

**Women's Agency in Relation to  
Population and Environment in Rural Nepal**

**Narayani Tiwari**

**Promotor**

Prof. Dr. A. Niehof  
Hoogleraar Sociologie van Consumenten en Huishoudens

**Co-promotor**

Dr. L.L. Price  
Universitair hoofddocent leerstoelgroep Sociologie van Consumenten en Huishoudens

**Promotiecommissie**

Prof. Dr. L.E. Visser  
Wageningen Universiteit

Prof. Dr. I. Hutter  
Rijksuniversiteit Groningen

Prof. Dr. D.R. Dahal  
Tri-bhuvan University, Kathmandu, Nepal

Dr. Ir. M.Z. Zwarteveen  
Wageningen Universiteit

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# **Women's Agency in Relation to Population and Environment in Rural Nepal**

**Narayani Tiwari**

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# Chapter 1

## General Introduction

This thesis investigates the relationship between population and environment from the perspective of women's agency, in particular among the Gurung community of western Nepal. This chapter presents the general background of the study. More in particular, attention is paid to the issues of population, environment and gender in Nepal, and to the direct and indirect relationship between fertility and environment. The last sections of the chapter specify the research objectives, the significance of the study and the outline of the thesis.

### 1.1 General background

In Nepal there is a close relationship between population and environment, and high population density and increasing pressure on the use of limited natural resources have created negative impacts on the natural, economic and social environment (MOPE, 1997a). The high population density also poses a serious threat to the food and livelihood security of households. In both the hill and plain areas of Nepal, the practices of converting forest land into crop land, constructing houses on forest land and cutting trees illegally have increased land degradation and, consequently, the decline in the sustainable use of natural resources. The growing of crops and vegetables on hill slopes has also caused many landslides and problems of erosion, especially during the rainy season (MOPE, 1998a).

Human activities have a direct impact on demographic change. The values that inspire the daily lives of people in a particular area or community have a direct link with demographic processes and other components of the socio-cultural system. Human activities and people's consistent needs also affect environmental sustainability (Bisht, 1994; Hartman, 1999; Jiggins, 1994). Hayes (1995:12) reported that when considering the sustainable use of natural resources and managing ecosystems it is essential to study the organization of socio-ecological systems, comprising elements of social organization and culture, human resources and population. Household decisions and their implications for matters regarding fertility, education, childcare, food provision and other requirements concerning daily life have a great impact on the natural resource base (Dyson, 1994; Daily *et al.*, 1998; UNICEF, 1987).

Apart from cultural and religious factors, conditions of high fertility in many developing countries are associated with low levels of income, education and child survival (Bledsoe, 1994; Chalise, 1998). Fertility may vary within developing countries according to variables like class, income, education and the status of women (Pradhan, 1989; Ross and Mauldin, 1993; McNicoll, 1992). In addition, ecological and environmental factors can cause spatial fertility variations (Jones, 1990). Fertility patterns may differ between social groups, which are characterized by their own particular norms and values concerning family size, and peer group and family pressure in a particular community play a role in maintaining these norms and values (Crow and Allan, 2001; McNicoll, 1992). The relationship between fertility attitudes, behavior and socio-economic, demographic and cultural variables is not yet fully understood. High fertility rates cannot be reduced to a desirable level unless the determinants of their cause and the nature of fertility attitudes and behavior are understood (Entwisle *et al.*, 1982; Chalise, 1998).

The population of Nepal increased from 11.5 million in 1971 to 23.1 million in 2001. More than 80 percent of the population is engaged in agriculture (CBS, 2002), and almost half (46%) of the population is illiterate; the literacy rate for females is only 42.5 percent (CBS, 2002). Nepal has an anti-natalist population policy and the government subsidizes the national family planning program. According to the Nepal National Population Census of 2001 the total fertility rate is 4.58 and the gross domestic product (GDP) annual real growth rate is 3.7 percent. The annual population growth rate between 1991 and 2001 was on average 2.25 percent (CBS, 2003a). Because women constitute half of the world's population and are a major part of the world's unrecognized labour force (Acharya, 1995), the link between women and the environment raises a number of questions at different theoretical and analytical levels. Women's status in a particular society, or the relationship between men and women, has an impact on population growth and can lead to serious environmental challenges; it can even jeopardize the achievement of a country's development objectives (Pradhan, 1989).

Land, water, minerals, timber, hydropower, flora and fauna, small deposits of lignite, copper, cobalt and iron constitute Nepal's natural resources (CBS, 2001a). A current environmental issue is deforestation caused by the over-use of trees for fuel, fodder collection (in a cut-and-carry fashion) and the use of forest land for crop production (MOPE, 2004). Other environmental issues are the contamination of streams and rivers with human, animal, agricultural and industrial waste and by urban pollution (Kayastha and Mishra, 1998).

Nepal is also highly diverse in terms of both the bio-physical and socio-cultural environments (MOPE, 2004). Although limited information is available on the participation of women and their role in population growth, the studies thus far have been related either to women's participation in resource environment management or to women's role in socio-cultural systems. There is a growing awareness of the need for a deeper understanding of the role of women in the context of population, household production and consumption, and resource use and management. In the case of agricultural households, the production system includes the labor-intensive farming system as well as domestic production, in both of which women play a major role (Bajracharya, 1994). In addition to crop and animal production, women's work involves the use and management of natural resources to improve the environment. The inclusion of a gender perspective on population, reproduction and environmental management in food production is needed at household, regional, national and global levels. Gender-based practices with regard to both managing the environment and family size are a crucial area of investigation.

This research attempts to provide some insight into the complex relationships between population and environment, focusing on women's roles, agency and fertility. It explores the relationship between women's reproductive roles in marriage and fertility and their productive roles in household food production and livelihood generation. In addition, this research gives an overview of women's roles related to household use and management of environmental resources. The study was carried out in a rural area in Nepal where environmental degradation is a problem. The western central hills area of Nepal is the study area; while the Gurung comprise the research population.



## 1.2 Population, environment and gender in Nepal

Sandwiched between India and China, Nepal is a multi-lingual, multi-ethnic and multi-religious country, whose people are divided into ethnic and caste groups. There are more than 100 ethnic/caste groups and more than 92 languages and dialects are spoken (CBS, 2002). The official language of Nepal is Nepali. According to the Nepal National Population Census 2001, the overall literacy rate is 54 percent, whereby the female literacy rate is only 42.5 percent. The country has a population of 23.1 million (CBS, 2002), and the average density of the population is 157 persons per square kilometre, which is one of the highest in the world. Nepal is divided into three distinct ecological belts: the Himalayas, the mid-hills, and the *Tarai* (plain areas in the south).

The northern zone covers 35 percent of the total land area and is mostly composed of the Himalayas and the high mountains with only a little cultivated land, and where only 7.3 percent of the total Nepalese people make their living (MOPE, 2004). High-altitude buckwheat, maize, millet, finger millet, potatoes and livestock are the primary crops in the area. The hill region forms the central belt of Nepal under the Himalayas, extending from east to west with high ridges and steep valleys. Here, 42 percent of the total land area of Nepal contributes one-third of Nepal's food production and is the home of 44.3 percent of the country's population (MOPE, 2002). The *Tarai* is the southern belt, which is an extension of the Gangetic Plain, covering 23 percent of the total land area and producing nearly two-thirds of the country's food. This is the home of more than 48 percent of the country's population (CBS, 2002). Subsistence agriculture is the primary mode of production in Nepal, and consequently much of what is generated in this sector is not clearly reflected in the national GDP. More than 67 percent of household incomes is derived from household products like crops, livestock and cottage industry products (Lucita, 2000). Food processing within the Nepalese household contributes 15 percent to the rural household income, and many of the post-harvest and food-processing activities undertaken within the household, mostly by women, are left out of the GDP.

Nepal is rich in bio-diversity. People in the rural areas are continuing to use firewood for cooking; even in urban areas, people depend on firewood if there is a deficit of fuel sources like kerosene or gas (MOPE, 1997a). As a result, environmental degradation due to forest depletion is likely to continue. The loss of fertile topsoil has a direct bearing on food production, and the land-use information system reveals a tendency to cultivate the marginal land. Several studies have concluded that soil erosion is one of the major environmental concerns in Nepal (MOPE, 1998b; Upreti, 1998; Gill, 1995). At present, about 0.4 percent, 1.5 percent and 11.7 percent of the total watershed is reported to be in conditions classified as very poor, poor, and fair, respectively (Sharma, 1998; MOPE, 1998b). Nepal also experiences frequent floods and landslides in the monsoon season, which significantly affect human beings and the infrastructure (Pant, 1998). Land degradation and soil loss have a direct impact on crop production. In addition, despite increasing agricultural inputs, there is only a slight increase in agricultural production, and food deficits are prevalent in different areas (Kayastha and Mishra, 1998). The rain-fed agricultural land covers 1.7 million ha, which is about 65 percent of the total area of cultivated land (Thapa, 1995). Over the past 20 years, a slight increase in the yield of the main crop paddy (from 1.98 mt/ha to 2.06 mt/ha) has not been enough to feed the increasing population (MOPE, 1998b). With no other alternatives, people need to rely on farming, and thus they continue to depend on agriculture, animal husbandry and the products of the forest; this in turn will affect the sustainability of the environment.

Population growth is one of the major causes of environmental degradation (Jones, 1993), and the increasing need for local resources in daily life is putting constant pressure on natural resources such as forests, cropland, water sources, soil bodies and other natural flora and fauna. Rural-urban migration is increasing with the growing population density, with consequences for social service facilities in urban areas. Health and sanitation programs have not been improved, and water- and air-borne diseases are on the rise. Only about 30 percent of the total population is served with piped water, and sanitation facilities are minimal (Schreier and Shah, 1995).

Socio-economic and cultural conditions, including the interest of parents in having more children to meet the expanding demand for agricultural labour, contribute to population growth and environmental problems. In addition, the geographical and natural environmental settings of the middle hills and *Tarai* have favoured the situation for population growth. Currently the inadequate water supply in urban areas, including the capital city, is reaching critical levels, both in quantity and quality. The lack of irrigation water in the mid-hill area during the dry season has serious implications for future food production in rural areas (Gill, 1995; Regmi, 2004).

Poverty is another cause of environmental degradation in Nepal. Unemployment and the lack of a social security system mean that poor people who do not have a house and land for farming build sheds for shelter in the forest areas, or on riversides, on roadsides or in other public places. These people collect firewood from the forest areas or collect stones to build their houses or for road construction purposes, or to make a living by selling them. In the ranking of the human development index, out of 175 countries surveyed Nepal occupies the 142nd position; about 38 percent of the population has an income below the poverty line (UNDP, 2004).

Nepalese society is patriarchal, and women's economic and social positions are generally dependent on those of their husbands. Women are traditionally disadvantaged with regard to education, health, labour force, economic conditions and social welfare (Tiwari, 1995). Ethnic and caste groups in Nepal can be generally classified as restricted conservative Hindu, intermediate, and least influenced by Hinduism. The *Brahmin*, *Chhettri* and *Maithali* groups are classified as conservative Hindu (Bajracharya, 1994). In these groups the men control the household budget and all decision-making. Of the number of factors that contribute to high fertility in Nepal, one is the low status of women in these Hindu groups (Tiwari, 1995). *Newar* and *Tharu* communities are included in the intermediate group. The *Magar*, *Gurung*, *Rai*, *Thakali*, *Limbu* and *Tamang* peoples are the least influenced by Hinduism (Dahal, 2003; Morgan and Niraula, 1995). The decision-making power of women in these latter communities is greater than in the other communities. It has to be kept in mind that even though there exists substantial variation in the individual experience of women in a particular society, the determining factors relating to individual experience are rooted in a society's institutional structure (Morgan and Niraula, 1995; McDonald, 2000).

In 1990, when the multi-party democratic government system was introduced, gender was put on the political agenda for the first time (Tiwari, 1998). At present, every political party has a women's wing. Constitutionally, there was a regulation to have at least 5 percent women candidates from each political party in the general elections (HMG, 1991). However, the representation of women in parliament is nominal, because parties tend to allocate the seats for women in those places where the chances to win the elections are

poor; hence, women mostly lose their representation. Currently, the women's wings of political parties are showing an increasing interest in issues of property rights, legal reform and women's control over resources. After the people's revolution in April 2006 the government set the agenda to include 33 percent women involvement in political parties and government functions. The CPN-Maoist Party is demanding the involvement of 50 percent women in every sector from militia to policy level. However, prevalent norms in society regarding women's rights are traditional, which makes it difficult to change the system. In South Asia, including Nepal, social structures are based on a gendered division of labour in the household and gendered control over resources and the management of natural resources (Agarwal, 1994b). Though women work hard, putting all their labour into house, children, and farm, and are fully occupied from early morning till late night, their contribution is not appreciated and they lack the right of access to control over what they produce. Hence, their role is not acknowledged and respected within the family and society.

Not only in Nepal but also in other developing countries, gender is a burning issue in the debate about population, natural resources management and development. Gender inequalities exist in almost all communities as well as in development sectors like government offices, non-governmental organizations (NGOs) and international organizations. Men and women do different work, have different access to resources, receive different benefits (in most cases women receiving fewer) and have different productive and reproductive responsibilities (Kabeer, 1994). These differences are deeply rooted in the social structure and are supported by cultural beliefs and values. The responsibilities of men and women vary from one society, race, class or ethnic group to another (Boserup, 1970, 1989). However, the gender issue is not limited to the division of work and responsibilities: 'Not only are the divisions of labour based on the definition of reproductive work as women's work but they also segregate the productive work undertaken by men and women in both agricultural and industrial sectors' (Moser, 1993:23). Women's reproductive work includes childbearing and childrearing, required for the maintenance and reproduction of the labour force, also the management of environment. (Greenhalgh, 1995b; Moser, 1971, 1989, 1993; Tuladhar, 1986, 1993; Tiwari, 2001).

### **1.3 Direct and indirect relationship between fertility and environment**

Changes in population size and the rate of growth and distribution of human populations have a broad impact on the environment and development prospects. The most common assumption is that overpopulation is placing pressure on environmental resources, particularly food production resources (UNFPA, 2001). In the recent literature, rural household livelihood and food security and gender have been linked to facilitate an understanding of the relationship between population growth and environmental degradation (Schreier, 1995). The United Nations Population Fund (UNFPA, 1994) documented that rural women's socio-economic status and productive and reproductive roles have a decisive impact on population dynamics and fertility levels in particular. Women's status and roles are critically linked to environmental management, particularly in developing countries where women are the backbone of smallholder agricultural production (Bhushan, 1996). Women are materially connected to food, water and energy, biologically connected to reproduction, and socially connected to family and community in ways that men are not (Jiggins, 1994). Thus, rural women have significant roles in the link between population dynamics and environmental sustainability; women secure family welfare and hold the key to changes in reproductive behaviour (Swaminathan, 1998; Shiva, 1993a; Sachs, 1996; Jiggins, 1994; UNFPA, 2001). The link between natural resource management and

environmental protection with gender-related population issues are of current international concern (FAO, 1999; McDonald, 2000; Mason, 1995; Swaminathan, 1998). Environmental impact assessment responsive to gender is increasingly recognised for its importance because of growing knowledge of the vital role women play in environmental management, as well as because of the relationships between environmental factors and women's fertility behaviour.

Many rural women in the developing world consider a large family to be essential in enabling them to cope with continuous and often increasing social and economic insecurity (Caldwell, 1996; FAO, 1984; Joeke *et al.*, 1994). Factors that appear in the literature as determinants of fertility behaviour are women's education and occupation, women's economic autonomy, age at marriage, husband-wife relations, the social status of women, and infant and child mortality. Through fertility, these are major factors that influence population growth (Bongaarts, 1978; Ban, 1998; Caldwell, 1996; Dahal, 1993; McDonald, 2000; Niehof, 1985; Shakya, 1998; Sapkota, 2000; Niehof & Lubis, 2003).

Women's agency in reproductive and productive behaviour has a decisive impact on the environment, particularly in rural areas (Roca, 1994), and their agency in reproductive behaviour has come to the foreground in the population-environment debate (King, 1999; Jiggins, 1994; Correa and Richmond, 1994). The relationship between women and environment revolves around their involvement in providing food, fuel, water and health care. In relation to the gender perspective, the FAO (1994: 4) states: 'Faced with the gender asymmetries that disfavour them [women] in social, economic, technological and legal conditions for sustenance of family food supply and overall family welfare, many rural women in the developing countries considered a large joint family structure to be essential in enabling them to cope with the situation of continuous and often increasing social and economic insecurity'. Nepal provides an example of this. In terms of economic and social security, rural women in Nepal often want a male child in order to secure their land rights, as male children represent women's most reliable key to land rights for their economic and social recognition and security (Dahal, 1996; FAO, 1994).

Fertility behaviour is linked to environmental quality in numerous ways. Child mortality and labour needs have also been linked to environmental degradation and women's fertility behaviour (Subedi, 2000, 2003; Rana, 2000). There is a connection between environmental quality and the economic value of children when food production environments become degraded and an increased workload in smallholder agriculture follows (Roca, 1994). Women's workloads are the most affected. Child labour becomes increasingly necessary and can lead to increased fertility (Dahal 1989; Subedi, 2000). Labour shortages coupled with environmental degradation are factors that stimulate a desire for more children. Increasingly, women's work becomes more difficult as plots suffer from erosion and forests shrink, so that the collection of firewood and other forest products consumes several hours per day (Roca, 1994).

Poor environmental conditions and degradation can lead to inadequate nutrition for children and to higher child mortality (Pudasaini, 1993b). This is partly due to an increase in women's workloads and thus less time for childcare, less time for cooking and less time to devote to more labour-intensive crops. If there is environmental degradation, more manpower is needed to control the environment. Low levels of soil quality and insufficient water availability negatively impact food crop production (Seeley and Chadwick, 1994; Scoones and Toulmin, 1999). Inadequate nutrition and food scarcities are factors in child

mortality and women's poor health, and as child mortality increases, the desire to have more children also grows. Child and infant mortality influence women's desire for children and the thinking about the value of children in the family, which ultimately may lead to higher fertility (Hayes, 1993; Pant, 1998a; 1999). In addition, high infant mortality can lead to high fertility because women are no longer protected by lactation (post-partum amenorrhoea). In relation to the environment and food conditions, Roca (1994) observes that where soil fertility has been drastically reduced due to over-cropping, deforestation, overgrazing or erosion, women face a lack of firewood, potable water and changes in dietary practices. Ultimately, the possibility of high infant and child mortality will increase, which in turn may stimulate the belief that having more children is a reasonable and rational action (Pant, 1998b). In this way, women become locked into a cycle of environmental degradation, child mortality and high fertility.

The determinants of high fertility levels and large family size point especially to the social and economic value of children and women in rural societies with prevalent agricultural production by smallholders (Entwistle *et al.*, 1982; UNFPA, 1994; Berry, 2000; Van de Kaa, 1996). Religious doctrine, moral codes, laws, education, community customs, marriage habits and family organisations can also contribute to maintaining high fertility (Anker and Knowles, 1982; Caldwell, 1996; Davis & Blake, 1956; De Bruijn, 1999; Gupta, 1996; King and Silliman, 1999; McDonald, 2000; Padmadas, 2000). This seems to be the case in Nepal as well. Ansley Coale (1973) formulated three preconditions for the onset of fertility decline: first, fertility has to be brought under the calculus of conscious choice; second, lower fertility has to be perceived as advantageous; third, the means to control fertility should be available. These three preconditions are assessed in this research.

