill-to-India	4	5	5	14
Terai-to-Mountain	0	0	1	1
Terai-to-Hill	0	5	4	9
Terai-to-Terai	8	15	13	36
Terai-to-India	7	5	11	23
India-to-Mountain	0	0	0	0
India-to-Hill	2	4	1	7
India-to-Terai	5	14	11	30
Total	48	96	87	231
Summary:				
<i>Lower-to-higher altitude</i>	4	14	9	27
<i>Higher-to-lower altitude</i>	17	30	32	79
<i>Within same altitude</i>	27	52	46	125

Note: Each observation represents a different inter-district pattern with respect to any one of the following: (a) provenance, (b) destination, (c) season, (d) type of work performed and (e) whether the pattern is new or traditional

5.2 Direction of flows

Although there is some migration from lower to higher altitudes, in general migration patterns are dominated by flows in the opposite direction. Every pair of altitude relations (mountains to hills, etc.) show that migration patterns from higher to lower altitudes are much more common than flows in the opposite direction. This applies equally to agricultural and non-agricultural work.

5.3 Non-timber forest products

Six respondents mentioned the role of NTFPs in seasonal migration (two spring and four winter), but what they had to say is interesting and confirms other findings (Edwards, 1996). These reports suggest that the pattern of migration runs from lower to higher altitude. This makes sense in terms of the nature of these commodities, as was noted earlier. The apparent two-way flow of migrants (with some even coming from India) is explained by people from lower altitudes migrating to the hills and mountains to collect NTFPs, while people from higher latitudes also collect these products and then travel to lower altitudes to sell them. The final market for most of these medicinal plants is India, where they are used in a range of ayurvedic medicines.

5.4 Migration within altitude ranges

Flows within altitude ranges are even more common than those from higher to lower ranges, which may seem strange, given the discussion of 'push' and 'pull' factors in Section 4. In fact, however, categorisation by the three standard ecological divisions greatly oversimplifies reality. Map 10

shows a more detailed system of categorisation, based on five ecological ‘zones’.⁸ This indicates that districts can span more than one zone, as in the case of Sindhupalchowk District shown on the Map. This district has roughly a third of its area in each of three different zones. The same is true of many other districts. One respondent reflected this, stating that a common migration pattern was from higher areas to lower areas within Gorkha District in the Western hills. Even the fivefold categorisation of Map 10 represents an over-simplification, as it fails to take climatic variation or irrigation into account. In any survey aiming to assess the agro-climatic basis of migration, rather than the livelihoods impact as here, it would be necessary to do a great deal of fine-tuning in this particular area.

Table 9b Patterns of non-agricultural migration in Nepal by season (number of observations; excludes NTFPs)

Pattern	Season			Total
	<i>Spring/Summer</i>	<i>Monsoon</i>	<i>Winter</i>	
Mountain-to-Mountain	0	0	0	0
Mountain-to-Hill	0	1	4	5
Mountain-to-Terai	0	1	2	3
Mountain-to-India	0	4	2	6
Hill-to-Mountain	0	0	1	1
Hill-to-Hill	1	2	14	17
Hill-to-Terai	3	1	11	15
Hill-to-India	4	4	22	30
Terai-to-Mountain	0	0	0	0
Terai-to-Hill	1	3	5	9
Terai-to-Terai	2	5	3	10
Terai-to-India	3	8	7	18
India-to-Mountain	0	0	0	0
India-to-Hill	0	1	1	2
India-to-Terai	0	1	1	2
Total	14	31	73	118
Summary:				
<i>Lower-to-higher altitude</i>	1	4	7	12
<i>Higher-to-lower altitude</i>	7	11	41	59
<i>Within same altitude</i>	6	16	25	47

Note: Each observation represents a different inter-district pattern with respect to any one of the following: (a) provenance, (b) destination, (c) season, (d) type of work performed and (e) whether the pattern is new or traditional

⁸ The ‘high himal’ (or great Himalayan Range) is a region of permanently snow-covered peaks, and is uninhabited except for scattered settlements in high mountain valleys. The *Siwalik* (also known as the *Churia* in Nepal) is a zone of low hills to the north of which lie a series of broad basins which range from 600 to 900m in altitude, are about 16 km wide and 30-65 km long. These basins are known as the ‘Inner Terai’, since they border the Terai and resemble it in many respects. Some districts which are officially classified as ‘Terai’ are actually inner Terai districts. Chitwan is an example.

6 Wage Rates

Table 10 compares the means of reported daily wage rates for migrants with a number of other variables, revealing some important differences.⁹ First, wage rates in India average almost 50% higher than those in Nepal, providing a powerful stimulus to cross-border migration. Second, the difference between Nepalese and Indian wage rates is much greater in agriculture than that in non-agricultural occupations (by 80% compared to 21%). Third, the difference between agricultural and non-agricultural wage rates in Nepal is very pronounced (non-agricultural rates averaging 42% higher), whereas in India the small observed difference between agricultural and non-agricultural rates is not statistically significant.

The relatively high level of economic development in India would certainly explain the higher wage rates found there. Another explanation lies in means of payment, in particular whether or not meals are provided. In Nepalese agriculture this is common, but not so in other sectors, a fact which would certainly help explain why cash wage rates in non-agriculture are higher. Wage rates in the case of recently emerging migration patterns are higher than in traditional ones, but then within at least Nepal there is an association between recent and non-agricultural flows, so the difference here may also reflect a trend from cash-plus-food to cash only.

