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**The Role of Off-farm Income in Sustaining
Households in Rural Nepal**

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requirements for the degree of Master of Applied Science
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ABSTRACT

Stagnant agricultural productivity and low returns in farming have led rural residents to look for opportunities to earn income from off-farm sources. This research examined the role of off-farm income in sustaining households in rural Nepal, and identified factors associated with off-farm employment and income. One Village Development Committee (VDC) from two ecologically distinct districts (Dhankuta in the Hill and Morang in the Terai) of eastern Nepal were selected for the study. A participatory rural appraisal (PRA) workshop (n=6), a household survey (n=150) and key informant interviews (n=6) were conducted to gather data for the study.

The average income of the households was Rs 33,963 (approximately US\$500) per annum. The most prominent sources of income were agriculture in the Hill households, and off-farm activities in the Terai households. Off-farm income, especially wages, was a major source of household income for the poor households in both agro-ecological zones. Income from business/enterprises in the Terai, and remittances in the Hill, were the primary sources of off-farm income for the non-poor households. They were also the main source of cash income for these rural households.

Average expenditure in the rural households was Rs 25,797 (US\$380) per annum. Off-farm income contributed nearly half of household expenditure. It contributed especially to the purchase of agricultural inputs and materials. The contribution of off-farm income to a household's expenditure decreased as its area of landholding increased.

Both farm and off-farm activities were seasonal and counter-cyclic in rural eastern Nepal. Males and females participated on an equal number of days in cropping activities, but females spent more hours per day in caring for livestock. However, males worked more days off-farm than did females, especially in the Hill. Most of the off-farm activities of females were related to agriculture in both agro-ecological zones. Off-farm employment in the Hill was mainly service-related, whereas that in the Terai comprised a mix of service and trade occupations. Low farm incomes in the Hill and the lack of arable land in the Terai

were the primary reasons, respectively, why off-farm employment was sought in the study VDCs.

Household landholding, household size, ethnicity and the agro-ecological position of the households were established to be the key determinants of household off-farm income and employment. Characteristics of individuals such as gender, education level and ethnicity affected the type of employment taken up. The more educated, males and those belonging to the Chhetri/Brahmin/Newar ethnic group dominated off-farm employment.

Policy intervention measures such as the provision of irrigation and skill-based training are recommended to improve the well being of rural women, disadvantaged people's sub-groups and those located away from major employment centres. Market development and roading are also important elements in increasing off-farm income opportunities, and thus household income.

Key words: Nepal, off-farm employment, off-farm income, households' sustainability, labour market, and participatory research.

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CHAPTER ONE - INTRODUCTION

Nepal is a landlocked country situated between India and China. It lies between latitude 26° 22' and 30° 27' north and longitude 80° 4' and 88° 12' east. The total area of the country is 147,181 km² (CBS, 1997a). Nepal has diverse physical characteristics. The landscape runs from the south plain, where the elevation in some places is less than 100 m above sea level (asl), to the north where the high mountains are located. Broadly, the physical settings of Nepal can be divided into three regions running east to west: the Terai, the Hill and the Mountain.

Natural setting

The southern plain, covering about 14% of the total land of Nepal, constitutes the Terai (Carson, 1992). It is home to about 47% of the country's population (CBS, 1997a). The region has a humid tropical climate, with summer temperatures rising above 37° C (ADB & ICIMOD, 1992). The winter is relatively cool, with a mean temperature of 13° C. The average annual rainfall is 1700 mm. This decreases from east to west, and is dependant on the monsoon rain (*ibid.*). The Terai is primarily the "bread basket" of Nepal (Carson, 1992), accounting for "53% of the country's gross cropped area, 48% of the area under food crops and 85% of the area under cash crops" (Thapa & Rosegrant, 1995, p.1). The primary crops produced in the region are rice, wheat, maize, tobacco and sugarcane.

With a relatively well-developed infrastructure, and access to markets in India, the Terai is economically better off than other parts of the country. It is, therefore, not surprising to see a number of Nepal's major urban centres in the Terai. With the majority of the industries established here, local off-farm employment opportunities are relatively better than in other parts of the country. However, competition for off-farm employment is very strong (*ibid.*).