Women's reproductive rights and choices, including access to safe birth control and abortion, are critical to their ability to respond to the natural environment (King and Silliman, 1999). The relationship between women, population and environment also deals with women's lack of access to and control over resources. Women's reproductive and productive roles in relation to the value of children are critically linked to the socio-cultural environment. This constellation is also linked to the concrete policy agenda to improve women's lives or the quality of environment. The reformulated equation  $I=PAT$  of Patricia Hynes gives a clear relationship between population, consumption, technology and environment (Hynes, 1999; Kowalski, 2001). In the  $I=PAT$  equation, the impact of humans on the environment (I) is equal to the product of the number of people (P), the amount of goods consumed per person (A) and (T), the pollution generated by technology per goods consumed. However, understanding women's agency in the context of unequal gender relationships is essential to fully comprehend the relationships between population and environmental deterioration in rural Nepal.

There are several critical and controversial linkages between population and environment as expressed in the concept of carrying capacity (Joeke, *et al.*, 1994). Myers (1994) defines carrying capacity as the number of people the earth can support without irreversibly reducing its capacity to support future populations. It is a highly complex concept, reflecting food and energy supplies, ecosystem services, human capital, people's lifestyles, cultural constraints, social institutions, political structures and public policies, all of which interact with each another (Ellis, 2000; Myers, 1994). The concept of carrying capacity has not been applied in this research, but it is assumed that the carrying capacity of many of the inhabited areas in Nepal is already constrained.

At present, the main cause of environmental degradation in Nepal seems to be mismanagement of land, in a situation where 80 percent of Nepalese are dependent upon agriculture (MOPE, 1998b; Pudasaini, 1993a; Sah, 1997). More than 90 percent of the country's population is directly or indirectly dependent upon the land for the fulfillment of basic needs regarding food, fodder, fuel, fiber and timber. The rate of population growth in the last decade (1990-2004) in Nepal was 2.24 percent. Because of drastic population increases from 5.6 million (according to the first census in 1911) (MOPE, 2004) to 27.7 million at present (UNFPA, 2006), population pressure on the land has likewise increased.

This study focuses on the interrelated roles of women and on women's agency at the population, environment, fertility and household livelihood and food security nexus. The fertility transition theory identifies several important factors in bringing about the decline of population growth. The relationships are complex and interwoven. The decision-making role of women regarding fertility behavior has been empirically linked to selected aspects of this nexus. However, there has been no scientific inquiry to date that places women's agency, fertility and household livelihood and food security central to the population environment debate, and that demonstrates the causal connections in an integrated manner.

## **1.4 Research objectives**

The main objective of this study is to contribute to the scientific debate about the relationship between population and the environment by using a woman's agency perspective. Another goal of the study is to link the theoretical framework of livelihood and food security to demographic theory, particularly with respect to the fertility transition. The overall aim of this study is to reveal how population growth interfaces with the natural resource environment, particularly the food environment, and what roles women play in these processes.

The research problem can be formulated as follows: How does women's agency relate to population and environment in rural Nepal? More specifically, how do women's reproductive and productive roles at the household level impact the relationship between population and environment? Based on this the following specific objectives of the research were formulated:

1. To examine the impacts of population variables on environmental resource management, livelihood generation and food security at the household level;
2. To explore the effects of environmental change on women's fertility choices and socio-economic status;
3. To examine the relationships between women and population and between women and the environment from a development and women's agency perspective;
4. To document the role of women in environmental resource management and the food system at the household level.

## **1.5 Significance of the study**

The theoretical significance of the study lies in the way it connects the demographic theory of fertility transition with the livelihood theory and gender theory. Little of the literature on population and environment is concerned with women's agency and how it correlates with other demographic and environmental variables. Thus, there is a knowledge gap in this field, which I hope the present study will help to narrow.

It is also hoped that the findings of this research will provide a basis to plan, implement and monitor activities for development organizations that address environmental problems and gender issues. This study's results will help policy-makers to gain a better understanding of the relationship between population and the environment and to be able to formulate effective rural development strategies. Moreover, this research will make available information about the rich culture of an ethnic community, the Gurung, who struggle to overcome environmental degradation and poverty.

## **1.6 Outline of the thesis**

This thesis is divided into three main parts, the first of which contains five chapters. Chapter 1 covers the general background, the research problems and the research objectives of the research. Chapter 2 discusses the literature review and outlines the conceptual framework. The reviewed literature pertains to the following topics: fertility, agency, gender, household, environment, food and livelihood security, and linkages between women, fertility, and food. In addition, the chapter presents the central research question and conceptual framework as well as a discussion on the concepts, variables and indicators used in the study. The study design and the methods used to collect data, data management, computer processing and analyses are described in Chapter 3. Chapter 4 describes the study area, highlighting its ecological characteristics, the socio-economic, cultural and demographic profile of Nepalese society, the history and demographic characteristics of the Lamjung district and the research villages. Chapter 5 describes the life histories of Gurung women in the study area.

Part two contains Chapters 6, 7, 8 and 9 and covers the findings of the study. Chapter 6 covers household food and livelihood security and nutrition, in relation to women's agency. The headings include food environment and land use management, household livelihood, and household food security and nutrition. Chapter 7 deals with marriage, fertility gender roles and the value of children. Chapter 8 describes women's agency in relation to fertility and the food environment, as well as the impact of fertility patterns on women's reproductive roles. The discussion concerns the inter-relationships between women's productive and reproductive roles, showing the indirect and direct relationship between fertility and the food environment and the livelihood generation to agricultural food environment and women's contributions and access to resources for agricultural food production in natural resources water, soil, and biodiversity. Chapter 9 discusses the people's view on population and the changing socio-economic, cultural and ecological environment and the impacts of population pressure and development projects.

In the third part of the thesis, in Chapter 10, the conclusions are presented and the theoretical and policy implications of the study are discussed.





## Chapter 2

### Literature Review and Conceptual Framework

Literature relevant to the study is reviewed in this chapter on the following themes: fertility, environment, food and livelihood security, gender, women's agency and the household. Scant literature exists on gender, population and environment in Nepal, and environment and population surveys published by various ministries and the Central Bureau of Statistics in Nepal are the major sources of the secondary data. The following sections will deal respectively with fertility, women's agency, gender, household, environment, and food and livelihood security. The subsequent section discusses the linkages between women, fertility and food. The second part of the chapter presents the conceptual framework of the study, the research questions and the concepts and variables involved.

#### 2.1 Theoretical perspectives on fertility

With regard to demographic change, one important approach is the Malthusian theory which refers to population characteristics in relation to macro-economic and political contexts and changes (De Bruijn, 1998). Many demographic studies focus on the relationship between women's status or gender inequality and fertility (Greenhalgh, 1995a; Tiwari, 1995; Mason, 1995; Caldwell, 1991, 1996; Niehof, 1985, 1995; McDonald, 2000), while others look at institutional change in relation to fertility (McNicoll, 1992) or the significance of the value of children for fertility levels (Bulatao, 1979). Caldwell and others developed a theory on the decline of fertility as a consequence of the reversal of intergenerational flows of wealth (Caldwell in Mackensen, 1980). These approaches are briefly reviewed below.

Demographic transition theory is a major theoretical framework, and it describes the changes that occur in birth and death rates as a society passes from traditional, or pre-modern, social and economic conditions to an urbanised and industrialised modern society (Ross and Mauldin, 1993). Newell (1997: 11) notes that "the demographic transition theory remains at the heart of demography as an academic discipline", despite all criticism levelled against it. The theory was developed in relation to European demographic history before being applied to recent population changes in the Third World (Jones, 1990; Caldwell, 1991; McDonald, 1993). The first phase of demographic transition is characterised by high levels of mortality and fertility, while in the second phase mortality begins to decline but fertility levels remain high. The result is a rapidly expanding population with high rates of growth. The third phase of the demographic transition sets in when fertility starts to decline, causing population growth to slow down. In the last phase, the demographic transition is complete because both mortality and fertility are low; they are balanced, finally resulting in zero population growth. The timing and scope of the fertility transition in the third phase is crucial for the pace of the population growth decline. Hence, in developing countries policies have been developed to stimulate fertility decline (Caldwell, 1991; Jones, 2003). The goal to reduce fertility in many developing countries has resulted in strengthening family planning programs (Cleland, 1994), and fertility regulation has become an important aspect of population policy throughout the world (Rele and Alam, 1993). When looking at the fertility transition in Asia, several demographers use cultural and institutional factors as explanatory variables for fertility behaviour (Aryal, 1996; Dahal and Fricke, 1998; McNicoll, 1992; McDonald, 1993, 2000; Niehof and Lubis, 2003). McDonald (2000) notes that fertility transition is determined by the particular social and cultural values that play a

role in the use of contraception, the timing of the first marriage, the timing of first birth and the status of women. Birth intervals and the use of contraceptives determine the number of children that a woman might have during her lifetime (McNicoll, 1992; McDonald, 2000).

In his *Essay on the Principle of Population* (1798) Malthus argues that population increase outdistances the earth's capacity to produce subsistence, threatening the balance between population and food supply. Populations tend to grow at a geometrical rate, whereas food supplies increase arithmetically. In these circumstances, a technologically unadvanced agricultural economy with little virgin land available will not be able to meet the needs of a growing population. Inevitably, population growth will lead to an increase in food needs and a decrease in the environment's carrying capacity. There is evidence that particularly in Africa the production of food has been falling behind the population expansion. However, the situation is more favourable in large areas of Asia, due to the success of the green revolution and the declining population growth (Jones, 1990). Boserup (1970) and others state that technological progress (i.e. green revolution) might keep food production ahead of population increase; this seems to have been the case especially in South East Asia, though not in sub-Saharan Africa (Jones, 1990).

An important theoretical approach to the study of fertility decline is the reversal of intergenerational flows of wealth. Caldwell and Mackensen (1980) observed that high fertility has the greatest economic value in family-based production, such as traditional agrarian subsistence farming. On the one hand, children are costly to feed and to educate and need to be looked after; on the other hand, they are important for family welfare and can contribute to the household economy. Once a traditional society changes and family-based production becomes less important, the value of children declines. In a modernising society, parents need to invest in their children's education. What happens then is a reversal of the wealth flow: instead of going from children to parents, it goes from parents to children. Thus children become a net loss instead of a net gain. Children can also provide economic support to the family in another way, by looking after their elderly parents. Hence Caldwell and Mackensen (1980: 172) note that "the benefits and disadvantages of high fertility must be measured over the rest of a person's lifetime". Edmondson (1992) tested the reversal of wealth flows theory in a rural area in Bali (Indonesia), using data on intergenerational exchange and fertility covering a period of more than a decade. She found a relationship between economic change and family size. The economic transition (from a traditional rice-growing economy to one with an important service sector) stimulated the fertility transition. The study revealed the importance of the economic responsibilities of male children to the parental household and kinship group, as the exchange of wealth was stretched over a longer period. First the parents provide economic and educational support to the children, and then the children are expected to support the parents in old age. In addition, Edmondson documented intra-generational flows of wealth, from elder to younger siblings, after the parents had paid for the education of the elder siblings.

Another approach to explain fertility patterns and levels is to examine the value of children in society. Caldwell (1996) and Cleland (1994) noted that changes in fertility patterns from Europe to Asia were due to the decline in infant mortality and the transformation of illiterate agricultural societies to ones that were literate and industrialised. Niehof and Lubis (2003) note that 30 years ago in Indonesia's rural areas people would say: 'Many children, much good fortune'; nowadays people say 'Two children are enough'. The latter was the slogan of the national family planning program. In Indonesia people now want fewer

children but they want them to be healthy and well educated. It is a shift from seeing the value of children from a quantitative to a qualitative point of view. The high value attached to children leads to mortality reduction, raises aspirations and reduces child labour. It also leads to the emergence of the conjugal family and to the weakening of cultural props for high fertility (Bulatao, 1979; Bongaarts and Greenhalgh, 1985; Caldwell, 1996).

Due to socio-economic and cultural differences, the demand for and the value of children vary between developing and developed countries. Freedman (1974, 1987) observed that the preferred number of sons is relatively high in many Asian countries that face a long uphill struggle for development. In this context, the status of women determines the conditions for successful family planning. The decisions on whether to have a child and on how to share education, food, work, health care and local resources are to a great extent made locally, at the household level (Dasgupta, 1995). Children are needed for household chores, but are sometimes also regarded as a nuisance because they place an emotional and an economic burden on their parents (Bulatao, 1979). Bulatao adds that demanding more work from children creates problems, and worrying about the children's future increases parents' aspirations to provide well for their children or to help them become more successful.

Parental preference for a particular gender, or a preference for a balanced number of each gender, exists throughout the world (Krishnan, 1993). Demographically, a strong preference for sons may lead to higher fertility, as exemplified by the case of the patrilineal Batak in Indonesia (Tan and Soeradji, 1986). Niehof (2001) compares the persistent high fertility in large parts of India to the substantial fertility decline in Indonesia and relates this to the higher value attached to male children in India. The significant fertility decline in Indonesia must be viewed in the context of comparative gender equity and ongoing social change leading to women's different reproductive choices (Niehof, 2003). The value of children in Nepal involves certain socio-economic, cultural and religious factors, which occasionally conflict with the interests of the family and the rules of inheritance. As mentioned, the values attached to sons and daughters can influence fertility trends. Karki (1988), Niraula and Morgan (1995; 1996) and Riley (1999) have reported that the significance of masculinity and femininity in patriarchal society is often such that it contributes to the population growth, because the attached meanings and values will influence parental investments in sons and daughters. Although these investments should be equal, often they are not (Sieff, 1990). The status of women, their fertility choices and gender preferences also have direct effects on fertility trends in any country. In this study, we applied the value of children approach to a Gurung community, looking more specifically at values attached to sons and daughters.

McDonald (2000) addresses the subject of gender equity in fertility transition. In the context of high fertility, gender inequity within the family is experienced by women as a constant childbearing and childrearing pressure, imposed by way of spousal, familial and social expectations. McDonald further notes that in the literature it can be found that both high education and higher economic status lead to lower fertility. The common hypothesis about fertility transition is that women's low status leads to high fertility and that women's high status leads to low fertility, and that a significant relationship exists between women's status and fertility at the individual level and in family-oriented social institutions. This needs to be distinguished from the level of gender equity in higher level social institutions, influenced by education and by economic conditions. For low fertility to be achieved,

gender equity should be present at both levels, because sustained lower fertility in any society will lead to fundamental changes in women's lives. A decline in fertility often depends upon a prior institutional shift in gender equality in a particular society.

*Firstly, fertility in a society falls as a result of the cumulative actions of individual women and men to prevent birth. Secondly, sustained lower fertility in any society will lead to fundamental changes in the nature of women's life. Thirdly, in pre-transitioned societies, high fertility was socially determined, not naturally determined. Lastly, the transition from high fertility to fertility around replacement level is accompanied by an increase in gender equity within the institution of the family (McDonald, 2000: 430).*

Implicit in the gender system of a high fertility society is that women devote a great deal of their time and energy to childbearing and childrearing.

Many demographers (Davis and Blake, 1956; Bongaarts, 1978; Freedman, 1987; Jones, 1990; Caldwell, 1996; Cleland, 1994; Volland, 1998; Crow and Allan, 2001; Singh *et al.*, 2003) have noted that social and cultural factors affect fertility through proximate or intermediate variables. According to Davis and Blake (1956), fertility is influenced through three clusters of intermediate variables: intercourse, conception, and gestation and parturition variables. For example, the variables of exposure to intercourse through age at marriage and proportion married directly affect fertility levels. Social and cultural changes then influence fertility through these intercourse variables. Bongaarts (1978) uses the term proximate determinants for variables through which categories of fertility determinants, namely cultural, socio-economic and environmental variables, affect fertility. Both Bongaarts and Davis and Blake agreed to a set of proximate or intermediate determinants that comprise the biological and behavioral factors, through which background variables must operate to affect the fertility. These proximate determinants or intermediate variables, like exposure to intercourse, conception and pregnancy outcome, have become the major focus of fertility analyses. Jones (1990) combines the models of Bongaarts and that of Davis and Blake in a theoretical framework that makes it possible to relate fertility to women's agency and environmental variables. On the basis of the determinants of the fertility model that Jones (1990: 100) constructed and the models of Davis and Blake (1956) and Bongaarts (1978), a number of variables were used in this research. Jones' framework makes visible the direct and indirect influence of women's productive and reproductive roles on population and environment. According to Roth (1999) in a discussion of Bongaarts' model, only the following four broad variables determine the demographic parameters: age at marriage, contraception, induced abortion and postpartum nonsusceptibility. Roth points at the importance of reducing women's age at marriage, especially among populations with powerful cultural traditions.

While fertility refers to numbers of living children born to women, fecundity refers to the physiological capability of individual women or couples to produce a live child, independent of whether such a capability is actually exercised (Ross, 1993). King and Silliman (1999) assert that fertility rates delete human agency in pregnancy and that, in this way, an abstract factor seems responsible for environmental degradation. In this research the fertility choices, perceptions and practices have been investigated and related to women's environment, particularly the food environment. 'Fertility choices' are considered to relate to the woman's or the couple's interest in a live birth, and the concepts highlight the microeconomic and macroeconomic factors as determinants of fertility (Fricke, 1995).

As regards the first cluster of variables: namely, those relating to exposure to intercourse, in particular data on the age at marriage, polygamy, widowhood, divorce and spousal separation were collected. As regards the cluster of conception variables, in particular data on breast feeding practices and contraceptive use were gathered. In this research, other than in the model of Jones, the natural environment, specifically the food resource environment, is included in the environmental factors that influence fertility through the intermediate variables.

## 2.2 Women's agency

Carter (1995: 65) sees women's agency as "reflexively monitored flows of conduct in the direction of calculation in the broad utilization and sense of balancing means at the ends". Greenhalgh (1995b) states that, by defining human agency as reflexively monitored and rational flows of conduct, practice consists of a dialectical relation between acting persons and the setting of their activities. When women negotiate their area of organization and autonomy, they use their agency (Barber, 2000). Barber found for the Asian context that women's agency has always been directed at achieving a secure future for sons and providing for parents and husbands.

Women's agency is embedded in convention and in layers of economic and socio-cultural support, and it relates directly to women's identities in the present circumstances and to their concerns about the future. In the context of this study we examined women's agency in relation to fertility, food provision and management of natural resources. With regard to fertility, women's agency relates to women's role as mothers and the fertility choices they make, the preferences they express and the actions they take. The other 'settings of activities' involved in this research are those of the natural resource and the food environment, in both of which women exercise agency. Their agency is important for the food environment, because women are traditionally responsible for feeding their families. The ways in which they are involved in environmental management by their work in agricultural production and how they secure food from the natural resource environment reflect women's agency and form a major focus of this study. Women's agency is part of their articulated identity, and in responding to patriarchal structures it rises to the demands of the family through collaboration, acquiescence, co-operation and subversion. Gerami (2001) discusses women's agency in the context of an Egyptian village, whereby she describes how women can manipulate the patriarchal system by choosing not to negotiate with the direct authority of their husbands but rather with the surrogate authority of their mothers-in-law, thus obstructing the impact of patriarchy.