Table 10 Comparison of mean daily wage rates for seasonal migrants (analysis of variance)

Comparison	Variable	Mean rate (NPR)	Equivalent (US\$)	F value	Probability
Cross-border vs. in-country migration	Nepal to India	186.1	2.77	46.6299	<0.0001
	Within Nepal	126.8	1.89		
Agricultural vs. non-agricultural (Nepal)	Agricultural	106.3	1.58	31.2264	<0.0001
	Non-agric.	151.4	2.25		
Agricultural vs. non-agric. (Nepal + India)	Agricultural	115.6	1.72	55.2737	<0.0001
	Non-agric.	167.2	2.49		
Traditional vs. recent patterns (Nepal)	Traditional	112.0	1.67	8.8416	0.0034
	Recent	140.8	2.10		
Traditional vs. recent patterns (Nepal + India)	Traditional	128.4	1.91	4.8907	0.0279
	Recent	147.6	2.20		
Agricultural wage rates in Nepal and India	Nepal	106.3	1.58	78.5892	<0.0001
	India	191.3	2.85		
Non-agricultural wage rates in Nepal and India	Nepal	151.4	2.25	7.608	0.0072
	India	183.0	2.72		

NPR = Nepalese rupees; Indian rupees have been converted to Nepalese currency at the official rate of INR 1 = NPR 1.68. Nepalese rupees have been converted to US dollars at the going rate at the time of the survey, which was USD 1 = NPR 67.2

The rates reported in Table 10 are above the dollar-a-day cut-off of the International Development Targets, but given high dependency ratios once they are translated into family income, the average figure will drop well below this threshold. Moreover, these rates represent gross receipts, from which the migrant has to pay the cost of transport, lodging and possibly food. It is also common for migrants to borrow to finance their trip, and interest rates in the non-formal sector range from 36–60% per annum (Tiwary et al, 2002 [3] p.12). Thus net receipts from migration will be much lower than wage rates. Moreover, labourers are unlikely to find year-round work, and this further reduces their average net daily earnings below their daily wage rates. Thus seasonal migration looks more like a coping strategy than a dynamic way out of poverty.

⁹ All of the differences in means shown in Table 10 are statistically significant at the conventional $p \leq 0.05$ level; most are very highly significant ($p < 0.001$).

A few further important features of seasonal migration were noted by some respondents. First, although a daily wage rate is by far the most common form of payment, piece rates and other forms of contract payments were also mentioned – e.g. one-sixteenth of the rice crop, 10–15% of the jute crop. In the case of NTFPs the produce is generally collected from the wild on a self employment basis and sold to traders, so that wage rates do not apply. Second, in some cases different rates were reported for the same task, depending on the season – for example in the monsoon season the rate can be up to 30% higher than at other times. Third, seasonal migration in Nepal is widely regarded as a purely male phenomenon (see for example Tiwary et al, 2002 [1], p.11), but some respondents in this survey reported that women are also engaged. When this happens, there is some degree of gender division of labour – for example women are seldom if ever engaged in ploughing. In the majority of cases, however, men and women do the same type of work, yet the daily rate for a woman is lower, reportedly by between 20 and 35%.

7 Changing Migration Patterns

Table 11 explores the relationship between ecological division, direction of migratory flows and whether these flows are traditional or of more recent origin.¹⁰ All of the flows from the mountains are reported as being traditional, while the figures for the Hills and Terai are 91% and 58% respectively. It is interesting that seasonal migration from the mountains to India is reported as being both entirely traditional and entirely non-agricultural. Certainly there is a long tradition of trading by mountain people (particular ethnic groups from the mountains specialise in this) and in the past these groups played a dominant role in *entrepôt* trade between India and Tibet.

For both the Hills and the Terai, new migration flows have developed both within Nepal and across the border to India, but only in the case of the Terai are there significant differences between these two sets of flows. In the Terai 59% of all migratory flows to India are recent, while the corresponding figure for intra-Nepal flows is just 31%. Such patterns can readily be understood in terms of ease of communication with Terai people finding it easiest to learn of new opportunities in India, while those in the Mountains find it most difficult to make the necessary connections.

Table 11 Patterns of seasonal migration in Nepal by recency

Pattern	Recency (no. of observations)		Total
	<i>Traditional</i>	<i>Recent</i>	
Mountain-to-Mountain	0	0	0
Mountain-to-Hill	21	0	21
Mountain-to-Terai	7	0	7
Mountain-to-India	6	0	6
Hill-to-Mountain	10	1	11
Hill-to-Hill	48	5	53
Hill-to-Terai	54	6	60
Hill-to-India	39	3	42
Terai-to-Mountain	1	0	1
Terai-to-Hill	10	7	17
Terai-to-Terai	33	13	46
Terai-to-India	16	23	39
India-to-Mountain	0	1	1
India-to-Hill	5	5	10
India-to-Terai	25	5	30
Total	275	69	344
Summary:			
<i>Lower-to-higher altitude</i>	26	14	40
<i>Higher-to-lower altitude</i>	127	9	136
<i>Within same altitude</i>	122	46	168

Note: Each observation represents a different inter-district pattern with respect to any one of the following: (a) provenance, (b) destination, (c) season, (d) type of work performed and (e) whether the pattern is new or traditional.

As in the case of agricultural vs. non-agricultural flows, there is a significant difference in the average distance (measured by the above proxy) travelled for traditional and recent work: 1.8 in the former case and 2.6 in the latter.¹¹ The similarity between the findings for these two sets of variables suggests that they may, in fact be measuring more-or-less the same thing, as would be the case if recent flows related primarily to non-agricultural livelihoods and vice versa. Such a

¹⁰ In order to avoid unwarranted rigidity, informants were left to form their own judgement as to the dividing line between 'traditional' and 'recent'. Interpretations may therefore have varied to some extent.