Between the high hills and the flat Terai, lies a range of small hills between 300 and 1000 asl and constituting approximately 12.7 per cent of the total land of Nepal (Carson, 1992). Most of these hills are steep and barren, but some parts have formed valleys called 'dun', which have fertile land.

The Hills of Nepal, generally known as the 'Mahabharat', run east-west with an elevation of 1,000 to 3,000 m asl and constitute 48.5 per cent of the total land of Nepal (Carson, 1992). About 45% of the country's population live scattered throughout the Hill, with the exception of the three cities of Kathmandu valley, and some prominent urban centres such as the cities of Illam, Dhankuta, Pokhara, Palpa, Surkhet and Baglung (CBS, 1997a).

The climate of the Hill region varies from moist sub-tropical to temperate, with rainfall depending on the monsoon. This region accounts for 50 per cent of the cultivated land of the country (Thapa & Rosegrant, 1995), where the main agricultural crops produced are rice in the lower part of the Hill, and maize, millet and potato in the upper Hills. With difficult terrain, people have little access to the outer world and primarily depend upon subsistence agriculture. However, with the construction and extension of motorable roads, more Hill people are becoming mobile, and have slowly been taking advantage of the opportunities which provide to work off-farm.

The northern part of the high Hills is referred to as "the Mountains", or the Himalayas, which include some of the highest peaks in the world. It constitutes 23.7 per cent of the total land area of Nepal and lies above 3,000 m asl (Carson, 1992). Population distribution is sparse, and as the climate is alpine and arctic, agricultural land is virtually non-existent (ADB & ICIMOD, 1992).

Of the total land mass of Nepal, 42% is covered by forest, 14.6% is covered by meadows and pastures, and 17.2% is agricultural and under permanent cultivation. The remaining 26.2% is natural landscape (http://www.PanAsia.org.sg/Nepalnet/facts_fig.htm).

1.2 Population characteristics

The total population of Nepal is approximately 21 million, of which 90 % live in rural areas and 49% are male (CBS, 1997a). Nepal's population tends to be young, with 43.5% aged less than 15 years. Of the total population, 54% are economically active (15-64 years of age), of which 28% are women. If the participation rate is based on 10 years and above, the percentage rises to 57% of which 45% are female. Older people (65 and above) account for

2.5% of the total population (Shrestha & Pant, 1995). With the current population growth rate of 2.1% per annum, the dependency ratio is high in Nepal (CBS, 1997a).

Ethnically, people are divided into 40 groups. These are dominated by the Chhetri and Brahmins (28.97%). Other main ethnic groups are Magar (7.24%), Tharu (6.46%), Newar (5.63%), Tamang (5.51%), Kami (5.21%), Yadav-Ahir (4.14%), Moslem (3.53%), Rai-Kirati (2.84%), Gurung (2.43%) and Damai (1.99%). Various other minor ethnic groups are distributed throughout Nepal.

1.3 Economic context

Nepal has an agrarian economy, and had a per capita income of around US\$ 200 per annum in 1995. Agriculture contributed about two-fifths of the national GDP, which has steadily decreased in recent years (NESAC, 1998). The contribution of the service sector, especially in tourism and trade, however, has increased. In 1975, this was 3.9% of GDP: by 1997, it had grown to 11.7%. (NESAC, 1998). The service sector in Nepal is mostly concentrated in urban areas, with a relatively small impact on rural areas. In 1997, industry contributed about one-fifth of the national GDP. Cottage industries such as grain milling, handicrafts, and paper manufacturing play an important role in the growth of both rural and urban employment.