Giddens (1984: 5-16) defined agency in terms of an individual's reflective monitoring of activities in everyday action, which involves the conduct not just of the individual but also of others. He sees agency as referring not to the intentions people have in doing things, but to their capability of doing those things in the first place. This is why agency implies power. In addition, he says that the condition of action in relation to the reflective monitoring of action, as well as the rationalisation and motivation of action, helps to create the intended consequences. Women's empowerment increases their agency, whereas their exclusion from the public sphere adds to their powerlessness. In the lively discourse on population and environment it is increasingly acknowledged that there should be space for women's activism in fertility choices and in environmental management. In the private sphere of the contemporary rural household, women's agency is constrained by lack of

access to resources, lack of decision-making power (Chen, 1996) and even sexual harassment (Vickers, 2003). Women's empowerment should be directed at increasing agency in both the public and the private sphere.

In this study women's agency refers to women's choices, actions and decision-making with regard to their own fertility, to their role as food providers in the family and to their involvement with the natural environment and the agricultural production of food. Their agency in these different settings is embedded in cultural notions about femininity and womanhood as well as in social, economic and political structures. Here we look at the actual agency that women exercise and at the constraints they experience. Furthermore, we use women's agency as the connecting concept between population (fertility), the food environment (household food security) and the natural resource environment (agricultural production), and we investigate how women's agency in one domain affects or relates to their agency in the others.

The complex interrelationships between gender, population and environment are important to understand women's roles in fertility and food provision, both in the public and the domestic sphere. Basic social and cultural phenomena, including kinship, religion, language and ethnicity, relate to long-term elements of historical development, derived from ethnic ties, myths of origin and familial metaphors (Vickers, 2003). Kabeer (1996, 1999) mentions education and knowledge in handling different resources as important for enhancing women's agency and capacity for self determination. For the empowerment of women, Agrawal (1997) notes the importance of ownership of land, especially arable land, and control over resources and assets. Women's access to employment and other sources of income is influenced by traditional and commercial support systems, such as patronage, kinship and caste group, which may stand in the way of women's empowerment. Likewise, legislation, education and access to the legal machinery could empower women and lead to better treatment by their husband and kin.

Women's access and control over resources and their practical and strategic needs at household, community, organizational and national levels are current major issues. Crucial for enhancing women's agency is that women must have control over their own bodies and fertility, and have access to health and education, as well as be free from discrimination and violence; these factors will also contribute to food security. Nepalese women generally think that having children, sons or daughters, is a woman's destiny. They attribute to fate whether they have a good husband or a well-to-do family and can do little other than adapt to the situation. However, this attitude is now changing, and it differs according to ethnic group. Women's autonomy defines how one can differentiate one's own desires, values and goals from the clamor of subordinating discourses and overwhelming social demands, and how one can articulate and enact one's own desires, values and goals to achieve self-determination (Antony, 2002).

### **2.3 Gender theory**

The concept of gender was introduced into the development discourse of the 1970s through the Women in Development (WID) and Gender and Development (GAD) approaches (Moser, 1993). However, the WID approaches yielded no satisfactory long-term results in many parts of Asia, particularly in Nepal. The United Nations declared the period 1976-85 the Women's Decade, but this did not lead to any fundamental change. However, during the

past two decades there has been increasing criticism of fertility control policies (Correa and Richmond, 1994; El-Bushra, 2000). At the International Conference on Population and Development (ICPD), 1994, in Cairo, the concepts of reproductive and sexual rights were coined and reproductive health was placed firmly on the political agenda which was a significant achievement (Meijer, 2002).

Moser (1993) articulates gender roles in terms of women's subordination to men in productive, reproductive and community work. The reproductive role consists of biological reproduction and social reproduction (Hutter, 1998). Biological reproduction refers to childbearing and extends to the reproduction of labour, which is a deeply gendered process (Greenhalgh, 1995a). Moser further defines social reproduction in relation to the maintenance of the wage labour force and also in the reproduction of economic capital itself. For this reason, many feminists claim that reproductive work is also productive.

Moser (1993: 39-40) distinguishes two types of gender needs: practical and strategic. She describes the first as follows. "Practical gender needs are the ones women identify in their socially accepted roles in society. Practical gender needs do not challenge the gender division of labour or women's subordinate position in society, although rising out of them.

*Practical gender needs are a response to immediate perceived necessity, identified within a specific context. They are practical in nature and are often concerned with inadequacies in living conditions such as water provision, health care, and employment.*

Examples of women's practical gender needs concern water provision, health care, employment, family health, childbearing and childrearing, and food production and consumption. Strategic gender needs are:

*The needs women identify because of their subordinate position to men in their society. Strategic gender needs vary according to particular contexts. They relate to gender divisions of labour, power and control and may include such issues as legal rights, domestic violence, equal wages and women's control over their bodies. Meeting strategic gender needs helps women to achieve greater equality. It also changes existing roles and therefore challenges women's subordinate position.*

Men and women play different roles in society, in agricultural systems and in control over natural resources (Boserup, 1970). Strategic planning should, therefore, be gendered and contextual in different sectors such as: family policy, domestic violence, reproductive rights, legal status and welfare policy, accountability of productive and reproductive work, food production and consumption, access to and control over natural resources, and household food security. Strategic and practical gender needs in these sectors have to be identified to enhance women's capabilities and empowerment, and to strengthen their position at the household, social and national level. They relate to gender division of labour, power and control, and may include issues such as legal rights, domestic violence, equal wages and women's control over their bodies (Agrawal, 1994b). Meeting strategic gender needs helps women to achieve greater equality (McDonald, 2000).

Mason (1995) has employed the gender system concept, which she defines as the socially constructed expectations for men and women. In every society a gender system's expectations prescribe a division of labour and responsibilities between women and men

and grant them different rights and obligations. Mason observes that studies concerned explicitly with gender systems and their impacts on demographic change are relatively new. She subdivides the gender system into stratification (institutionalized inequality between male and female members of society) and roles (the division of labour between men and women); gender equity or the lack of it derives from both. Inequality between men and women and the division of labour between them in a particular gender system can be evaluated from the perspective of social, political and reproductive rights.

This study discusses gender-related issues that concern household, fertility choices and activities, household food security and the environment, and looking at reproductive and productive roles of men and women. It also assesses the interdependency of men and women in fertility and in environmental resource management as well as in other development activities. The study is not intended to be simply a critique of the existing gender relations, but to contribute to gender-sensitive development policies concerning population, environmental resource management and household food security.

## **2.4 Household**

The household represents a domain of activities that overlaps with the domain of family relationships. Definitions of ‘household’ vary but they all refer to social groupings that typically share a range of domestic activities: these include sleeping in the same dwelling, having most meals together and normally sharing in a common domestic economy and household budget (Crow and Allan, 2001). The household can be considered an appropriate level of analysis to study food security and livelihood, as it is the context in which family members live and eat together. The household may be identified as a group of people who live together and perform certain social and economic functions (Niehof and Terpstra, 1999; Pennartz and Niehof, 1999). It is the minimal institution in which production, consumption and social reproduction are organized (Berman *et al.*, 1994). Based on kinship, marriage and parenthood, the family is another social institution, while the household is also a residential unit, based on co-residence for purposes such as production, reproduction, consumption and socialisation.

A household can be defined as “a co-residential unit, usually family-based in some way, which takes care of resource management and primary needs of its members” (Rudie, 1995: 228). To provide for the needs of their members, households require resources and assets, which can be divided into material (tangible) and nonmaterial (intangible). Furthermore, these resources can be available at personal, household and environmental levels (Niehof and Price, 2001). The above distinctions also apply in this research.

Though family and household are two different concepts, they are related because households are usually family-based. In Nepal, the extended family is still important. By extended family we mean the group that includes parent(s), married sons and their spouses, and children. Married sons who do not yet legally have their own share of the parental land are regarded as members of the joint family. According to the definition used in this research, they do not belong to the household. Thus, several situations can exist. Firstly, the household and the joint family coincide: that is, sharing all resources, and eating and living together. Secondly, the joint family includes more members than the household because it includes married brothers and sons who do not yet have a separate piece of land. In this case, we apply Rudie’s definition of household, counting only those members who share



daily meals and live together as belonging to the household. Land, then, is a resource that is shared with non-household members: namely, the members of the joint family. Thirdly, all land has been divided and the married sons have their own households. In this situation, the joint family is split into nuclear families that form separate households. The second situation is the most interesting because of the importance of the resource land that is shared across household boundaries and because joint family membership entails all kinds of rights and obligations. In this case, kinship as a social resource is important. Currently there is far greater diversity in people's domestic arrangements than earlier in the century. Hence consideration of the living arrangements that married couples themselves devise or have imposed upon them requires that we rethink the way that kinship relates to economy (Crow and Allan, 2001).

## 2.5 Environment

The most urgent environmental issues facing developing countries relate to agriculture, forestry, and land and water management. The interaction between population growth and the environment, particularly in a situation of agricultural intensification, raises the most compelling and controversial issues (Lele and Stone, 1989). Boserup (1965) documented the increasing population impact on the agricultural environment. Boserup (1965, 1981), Rathgeber (1995) and others argued that through changes in prices slowly increasing population densities can have desirable effects on technological change, land and labour productivity, and rural per capita incomes. The major environmental problems are rapid deforestation, watershed degradation, loss of bio-diversity, fuel wood and water shortages, water contamination, excessive soil erosion, land degradation, overgrazing and air pollution (WCED, 1987).

Environmental resources such as air, water, land and atmosphere are common property and major resources that are affected by high population growth (Panyoutou, 1995, 2003; Biddlecom *et al.*, 2005). Bio-diversity refers to the variability among living organisms and the ecological complex of which they are a part. Plants, animals and micro-organisms interact with one another and with the physical environment in ecosystems, and they form the foundation for sustainable development (Odum 1971; SIDA, 1999; WCED, 1987; MOPE, 1998a). Bio-diversity is linked as well to population dynamics, and is being threatened by rapid population expansion and the compelling requirements of economic growth (Arizpe. *et al.*, 1994; IUCN, 2000; Emilio, 2006). Clarification is needed on how environmental variables affect fertility, mortality and migration processes. Sen (1994) reviews the discourse in the population, environment and development debate along with the positions of the different actors. She would like to see more synergy between the environmentalists and the feminists, the ideal being that in the context of population, environment and development, women would have “the right to determine and make reproductive decisions in the context of fulfilling secure livelihoods and basic needs (including reproductive health and political participation)” (Sen, 1994: 83).

The role of bio-diversity in farm-household livelihood and food security demonstrates the importance of plant species diversity for the world food supply, while home garden bio-diversity provides staples for women's cooking pots. In the farm-household system bio-diversity is used and conserved as a resource, not just for crop production but for multiple activities of the food livelihood system, such as the storage, processing, preparation and consumption of food, and for housing, medicine, fodder and other purposes. Because the

major food crops are derived from agro-biodiversity and additional food supplies are obtained from the home garden, food security is linked to bio-diversity (Hardon-Baars, 2000). Bio-technology increases the extent of commercialization of food production, and commercial food production competes with food production for home use. Many people worldwide grow their own produce, and are more food secure when they grow and use food directly, without the mediation of the market (Crouch, 1995; Emilio, 2006).

Social theory in connection with the adaptation of a gender approach to the natural environment is an important issue; it involves questioning the identification of women with nature and looking at the gendered nature of control over natural resources, property rights, ecological management and responding to ecological problems (Barry, 1999: 108). In the relationship between human society and the natural environment, attention should be paid to agency, access and inequality (Spaargaren and Mol, 2006), which implies that gender is an important element. In both agro-climate and socio-cultural respects, Nepal is a highly diversified country. There is no study to date that provides a satisfactory picture of the role of women in the agro-climate zones or socio-cultural strata of the country. However, there is a growing awareness that a deeper understanding of the role of women is needed in the context of the population, production and household food consumption. Farming in Nepal is labour-intensive and women play a major part in various farm production activities. The inclusion of a gender perspective in population and reproduction as well as food and environmental policies should be a concern at all levels (Bajracharya, 1994). The inequality between the sexes and the subservience of women prevent them from living in and benefitting from the natural environment on equal terms (Agarwal, 1991a, 1994a; Sen, 1994b; Jiggins, 1994; Warren, 1992; Shiva, 1993b; Rodda, 1997). The different ways that women connect to nature and the application of a gender approach to the environment are important research issues.

## **2.6 Food and livelihood security**

The United Nations has defined food security as the availability of food at all times, with all persons having the means to access it, and the food being adequate in terms of quantity, quality and variety, and acceptable within a given culture (FAO, 1995). Balatibat (2004) sees food supplies and access to food in a sustainable way as critical components of food security. Negash and Niehof (2004) note that food security is embedded in the household's livelihood system and that household food and livelihood security can be seen as outcomes of processes that take place within the household, for which resources and assets are used and managed. Food security is one of the most hotly debated of basic needs and yet perhaps the one that is least satisfactorily met. Many of these debates can be narrowed down to two areas of concern: an increase in supply, to satisfy demand, and the call for improvements in entitlements, to enable those in need to access available food. Modernisation theory holds that the hungry are short of food because of their refusal to embrace commercial values, which are assumed to generate efficiency in resource mobilisation (Omosa, 1998).

The pursuit of increased productivity and the conservation of natural resources in the course of rural modernisation have produced benefits in the form of improved food production and better resource conservation. Frankenberger (1985, 1996) and McCaston and Frankenberger (2001) observe that up to 1970 food security was mostly considered in terms of national and global food supplies. Since then, especially since Sen's study (1981) on famine, food security is seen largely in terms of access to food at the household level. Population

increase is one of the most significant factors disrupting food security, since in these instances a fear of food insufficiency exists at the local level (Umezaki *et al.*, 2000). Households derive food entitlements from their own production and income, and from the gathering of wild foods, community support, claims, assistance and migration. Various socio-economic variables influence a household's access to food (Bindraban *et al.*, 1999).

Ellis (2000) has defined livelihood in terms of the links between assets and people's options to pursue alternative activities able to generate the income level required for survival. Ellis discusses five categories of capital that contribute to livelihood: natural, physical, human, financial and social. He defines livelihood as comprising "the assets (natural physical, human, financial, and social capital), the activities, and the access to these (mediated by institutions and social relations) that together determine the living gained by the individual or household" (Ellis, 2000:10). Niehof and Price (2001) have designed a conceptual framework for the analysis of rural livelihood systems, and they address the linkages of household livelihood security by questioning the concepts of livelihood and sustainable livelihood, the relationship of livelihood to the household, and the way livelihood is embedded in the environment. They also discuss the gender-based division of labour within the households as one of the most recognised aspects of how a household pursues its livelihood strategies. A livelihood is sustainable when it can cope with and recover from stress and shocks, and can maintain or enhance capabilities and assets, both now or in the future, without undermining the household resource base (Correa and Richmond, 1994).

Food security is a matter of access to food at the household level, based on household entitlements (Omosa, 1998; Keasberry, 1999; Umezaki *et al.*, 2000; Coats *et al.*, 2003), the lack of which is a source of hunger. The linkage of household and livelihood security has a strong relationship with resources and support networks for livelihood generation. Niehof and Price (2001:8) state: 'Livelihood generation refers to the bundle of activities that people undertake to provide for their basic needs'. The link between land use in agricultural production and consumption and the generation of income and assets in farm-based households also has a significant relationship to household livelihood security (Niehof and Price, 2001). Campilan and Castillio (1999) note that household food security, even in subsistence agriculture-oriented societies, does not come only from self-production.

People cannot survive without food, and food security is one of the most fiercely debated basic need topics. To be food secure, each individual must have access to food in an appropriate quantity and of such quality that (s)he can lead an active and healthy life (Bindraban *et al.*, 1999). Omosa observed that in high-potential rural agricultural settings it is not uncommon to find households going hungry soon after the harvest period, and that food insecurity exists despite great strides in agricultural innovation. Not everyone can access the available food; some are short of food because of their refusal to embrace commercial values. In addition, food security is not just a function of supply and demand, since hunger and abundant supply can co-exist (Omosa, 1998). According to Bindraban *et al.*, (1999), availability, equal access, stability and quality are components that must be integrated into food security analysis. Household livelihood and food security can be measured in terms of household size in relation to food availability and resources, such as land. In this research we have examined what resources households have and how they collect and produce food for the family. The number of children a woman has and how much food she needs to feed them was analysed in terms of the quantity and diversity of food and intra-household food availability.

Food security and quality directly influence women's reproductive activities such as fertility, as well as maternal morbidity and mortality. Household members should make an effort to provide sufficient and nutritious food to pregnant women, especially in situations where these women work in the fields up to the moment of delivery, which is fraught with health risks for mother and child (Gurung, 1999). Sufficient food and easy access to it are considered to be basic human rights. Good food represents an investment in human capital, while human capital is a key determinant of household and community well-being; this in turn forms a basis for development (Taniguichi and Wang, 2003). Several long- and short-term relationships exist between population growth and nutrition and between productivity growth and nutrition in developing countries, reflected in high child mortality and widespread malnutrition-related illnesses. An increased population will quickly consume the additional sources of nutrition, thereby reducing the overall nutritional status. At the level of the household, a dietary assessment examines the kinds and quantities of food consumed by the entire household. To assess the nutritional status of individual household members, the individual intake of calories and micronutrients, health and sanitation conditions and access to safe water must be taken into account.

## **2.7 Linkages between women, fertility and food**

The dual roles women play in producing and preparing food as well as bearing and raising children are part of the relationship between women's fertility and household food security (Lopez, 1997). A better understanding of the strength of the relationship between women's fertility and household food security is essential to develop national policies that improve the quality of life of women and their families. The socio-cultural as well as natural environmental factors affect women's fertility behavior and household food security in the rural context. Thus, linking natural resource management and environmental protection with gender-related population issues and social and economic costs and benefits involved in food and agricultural production will integrate the rural women's contributions and needs into national and local efforts to reduce environmental degradation and population growth (FAO, 2004).

The social, ecological, economic and political consequences of the impact of population growth on resource systems have generated national and global food security debates (Leisinger *et al.*, 2002). Dramatic changes in food production, processing and trade in recent decades have provided enough food, if equally distributed, to meet the basic needs of every person on earth. However, the unequal distribution of food remains a key issue. Gender bias is a worldwide phenomenon, but it is especially pernicious in the Third World, where most women's activity takes place in the non-wage economy for the purpose of household consumption. Women's and men's different access to control over resources and their different decision-making roles reflect the unequal power relations between them (Moser, 1993). Gender inequality also plays a significant role in the distribution of food.