¹¹ Analysis of variance: $F=12.2$, $p<0.001$.

hypothesis is well-grounded in the fact that as economic development occurs, the relative importance of the agricultural sector declines. This in turn suggests that more livelihood opportunities would be opening up in the non-agricultural sector than within agriculture. If this is true, a disproportionate number of recent migratory flows may be for non-agricultural activities. The survey data do not, however, support such a view, as can be seen from Table 12, which indicates that 80% of both sets of flows are traditional.¹²

Table 12 Association between traditional and agricultural migratory flows

	Recent		Traditional		Total	
	No.	%	No.	%	No.	%
Agricultural	46	21.1	172	78.9	218	100.0
Non-agricultural	23	19.7	94	80.3	117	100.0
Total	69	20.6	266	79.4	335	100.0

Note: Each observation represents a different inter-district pattern with respect to any one of the following: (a) provenance, (b) destination, (c) season, (d) type of work performed and (e) whether the pattern is new or traditional.

It is not, however, possible to reject the above hypothesis on the basis of this data, not least because of the fact that all the informants in the study work in agriculture, and are likely to be less knowledgeable about developments outside of their own sector. This implies that the importance of new flows to the non-agricultural sector may have been under-reported. Regarding agriculture itself, however, the findings reported in Table 12 are important, particularly the fact that a fifth of all migratory flows within agriculture are said to be of recent origin. This indicates that new livelihood opportunities are opening up quite rapidly within the sector, a finding which accurately reflects known developments, such as the importance of the green revolution in a number of north Indian states and the expansion in both Nepal and India of labour-intensive subsectors such as horticulture and dairying, whose produce is characterised by high income elasticity of demand. Not all respondents were able to report on the type of work done by the migrants in agriculture, but where it was reported it was almost exclusively with the three green revolution crops (rice, wheat, maize), vegetables and dairying, and primarily in the states associated with these commodities.

Respondents were asked to estimate changes in the total volume of migratory flows in and out of their districts. The results are shown in Table 13. The fact that the proportion reporting increased outflows is much greater than that reporting increased inflows, presumably reflects – at least in part – an increasing trend of migration to India. The fact that for both in-migration and out-migration the percentage reporting increased outflows far outweighs those reporting reduced flows suggests that seasonal migration is a growing phenomenon. This conflicts with conventional wisdom, which is that seasonal migration may be a diminishing phenomenon (Seddon and Subedi, 2000 p.57). The ('ball park') estimates of the rate of change for both increases and reductions derived from the survey averaged 3% per annum.

Table 13 Reported changes in the volume of seasonal migration (percent)

	No change	Increasing	Decreasing	Total
In-migration	57.4	31.5	11.1	100.0
Out-migration	44.4	48.2	7.4	100.0

Table 14 collates and summarises the reasons given for the reported trends in seasonal in- and out-migration. These have been divided into 'push' and 'pull' factors, according to whether they tend either to encourage people to either leave home, or attract them to a particular destination. Some of the reasons given are quite obvious, for example, population growth combined with absence of local livelihood opportunities will tend to push people to migrate, whereas high wages (as is very

¹² These differences are not statistically significant ($p < 0.05$; chi-square test).

frequently mentioned in the case of India) will pull them to destinations in that country – particularly the Punjab, where wages are reportedly well above average. Other responses provide more insights. Several other important issues emerged. (Discussion of the increasingly important and highly negative security issue is deferred until Section 9.)

Table 14 Factors underlying observed trends in seasonal migration

	In-Migration		Out-Migration	
	<i>Increasing</i>	<i>Decreasing</i>	<i>Increasing</i>	<i>Decreasing</i>
‘Push’ Factors	<ul style="list-style-type: none"> • Land fragmentation at home (2) • Lack of employment opportunities (2) • Low wages at home (2) • Security situation (2) • Escape winter at high altitudes (1) • Population increase (1) 	<ul style="list-style-type: none"> • Better opportunities at home or elsewhere (5) 	<ul style="list-style-type: none"> • Lack of employment opportunities (12) • Population increase (8) • Low local wages (5) • Security situation (5) • Low land productivity (3) • Lack of land (2) • Falling farm prices (2) • Natural disasters (1) • Price inflation (1) • Falling off in development programmes (1) 	<ul style="list-style-type: none"> • Better opportunities at home (1) • Better educational standards (1) • Agricultural commercialisation (1)
‘Pull’ Factors	<ul style="list-style-type: none"> • Local labour scarcities (8) • Increasing agricultural opportunities (6) • Indian labour more attractive (4) • Local labour more expensive (3) • New all-weather road (3) • Concerns about land reform (1) • Steadily increasing value of NTFPs (1) • Increasing non-agricultural work (1) 	<ul style="list-style-type: none"> • Lower wages in respondent’s district (2) • Decline in jute production (1) • Agricultural work lack attraction (1) • Uncertainty about getting work (1) 	<ul style="list-style-type: none"> • High wages elsewhere (10) • High opportunities in India (8) • Non-agricultural employment opportunities (5) • Improved spread of info (2) • Labour becoming more skilled (1) • Greater certainty of work (1) • Business opportunities (1) • Agricultural employment opportunities (1) 	<ul style="list-style-type: none"> • Labour Rehabilitation Act (2)

Note: The numbers in parentheses represent the number of respondents giving this particular reply. Most gave multiple responses.

7.1 Agricultural livelihoods

Low land productivity is clearly a ‘push’ factor, whereas new opportunities in agriculture (particularly high value, commercial agriculture) are seen as ‘pull’ factors, either dissuading people from migrating because there are new livelihood opportunities closer to home, or encouraging them to migrate to a district where these developments are taking place. This issue will be examined more closely in Section 8.