Agriculture is the dominant feature of Nepal. Although the contribution of agriculture to the national GDP has fallen, agriculture still contributes more than half of the household income in Nepal, and employs over 80% of the population (NESAC, 1998). The main crops grown in Nepal are rice, wheat, maize in Terai and rice, maize, millet and potatoes in the Hills. Livestock rearing is an integral part of Nepalese farm households, and, on average, most of the rural households keep 1-2 cows or buffaloes, 2-3 goats and a few poultry birds. Crop production in Nepal has steadily increased in quantity but production has not kept pace with population growth (ADB & ICIMOD, 1992; Thapa & Rosegrant, 1995). As a result, Nepal, once self-sufficient in food production, began to import foodgrains in the 1980s (Thapa & Rosegrant, 1995).

India is the major trading partner of Nepal - in 1994/95, 18% of total exports were to India, with the major commodities exported being jute products, timber and live animals (CBS, 1997a). The main exports to other countries were carpets, garments and handicrafts, which went mostly to Germany, US, India and Switzerland. In the same year, 30% of the imports to Nepal were from India, with the major items imported being chemicals and drugs, household goods and machinery and transport goods.

Nepal's overall economic performance has been poor (ADB & ICIMOD, 1992). Real growth in GDP increased by only 4.9% between 1985-97, due mainly to high population growth, which by 2010 is expected to reach around 29 million (*ibid.*). The poor performance of the national economy has escalated household poverty in Nepal whereas in 1977 this was 33.7% (34.3% in rural and 19.9% in urban areas); twenty years later it had increased to 40.3% (42.2% in rural and 22.1% in urban areas; NESAC, 1998). Besides this high population growth, other factors contributing to increased poverty are unbalanced income distribution, high unemployment and recurrent indebtedness of the poor (*ibid.*). Therefore, the major developmental challenge for Nepal is to increase the standard of living for her poor population.

1.3.1 The Rural Economy

Rural Nepal consists of around 28,000 villages, which have been organised into 4048 local administrative units known as Village Development Committees (VDCs) (ADB & ICIMOD, 1992). Most of the people in rural Nepal are engaged in subsistence agriculture where the households produce their own food, primarily through basic cereal crops (World Bank, 1991). Table 1.1 gives an overall picture of rural households in Nepal. In 1996, the average rural household size was 5.7 persons, the same as the national average. Household size was greater in the Terai than in the Hill. Rural households tend to be resource-poor - nearly half of the houses have a thatch roof, and only 18.4% of the households have toilet facilities (CBS, 1997b).

The literacy rate is also low in rural, compared to urban areas, and is also lower in rural Terai compared to the rural Hills, but primary schools and health posts are relatively more accessible in rural Terai than in the Hills. Similarly, agricultural extension service centres are

less accessible in rural areas, and in the rural Hills in particular, than in the Terai. Due to the better transport network in the Terai, its households enjoy better access to market centres.

Table 1.1: Characteristics of rural households in Nepal.

Characteristic	Nepal	Rural Nepal	Rural eastern Hill/Mountain	Rural eastern Terai
Average household size	5.7	5.7	5.4	5.7
Dependency ratio	115	117	111	111
Households having thatch/straw construction material for the roof (% households)	51	54	56	61
Literacy rate (%)	36	33	37	30
% households requiring more than one hour to reach nearest ¹ :				
• Primary school	3.7	3.9	15.5	1.6
• Health post	30.3	33.0	44.3	16.9
• Agricultural centre	55.2	59.6	73.6	70.6
• Market centre	57.7	62.2	71.6	44.7

¹Time taken by foot.

Source: Central Bureau of Statistics (CBS), 1997b.

1.3.2 Household income and expenditure

In 1996 the average rural household and per capita incomes in Nepal were estimated to be Rs 40,400 (US\$641) and Rs 7,050 (US\$112), respectively (Table 1.2). Rural Terai households had somewhat higher incomes than did rural Hill/Mountain households. Of the total income, two-thirds was earned from farming activities, and on average, a quarter of household income was earned from wages. However, the rural poor often had a higher percentage of income from wages - but the World Bank (1991) cautioned that "The importance of off-farm income among poor (about 40%) does not reflect their active participation in a robust informal sector. Instead it seems to be generated mostly from a range of distress activities and very low paying employment" (p. 12). The contribution of wages to total household income was much higher in the Terai than in the Hill demonstrating that the opportunity for wage income has been greater in the Terai than in the Hill. A comparison of the remittances received by the households in the two regions (26.8% in rural Nepal vs. 30% in the Hills and 23% in Terai) highlights the importance of contributions made by household members residing outside the homestead, particularly in the Hills.