Considerable work has been done during the last decade to identify the linkages between gender and the environment. However, the interaction between, on the one hand, environmental factors and gender, and, on the other hand, women's fertility choices, points to the interaction between gender, fertility and environment. The important biological differences between the sexes have put women and men at different risks in relation to environmental factors. In almost all societies, women and men tend to occupy, use and

manage different aspects of the bio-physical environment in a gender differentiated manner. They are engaged in different spheres of activity, and the amount of time spent in interaction with various elements of the environment tends to fluctuate. Moreover, women's responsibility for cooking links them, more than men, to the agricultural food environment. Women spend longer periods in the household environment because of their responsibility for housework and childcare. Furthermore, women's role in biological reproduction creates for them as well as their unborn children additional care and nutritional needs. Regarding gender differences in agriculture, men are generally responsible for land preparation such as clearing, while women might be responsible for sowing, hoeing, crop maintenance and harvesting, food processing and storage, and seed selection for future planting. Even if rural women are main contributors to household income through their role in agricultural production, their work is rarely fully valued or even acknowledged in national economic accounting and planning (Swaminathan, 1998).

Women are key actors in achieving food security within the household. Niehof (2002) addressed the relationship between gender roles, food security and nutrition. Women's reproductive role extends to the food and nutrition security of the household, through their interrelated activities in food crop cultivation, food procurement, collection or exchange, food processing and preparation, and finally food distribution or consumption. The problems women can encounter in carrying out these food-related activities might jeopardise their own and their children's nutrition. Niehof adds that shifting part of the reproductive burden to men does not appear to be a feasible option. Strengthening women's productive role by empowerment and access to education and health care seems more promising, and would have a positive impact on child health and nutrition as well as on the dynamics of food security at the household level.

## 2.8 Research questions and conceptual framework

In Chapter 1 the research problem was formulated as follows:

*How does women's agency relate to population and the environment in rural Nepal?* More specifically, the research problem can be formulated as:

*How do women's reproductive and productive roles at the household level impact the relationship between population and the environment?*

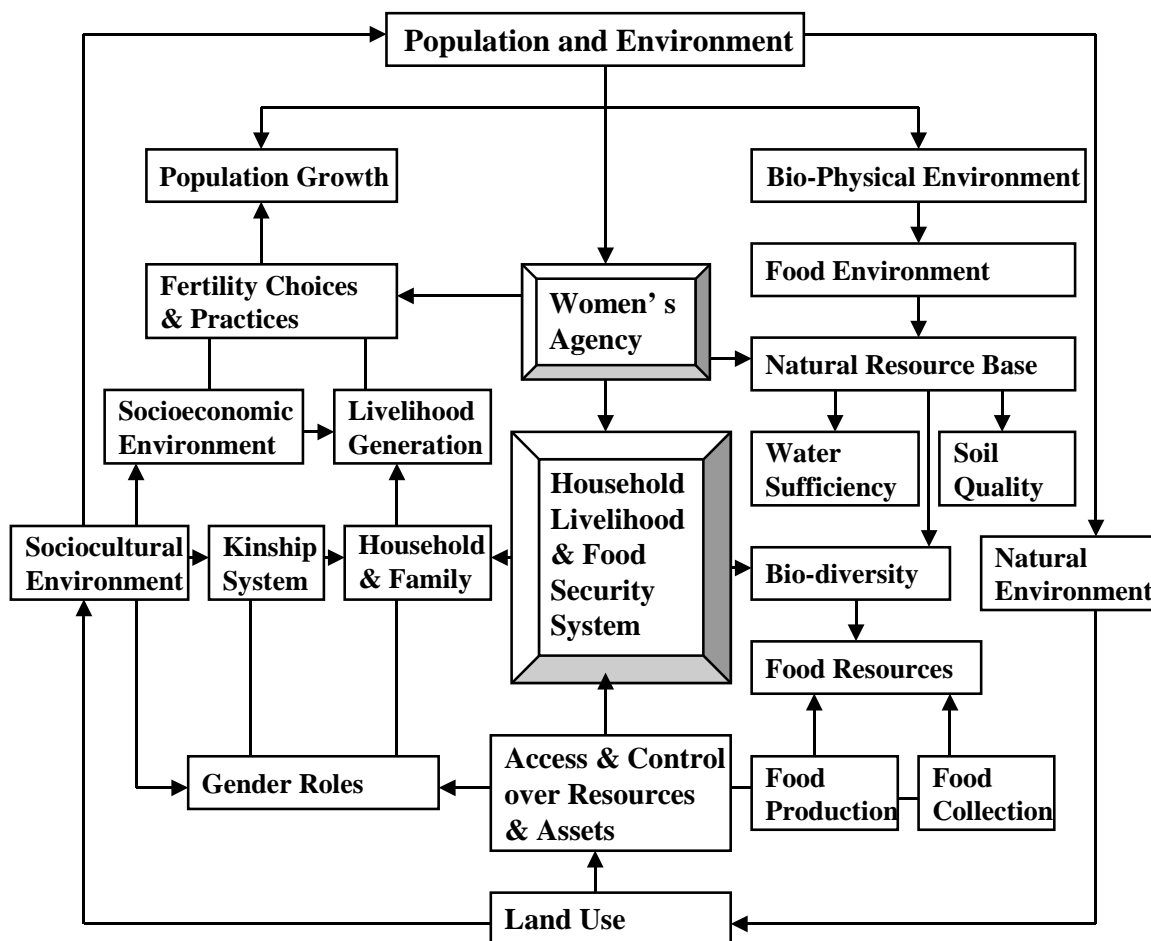
On the basis of the research problem, the specific questions in this study are:

1. What are women's reproductive roles and how do they relate to fertility choices and practices?
2. How do the resulting fertility patterns influence land use and management of the natural resources?
3. How does women's agency in reproductive roles relate to household livelihood and food security?
4. How does women's agency in productive roles impact the natural resource environment and land use?
5. How are women's reproductive and productive roles interrelated?
6. What is the impact of fertility patterns on the natural resource environment, particularly the food environment in rural areas?

With regard to the research problem and the specific questions presented above, a conceptual framework has been developed, in which population and environment are basic concepts. The variables relating to population and environment are linked to the concepts of

women's agency and household food security, which incorporates the control over resources, assets and land use. The socio-cultural environment and the bio-physical environment constitute the two contexts of these variables. Different population and social variables are addressed, such as fertility choices and practices, the kinship system, household, family and gender roles, the socio-economic context and livelihood generation. The natural environment as a context includes the food environment, the natural resource base, bio-diversity, water sufficiency, soil quality and resources for food production and collection. A diagram summarising the conceptual framework is presented below.

Figure 2.1 Conceptual framework



This study covers the two large paradigms of population and environment linkages of natural resource and socio-cultural environments. Women's agency is the central point linking biophysical environment and population growth. It also connects directly to fertility choices, the food environment and national resource base, and to the household livelihood and food security system. This system is linked to the natural resource base for agricultural food production, and is influenced by land and water sufficiency and soil quality. Linkage of the socio-cultural environment and women's access and control over resources is important in relation to the socio-cultural environment and land use patterns. The role of gender in relation to fertility choices and food production are core issues in the model.

The variables used in the study are based on the conceptual framework and can be divided

into three clusters relating to: (1) fertility; (2) household food and livelihood security; and (3) gender. Within each cluster the concepts, variables and their operational indicators have been formulated. Cluster 1, *Fertility*, includes fertility, marriage, fertility determinants, contraception, changes in fertility choices and perceptions, and infant and child mortality. Cluster 2, *Household food and livelihood security*, includes household, livelihood, resources and assets, natural food environment, food production and food collection, food purchase exchange and redistribution, food security, food processing and preparation, food consumption, and nutritional adequacy. Cluster 3, *Gender*, includes gender, gender needs (practical and strategic), women's agency, and women's status in Nepalese society. A detailed overview of concepts, variables and indicators can be found in Appendix 1.





## **Chapter 3**

### **Methodology**

This chapter explains the research design and methods used in collecting data in the field and the process of data analysis. The fieldwork was conducted in Gurung villages in Lamjung district in the mid-hills of the Marsyangdi area of Nepal. Local social norms and ethical concerns were taken into consideration and empirical data were collected in the field, using a mixture of quantitative and qualitative methods (Scrimshaw, 1990). Methods used in the study are: literature review, focus group discussion, participatory rural appraisal, household, food and fertility surveys, 24-hour food recalls, participant observation, key informant interviews and life histories. In addition, individuals at institutions and organisations that are involved with population and environmental resource activities were consulted.

### **3.1 Preparation of the fieldwork**

#### **3.1.1 Selection of the research villages**

The rural Lamjung area was considered because of the presence of Gurung villages and certain key variables such as high population density and environmental degradation. Political instability in the country, including in the selected area, rendered the original plan problematic, and I was forced to look for other possible research sites. Therefore, to prepare the fieldwork I first visited rural Kathmandu and selected eight villages to examine their suitability. However, none of the areas possessed the desired characteristics, and in the end the political situation improved, which enabled me to carry out the original plan. Several regions in western Lamjung, including the villages of Bhoteodar, Udipur, Besishahar, Ghalegaun, Bhujung, Ghanpokhara and Khudi, were subsequently visited. After collecting the necessary information, I found Bhoteodar and Udipur in the Marshyangdi river area (Middle Marsyangdi belt) in Lamjung to be the most suitable communities. Following a detailed study, I selected Bhoteodar and Udipur as the main research sites. Beshishar was considered as an additional village in the event that the other two did not yield the required numbers of women aged 15-49. The final decision was made on a basis of the feasibility study conducted in Bhoteodar and Udipur, when the purpose and objectives of the research were explained in detail to the district officers, local leaders, and special groups, including women's groups and key informants.

The research villages were small and had a homogeneous Gurung population. In addition, the selected area was suffering from environmental degradation, a necessary condition to investigate its relationship with population pressure. Because of the conflict between the army and Maoist rebel groups, there was a state of high tension and political confrontation in Nepal. However, the selected areas proved favourable for research and were politically safe at the time of the fieldwork.

At the start, a household roster was created to gather information on all Gurung households in the villages. After that, the number of potential respondents could be determined. According to the household roster there were 343, and individual interviews were carried out with each of them. It was important to have at least forty women in every age group, while there are a total of seven five-year age groups of women aged 15-49 years.

Furthermore, it was decided to conduct the surveys in February, as women in the villages have a lighter agricultural workload and are readily available.

### 3.1.2 Selection and training of research assistants

The research assistants, enumerators and local facilitators were recruited differently. Advertisements for a research assistant and enumerators were placed on notice boards at Tribhuvan University Kirtipur in Kathmandu, in the college student unions and in libraries. The intention was to find several applicants and to select the most suitable candidates from different disciplinary backgrounds, such as demography, sociology and rural development, with the aim of selecting ethnic Gurung women with children. Unfortunately, it was difficult to find Gurung enumerators in Kathmandu, so I was forced to place a local advertisement in Bhoteodar. Here I was able to recruit three local Gurung facilitators to help enumerators and the researcher with the survey, as well as with the focus group discussions, the PRA and the key informant interviews. One male research assistant, six female enumerators and four female local facilitators were selected from people who had responded to the advertisements, and each of them was interviewed. Since it was not possible to find Gurung enumerators with the required qualifications, they were selected from the following ethnic/caste groups: Newar, Limbu, Brahmin and Chhettri.

Training of the research assistants and enumerators lasted five days, during which a detailed explanation of the research objectives and the procedures was provided. The training concerned practical issues and the research process, and the researcher together with the research assistants, enumerators, facilitators and local supervisor visited important persons in the villages; these included the village leader, *Amasamuha* (local mothers group), and women leaders. The research team was introduced to everyone before they conducted the surveys.

## 3.2 Methods of data collection

This section provides an overview of the data collection methods used in the field research. There were 222 Gurung households in Bhoteodar, 97 in Udipur and 38 in Beshshahar including 10 from Bhujung. Altogether 350 households in the area were surveyed and a total of 343 eligible women (married and aged 15-49) were found for the interview. The procedures for the data collection are presented in the tables below.

*Table 3.1 Survey methods and 24-hour food intake recalls*

Methods	Procedure applied	Sample size	Stage	Enumerators/facilitators	Research assistant	Time duration
Household Survey	Household survey	350 hhs	1	5/4	1	1 month
Fertility and Food Security Survey	Survey	343 hhs	2	5/4	1	1 month
Food Survey	Sub-survey	40 hhs	3	1	1	2 weeks
24-hour Dietary recall	Food recall & Observation	31 hhs	4	None	None	1 month

*Source: Field survey 2003*

The qualitative methods applied in this research are summarised in Table 3.2.

*Table 3.2 Qualitative research methods*

Methods	Details	Number	Stage	Facilitators	Research Assistant	Time duration
1. Key informants interviews	Six males, four females	10	1- 4	1	None	1 month
2. Focus group discussion (FGD)	Male and female mixed, female separately	6	2	2	None	1 month
3. PRA Nayagaun	Elderly and young separately	2	3	2	1 assistant	2 days
4. PRA Gyausibas	Elderly and young separately	1	3	2	1 assistant	2 days
5. Life histories and case studies	Male/Female separately	6	1-4	1	1 assistant	12 days (2 each day)

*Source: Field survey 2003*

Table 3.3 presents the schedule of the focus group discussions.

*Table 3.3 Focus group discussions*

Geographic units	Gender	No. of sessions	Facilitators	Research Assistant	Time duration
1. Nayagaun group	Male/ female	2	2	1	2 days
2. Gyausibas group	Male/ female	2	2	1	4 days
3. Bhoteodar group A	Female	1	2	1	2 days
4. Bhoteodar group B	Female	1	2	1	2 days
5. Balithum group	Male/ female	2	2	1	2 days
6. Ratanpur group	Female	1	1	1	3 days

*Source: Field survey 2003*

Throughout the fieldwork a diary was kept and observation was continuous. With the help of village officials and the elite, the researcher was able to rent a house in each village. For the survey in the area near the road the research group rented a room in a small hotel in Bhoteodar. In the remote areas, the survey groups stayed in Gurung homes. Researchers, research assistants and the researcher's local supervisor visited the village first to find accommodation, and the mother of a selected household agreed to cook food for the team after having discussed this with her son. This family also allocated a house for the research group to rent during the entire survey period. The house was conveniently located and had easy access to all the locations within the survey area.

### **3.3 Data collection**

The data collection procedure was carried out in stages, and the questionnaires were designed and pre-tested before the main survey began.

#### **3.3.1 Preparatory work for the surveys**

##### ***Design of the questionnaires***

The questionnaire was designed such that the collected data could answer the questions raised for this study, and was based on the operational definitions of the key concepts. Furthermore, the procedures involved in developing the questionnaire were as follows: searching for published statistics for Nepal; consulting publications from Nepalese government agencies and professional associations; reviewing local sources, administrative forms and records; and collecting information and opinions from experts on the area. The questionnaire consisted of two parts: a Household Survey and a Fertility and Food Security Survey, and can be found in Appendix 2.

##### ***Household survey (Roster)***

The first part of the questionnaire was designed to collect the household's demographic information. Issues addressed were: general information of family members (sex, age, marital status, education and occupation) and fertility and mortality within the last 12 months. The questionnaire contained a separate column for notes about the potential respondents (women aged 15-49) for the Fertility and Food Security Survey.

##### ***Fertility and food security survey***

The questionnaire for individual women aged 15-49 was developed such that it could provide information on fertility, food security and livelihood strategies. Fertility and aspects of livelihood and food security were the main issues addressed. The first part of the questionnaire covered the reproduction-related topics such as marriage history, fertility, (child) mortality, use of contraception, pregnancy history and breast-feeding. The second part related to household food security, nutrition, food preparation, food seasonality, food production, collection and storage and the nutritional condition of mother and child. Regarding livelihood aspects, the questions included topics like housing, land ownership, livestock, drinking water, energy (fuel), employment, income, transportation and communication. The third part dealt with general questions about family life and livelihood strategies. The last questions required respondents to react to statements about population and environment (Likert scale).

##### ***Pre-test***

Ten Gurung households in a typical rural community within Lamjung were randomly selected to pre-test the questionnaires. Bhujung was selected for both the Household Survey and the Fertility and Food Security Survey, but only after approval was given by the community. A meeting was conducted with the local mothers' group, called *Amasamuha*, and with the local leaders for their permission to pre-test the questionnaire. Problems emerging in the pre-test were discussed and the questionnaires were adjusted.

##### ***Use of local calendar and approach to the respondents***

The Gurung follow their own astrological calendar based on the names of local animals like cat, rat, dog, monkey and snake (see Figure 4.3). This is a typical example of the astrological calendar found in other Asian cultures as well, consisting of a cluster of twelve

years, each year represented by an animal. It was used by the enumerators to help them determine an accurate year of birth for each survey participant. A list of important events in the last decades and a summary of festivals throughout the year were also constructed to check the actual age. It was important to have Gurung facilitators with the research group so that they could explain linguistic and cultural issues. They also assisted in determining the age of household members by relating age to events. In the focus group discussions, the dates of important events, such as landslides, large robberies in the village, famine, the Land Act launched in Bhoteodar, the first democratic elections (1990) and so on, were established. This helped informants to remember past dates. For the construction of the timeline in the PRA, local events like the construction of a village temple or the death of a village leader were used. With these questions and timeline we attempted to make visible the past and current state of the environment and of human behavior in relation to it.

The enumerators filled out the survey questionnaire only after the local facilitators had made the introductions and had obtained the consent of the household member to be interviewed. Privacy was protected and ensured. The data form and questionnaire were in a coded format and therefore not linked to any particular individual respondent. The information sheets prepared for the participants clearly outlined the study's objectives. Although there was no consent form, the cover sheet of the questionnaire clearly stated that respondents had the option of not participating or the choice of not responding to particular questions. This was also verbally explained. Participants were also made aware that once their information was collected they could not withdraw from the study. For persons to be interviewed as key informants, appointments were made in advance. The researcher also maintained contact with the field supervisor and held regular meetings with the team.

### **3.3.2 The Household Survey (HS)**

In this research, a household was defined as a single person or a group of people that prepare their food in the same kitchen, sleep in the same house and keep a common household account (Nachmias and Nachmias, 1996; Scrimshaw, 1990; Rudie, 1995). When family members lived in one house but had their meals from separate kitchens they were considered separate households. Thus, the criterion of commensality was deemed more important than co-residence.

At the beginning a household survey roster was developed to collect information on all Gurung households in the villages. After completing it, potential respondents (women aged 15-49) were identified and the individual forms for the women were filled in. According to the household roster, 343 women aged 15-49 were available for the fertility survey. The population size and the numbers of women in the targeted age groups were estimated by the available data from the Village Development Committee (VDC) offices of Bhoteodar and Udipur, respectively. The Household Survey indicated a total population of 1866, with 343 women of the required age in the area. The enumerators started individual interviews with the women on the basis of the survey data.

The survey began with the households located on the roadside of Bhoteodar and was conducted by moving from one ward to the next, as in a census. Only Gurung households were selected. In the case of absence or unsuitability of the household head, other relevant family members of the appropriate age were interviewed. Both male and female members of the household could be listed as household head. The HS questionnaire included

questions about the composition of the household and household income and individual characteristics of individual household members, such as sex, age, marital status, education and employment. Members were also questioned about the environment of the household. The environmental variables addressed in the survey related to agricultural production, land, forest, soil and water use. Topics such as collecting forest food and food production from kitchen gardens were also addressed. Questions were asked on gender participation in these activities in terms of 'Who does what'. All 350 household rosters and 343 individual questionnaires were filled in.