7.2 Indian (i.e. Bihari) Labourers

Indian labour in-migration is an important issue. Many respondents concurred that Indian migrants are regarded as more reliable and hard-working than their Nepalese counterparts. Bihari workers are also reported as demanding less in wages than Nepalese labourers. Yet Indian wage rates are higher than those in Nepal, so it is difficult to understand why more Biharis do not migrate to places like the Punjab instead of to Nepal. In fact they do, and in apparently increasing numbers: several respondents noted that migration from Bihar to Nepal is diminishing because of growing and better employment prospects in other parts of India. Continuing in-migration from Bihar is probably a function of distance, as Biharis tend to migrate to parts of Nepal that are just across the border, while the Punjab and western UP are a great deal further off.

7.3 Employment opportunities in India

This has emerged as an extremely important livelihoods issue for Nepal. Not only are wages relatively high, but work is also reportedly easier to come by. Seasonal migrants also bring back new knowledge and new technologies (especially crop varieties) from India, and acquire new skills. However there is also a down side to this which did not emerge from the survey and which will be explored in Section 10.

7.4 Road construction

This emerges as very important for three reasons. First, rural employment is generated in road construction and maintenance. Second, roads enable migrants to move much more quickly and much more cheaply. (For example, the construction of an all-weather road from Jiri in the central hills to connect with the national road network reduced a journey of three days to as many hours.) Roads are also important in bringing new livelihoods opportunities into an area, an issue that will be examined in Section 8.

7.5 Local labour scarcity

Respondents often connected this to longer-term migration, to other parts of Nepal, to India, and – increasingly – to the Gulf states, which in some districts is said to be causing labour scarcity in Nepal and inducing seasonal labour inflows. There is probably a hierarchy at work here. A fairly high level of capital is required to migrate to the Gulf, but earnings are much higher, so that it is a worthwhile investment for those who can either afford it, or who have either the collateral or the social capital to enable them to secure a loan. Those who can afford less may undertake longer distance migration within the region, leaving those with the least access to capital with the relatively unattractive option of more local seasonal migration. The argument that local labour is more expensive than that of migrants suggests that seasonal migration is playing a role in increasing the efficiency of rural labour market.

7.6 Non-agricultural livelihood opportunities

These are quite often mentioned as a factor. They include factory work (particularly in the carpet-weaving and garments industries in Nepal) and a range of opportunities connected with industrialisation in India. It is not clear that these are always seasonal livelihood opportunities, as (with the exception of agro-processing) the industries in question tend not to be seasonal. They may, however, affect seasonal migration by providing an alternative market for labour. Business or

trading opportunities were also mentioned in a number of cases. It is tempting to conclude that these may be connected with the growth of the rural non-farm economy, but more research would be needed to verify this.

7.7 Labour Rehabilitation Act

This was claimed by a couple of respondents to be reducing seasonal migration, but the linkages are not clear and would require further study. A related point is the claim by one respondent that enforcement of forestry regulations are reducing opportunities for seasonal migration, because many forest products, from medicinal herbs and timber require a licence from the Department of Forestry.

7.8 Miscellaneous points

A number of points made by a single respondent are potentially important. One is the question of land reform. Nepalese landlords have an incentive to rent out to foreigners, as no ownership rights are conferred on non-nationals under existing or envisaged land reforms. (Sometimes such contracts are for a single season, but a succession of such arrangements with the same tenant would begin to confer more permanent rights than were the tenant a Nepalese citizen.) The jute industry in Nepal, which previously employed large numbers of Bihari in-migrants, is in serious decline, so that there is a weakening of the 'pull' previously associated with jute. Falling farm prices as a 'push' factor may refer to a recent phenomenon, as there has been a recent succession of good harvests across much of the Gangetic plain, and this has affected prices. In the longer term, growth in food prices in Nepal has been higher than the general inflation rate (MoF, various issues).

8 Changing Livelihood Opportunities

In order to explore changes in the more general economy that might generate new seasonal migration patterns, or reduce existing ones, respondents were asked to report on new livelihood opportunities that were emerging in their districts and on old ones that were in process of disappearing. Table 15 shows the level of response in each category. It is encouraging that more than 90% of respondents were able to identify new opportunities, while just over half of the reports speak of traditional opportunities that are in process of disappearing. Agriculture emerges from the Table as the most active sector in this regard, but again this may well be no more than a reflection of the choice of panel of respondents. It is therefore especially encouraging that almost 60% of respondents were able to report new opportunities arising in the non-agricultural and non-agro-based economy.

Table 15 Changing livelihood opportunities (percent reporting)

	New opportunities	Disappearing opportunities
Agriculture	81.5	29.6
Agro-based industry	24.1	18.5
Non-timber forest products	1.9	1.9
Other sectors	57.4	14.9
No change	9.3	55.6

Note: Columns do not sum to 100 because of multiple responses.