Table 1.2: Nominal household and per-capita income in Nepal (1995/96 Rs).

Income	Nepal	Rural Nepal	Rural eastern Hill/Mountain	Rural eastern Terai
Average household income	43,732	40,400	41,084	45,284
Average per capita income	7,690	7,075	7,609	7,876
Share of farm income	61	65	66	64
Share of non-farm income	22	20	20	22
Share of other income ¹	16	15	14	14
Share of wage income	28	27	25	35
Share of self-employed income	54	56	64	48
Share of other income ¹	18	17	11	17

¹Other income included interest from saving accounts, fixed accounts, treasury bills, stocks, provident fund, pensions and commission fees.

Source: Central Bureau of Statistics (CBS), 1997b.

Among the off-farm enterprises in rural Nepal, trade dominates in both the Hill and Terai regions. Trade accounted for half of the off-farm enterprises in both regions (CBS, 1997b), with income disparity being relatively greater in rural Nepal. The top 10% of the population in the rural area shared 29% of the total income, while the bottom 40% shared only 18% (*ibid.*).

In 1986 (Table 1.3) rural households in Nepal spent nearly two-thirds of their consumption expenditure on food items, with about three-fifths of food expenditure being on grain and cereal products alone. Only a small proportion of household expenditure was allocated to health and education, with the allocation to housing and clothing comprising 16.2% and 11.9% of household expenditure, respectively. Comparative figures for the whole country are provided in the same table.

As most households in the rural area have low savings, borrowing is a common feature of rural Nepal. A national survey in 1996 showed 63% of the sampled households had some form of a loan (CBS, 1997a). The major sources of loans for rural households were relatives and local moneylenders, while only a few households (16%) borrowed from formal institutions. In the same study (CBS, 1997a), half of the loans taken by the rural households were for consumption purposes, one-fifth were for personal use and only about one-third were for business or farm purposes. However, rural households (36%) in Terai borrowed more than rural Hill households (23%) for business or farm activities (*ibid.*).

Table 1.3: Distribution of household consumption expenditure (percent).

Expenditure Item	Rural	Nepal
<i>Food and Beverage</i>	62.3	61.2
Grain/cereal products	38.3	36.9
Others ¹	21.4	21.7
Alcohol and tobacco	2.6	2.6
<i>Other goods and services</i>	37.7	37.7
Housing	16.2	17.3
Clothing	11.9	11.7
Medical and personal care	3.7	3.7
Education	2.7	2.9
Others	3.2	3.2

¹ Others include pulse, vegetables, milk, spices, meat, fish, fruits and nuts.

Source: Nepal Rastra Bank, 1988 cited in NSAC, 1998.

1.3.3 Resource Endowment

Land is the single most income-producing asset in rural Nepal and therefore the distribution of land is very important for the rural economy (World Bank, 1991). Rural household income is positively associated with land size. Table 1.4 shows the pattern of land size and income level for rural households. On average, households with large farms had nearly three times more income than the marginal farms. In all groups of farms, household income in Terai was greater than both the national average and the income of Hill households. The disparity in household income was also greater in the Terai than in the Hills. For example, the income difference between the marginal and large farms in Terai was four times, whereas in the Hills it was only three times.

Table 1.4: Distribution of household income by land holding size (Rs/year in 1985).

Farm size ¹	Rural Nepal	Rural Hill	Rural Terai
Large	24,288	22,584	40,560
Medium	15,792	14,616	21,864
Small	12,336	11,076	14,520
Marginal	8,832	8,088	9,444
Landless	8,196	9,168	7,596

¹Farm size is defined as: large farm size = holding of more than 5.4 ha in Terai and 1.04 in the Hill; medium farm size = 2.73 to 5.4 ha in Terai and 0.52 to 1.04 ha in the Hills; small farm size = 1.03 to 2.73 in Terai and 0.21 to 0.52 ha in the Hills; and marginal farm size = up to 1.02 ha in Terai and up to 0.21 ha in the Hills.