### **3.3.3 Household fertility and food security survey (FFSS)**

A stepwise, careful planning of the household survey programme was essential to ensure that the desired data could be obtained. According to Preece (1994) a survey is a research-structured questionnaire administered to a sample of individuals representative of a defined population. Furthermore, De Vause (1995: 100) states that a survey seeks an understanding of what causes a phenomenon by looking at differences in a variable across cases and looking for other characteristics, which are systematically explained. A household survey was conducted among a sufficiently large sample of households in the research area (cf. Bernard, 2002; Nachmias and Nachmias, 1996).

In this study, first the household fertility and the food security survey were conducted among all Gurung households in the area, and the interviews were conducted in Gurung households listing married women of reproductive age (15-49). In the event of the absence of eligible women at the time of the survey, the interview was held during a second or third visit. The questionnaire covered topics such as general household data, livelihood indicators, food situation, pregnancy history and fertility indicators as well as infant health, child mortality and gender indicators. Every person who was actually living in the household was enumerated. Married daughters living in their maternal homes were also interviewed.

### **3.3.4 Food survey and twenty-four hour dietary recall**

A separate food survey was conducted among a sub-sample of 40 households in the study area. The questions were about food availability and food security, and were mainly formulated in a multiple-choice format. A food survey was conducted with a sub-sample of the household and fertility survey to measure food security status and food conditions of the family members, and to collect information on how they solve their food problems within the household. Questions were asked about food adequacy and the role of seasonality for the food basket and household food security.

A 24-hour dietary intake recall was organised in a sub-sample of 31 households, and observations were conducted on household food intake, focussing on children under the age of five (cf. Den Hartog *et al.*, 1995). Both qualitative and quantitative data were collected on the kind and quantity of food consumed by the children, household food supplies, patterns of food preparation and dietary preferences. Furthermore, observations were done on food-eating frequencies and food storage in the household, and were systematically documented.

### 3.3.5 Key informant interviews

Representatives of local government and district officials were interviewed as key informants: these included the chairman of the Village Development Committee (VDC), women leaders, the chairperson of the local health post, the headmaster of the local primary or secondary school and the chair of the local mothers group. In addition, interviews were conducted with community representatives at the district level and with the district's parliamentary representatives. The researcher approached these persons by sending information sheets about the research objectives and the kind of questions that would be asked. The interview questions focussed mainly on the present-day policies, plans and strategies on population in the country and on the role of women in fertility and household food security.

### 3.3.6 Focus group discussion and participant observation

For the focus group discussions (FGD) the introduction by Nachmias and Nachmias (1996) was followed. An introductory letter making it clear that participation was entirely voluntary was handed over to the participants of the FGD in advance. A total of six focus group discussions were conducted, and depending upon the nature of the subject, focus group discussions (FGD) were conducted separately for men and women. Norms and values relating to fertility and children were important themes in the FGDs. On this subject a FGD was done with the members of a local mothers group (*Amasamuha*) as participants. Gender issues were also discussed. Observations by the researcher supplemented the data collected through various methods specifically directed to obtain a picture of women's daily lives in relation to children, food and the environment.

### 3.3.7 Participatory Rural Appraisal (PRA)

The Participatory Rural Appraisal (PRA) technique helped to generate knowledge about the local situation (cf. Chambers, 2002), and it was conducted in close co-operation with the community. Discussions focused on kinship relations, property inheritance, women's education, occupations, fertility and family planning. Other themes included women's roles in agriculture and the environment as well as the socio-economic and cultural situation of women in rural areas. A discussion was organised about population growth and its impact on agricultural production, forest management and loss of habitat. As part of the PRA a discussion was arranged with women in the village of Balithum. Topics included women's agency in relation to their working place and distance from their house, the changing situation of agricultural production and land degradation, people's changing attitudes with regard to farm management and motivation for development work, now and forty years ago. Exercises were conducted with the group by which these changes were examined and summarized. For the historical part, people aged 60 and above were involved.

### 3.3.8 Life histories

In this study the life history method (cf. Ritchie, 2003; Spradley, 1979) focussed on elderly women. They were requested to compare their lives when they were young to their current lives and to the lives of young women now. The goal was to reveal changes in women's lives and in gender roles. A total of six case histories were collected; these focused on marriage and kinship relations, in relation to gender and the value of children. Other themes

included the management of environmental resources, perceptions about the pressure on the natural environment, child-rearing patterns, fertility roles and choices, and the value of children, as well as social, cultural and environmental change.

### **3.4 Data Analysis**

Both qualitative and quantitative data were collected. Qualitative analysis was performed to generate and explore the dynamics of information collected and to add an in-depth perspective (Bernard, 2002). According to Scrimshaw (1990:86), “qualitative methods can capture actual behaviour with great accuracy, and can produce detailed information and insights applicable to both the development of testable hypotheses and interpretation of quantitative data”. Qualitative data were derived from the FGDs, life histories, case studies, key informant interviews, kinship genealogies and participant observation notes. The sorting and analysis of qualitative data was done manually. For the quantitative analysis, bivariate and multivariate regression and correlation analyses were performed using SPSS (Field, 2002). The research questions were answered by combining the data on the same topic but collected by different methods: a strategy usually referred to as triangulation (Neuman, 1997; Nachmias and Nachmias, 1996). The program Endnote was used for the literature review and for listing the references.

### **3.5 Legal and ethical concerns**

This research followed the established ethical guidelines for collecting the data. Ethical considerations included cultural concerns, legislation and intellectual property legislation, anonymity, confidentiality and procedures for handling information (Jankowski and Van Selm, 2001). The study took into account the ethnic norms and values prevailing in the field and followed the rules, regulations, law and legislation of the Nepalese constitution. The research was conducted with due regard to the requirements of the rules and regulations of the local government, the Population and Environment Law (MOPE, 1998c), Census (2001), Resource Management Act (1998) and the Environment Conservation Area Management Rules, 1996 (MOPE, 1997b). Local social and cultural regulations were also observed, and the researcher ensured that no copyright law was infringed upon.



## Chapter 4

### The Setting: Nepal and Study Area

This chapter highlights the location and ecological characteristics of the study area against the background of Nepalese society and political and administrative structure. The first section of the chapter looks at the ecological, demographic and socio-economic situation in Nepal, as well as the position of women in Nepalese society. In the second section a description is given of Lamjung district in which the research villages are situated. The third section summarizes the demographic characteristics of the research population. The chapter ends with a cultural profile of the Gurung.

#### 4.1 Nepal

##### 4.1.1 Geography and ecology

Nepal is a landlocked country sandwiched between China and India, nestled in the foot hills of the Himalayas. It shares the northern border with China and the remaining eastern, southern and western borders with India. Nepal has a rectangular shape, 885 kilometres long and 193 kilometres wide. The total land area is 147,181 square kilometres with a total population of 25.7 million in 2004 (UNFPA, 2004), making Nepal one of the most densely populated countries in the world (see also Appendix 3). Temperatures in the hills fluctuate between 15 and 35 degrees Celsius. About 84 percent of the total population lives in the rural areas (New Era, 2002).

Topographically Nepal is divided into three ecological zones: mountains, hills and plains (*tarai*). In the *tarai* 64 percent of the land is cultivated, in the middle mountains 43 percent, in the fragile hills (*Siwalik*) 17 percent, and in the high mountains 13 percent (CBS, 2003a). Land use in agriculture is broadly categorized into four major traditional systems: irrigated rice cultivation (*khet*), rain-fed cultivated land (*pakhobari*), livestock production and forestry production. Maize is the dominant crop on *pakhobari* lands. While rice is the preferred staple crop, cropping species and cropping calendars vary according to the agro-ecological conditions, including elevation. At lower altitudes, maize is intercropped with other cereals, like millet, at higher altitudes with potato. *Pakhobari* lands on the slopes are constructed as outward sloping terraces in order to drain off excess water during the monsoon. This is in contrast to the flat terraces of the *khet* lands, where it is essential to retain water for rice cultivation. The rain-fed terraces of the *pakhobari* lands frequently have a ditch at the back of the terrace to reduce overflow and erosion. *Khetland* represents the system of irrigated terraces used for the growing of rice. The following soil types, according to color and texture, can be found in the middle hills of Nepal: black soil, light red soil, sticky red soil, and soft soil, light brown and brown soil. Soil quality is the capacity of a specific kind of soil to function and sustain agricultural productivity, and maintain or enhance water quality. The average size of cultivated land according to ecological zone is given in Table 4.1.

*Table 4.1 Cultivated land per person and per household according to ecological zone*

Zone	Cultivated land per person (ha.)	Cultivated land per household (ha.)
Mountains	0.307121	1.620500
Hills	0.162554	0.840429
Tarai	0.167393	0.96222
Nepal	0.175438	0.954954

*Source: Subedi, 2003; Population Monograph, 2003*

Administratively, Nepal is divided into five development regions spread over 14 zones (provinces) and 75 districts. The districts are divided into urban municipalities and Village Development Committees (VDCs). A VDC consists of nine wards, while the numbers of wards in the urban municipalities depends on the size of population as well as political decisions made by the municipality itself. Right now there are 58 municipalities and 3914 VDCs in Nepal (New Era, 2002).

Nepal is a multi-lingual, multi-ethnic and multi-religious country. The country was never colonized. According to the 2001 Census 80 percent of the population are Hindus. Being a multi-ethnic and multi-lingual country, each cultural group has its own customs and traditions. Nepalese are practising various rules and regulations defined by the customs and cultures in their daily life. The people of Nepal are grouped into four major castes: Brahmin, Chhettris, Baisya and Sudra. These castes are further divided into more than 36 ethnic groups. Apart from constitutional and legislative rules and regulations, ethnic cultural values play a role in specifying the rights and duties of men and women.

Ecological characteristics are wide and diverse in Nepal. There is a multiplicity of interactions between forms of agriculture and the streams of water flowing from the Himalayan range. The Himalayan environment is replete with natural beauty, including alpine forests and agricultural terraced lands. Widely different species, habitats and niches are available in the different environmental settings, providing a great number of environmental functions that are useful to human society, for example foods and natural building materials.

#### **4.1.2 Entitlements to and use of land, water, and forest**

Land, water, and forest are the prominent natural resources that are basic to sustaining livelihood in Nepal. Women play an important role in taking care of these resources. Like women in other communities, in daily life Gurung women have a close relationship with the land, water, forest, and the agricultural soil. Thus, on the use and management of these resources, women should have a voice and an influence in decision-making with regard to these resources (Agarwal, 1994a). Improving women's rights to parental property and full appreciation of their role as care-takers can have positive implications for a meaningful role of women in natural resource management (ICIMOD and Papola, 2002).

#### ***Land use and agriculture***

Regarding occupation, more than 80 percent of the Nepalese people depend on agriculture is engaged in farming. People either have ownership of land or engage in share-cropping

(CBS, 1998). Basically, rural livelihoods are entirely dependent on agriculture. Land is usually classified by the government of Nepal into four categories:

1. *Abbal*: first class land, with the highest productivity and regular irrigation facilities.
2. *Doyam*: second class land, with the second highest productivity and semi-regular irrigation facilities.
3. *Seem*: wetland, with the third highest productivity and always water on the land.
4. *Chahar*., the least productive land where there is no regular irrigation facilities

Source: Shrestha (1985) and Singh (1988).

Nepalese agriculture is dominated by small-scale subsistence farming. The productivity of land is lower in the mountains and hills than in the *tarai*. Women in the mountains and hills contribute substantially to agricultural production, both in terms of labour inputs and decision-making. They face the challenge of making sustainable use of natural resources in the context of growing population pressure.

Because of the prevailing patrilineal kinship system, the property rights to land are transferred down the male line. So, the common practice is that property, including the land, is transferred from parents to sons and then to the grandsons (Acharya, 2001; Tiwari, 1997, 1998). When a woman moves to her husband's home, she has to rely on the property of her husband. She will have no legal right to sell the land or make decisions on the use of land. Such a condition can have implications for women who have to make crucial decisions about land cultivation, crop harvesting and use of food products (ICIMOD, 2000). Even though men own the land, women are the ones who do most of the labour related to agricultural production, such as digging, planting, weeding, harvesting and storage. Land entitlements and ownership of other property might empower woman mentally, economically and socially. Control over land means control over other means of production as well, such as labour and loyalty of others and the ability to mobilize institutional credit and other public sector resources (Kabeer, 1994).

### **Water**

Water has a crucial role in the production and preparation of food in rural areas. Water is a very important natural resource, which is used in daily life for cooking, drinking, cleaning, washing and irrigation. The amount and quality of water is important in securing health and hygiene of people, livestock and crops. The system of water collection is ancient and was nurtured by religious edicts, prescriptions and social behaviour (Agarwal and Narayanan, 1997; Regmi, 2004). Collection of drinking water is primarily a women's duty in Nepalese society, as in many other societies. In many areas, women have to spend a significant amount of time on the collection of water (Zwarteveen and Neupane, 1996). However, the importance of the time and the labour spent on it is not taken into account in decision-making on drinking water development projects or planning of new water schemes.

In the use and management of water for both drinking and irrigation purposes in Nepalese rural areas, men and women have different responsibilities and tasks. Women need water for drinking, irrigating vegetables and for household use, men for irrigating main crops like paddy or wheat. Men and women are both involved in crop production work, but their demand for irrigation water may differ because of their different interests (Zwarteveen and Neupane, 1996). At the farm level, men dominate in terms of water use. If men are absent or go away to find work or for another activity, then the responsibility for the household goes to the women. In this situation, women in the household have the right to decide on what needs to be cultivated and irrigated in order to increase production. However, they

cannot take major decisions, like improving the water supply system, without the husband's permission.

### ***Forest***

Fuel wood is the primary source of energy for cooking, accounting for over 80 percent of the total energy consumption for cooking. Trees and vegetation in the forest are very important for soil and water conservation and thus provide slope stability especially in the mountains by minimizing runoff and soil erosion. In rural Nepal, the forest has been gradually depleted and degraded for decades by shifting cultivation. Cutting of trees for timber and firewood and farming in the forest areas have increased due to population pressure. Timber for the construction of houses and sheds, firewood for cooking, and fodder for livestock are the basic resources available in the forests. Forestry is an alternative source of income for rural people, who gain an income by selling timber, firewood, and raw materials for the industry like the paper industry. Thus, the increased human activities and animal grazing with high stock density have caused deforestation and enhanced soil erosion in forest areas in the mountains. Forests provide a range of food products with high carbohydrate, high protein and high vitamin contents (ICIMOD, 2000). Types of food products that are harvested from the forests are fruits, nuts, leaves, and cereal substitutes. In addition, especially in the mountain and hill forests, women also collect commercially valuable products, such as medicines, herbs, fruits, and mushrooms. Forests shelter a range of wild animals, including insects, reptiles, fishes, birds and mammals, that are used by human beings since time immemorial. The exact value of used forest products is unknown.

The deep-rooted trees in the forests make nutrients available for the soil in the form of organic matter (Belbase and Regmi, 2002). Indirectly, trees help to increase crop production by providing a sheltering belt in cropland, controlling weeds, and providing shade. Flintan (2003) reported that women, particularly poor rural women, play a dominant role in natural resource collection, and are often highly dependent upon it for fulfilling household needs. Women collect firewood for cooking and fodder for livestock by collecting the tree branches in the forest, but they are concerned not to damage the forest environment. Cutting trees haphazardly is more dangerous than collecting firewood and fodder from an environmental point of view. Villagers, particularly women, who are primarily responsible for obtaining both fuel wood and fodder, have developed sophisticated ways of managing forests so that the trees can continue to be lopped for many years without killing them (Gill, 1995). Women are the main actors in planting, weeding, pruning and thinning activities, as they are usually responsible for collecting fuel wood, fodder, and leaf litter from the forest (Warren, 1992; ICIMOD, 2000). Nepal should serve as a grim warning to those concerned with increasing agricultural production in fragile mountain ecosystems while simultaneously conserving and protecting the natural environment, as in the Himalayan foothills. If deforestation by farmers is seen as the problem, the obvious answer is reforestation by the government, a simplistic technical solution to a complex of interrelated soil, economic and technical issues (Gill, 1995: 97).

### **4.1.3 Nepalese society and culture**

Nepal is predominantly a rural-agricultural society, where more than 80 percent of people live in rural areas and depend on farming as a source of livelihood. Even in settlements designated as urban, approximately 50 percent of the urban population outside the three cities in Kathmandu valley are engaged in farming for their livelihood. Given the slow pace

of economic transformation farming will likely remain the dominant order of society and the mainstay of the economy for some time to come.

The basic social unit in a village is the patrilineal extended-family household. It is a common practice for many extended families to break apart as sons became separated from parents and brothers from each other. At the time of separation, the family property is equally divided among sons. Households split up in cases where the head of the household is less assertive or dominating, when the father dies, or when all sons are married. Unmarried sons normally do not separate from their parents. If the parents are deceased, unmarried sons usually stay with their older brothers. Because the family separation traditionally resulted in a division of family landholdings, land holdings are extremely fragmented, both geographically and socially. Sometimes, family separation and resulting land fragmentation turned into bitter feuds and led to legal disputes among brothers. Several types of family structures can be distinguished on which households are based:

*Nuclear family:* There is the simple nuclear family, the augmented nuclear family and fragmented nuclear family. Dahal (1983) distinguished two types of simple nuclear families: the one is consisting of husband and wife and the other one of husband, wife and their unmarried children. The augmented nuclear family consists of husband, wife, with or without their unmarried children, and additional relatives (like a widowed father or mother, a brother's widow, or unmarried sisters or brothers). The fragmented nuclear family is a family of a widow or widower with unmarried children. Men or women living alone also belong to the category of fragmented nuclear family.

*Extended family:* The extended family can be the simple extended family, composed of husband, wife, their unmarried children and married sons and their families. The fragmented extended family is composed of widow or widower and unmarried children, and married sons and their families, and widowed daughters and their children.

*Joint family:* A simple joint family is defined as at least two married brothers and their families living together. A fragmented joint family is composed of married brothers and their families and a widowed mother or grandmother living with them.

Marriages are mostly arranged by parents. Occasionally men and women would become married through dating and courtship. However such practices are regarded as antisocial. Polygamy is not socially and constitutionally accepted, but still a man can have more than one wife at a time by paying a fine. Studies indicate that people have been involved in both legal and illegal sexual behaviour from ancient times. However, sexual activities before marriage between boys and girls were never accepted. Because of this strict sexual morality, marriage takes place at a young age in Nepali society.

Beyond the immediate family there exists a larger kinship network that occasionally involves food sharing among members of the network. The kinship network provides an important means of meeting farm labour needs, especially during the planting and harvesting seasons, when labour shortages are common. It functions as a broader unit of social existence in the village. Some villages are made up of a few houses; others are sizable communities of several neighbouring settlements.

In most villages there are several caste groups. Usually, there is a considerable population of lower caste groups, such as the *kami* (ironsmiths), the *sarki* (leatherworkers), and the *damai* (tailors and musicians), who are vital to the basic needs of the village and form fairly self-contained production units. Villagers occasionally pool their resources and labour together to implement village-level projects, such as building irrigation channels or

facilities for drinking water. If a household cannot afford to hire farm labour, it usually relies on the mutual labour-sharing system called *parma*.