Table 16 provides more detail on these new opportunities. In agriculture, opportunities seem to be dominated by the rapidly-growing horticultural sector. This is partly a case of import substitution (Indian vegetables used to dominate the Nepalese market, but this is no longer the case), and partly the result of a drive to grow off-season vegetables which sell at a large premium in both the domestic and Indian markets. This process has been facilitated by the combined efforts of government and NGOs. The latter have been particularly active in supporting the development of marketing co-operatives, which have had some success in enabling the smallholder to achieve the scale economies needed to break into this difficult, but lucrative, market. The commercial private sector has played a vital role in introducing hybrid varieties of vegetables, together with quite advanced approaches to marketing the seeds, which has in the past been a serious bottleneck in this type of business. Fruit farming (particularly citrus) is mentioned almost as frequently as vegetables. Smallholders would not be able to grow these on a commercial scale but they may be able to grow a few trees as part of a kitchen garden enterprise. The same may be true of other high value agricultural commodities (honey, poultry products, silkworms and the like). Dairying requires more investment, and more capital is tied up in each animal, but it is an expanding sector and even those who do not have land can often manage to stall-feed a cow or two if loans for the purchase of stock can be secured and marketing arrangements are put in place. NGOs were reported as playing a role here, as well as in training. Even with relatively high value produce, smallholders are unlikely to generate significant demand for migrant labour, because they generally have sufficient family labour even for peak periods. However horticulture may reduce out-migration 'push' among poor people by providing a remunerative alternative source of livelihoods.

Table 16 Emerging livelihood opportunities

	Subsector	Reason(s)
Agriculture	Dairying (15)	Diary plant established
	Poultry (esp. in peri-urban area) (22)	Big increase in demand
	Other livestock (7)	Goats, angora rabbit
	Fruit production (19)	High demand; new roads connect production areas to market; promotion by government and NGOs; high and quick return; hybrid seed promotion (by private sector); irrigation; loans from NGOs; changing food habits; co-operative marketing scheme; can be produced on small scale; rural electrification
	Vegetables (especially off-season vegetables) (25)	
	Bee-keeping (8)	High demand
	Sericulture (2)	
	Fish farming (2)	
	Other high value non-traditional crops (9)	Better transport makes it possible to take advantage of favourable agro-climatic conditions
	Sugarcane (3)	Establishment of sugar mill
	Seed/sapling production (4)	Seed multiplication programme; growing demand for vegetable seeds, fruit saplings
	Lentils (1)	High export demand
	Tobacco (1)	New cigarette factory established
Agro-industry	Selling ghee in India (1)	Dairy plant established
	Processing plants (8)	Growing urban demand
	Feed mills (1)	Growth of poultry industry
	Confectionery industry, snack foods (2)	Changing tastes and preferences
NTFPs	Collecting medicinal plants (1)	High and increasing demand
	Collecting wild mushrooms (1)	
	Cultivation of Non-Timber Forest Products (1)	
Other Sectors	Driving (1)	New motorable roads
	Cottage industry (7)	Promotion & training by government and NGOs
	Tourism (9)	Demand for guides, porters, etc
	Shop-keeping (3)	Increased market orientation
	Hotels, lodges (3)	Tourism
	Road construction (7)	Government policy
	Other construction (8)	Government schemes (irrigation, electrification); private sector (housing, other buildings)
	Handicrafts (1)	Tourism
	Brick-making kilns (1)	Urbanisation, growing demand for housing and other buildings; lack of wood due to deforestation
	Trading (2)	Opportunities for self employment
	Other industry (6)	

Note: The numbers in parentheses represent the number of respondents giving this particular reply. Most gave multiple responses.

Good transport links emerge as a key to the creation of new livelihood opportunities in the rural areas. Roads are frequently referred to, but in some cases air transport has also been mentioned, as in the case of apple production. Many mountain areas produce excellent apples, and there is a ready market for them in the Terai, and even in India and Bangladesh, where they sell at a premium. With the development of tourism, the air transport infrastructure has improved in a number of mountain districts, and an important spin-off has been the air lifting of apples a short distance to connect with

the road network. This can make the difference between success and failure in producing perishable and semi-perishable high value commodities in the mountains. This is particularly important in view of the high degree of food-insecurity in this part of Nepal.

Table 17 Disappearing livelihood opportunities

	Subsector	Reason(s)
Agriculture	Livestock by-products (2)	Declining farm productivity: – need manure for soil
	Jute harvesting (2)	Decline of the industry; low prices
	Apple production declining (1)	Lack of market; lack of market information
	Cattle rearing (3)	Scarcity of grazing land; mechanised cultivation
	Traditional crops (especially mustard and pulses) (7)	Low productivity; introduction of high value crops (e.g. because of irrigation wheat and vegetables replacing oilseeds and pulses)
	Tobacco (1)	Local cigarette factory switched to imported tobacco
Agro-industry	Bakeries (1)	Poor quality local product; can't compete with manufactured items
	Portering of agricultural produce (2)	Once road is constructed cannot compete with vehicles
	Making organic manure (1)	Commercial fertilisers
	Jute processing (4)	Decline of the industry; low prices, poor management
Other sectors	Brick-making, carpentry, shoe-making (3)	Poor quality local product; can't compete with manufactured items
	Tourism (1)	Deteriorating security situation
	Work done by lower castes (metal work, cleaning sewage tanks) (1)	Mechanisation
	Timber business (1)	Improved forest protection: difficulties in moving timber
	Handloom weaving (1)	Local product replaced by manufactured product in accessible areas
	Public sector works (1)	Government's revenue budget diverted to defence
	Factory closure (1)	Government agricultural implements factory closed

Note: The numbers in parentheses represent the number of respondents giving this particular reply. Most gave multiple responses.

The cultivation of NTFPs looks like a good livelihoods option, particularly in the hills and mountains. It is also a good option from an environmental perspective, as many of the species in question are under threat of extinction. However, little detail emerged about this option from the present study, presumably at least in part because of the choice of respondents. Agricultural processing is increasingly important in Nepal, with many industries agriculturally dependent. Outside of agriculture, tourism occupies a key livelihood position for many people, including those in some of the most food-insecure areas, providing relatively well-paid seasonal employment often to people who are disadvantaged on the grounds of caste and ethnicity.