Source: Nepal Rastra Bank, 1988 cited in NSAC, 1998, p.117.

The average agricultural land size in rural Terai tended to be larger than the rural Hill area (1.3 ha and 0.9 ha, respectively CBS, 1997b). Of the total households sampled for the 1996 Nepal Living Standard Survey (NLSS), 40% had less than 0.5 hectares of agricultural land, 47% had between 0.5-2.0 hectares, and only 13% had more than 2.0 hectares.

Based on the NLSS (1996) report, 68.8% of the total economically-active rural population were employed, 3.2% were unemployed and 28.0% were inactive (were not engaged in, or did not expect to have, any kind of job). Women comprised 52% of the total rural labour force. However, the work force participation rate was higher for males than females, although more of the former were unemployed. Although the employment rate was higher in rural Nepal, within the employed, 79.5% were self-employed (of which 91% were self-employed in agriculture), and the rest, 20.5%, had waged employment (of which 61% were in the agricultural sector). Thus, agriculture clearly dominates the labour market in rural Nepal.

The dominance of agriculture is apparent in the occupations of rural residents (Table 1.5). Except for agriculture, males dominated the occupations - which may be attributed to their poorer education, as well as to the local social norms.

Table 1.5: Distribution of rural population by major occupational group (1991).

Major occupational group	Both sexes	Male	Female
Professional and technician	1.49	2.28	0.37
Administrative and related	0.10	0.16	0.02
Clerical	0.63	1.02	0.08
Sales	1.98	2.51	1.24
Services	5.33	6.79	3.29
Agricultural	85.42	80.20	92.73
Production	3.16	4.41	1.41
Others	1.63	2.34	0.62
Not stated	0.26	0.27	0.24

Source: CBS, 1993, Vol. I Part XIII, cited from Shrestha and Pant, 1995.

1.4 Problem Statement

Rural households in the past have enjoyed a subsistence economy, in which they have had surplus food, few aspirations, and little challenge from the outside world. However, with the rising population, degradation of the land and environment due to cultivation of marginal areas and encroachment by the outer world economy, rural households in Nepal now face huge challenges to gain a better livelihood. Further, with difficult geographical settings, traditional social systems and poor economic conditions, Nepalese rural households face 'boundless' social and economic problems. In recent times, the economic situation of rural households has worsened due to the causes outlined below.

Low farm income

Three factors have induced low farm income amongst rural households in Nepal: (i) low farm productivity, (ii) slow agricultural growth and (iii) small farm size. Although total national crop productions in succeeding years have increased in Nepal, recent studies (ADB & ICIMOD, 1992; Thapa & Rosegrant, 1995) have shown that the per hectare yields of most cereal crops have decreased. Carlson (1992) attributed this to low and inefficient application of organic matter to the soil, and the unavailability of chemical fertilisers. The decline in farm productivity has slowed agricultural growth, and led to reduced rural household earnings from farming. This has resulted in poor savings and investment in farming, and increased off-farm work, especially in waged labour activities, by members of rural households (Thapa & Rosegrant, 1995; ICIMOD, 1996). Thus, a combination of low incomes and low employment growth in rural areas has aggravated rural poverty.

Seasonal agriculture

Agriculture in Nepal is highly seasonal, and is influenced by monsoon rains from June to September, when nearly 80% of the annual rainfall occurs. Rice, one of the main staple/food of households in Terai and in the Hill, is grown during the monsoon season. Rice cultivation is highly labour intensive (Oshima, 1986). During planting, weeding and harvesting there is a deficit in the labour market, which puts pressure on every family member to be engaged in these activities. Therefore, the notion of "employed" and "unemployed" in rural Nepal is seasonal (World Bank, 1991). In the agricultural season, most household members are

employed in farm activities - whereas, during the other seasons, they are underemployed. Underemployment of the rural population is a major problem (Pant & Jain, 1980; World Bank, 1991; ILO-SAAT, 1997 cited in NSAC, 1998), and was estimated in 1996 to be 47.5% of the total labour force (ILO-SAAT, 1997 cited in NSAC, 1998). The same study found that, at a regional level, underemployment was higher in the Terai than in the Hill (50.8% and 45.1%, respectively).