Although farming traditionally ranks among the most desirable occupations, villagers frequently encourage some of their children to leave in search of a position in the civil service, the army, or other employment. Individual migration is often the result of a family decision and is an important economic strategy. Such practices not only serve as a safety valve for growing population pressure but also generate cash income, thereby averting economic crisis in the family. Well-to-do families usually push their children to attend schools and then obtain a civil service job as a means of climbing the bureaucratic ladder, to develop valuable connections with the political elite.

Farming is the most important source of livelihood in rural areas, but the scarcity of land places severe constraints on agricultural development. The production from farming is not enough to sustain rural life. Landholding was the most important basis for socio-economic stratification. The 1981 agricultural census data identified five classes of peasantry: landless and nearly landless, people with no land or less than half a hectare; subsistence, those with half a hectare to one hectare; smallholders, owning one to three hectares; medium landowners, people with three to five hectares; and large landowners, owning more than five hectares. These classes of peasantry still exist at present and they are unlikely to disappear in the near future.

In terms of production relations, the first two classes are dependent on large landowners for survival. Small landowners, on the other hand, are relatively independent. They do not have to depend on the large land-owning class for survival, especially if they are involved in circular migration as a source of supplementary cash income. During the peak farming seasons when there is a large labour demand, the land-owning class employs landless people for low wages, which results in widespread rural poverty. Even though the agricultural sector as a whole has always faced similar economic and technological circumstances, it has remained diverse and today contains several strata in terms of landholding and relative economic dependence. The small intermediate farmers are only slightly less diverse than the rest of the rural population in terms of their members' ethnic and geographical background. The relative economic and educational advantages of this group and its occupational activities, have made its members relatively homogeneous in terms of shared interest. They generally aspire to achieve a middle- or elite-class status.

The typical food plate in Nepal is *dhal-bhat-tarkari*, to which sometimes *achar* (pickles) is added. *Dal* is a soup of any beans or green and yellow lentils, *bhat* is white rice, and *tarkari* is a spicy vegetables curry with hot chilly. *Achar* is pickled chutney made of slices of radish and cucumber or boiled beans, potato, tomato along with mangoes and green coriander with sour lemon and hot chilli. On special occasions other food is added to the plate, such as cooked vegetables like spinach or broad-leafed mustard greens, meat curries made from buffalo, mutton, pork, or chicken (beef is prohibited in the Nepalese kitchen), or fish prepared with ample quantities of spices and gravy. This addition is said to 'brighten up the mouth'. Other types of food include rice-pudding, dumplings, noodles with clumps of fresh coconut, doughnuts made from rice flour, millet bread, and a dish of fried maize and soybeans. In many households lunch consists of roasted rice, instant noodles with tea. Tea is usually prepared with ginger or mint leaves on top. If milk is available people will drink

the tea with boiled milk. Some spices, i.e. black pepper, cardamom, clove, and a lot of sugar are added as well.

An interesting cultural event is the “rice feeding” ceremony in which children are fed their first solid food at the age of six months for sons and five months for daughters. The family gathers many plates of food which signify that the baby will always have sufficient food to eat. The grandmother or another relative conducts the ceremony by feeding the infant a small amount of rice. In practice, this ceremony is usually conducted only for sons, while daughters are just given their first solid food without a ceremony.

#### **4.1.4 Women’s status in Nepalese society**

Nepalese society is a Hindu patriarchal society, in which women are often treated as second-class citizens in the household as well as in the public domain. Even in small communities, the general feeling is that women are less worthy than men. In national legislation women are discriminated against. Women’s social life in Nepal is very restricted because of the dominant Hindu and patriarchal values. In the past, women could only share their views among themselves and received little information from their husbands on economic and social developments. They were not allowed to participate in public meetings or discussions and were not informed of outside activities. These days, the situation is changing. Women are increasingly participating in ‘platforms’ for decision-making and other common forums (Upreti, 2001; Agarwal, 1994b, 2001; Banjade, 2003). However, the actual significance of their contribution in these meetings is not very encouraging (Agarwal, 2001). Women still lack rights that allow them access to and control over economic property, as well as rights to participate in policy-making bodies.

Women’s access to land is limited due to the patrilineal inheritance system (Acharya, 2001; Tiwari, 1998; Dahal, 1993; ICIMOD, 2002). However, due to male migration from the hills to other parts of the country or overseas for employment, agriculture in the hills is now primarily dependent on women. Women work in crop production, livestock production, and do other work needed for sustaining the livelihood of their households. Moreover, women are also engaged in non-agricultural sectors such as managing forestry, sales services, manufacturing, construction, transportation, communication, and so on (ICIMOD, 2000).

Women’s access to and control over land and other resources like livestock, materials in kind and money from the husband’s side is supposed to be legally guaranteed upon her marrying. By law, a married woman has no right to her parental property, but may have a right to the property of the husband’s family after the age of 35 and once her husband has received property from his parents. If this occurs the wife is entitled to a share equal to that of her husband. This applies only if she remains faithful to her husband and his family (Acharya, 2001). Even though this gives the impression that women have a legal claim to the property of their husbands, they need to go to court and suffer prolonged problems to get it and often do not succeed in obtaining their husband’s property.

Rural Nepalese society metaphorically keeps women within four walls. These walls symbolize lack of communication with the modern world and little opportunity to enter in decision-making processes. Women’s low level of education and the continuation of traditionally and historically explained practices of social discrimination make their position difficult. Involvement in childcare and household work, and the low economic

status of women in the family, are causing low participation of women in different management and decision-making bodies. Due to the dependency on men in daily life, Nepalese women face problems like domestic violence, psychological harassment for dowry, and low opportunity in finding jobs (Malla, 2002). In many cases, it can lead them to even accept prostitution. Culturally and by law, women are not treated as being equal to men.

Rural women in Nepal frequently express a strong preference for sons, mostly for economic reasons, which reflects women's subordinate position in society and the low economic value placed on women's work. Mothers of sons have higher status in the family and society. They even get more attention with respect to their nutrition and health during pregnancy and child-rearing than mothers of daughters. The table below presents some gender and fertility indicators of Nepal in the Asian context.

*Table 4.2 Gender and Fertility Indicators in Nepal in 2006*

Gender Disparities	Nepal	South Central Asia
Primary School enrolment M/F	118/108	
Percentage illiterate $\geq 15$ years M/F	37/65	
Mortality $< 5$ years M/F	71/75	87/90
Reproductive health and fertility		
Births per 1000 women aged 15-19	102	65
Contraceptive prevalence modern methods	35	42
Total fertility rate	3.40	2.97
Maternal mortality rate	740	n.a.

*Source: UNFPA, 2006: 95,99*

There are clearly gender disparities in Nepal, as can be seen from the male-female differences with regard to schooling and illiteracy in the table. The table also shows that the female mortality below five years old is higher than that of males. Fertility rate per 1000 women aged 15-19 is much higher in Nepal than the regional average, which indicates an early start of the childbearing period in Nepal. Likewise, contraceptive prevalence is relatively low and the total fertility rate is high in Nepal compared to the regional average. Maternal mortality is high as well.

#### **4.1.5 Economic and political situation**

The per capita income gross domestic product (GDP) for the year 1999/2000 was US\$244. Of the GDP 40 percent comes from the service sector and 40 percent from agriculture and 20 percent from manufacturing (CBS, 2001a). About 80 percent of the Nepalese population continues to rely on agriculture for their livelihood. The marginal growth in agricultural productivity is predominantly due to the fragmentation of land, poor access to technology, and poor rural accessibility. Sixty percent of the GDP is derived from the non-agricultural sector. Economic growth comes primarily from the non-agricultural sector.



Basically, rural livelihoods depend on land rights being in the hands of men. Nepalese agriculture is dominated by small-scale subsistence farming system. Women in the mountains and hills contribute substantially to agricultural production. The big challenge for Nepal is to make sustainable use of natural resources in the context of increasing population pressure. Nepal should serve as a grim warning to those concerned with increasing agricultural production in fragile mountain ecosystems like in the Himalayan foothills, while simultaneously trying to conserve and protect the natural environment. If deforestation by farmers is seen as the problem by the government, the government's obvious answer is reforestation, which is a simplistic technical solution to a complex of interrelated soil, economic and technical issues (Gill, 1995). While women's access to land is limited because of patrilineal inheritance, due to male migration from the hills to other parts of the country or overseas for employment, agriculture in the hills is mainly dependent on women.

Since 1996, Maoist movements have been operating in the country. This caused the state to declare a state of emergency, which led to instability of the government. The parliament was dissolved in 2002. The insurgency has raised the issues of legitimacy, economic development, and distribution of Nepal's resources and income. The Maoist rebels threaten the survival of the country's multiparty democracy with a constitutional monarchy, which appears to be hanging by a thread (Tiwari, 2002). However, the district offices for administration, education, forestry, and so on, are still operational. Schools, campuses, health posts and other local-level administrative institutions are functioning. Many districts are run by two governments; the Maoists claim that they are the new state government as opposed to the ruling government. The emergency law installed by a 'royal' coup on the first of February 2005 causes political instability to rise by the day and development work to lag behind.

#### **4.1.6 Population: fertility, mortality, and migration**

Fertility reduction is one of the Nepalese government's population policies. In spite of this policy, the social and cultural values of some of the local ethnic communities or groups do not permit birth control. The disadvantaged women of these communities have little choice but to continue giving birth, risking poverty and malnutrition. However, Nepal's anti-natalist population policy and distribution and use of contraceptives are impacting the fertility behaviour of women in rural areas. Fertility, nuptiality, mortality and migration are interrelated and have to be placed in a cultural context, while they also influence environmental variables. The following table presents some demographic indicators of Nepal, placed in a regional context, during the period 1996-2006.

##### ***Nuptiality***

Nuptiality refers to marriage and marital status. In Nepal, marriage is universal; without marriage a woman cannot have children. Women are socially not allowed to become pregnant before marriage. Unwed mothers and illegitimate children are stigmatized, ostracized and discriminated against. The report published by New Era (2002) states that 18 percent of women of reproductive age in Nepal have never married, 79 percent are currently married, one percent are divorced or separated, and two percent are widowed. According to the New Era report (2002) widowhood is the leading cause of marital disruption, followed by marital separation. Socially, widows are not allowed to become pregnant or give birth to a new baby after their husband's death.

Table 4.3 Demographic indicators Nepal and South Central Asia for selected years

Demographic indicators	1996	2001	2004/5	2005/6
Population size (in millions)			(2005)	(2006)
Nepal	22.5	23.6	27.1	27.7
South Central Asia	1,409.7	1,506.7	1,610.9	1,636.3
Crude birth rate (CBR)			(2004)	(2005)
Nepal	35.4	33.1	32.0	29.0
South Central Asia	-	-	-	-
Crude death rate (CDR)			(2004)	(2005)
Nepal	11.6	9.6	9.7	8.0
South Central Asia	-	-	-	-
Annual rate of population growth (r)			(2005)	(2006)
Nepal	2.5	2.3	2.0	1.9
South Central Asia	2.0	1.7	1.6	1.5

Sources: CBS (2003a); MOH (1996); UNFPA (1996, 2001, 2005); UNICEF(2006)  
<http://www.nssd.net/country/nepal/nep05.htm/intro>

### **Fertility**

The total fertility rate (TFR) in Nepal shows a slightly declining trend from 4.95 in 1996 to 4.48 in 2001 and 3.50 in 2005. For the region of South-Central Asia the total fertility rates in 1996, 2001, and 2005 were 3.77, 3.25, and 3.04, respectively, which makes Nepal a country with relatively high levels of fertility in the region (UNFPA, 1996, 2001, 2005).

### **Family planning**

The focus of the national population policy of the government in Nepal is on lower fertility and increased quality of family planning services and various health programs (New Era, 2002). Family planning services were introduced in Nepal in 1968. Thereafter the knowledge about and practice of family planning increased, especially when vasectomy programs were launched in India and other Asian countries during the 1970s (Thapa, 1989). The Ministry of Health (MOH) and the Population Development Association (PDA) launched the mobile vasectomy program by using local health posts and health centres for the first time in 1979 (MOH, 2002; MOH, 1996/97). In the 8<sup>th</sup> Five Year Plan (1992-1997) for the first time specific population and family planning goals were included. Since then the topic is addressed in every Five Year Plan. During the period 1976-86 the sharpest fertility decline was achieved (MOH/NFS, 1976; MOH/NCPS, 1981/1986,1991). In 1996 a radio program was designed to stimulate family planning practice by involving government health services of government and different agencies, such as the National Health Training Council, the National Communication Council, and the Family Health Division (FHD), which was funded by international donors like Save the Children, USAID/Nepal, and Johns Hopkins University. The family planning services were provided in collaboration by different projects, such as the Family Planning and Maternal Child Health (FP/MCH) project, the Integrated Community Health Services Development Project (ICHSDP), Family Planning Association Nepal (FPAN), Nepal Contraceptive Retail Sales Project (NCRSP), the Radio Health Program (RHP), distance education for Female Community Health Volunteers (FCHV's), and the Nepal Family Health Program (NFHP). Up till now contraceptives for women in the rural areas are provided free of charge by the health posts

in the villages. Women may not always receive the contraceptive they desire or that is most suitable for them, because sometimes the health posts and health centres have run out of supplies. According to UNFPA (2005), 35 percent of eligible women is using a modern method of family planning and 39 percent is using all methods.

### ***Mortality***

There are many linkages between fertility and mortality. A woman's experience of high child mortality in her reproductive period affects her fertility (Mason, 1995). The relationship between child loss experience of neonatal mortality, post-neonatal mortality, infant mortality and child mortality and its influence on subsequent fertility has been an important problem in society (New Era, 2002). Women who have experienced a child death are more likely to proceed to a following pregnancy than those whose pregnancy resulted in a live birth and a surviving child (Pant, 1998b). Moreover, breast-feeding protects women from conception and in the case of the death of a child in infancy breastfeeding is stopped and the period of post-partum amenorrhea shortened, resulting in exposure to the risk of conception. For the years 1996, 2001, and 2005 the infant mortality rates in Nepal were 86, 71, and 60, respectively, showing a slight decline. Maternal mortality, calculated as the number of maternal deaths per 100,000 live births, shows a declining trend as well, but is still very high. For the same years (1996, 2001, 2005) the maternal mortality rates are: 1500, 830, and 740, respectively (UNFPA, 1996, 2001, 2005).

### ***Migration***

The critical relation between population and resources may be alleviated by large-scale migration. Migration can be distinguished in terms of international migration, inter-district migration and intra-district migration. Most international moves are those to and from India. Of all immigrants moving into Nepal 89.2 percent are from India. Of all Nepalese migrating abroad 68 percent migrate to India, migration from India to Nepal being higher than that from Nepal to India (MOPE, 2002; Datta, 2002). Indians migrate to Nepal mainly for business purposes, Nepalese migrate to India for the purpose of finding work in the factories or hotels or other kinds of employment (MOPE, 2002). Inter-district migration from high land to low land and rural to urban migration are also significantly higher than the migration from urban to rural and low land to high land (Datta, 2002). In the study area, people move from the villages to settle in the area near the main road in the district. They also try to get work in the projects that are going on, like the Marshyandi Hydro-electric Power project in the research area.

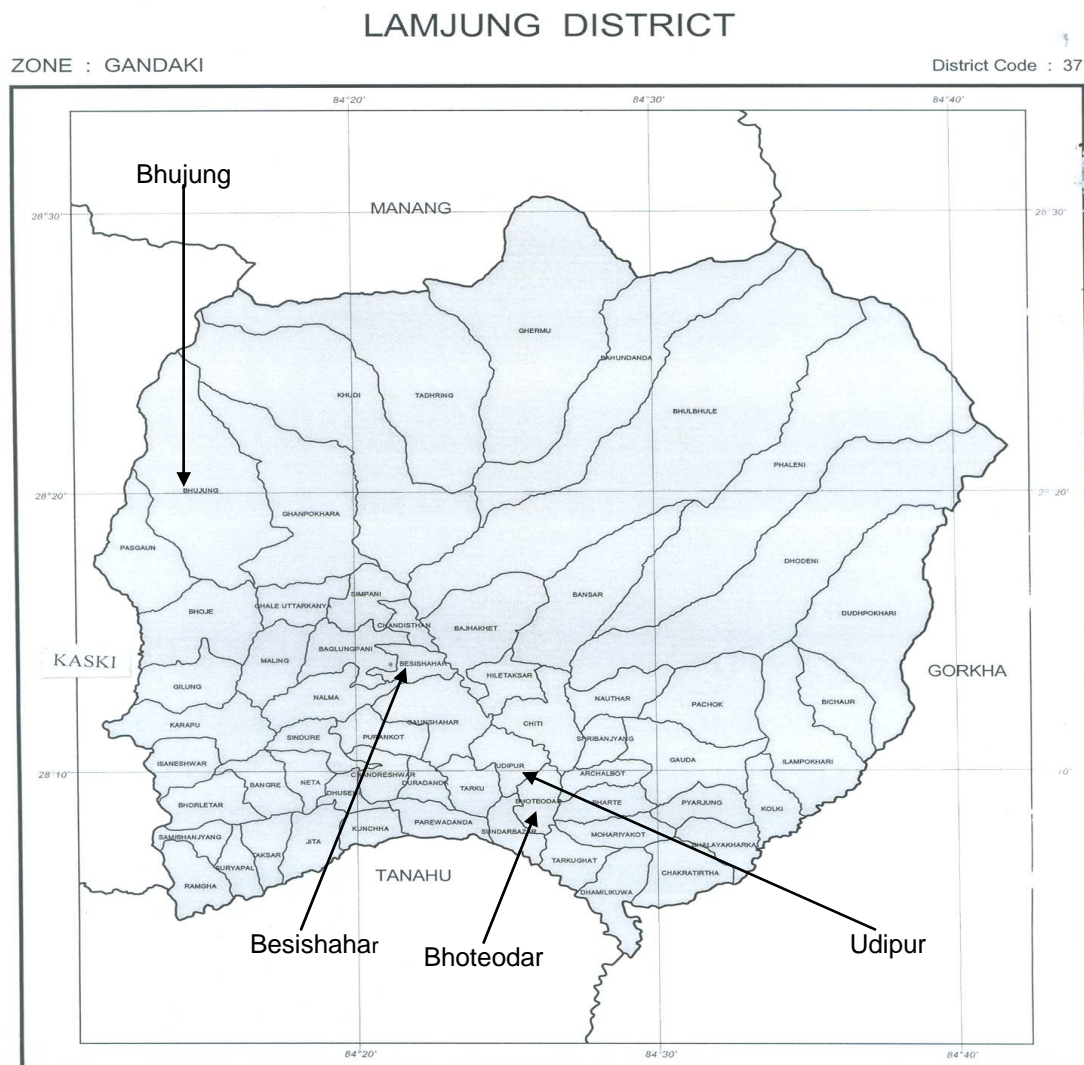
## **4.2 The study area (Lamjung district and the research villages)**

### **4.2.1 Geography, history and the political situation**

Lamjung district in the western hills region of Nepal was chosen for the purpose of the field study. It is located about 160 kilometres west of Nepal's capital Kathmandu. The district headquarters of Lamjung, Besishahar, are linked with Kathmandu by a tarmac road. The Marsyangdi River divides the district almost equally into an eastern and a western part. Lamjung is situated at the southern lap of the Himalayas and in the middle of Gandaki Zone. Lamjung's high mountains and hills create dramatic changes in altitude within the several Himalayan and high hills which start in the north and extend towards the southern part of the region (DDC, 2001) Excluding the snow-capped Himalayas there are four types of hills in Lamjung district. According to the physical features, of the district it is divided into Himalayan Pradesh above 4878m hills, *Lekali* flat land from 1221 to 4877m, low hill

land from 900 to 1220m, and *Tarai* (flat land) below 900m (see map of Lamjung District). The region ranges from 450 meters to 8,156 meters altitude and is contained inside 1,692 square kilometres. The area has a diverse geography, consists of streams, rivers, and mountain ranges.