Table 17 looks at declining sources of rural livelihoods. As noted earlier, new types of livelihood opportunities seem to be emerging faster than old ones are declining. Table 17 suggests an even more encouraging picture, because it makes it clear that many of the disappearing opportunities in agriculture actually represent the displacement of traditional subsistence crops by more valuable market-based alternatives. This is part of the process of agricultural commercialisation, so that there is a net economic gain. The extent to which such opportunities become available to disadvantaged

households is debatable, but, as mentioned earlier, key interventions by NGOs and government can steer the necessary resources in a pro-poor direction. One important (but perhaps inevitable) negative consequence of economic integration emerges from this table, namely the fact that as the local economy is opened to outside competition, traditional local industries find it increasingly difficult to survive in the face of competition from the urban sector. Some other negative consequences of economic liberalisation also emerge from the table, namely the closure of the agricultural implements factory, and the decision of the cigarette manufacturer to switch from local to international supply. Nevertheless the picture painted jointly by Tables 15, 16 and 17 is broadly encouraging, indicating as it does that positive developments generally outweigh negative ones. Unfortunately the generally optimistic picture that emerges from the above analysis is negated by a poor and declining security situation.¹³

¹³ The fact that relatively few respondents mentioned the security situation – which is a dominant topic for discussion in present day Nepal – may reflect the position of the majority of them as government employees and a corresponding reluctance to become involved in such a sensitive area of discussion.

9 Seasonal Migration and Insurgency

From a livelihoods perspective the current security situation, which was mentioned by several respondents (Tables 14 and 17), is very important and very detrimental. These statements refer to both the Maoist insurrection, which is presently affecting most districts, and the response of the government in declaring a State of Emergency. Those respondents who did mention the security situation indicated that it had caused an increase in migration from insurgency-affected districts (Table 14). In one case it was reported that out-migration had also diminished because the security situation had deteriorated the districts to which local people used to migrate. The references to the security situation in Table 17 indicate that both tourism and government development activities (these include important sources of seasonal labour demand such as road building, rural electrification, and irrigation schemes) have been negatively affected. As a result, livelihood opportunities through seasonal migration outside of agriculture have shrivelled.

Informal investigation by the present author in late 2001 and early 2002 among people in Nepal with direct experience of the security situation suggested that the insurgency has negatively affected rural livelihoods in a number of ways, many with seasonal dimensions. The following factors are quite widely reported as being in operation.

- The traditional system of seasonal migration in food-deficit hill and mountain areas (i.e. men and older boys migrating just after planting the crop and returning in time for the harvest) is being transformed into longer term migration, so that labour scarcity at harvest is becoming a problem, and there is no injection of food from outside. There are reports that much of the land is now remaining fallow because there is no-one to work it.
- In order to deny the insurgents food supplies, the security forces are not allowing people to carry more than one day's food supply at a time. When someone lives a number of days' walk from the market (and this includes many of the most food-insecure people) the norm is to carry a month's supply.
- It is also reported that the security forces will no longer allow pack animal trains to carry food supplies into the hills and mountains.
- Destruction of bridges by the insurgents means that what for many would have been a relatively short walk to the market is now maybe a hike of several days.
- Young people are either joining the insurgents or the security forces, or fleeing to avoid being conscripted by one or the other. This is removing some of the most able-bodied household members with obvious effects on livelihood systems
- Women and others left behind by the migrants suffer increased vulnerability.
- Movement is severely restricted. There are now many checkpoints on the roads, and these have greatly hampered economic activity. Traditional livelihood opportunities such as going into the forest to collect NTFPs and marketing them elsewhere have been severely disrupted.¹⁴
- The insurgents are said to be requisitioning food supplies from farms, either directly, or indirectly through compulsorily lodging with people and demanding to be fed. There are unconfirmed reports of the security forces removing food to prevent this.
- Food stocks, including those of the WFP, have been looted by the insurgents, thereby disrupting 'safety net' schemes such as food-for-work.

¹⁴ Tiwary et al (2002 [1] p.13) also note this as a problem of the insurgency, particularly in the mountain districts, where the current unrest is at its greatest.

- There is a general slow-down in economic activity, which is closing down important seasonal livelihood opportunities in sectors like construction and road-building. Road construction equipment has been targeted by the insurgents.
- Tourism is increasingly affected, and many jobs as porters, guides, etc. have been lost. This is especially hitting the lower castes, who used to be prominent in these jobs.
- The impact on food supply has not yet shown up in food prices, partly because conflict is worst in the remote areas, which are subsistence-dominated, but also because this past year has seen a bumper harvest in both Nepal and India, so that grain is plentiful and cheap. Clearly this is not a situation that can last.

10 A Micro Perspective

A recent study of rural livelihoods and food security issues conducted by Nepal's National Labour Academy included a participatory assessment of the role of seasonal migration in the lives of people in four villages (FAO, 2002; Ch. 3). This micro level work throws some useful light on the very broad brushstroke picture painted earlier. Table 18 shows the major characteristics of the study villages. Belha is, in a sense, a 'control' village, from the viewpoint of poverty and HDI ranking. The other three villages are in the lowest socio-economic rankings.