The phenomenon of employment and underemployment in subsistence agriculture in rural Nepal has caused a dilemma for rural farmers seeking seasonal off-farm employment. Although seasonal off-farm employment is very limited, it is necessary to enable farmers to earn cash to purchase non-farm goods such as shoes, salt, and stationery for their children. However, with increasing number of new entrants to the labour force every year, opportunities for off-farm employment and income opportunities available to farmers are decreasing.

Increase in labour force

The population growth rate, at 2.1% per annum, is one of the highest in the world. Furthermore, the population of Nepal is dominated by young people, who enter the labour force annually, thus exacerbating the already-saturated labour market. The World Bank (1991) warned that:

The labour force will double over the next twenty years (from 6.7 million in 1985 to 13.6 million by 2010). In the past the economy has absorbed marginal population growth through a combination of smaller farms, the opening of the Terai, and labour market expansion. With the saturation of arable land almost all of these new entrants will have to be absorbed in off-farm employment activities - a prospect of staggering proportion (p. 32).

Therefore off-farm employment and income have to play a very important role in rural households in Nepal. Off-farm income provides not only the vehicle for improving rural livelihoods, but also the mechanism with which to solve Nepal's wide range of social and economic development problems.

The notion of off-farm income in Nepal is not new. Nepalese farmers have worked as porters, and carried mountaineers' gear, salt and cloth bundles for hill merchants and kerosene drums for construction engineers. Such opportunities have provided extra income for resource-poor farmers. However, over the years, with changes in the political, social and economic environment, opportunities for generating off-farm income have also undergone tremendous change in Nepal. Rural electrification in particular has increased the opportunity for cottage industries. Similarly, the extension of motorable roads has increased the mobility of rural people. These, and other factors, have contributed to off-farm income's gaining a prominent role in the household economy.

A number of studies have examined labour market dynamics in Nepal, but very few studies have addressed the role of off-farm employment and income in sustaining rural households. The roles played by rural industries and business in increasing employment and off-farm income in Nepal have not been adequately examined. The focus of the research reported in this thesis on off-farm income and household sustainability linkages will assist policy-makers in formulating policies and strategies to improve the social and economic well-being of rural households.

1.5 Research hypotheses and objectives

The research hypotheses investigated were:

- 1) Off-farm employment is a dominant contributor to total household and off-farm income in Nepal.
- 2) Households with a landholding size of less than 0.5 hectares have proportionately more off-farm income than households with a larger land holding.
- 3) Off-farm income assists rural households by allowing them to afford better access to health and education compared to households which rely exclusively on farm income.
- 4) Investment in agricultural production by small households is driven by off-farm income.

The associated objectives of the research were to:

- 1) Examine the contribution of farm and off-farm activities to household income;
- 2) Identify household activities and requirements which are critically dependant on off-farm income;
- 3) Identify factors associated with off-farm employment and income decisions; and
- 4) Draw policy implications for government and non-government sectors in generating off-farm opportunities which contribute to the overall household well-being and sustainable economic development.

1.6 Thesis Outline

The first chapter of this thesis introduces Nepal and her socio-economic condition. It also provides the context for the thesis. Chapter Two reviews literature related to the subject of the research. In Chapter Three, the conceptual framework of the study is explained. The sites for the study are described, and the procedures for data collection by PRA techniques, face-to-face interview and key informant interviews also are explained in this chapter. In addition, the methods for analysing and computing household income are outlined in Chapter Three.

The results from field work are presented in Chapter Four. First, the PRA results are presented, followed by the household survey findings. The household survey is presented as a sequence of univariate, bivariate and multivariate analyses. These are each discussed in turn.

In the final chapter, the thesis is concluded, policy recommendations are made and topics for further research is suggested.