Politically, the district is divided into two constituencies, Eastern Lamjung and Western Lamjung, with 61 Village Development Committees (VDCs) (DDC, 2001). Bhotedar is the entrance town of the district, while Besishahar is the location of the district headquarters. Bhotedar and Udipur, lying in the western part of the district at a distance of about 10 kilometers east of Besishahar, are developing as a market centre for the different hamlets. The altitude of the VDCs varies from place to place, ranging from 2000 feet to 4500 feet above sea level (DDC, 2000a.). The highest lying places in the area are Nayagaun and Kusunde, and the lowest lying place is Aklephant (agricultural production area) at the Marsyangdi river (Pant, 1987). The inhabitants of the district belong predominantly to the Gurung ethnic group, though Brahmins and Chhettries have some big communities as well. Other castes living in this district are small minorities. The major source of livelihood of the people in the area is agriculture. Most of the crops, particularly rice, wheat and maize, are grown in the southern belt close to the Marsyangdi river (DDC, 2000a). The alpine forest between the villages adds a natural beauty to the rural setting.



Source: Topography HMG/Nepal, 2003

Historically Lamjung is an important district. Almost 400 years ago, Kalu Shah the first king and ancestor of the Nepalese royal family, ruled over the district. His descendents ruled Lamjung and made it a historical place. The palace at Gaunshahar has become a historical monument. Flowers for the important Hindu festivals like Dashain, Tika and Jamara are still carried from this palace to Kathmandu. Historically there was a lot of fighting between Gorakha and Lamjung rulers. The different forts like Puranakot, Turlungkot, Tarkukot and Raginaskot, offered security for the kingdom and its people at that time. Lamjung has given birth to Bhakti Thapa, the glorious fighter for the unification of the country. Agricultural revolution also began here in this soil.

Because of political instability throughout Nepal, many local organisations are not functioning well in the district. The mothers groups, *Amasamuha*, however, are working throughout the district in an effort to empower women. Forest user groups, local consumer groups, social and elite groups of different ethnic or caste groups are operating at different local levels. Recently an NGO named *Sagun* is providing an income-generating program from which the women in Ratanpur benefit (DDC, 2000b). The VDCs are run by the secretary of the local district office. In the past, different environment and population development programs have been launched in the district. Projects like the Annapurna Conservation Area Project (ACAP), Natural Resource Conservation Area (NARCA), and a World Population Foundation (WPF) project have been implemented in Gurung villages and other parts of the district. Many national and international development organizations are working in the area. Various development projects, such as the Integrated Community Development Center, were launched from Bhoteodar. These organizations are committed to community development, but they tend to ignore the ecology and the natural resource environment. Environmental aspects are generally not taken seriously by any of these organizations.

The Marsyangdi river, which has good capacity to produce electricity, flows in the middle of the district. The lower Marsyangdi dam was constructed in Khairani, Tanahun district. At present, the middle Marsyangdi hydro-electric power dam is being constructed. The construction began on June 25, 2001. The project has been funded by German aid. It has an estimated output of 70 megawatt. It is regarded as the second biggest hydropower project in Nepal after the dam in the Kali Gandaki river. The project covers the fertile lands of Bhoteodar and Udipur. Displaced people are resettled in Udipur. The project has direct impacts for 433 houses. Despite the beneficial aspects of the project, it causes many problems to the local people. Environmental degradation has particularly affected them. Traditional economic and social structures of the local people have been disrupted.

New health problems are created, especially the spread of sexually transmitted diseases (STDs), including AIDS. Prostitution, which was quite unfamiliar in the past, has begun to exist along with the development of the project. The numbers of people addicted to drugs and alcohol are growing rapidly. Natural resources like soil, water, and forests are losing their natural quality. People have begun to resent traditional agricultural practices. The degraded ecological system cannot absorb all the changes brought about by the construction of the dam. The living conditions of the people of Bhoteodar and Udipur is affected as well. The vibration caused by the project construction causes the walls of their houses to become cracked. Streams dry up and the people have to live with the dust and the fumes. There is a shortage of drinking water, some public ponds and taps are buried. The compound wall of the construction site is so large that it actually surrounds some residences. Local people

cannot even walk around their own property properly. All this causes a feeling among the people that they are being punished for living near the project construction site. The project is fostering unhealthy relations and envy among the people. Some people may receive good compensation and others may suffer injustice. People say that they are not fairly treated in terms of monetary compensation. Air, land, water and noise pollution have compounded the problem. Although the project is highly significant for the national economy and local employment, it has become a negative presence for the local people.

#### **4.2.2 Natural resources and ecological characteristics**

The Lamjung district has a large potential for agricultural production. The Marsyangdi river is the main river flowing from the adjoining district of Manang in the north to the centre of Lamjung district. In the south the Marsyangdi river and its tributaries add to the beauty of the area but also determine the fate of a large section of the people. The valleys and lowlands close to Marsyangdi river and its tributaries are densely populated areas. Basically, the banks and the lowland areas close to the Marsyangdi river and the smaller streams yield agriculturally productive lands. There are several streams flowing from the Himalayas which have provided water for drinking and irrigation. The average annual rainfall in the district is 1321 mm (MOPE, 1998a). The mean temperature varies with location and attitude, ranging from a maximum of 38 degrees in the lower valleys and a minimum of 0 degrees in the Himalyan areas. With respect to the climatic, the district is divided into three parts: the cold areas in the north, a mild temperate tropical zone in mid part, and a tropical climate in the low land (MOPE, 2002). The natural resources and biodiversity in the area are being threatened by population pressure. The local people expect that more than fifty percent of existing species will be lost in the next ten years.

Water is essential for living organisms everywhere. Water plays a vital role in maintaining the environmental balance in the area. In Lamjung water is widely used for drinking, cleaning, irrigating, and so on. The supply of drinking water was found to be sufficient in Bhoteodar and Udipur. Public taps, wells, rivers, and streams are the primary sources of water. Apart from such sources, few people use piped water for domestic purposes. NGOs, the government, and some donors have helped communities in the area by providing water resources. Unfortunately, increasing water use and deforestation have dried up some natural water resources and naturally damp sites. Consequently, the natural geography of the region is changing. The Marsyangdi river is also called 'Karmada' and has religious importance. The ashes of cremated persons are thrown into the Marsyangdi river and people take ritual baths in it.

Forests play a vital role in preserving the ecosystem and environmental balance in the area. To avoid landslides, soil erosion, saturation of rivers and dams, droughts, and weather extremes, forests should be preserved. "Green forest is Nepal's prosperity" is the slogan in this area. However, nowadays the forests are gradually being destroyed. Because of high population growth and the poor economic conditions, people were forced to convert forest into agricultural farmland. As a result some animals have lost their habitat. In response, local people have formed forest users groups. When the state handed the forest over to local communities, the rate of destruction decreased. People began reforesting plants around their communities, so that they could use such resources in the future for the construction of houses, cultivation of grass, and firewood. These efforts have supported the local economy. However, the hydro-electric power project is destroying the ecology in the name of

development. The project does not include a clear plan and policies to preserve the region's ecology. Human activities such as farming or building houses have caused soil erosion and without soils the farmers cannot grow crops, fruits, and vegetables in the area. On the banks of the Marsyangdi river, people had a lot of fertile soil for farming. However, the changing environment causes natural fertilizers to be replaced with chemical fertilisers. The fertility of the soil has been slowly depleted. People have also begun to leave agricultural work and divert their attention to other occupations.

### 4.2.3 Land use and agricultural activities

Agricultural production is the major source of livelihood in this area. Rice, maize, millet, wheat, mustard, and lentil are the main crops. The choice of specific crop varies with the location and altitude of the land and the availability of water. The crops produced are mainly used by the people for their own consumption and a small percentage is sold to meet household expenses. The summer and the rainy season are the main seasons for crop production. The people also produce crops and vegetables in other seasons, if the land can be irrigated. Depending on the rainfall and irrigation facilities people harvest one to three crops in rotation within one year. Additionally, vegetables and other crops like taro, potato, and sweet potato are produced.

Environmental degradation can be distinguished into three parts: man-made degradation, development-created degradation, and natural disaster. In Bhoteodar and Udipur, man-made degradation and development-created degradation are common. As described above, among the development activities, the *Madhya Marshayangdi Hydro Electricity Project* (MMHP), one of the Nepal's biggest power projects, has caused more environmental degradation than ever before. Because of the availability of education, health and power facilities in Bhoteodar the Gurung villages are expanding. Inter-district migration flows, especially that of Gurung people from the high hills to low-land Bhoteodar, have increased the number of households. In response, a rehabilitation process is in progress. In the last ten years more and more houses, schools, health centres, shops and other office buildings have been built. In this way, fertile agricultural land is being converted into residential areas and other development infrastructures to support the daily life of the rapidly increasing population. Natural disasters in the form of landslides or hailstorms, occur occasionally.

### 4.2.4 Water supply, health and housing

Water in the area near the road is supplied by a pipeline. Some villages have piped water supplied by the *Khahare* stream, the water being collected in the water reservoir in the village centre. However, other villages, like Balithum, are not connected to the system. People in this village have wells, but in winter and spring these run dry. Only in the summer time does the well provide water. Women in this area have to go to the river to collect the water, which is very far away from their homes.

A few of health posts are run in the area. However, the provision of medicine and the vital registration system are not well organised. There is a lack of medical doctors and qualified nurses in the area, but local health-assistants are also used to treat patients. People involved in the study are found to be conscious about their health. However, the concept of health has gradually been changing. Since ancient times, there have been occult and witchcraft practices to treat sick people. Homeopathic medicines used to be taken as well. As society

changes, people have begun to use allopathic medicine. Investigation and diagnosis of health have been made easier when trained health assistants came to the area. They can treat normal diseases in health posts and sub-health posts. Seriously sick and injured patients are taken to Chitawan, Pokhara, and Kathmandu. Few people used to suffer from common cold and cough, gastric diseases, diabetes, cancer, high blood pressure, gall and kidney stones, and so on. Interestingly, the number of patients with such ailments is increasing nowadays. Due to factors such as lack of a healthy diet, unhealthy atmosphere, and an overall lack of exercise, people are suffering from the types of diseases that few suffered from in the past. It is said that in the past people in the area had a good immune system that could normally resist many kinds of diseases.

Residential housing in the area can be divided into four categories, following the definitions of the 2001 population census: *pakki* (permanent), *ardhapakki* (semi-permanent), *Kachchi* (temporary) and others. *Pakki* houses are those with both walls and roof made of permanent construction materials like cement, bricks, concrete, stone, slate, tile, galvanized sheet, etc. *Ardhapakki* houses belong to the category where either the wall or the roof is constructed of permanent materials and the other of temporary materials. In *Kachchi* houses, non-durable materials like wooden flakes, bamboo, straw/thatch, and mud, are mainly used. Other categories of houses include a very temporary type of residential unit that is made with non-durable materials, like plastic sheets, bamboo, and straw (Kayastha and Shrestha, 2003:175).

#### **4.2.5 Social structure**

The major cultural group in the study area is Gurung (33.6%), followed by Brahmin, Chhettri and others. Sixty-two percent of the people of the district speak Nepali and 29.3 percent of the people speak Gurung as their mother tongue. Newar and Tamag speak their own language at home, in addition to Nepali. In the district, Hinduism is the leading religion (58.5%) followed by Buddhism and others (CBS, 2001a). Different ethnic groups such as the Brahmin, Chhettri, Gurung, Magar, Newar, Gharti, Lama, Khawas, Giri, Sanyashi, and the Sarki, Kami, and Damai go-called Untouchables are living in the study area. The Brahmin can be divided into three major groups: Kumai, Purbia and Jaisi. Likewise, the Gurung have two subgroups: Charjat and Sorhajat, who cannot intermarry because the Charjat think themselves superior to the Sorhajat. Rigid thinking toward Untouchables and their involvement in household activities still persists in the study area. People still follow many traditional practices.

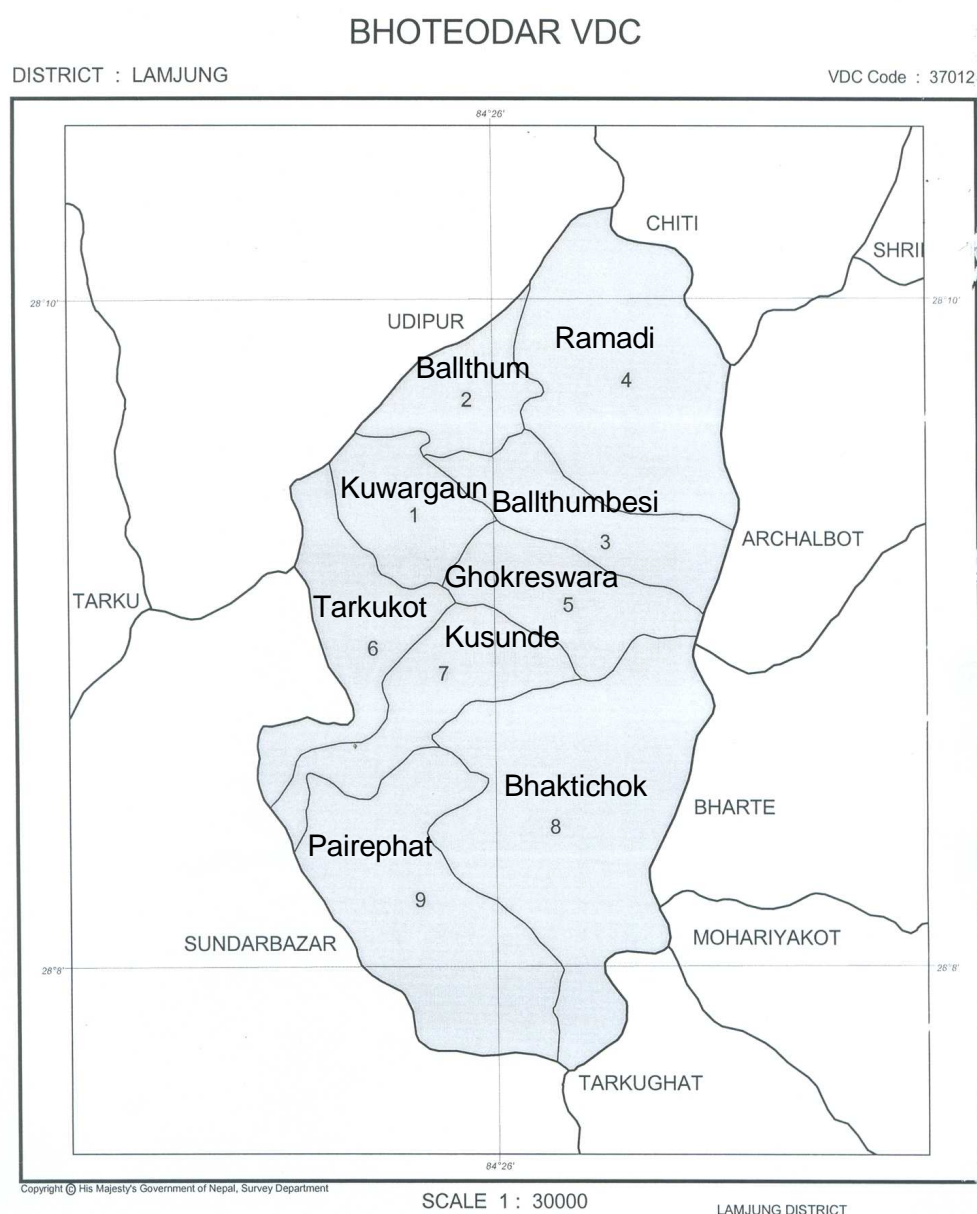
#### **4.2.6 Description of Bhoteodar and neighbouring villages**

##### ***Bhoteodar***

Bhoteodar is the modern VDC in Lamjung. The Marshyandi river flows in the eastern part of the VDC. In 2001, Bhoteodar had a population of about 5897. In the past, the Manange used to go from Manang, also called Bhot, down to Bhoteodar during winter to avoid the excessive cold temperatures in the mountains. They used to exchange different kinds of herbs for rice. They also used to do business in *Kasturi* (Himalayan deer) products. In this way, they used to make a lot of money. They lived in huts made from straw or in small caves. The name Bhoteodar means people living in a hut or cave, *odar* meaning cave. The historical cave named Bhoteodar is still there, in the walls of the Krishna Garden, behind



the mango trees. However, the huts made of rice straw that were used for temporary housing cannot be found anymore, because agricultural land has been used for housing. In 1966, a bridge joined Bhoteodar with eastern Lamjung. In 1967, the first secondary school was established in Bhoteodar. Many students from different parts of the district began to study there. In 1971, the headquarters of the district were moved from Kunchha to Besishahar. With the construction of the motorway Bhoteodar began to be developed. Gradually, people began to migrate and settle at the side of the highway. Bhoteodar became important as the entrance to a trekking route for tourists as well. Business flourished along with the road construction and arrival of tourists. Along the road there are markets and shops selling kitchen utensils, hardware, and groceries, as well as a few hotels. In the hinterland, people sell daily necessities like cigarettes, soap, sugar, tea, and noodles from home. Traditional culture is in decline. The development of the motorway and educational institutions have contributed to the modernisation of the whole district (see map of Bhoteodar)



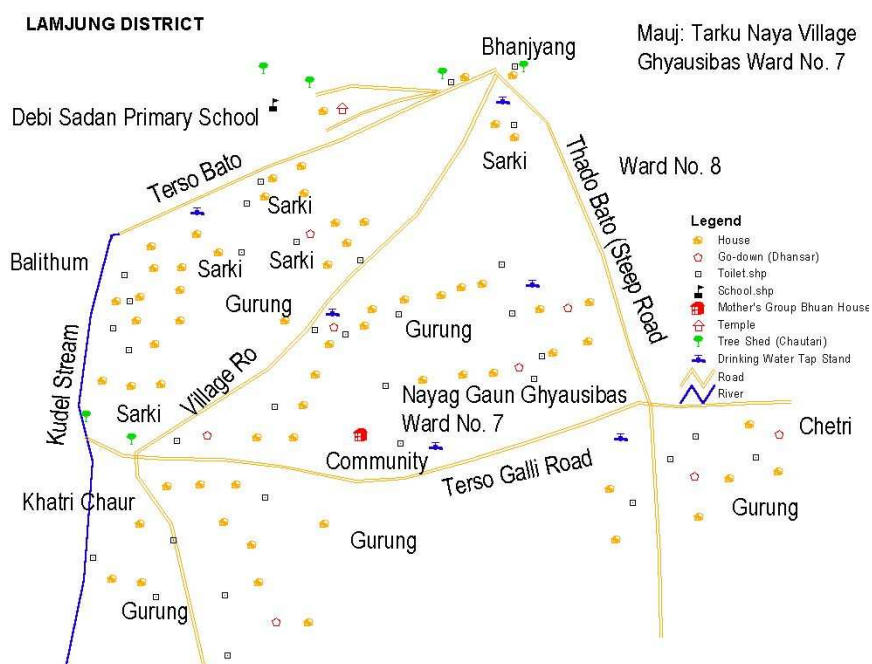
Source: Topography HMG/Nepal, 2003

According to district records and local informants, at first Bhoteodar was not included as a VDC (Village Development Community). Now, it is a VDC under the name of Bhoteodar, in which the village of Udipur is included (DDC, 2000a). Bhoteodar and Udipur are beautiful towns, which are decorated with natural scenery. Although the Middle Marshyandi Hydro-electric Power Project (MMHP) is beneficial for the towns in some aspects, there are also problems, as we explained above.