Table 18 Major characteristics of the study sites

Study village	Murma	Sokat	Kharaula	Belha
District	Mugu	Achham	Kailali	Sunsari
Physiographic Region	Mountain	Hill	Terai	Terai
Development Region	MWDR	FWDR	FWDR	EDR
Poverty and deprivation situation rank	Worst	Worst	Worst	Best
Human development Index	Lowest	Lowest	Lowest	Highest
Altitude (mamsl)	3,698	1,700	250	300
Dominant caste group (in descending order of size)	Chhetris, Dalits and Brahmins	Dalits, Brahmins, Chhetris	Tharu, Brahmins, Chhetris	Tharu, Dalits, Chhetris, Brahmins
Dominant farming system	Livestock based	Upland rice based	Rice based	Rice based
Nature of farming systems	Subsistence	Subsistence	Commercialising	Commercialising
Dominant livelihood strategy	Men's winter migration to India	Men's migration to India	Sugarcane cultivation, Business	Sugarcane cultivation and vegetable growing

The importance of seasonal migration was more pronounced and visible in Mugu, the most inaccessible district, followed by Achham in the hills, Kailali in the western Terai and Sunsari district in the eastern Terai, in that order. As the Table shows, in Murma and Sokat, the local economy is sustained by the seasonal migration of male members of the family to India, where they work as unskilled daily labourers. They do this despite their allegation that they are often cheated in India by some work gang leaders and contractors. In fact some of them report that they are unable to earn more than enough to support themselves and repay the cost of loans for the journey and report that the main benefit of seasonal migration is that it relieves pressure on domestic food supply. Failing to go to India means being prepared to live in hunger.

In the past, people used to go to India during a fixed season and for a fixed period of time that coincided with the agricultural slack season at home, returning in time to work on the family farm when this was needed. However, with the increased incidence of poverty, this system appears to be breaking down, and people now stay longer in India to pay their debts back at home or to earn a little to support the families for a few months. The men of Murma village usually still manage to return home at the start of summer to work on their farms, but recent years have seen the men of Sokat village staying longer and going to India more often. People from richer households which have sufficient to eat do not go to India except for very short visits to buy clothes and utensils. Due to scarcity of food and the lack of employment opportunities, the disadvantaged groups in the two Terai villages (indigenous peoples and those of low caste [*dalits*]) also travel to neighbouring parts of India in search of seasonal daily wage employment. Poverty, and hence seasonal labour migration to India, is as common among the poor of the Terai as among the poor of the two Hill and Mountain villages. Men in the study villages reported that they would not go to India if sufficient remunerative and regular work were available in the village and surrounding area, but that neither

would they stop going to India so long as there is no viable alternative. The effect of seasonal migration is not only felt by the men. When agriculture is subsistence-based, as in Murma and Sokat, women's workloads are high, and this is exacerbated by the men's migration, which leaves the women to try to cope with greatly increased workloads. This process, often referred to as the 'feminisation of agriculture', is familiar in places as far removed from Nepal as sub-Saharan Africa, and is generally recognised as frequently leading to the imiseration of women.

These case studies and other micro studies indicate that, at least in the hills and mountains, seasonal migration is much more of a coping mechanism than an attractive or viable escape route from poverty. However other evidence indicates that, at least in the Terai, with the exception of the lowest caste group, the reverse is true and that because of the opportunities offered by seasonal migration, at least some agricultural labourers are now financially better-off than they were a generation ago (Tiwary et al, 2002 [4] p.6). This, plus the better communications between the Terai and India, would seem to be creating 'pull' forces that lie behind the high level of migration from the Terai to India.

11 Conclusions

The need to reduce rural poverty and increase the access of rural people to viable and remunerative livelihood opportunities is coming increasingly to the fore in development thinking in Nepal and elsewhere. This being so, seasonal labour migration is too important a topic for policy makers to continue to overlook. However, a great deal more needs to be known about the subject before any firm policy recommendations could be made regarding precisely how the system fits within existing livelihoods and how it could be improved.

The present survey has added to the store of knowledge on seasonal labour migration at the macro level, complementing existing village level studies. It has:

- filled important gaps by revealing the extent, direction, timing, provenance, destination, diversity, complexity and still-evolving nature of migratory flows;
- quantified the level of earnings from seasonal migration;
- identified areas in which traditional livelihood opportunities are declining and new ones are opening up, adding the welcome news that the latter tend to outweigh the former;
- challenged conventional wisdom in areas such as the importance of seasonal migration between areas within the same ecological division, and the engagement of women in labour migration, gender-based differentials in pay rates and whether seasonal migration it is a growing or declining phenomenon;
- generated a surprising amount of information about what is happening in both the urban and the rural non-farm sectors of the economy.

On the basis of available evidence, can seasonal migration be viewed as making a positive contribution to the livelihoods of the rural poor? The evidence presented here indicates that, at least in the hills and mountains, such migration may be no more than a coping mechanism (and one that is becoming increasingly desperate as the insurgency grinds on without apparent sign of resolution). In the *Terai*, however, seasonal migration seems capable of making a strong positive contribution to sustainable livelihoods in at least some households. Even in the hills and mountains its contribution can be regarded as positive, insofar as a coping mechanism is the lesser of two evils. Seasonal migration also plays a vital role in maintaining production levels by ‘lubricating’ a labour market that is generally characterised by structural rigidities and inefficiencies (Acharya, 2000; Seddon and Subedi, 2000). Undoubtedly this contribution could be greatly improved to the benefit of consumers, producers and migrants (perhaps all three) if labour markets were to be made more efficient through improved information flows and reduced transaction costs. Basically what needs to be done is to reduce the ‘push’ factors by encouraging the emergence of alternative local livelihood opportunities in food insecure areas, while simultaneously increasing the ‘pull’ factors that encourage people to migrate as a positive response to economic opportunity.

Identifying means of achieving this would require much more information than is presently available. A fully-resourced study therefore needs to be conducted if the dimensions and dynamics of this important issue are to be properly understood. A first imperative would be to repeat the present study with a larger number of informants. The fact that the importance of livelihood systems based on transhumance was missed in the present survey indicates that high priority should be given to including livestock extension officers. Given what is known about the importance of NTFPs, field officers from the forest department should also be brought in – probably through a parallel study at IAAS’s sister institution, the Institute of Forestry. The key informant base should go beyond the public sector and bring in representatives of NGOs and the commercial private sector. It is also necessary to increase the level of district coverage, or at least to make the sampling frame

more representative than was possible in the present survey. This would require visits to a representative sample of districts to interview the staff of relevant departments – agriculture, livestock, forestry, etc. *in situ*. Such visits would also provide the opportunity to talk to local NGOs and the private sector.

It is imperative to gain a clear picture of the numbers involved in seasonal migration along the various flow patterns, because pro-poor prioritisation of any subsequent interventions would depend critically on this. This would require working with migrants themselves, using a participatory approach. Of course much more information than just numbers could be derived from such a study. Much of the groundwork for forming hypotheses has been done in the village studies and in the present study. More could be derived from the present survey. The timing of in- and out-migration derived from the present survey would be of great value in ensuring optimal timing of such studies.

Quite a lot of micro work has been done in the areas of provenance of migrants, but little has been done in the rural and urban areas that receive them. These too have been identified in the present survey. Such investigation is vital in order to establish the level and timing of labour demand, levels of pay and wage goods, foreseeable changes in demand for seasonal labour.

Some of the more important areas for further investigation have emerged from the present study, including:

- changing gender roles in seasonal migration;
- the full extent of, and reasons behind, gender-based disparities in payment rates;
- the factors generating migratory flows within ecological divisions;
- the impact of roads in facilitating both seasonal migration and alternatives to it;
- mechanisms used by migrants to fund their migration (including flows associated with NTFPs);
- the dynamics of the two-way flow of migration between Nepal and India;
- seasonality of labour demand in the urban and rural non-farm sectors;
- the dynamics of information flows regarding changing livelihood opportunities;
- the volume of migration differentiated by route, season, direction, purpose and recency;
- the structure of payments made to migrants, including wage goods such as meals and other payments in kind;
- the positive and negative impacts of government policy on seasonal migration;
- the extent to which seasonal migration represents a coping mechanism and prospects for incorporating seasonal migration into a more positive anti-poverty strategy;
- the policy instruments that are required to promote ‘pull’ factors while reducing the forces that create ‘push’ factors.

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- [2] Report 2. Marginal Farmers in the Hills
- [3] Report 3. Marginal Farmers in the Terai
- [4] Report 4. Agricultural Labourers in the Terai

Annex 1 Schedule for the Survey of Seasonal Labour Migration in Nepal

Your name:

Your contact address (a) District (b) VDC/Municipality.....

(c) Ward No. (d) Tel. No./E-mail

District described in this sheet

The position you held in the district

Length of time you served (stayed) in the district (years)(months)

Part I: Seasonal Labour Migration INTO the District

1. Please complete the following table for each migration season (e.g. for transplanting, for ploughing, etc). If there are different patterns for different parts of the district, use a separate sheet for each different part of the district.

Migration Season	Place(s) from which migrants come (District if Nepal, State / District if India)	Month(s) in which they arrive	Month(s) in which they depart	Crop(s) they work on	Task(s) performed	Approximate wage rates or other payments	Is this a new or traditional migration pattern?
1.							
2.							
3.							

2. If you have described any of the above patterns (1–3) as **New**, please indicate why it has been changing

.....

3. Has the overall level of seasonal in-migration **increased** OR **decreased** during your time in the district?
 Increased Decreased No Change

4. If there was an increase or decrease, (a) By approximately by how much did it change?%

- (b) What were the reasons for the change?

.....

Part II. Seasonal Labour Migration OUT OF the District

5. Please complete the following table for each migration season. If there are different patterns for different parts of the district, use a separate sheet for each part of the district. **Include non-agricultural work if applicable.**

Migration Season	Place(s) to which migrants go (District if Nepal, State / District if India)	Month(s) in which they depart	Month(s) in which they arrive back	Type of work done (including non-agricultural work)	If work was agricultural crop(s) they work on	Approximate wage rates or other payments	Is this a new or traditional migration pattern?
1.							
2.							
3.							

6. If you have described any of the above patterns (1–3) as **New**, please indicate why it has been changing

.....

7. Has the level of seasonal out-migration **increased** OR **decreased** during your time in the district?

- (a) Increased (b) Decreased (c) Fluctuating (d) No Change

8. If there was an increase or decrease,

(a) By approximately by how much did it change?%

(b) What were the reasons for the change?

.....

Part III. Other Income-Earning Opportunities

9. **In agriculture** (including livestock), have any **new** income-earning opportunities **arisen** during your time in the district?

(a) Yes No

(b) If Yes, please indicate what type(s) of opportunity

.....

(c) What was the cause of this?

.....

10. In **agriculture** (including livestock), have any income-earning opportunities **disappeared** during your time in the district?

(a) Yes No

(b) If Yes, please indicate what type(s) of opportunity

.....
.....
.....

(c) What was the cause of this?

.....
.....
.....

11. **Outside of agriculture**, have any new income-earning opportunities arisen during your time in the district?

(a) Yes No

(b) If Yes, please indicate what type(s) of opportunity

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.....
.....

(c) What was the cause of these?

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.....
.....

12. Outside of **agriculture**, have any income-earning opportunities **disappeared** during your time in the district?

(a) Yes No

(b) If Yes, please indicate what type(s) of opportunity

.....
.....
.....

(c) What was the cause of this?

.....
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.....
.....

Thank you for your co-operation