*Figure 4.1 A Gurung village setting in Bhoteodar VDC*

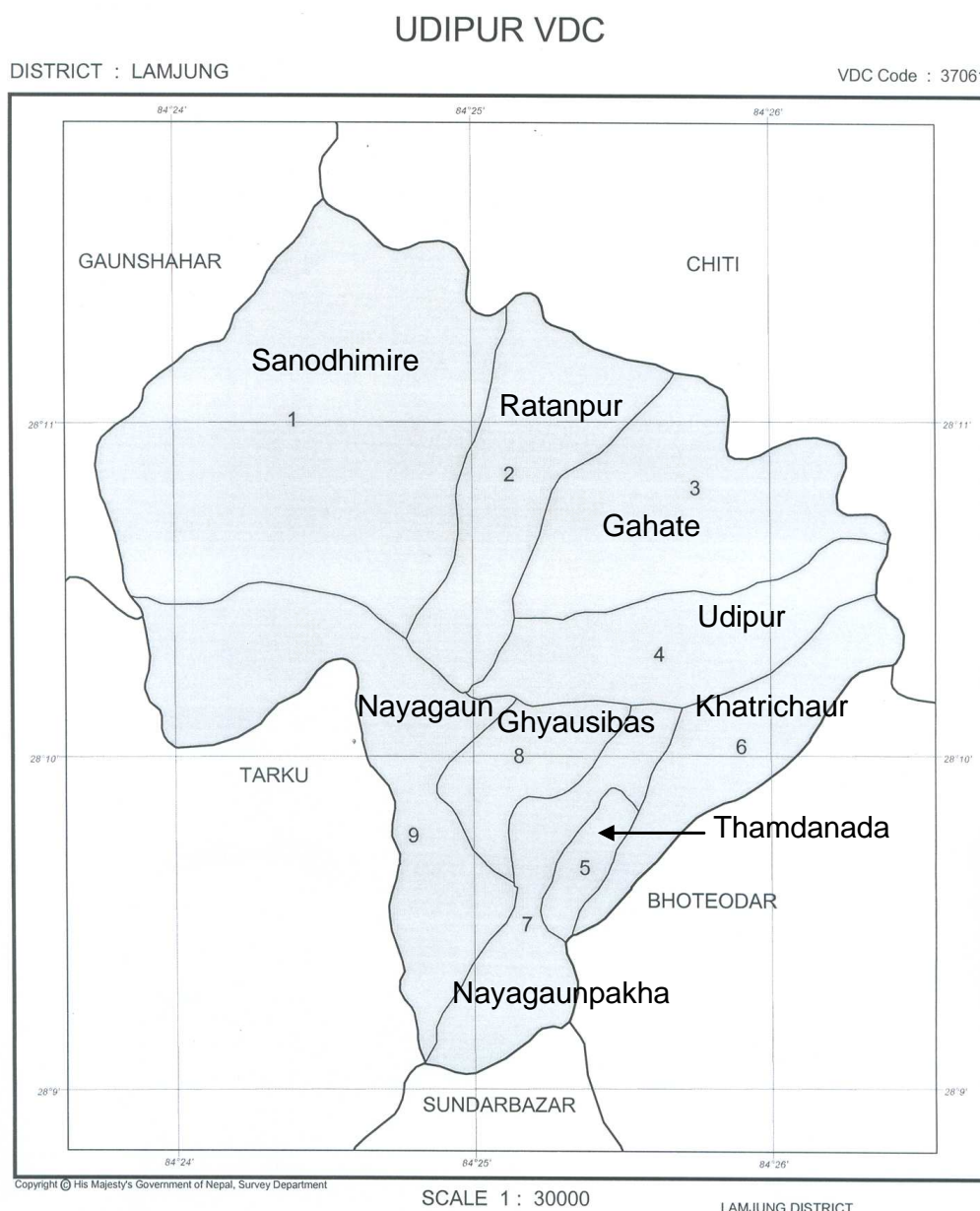


*Map drawn by the local people while doing PRA 2003*



**Udipur**

Udipur is another village, which is gradually becoming a VDC on its own and comprises about 2806 people (DDC, 2001). The Marshyandi river flows in the east. In the past, Udipur was named after *udip*, meaning lamplight. According to the local people, this was because of the bright setting of the landscape. The meaning of Udipur is 'bright place'. As Udipur is facing north-east, it will get the light of sun. The temple of Kalika goddess in Udipur is religious focus of the village (see map).



Source: Topography HMG/Nepal, 2003

Development projects such as MMHP are changing the natural environment of Udipur by resettling people from other villages in Udipur. Due to inter-district migration, the population of the village is increasing by the day. Because of development activities in different sectors such as infrastructure, markets, transportation, and communication, people in the area are busier than in the past. However, these developments are not reflected in the welfare of the local people. Mostly migrants are taking advantage of the development

activities and benefits. Besides government schools and colleges, some private educational institutions have been established. People's choice for a school for their children typically depends on political beliefs.

### ***Bhujung***

Bhujung in the north of Lamjung, is a typical Gurung residential area, consisting of nine wards and sub-wards. Most of the males from this area go to Pokhara and Besishar for employment and educational purposes, leaving the women to look after children and household. Most of the Gurungs in the village are Buddhist.

## **4.2.7 Demographic data of the research area**

Table 4.4 shows the population increase in Lamjung district during the past thirty years. The low sex ratios point to male out-migration.

*Table 4.4 Trends in population and household size and sex ratio in Lamjung*

Year	Total population	Male	Female	Sex ratio	Number of households	Average household size
1971	140,226	68,555	71,671	95.7	n. a	n. a
1981	152,720	72,565	80,155	90.5	n. a	n. a
1991	153,697	73,061	80,636	90.6	30,559	5.0
2001	177,149	83,046	93,743	88.6	36,525	4.9

*Source: CBS/ HMG Nepal, 2001*

*n.a = not available*

The population of Lamjung can be divided according to ethnic or caste group as is shown in Table 4.5. The table shows that the Gurung are the largest ethnic group.

*Table 4.5 Caste and ethnicity in Lamjung district*

Ethnic/Caste groups	Population	Percent
Brahmin	24,889	16.2
Chhettri	24,632	16.1
Gurung	51,590	33.6
Newar	5,689	3.7
Tamang	9,039	5.9
Magar	5,035	3.3
Kami (untouchable)	10,868	7.1
Sarki (untouchable)	6,768	4.4
Damai (untouchable)	5,020	3.3

*Source : CBS, 2001*

Table 4.6 shows the population and household size of the research villages, Bhoteodar, Udipur, and Besishahar. Besishahar VDC, where the district headquarters are located, has the largest population (DDC, 2001)

Table 4.6 Population and household size of the research villages

Name of VDC	Total HH	Total pop.	Male	Female	HH size
Udipur	477	2,234	1,008	1,226	4.68
Bhoteodar	785	3,630	1,655	1,975	4.62
Besisahar	1,137	5,427	2,716	2,711	4.77

Source: CBS, 2001.

### 4.3 Gurung culture

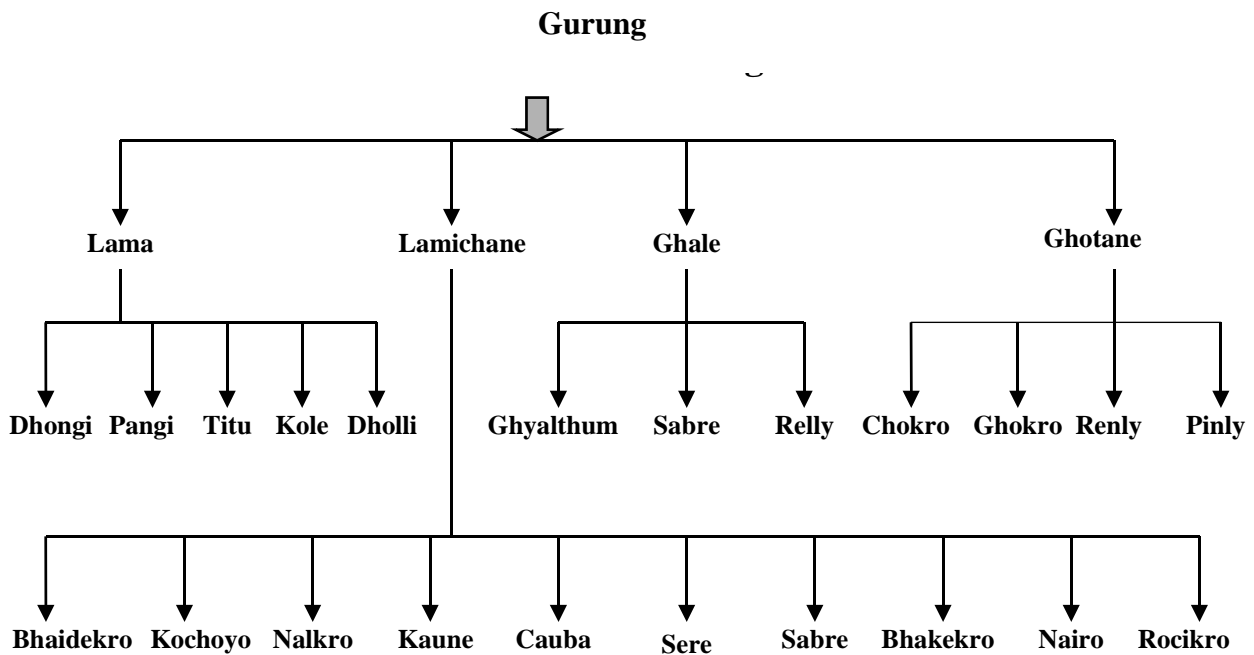
The research focused on Gurung households in the research area. In this section we will sketch a picture of Gurung culture.

#### 4.3.1 Origin of the Gurung people and general features of Gurung culture

According to Macfarlane and Gurung (1992) many thousand years ago the ancestors of the Gurung lived in the high mountains of western China. Today, their languages are still a variant of Chinese and Tibetan. Physically, they have Mongoloid features. The Gurung mainly live in the Annanpurna region of the hilly central Marshyandi belt in mid-western Nepal. Their culture is related to that of other Tibeto-Burman speaking people, like the Tamang, the Thakali, and the inhabitants of lower Manang and Mustang (Macfarlane, 1976). The Gurung have a dual organization consisting, of two Gurung sub-tribes called *Sorhajat* (coming from south) and *Charjat* (coming from North), each comprised of many clans and lineages (Macfarlane, 1976; Messerschmidt and Gurung, 1976). The *Charjat* have a four-caste system, the *Sorhajat* a sixteen-caste system. The latter system came into existence through the further stratification of the four-caste system, which is why the *Charjat* Gurung consider themselves superior to the *Sorhajat* and do not want to intermarry. The Gurung Ghotane is one of the castes among the four-caste Gurung system. Many years ago Ghotane migrated from Pokhara to Lamjung. Fragmentation also occurred among the Kole (or Kolke). The resulting subgroups are considered inferior to all other castes. The Chokre caste belongs to the four-caste system. They migrated from a Gurung village near Pokhara. The groups distinguish themselves by the wells from which they drink. After migration, migrated castes tended to marry within the family (cross cousin marriage) to keep the property together. In the research villages all groups can be found and are represented in the sample.

Historically, Gurung are animal herders who slowly began to depend on pastoral and agricultural production. According to Macfarlane (1976), the Gurung are calm, unassertive and humorous in character. Their ability to work collectively without quarrelling grows out of the affectionate and tolerant upbringing of their children. The Gurung mostly have their own language but some of them who are influenced by other ethnic groups, do not speak their own language anymore. However, their identity is still Gurung (Macfarlane, 1997).

Figure 4.2 Classification of Gurung



Source: Fieldwork notes, 2003

Gurung combine a down-to-earth and practical lifestyle with a rich cosmology inhabited by a myriad of good and evil spirits which have to be placated by rituals that derive from their own as well as Hindu and Buddhist religious traditions, including Buddhist funeral rites (Macfarlane and Gurung, 1992). Spirits and gods are named after and reside in some notable local features, such as a large rock, a cave, a spring or a tree. Sometimes a small temple or shrine is created at such a place, where offerings are placed. People place offerings there to ask help from the gods or the spirits to encourage fertility, cure disease, or invoke blessings on the family.

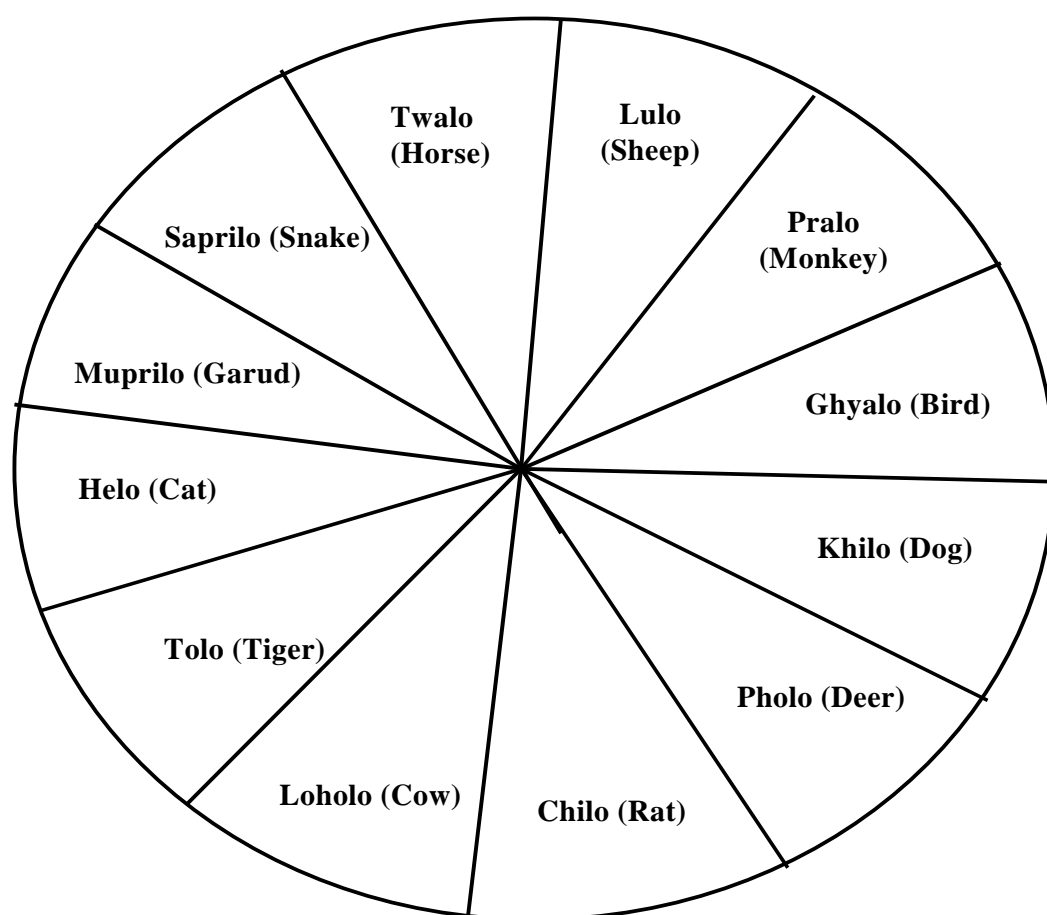
An important institution is *gaunbarne*, the obligation of the inhabitants of the village to observe rest, to eliminate pollution. Such pollution is indicated by, for example, hailstorms, thunder storms, landslides or drought. The people are not allowed to work in the field on the day of *gaunbarne*. The villagers take a rest for one to three days and will not use agricultural tools like the plough and the hoe. They believe that there will be disaster and that all agricultural production will be destroyed if they do not observe this rest. The custom of *lamahanne* by which the priest (*lama*) drives out disease existed in former days but is no longer practised. *Kamileberne* is another custom. It aims at protecting children from death. If a woman has lost many children she takes her baby to the *kami* or the *sarki* (the untouchables) in the village to ask him to tie iron wire or leather wire around the baby's wrist or belly. The death rituals are called *Asupiuri* ceremony, named after the big plate that is required to perform them. Traditionally, daughters do the *Asupiuri* and they can take the plate with them.

For newly married couples, at the time of the Dashain festival they have to follow the custom of bringing goat meat to the inmaternal homes. Some offer a live goat to the maternal home. People think that the life of a newly-wed couple will not be good if they do not follow this custom. In the past, people used to offer sacrifices of goat, buffalo, hen and sheep in the name of the ancestral god of the maternal family, but this tradition is dying out.

Norms and values are changing in the Gurung villages according to the pace of time and development.

In Nepal the western (Gregorian) calendar and the national calendar Bikram Sambat are used. Nepalese important religious and cultural dates and holidays are placed in the national (lunar) calendar. The Gurung have their own calendar (*tamu*) and 12-year system for dating births and calculating age, which are observed by Gurung people throughout the world. As in China and Tibet, the years of the 12-years cycle (*lho*) are given the names of animals (see Figure 4.3).

Figure 4.3 Gurung calendar



Note: Garud refers to a dragon-like snake

Source: Rupa Gurung and field-work notes, 2003

### 4.3.2 Gender roles and relations

Young Gurung men traditionally joined the Indian army and later the British army to show their obedience to their parents and continue the family tradition. Nowadays, Gurung men still work in the armies of Brunei, India, Malaya and Nepal, and some of them are working for the UN Peacekeeping force under the name of Gurkha. The Gurung soldiers are known for their bravery and loyalty. The Gurkha, praised for their contribution to the allied victory in the Second World War, are mainly from the Gurung and Magar communities of Nepal.

There is a clear gender division of labour in agriculture and other work. Women in Nepal neither plough nor prepare the terrace ridges bordering the rice fields or repair irrigation channels. They are also not allowed to change or repair the thatched roof of the house nor do other construction work. When there are no men in the family, women will ask for the help of a lower caste man to do the job. However, since the Maoist movement started, in Maoist areas women are increasingly taking up these activities. The Maoists reject many traditional practices and the caste system. In spite of the traditional ban on women's engagement in the activities mentioned above, women have always been a critical source of labour in farming, both in crop production and animal husbandry. They do this in addition to the household work and care of the children.

Among the Gurung there is a fairly equal relationship between husband and wife. There are no special taboos between husband and wife regarding eating together or sleeping together. Women do not have to bow to their husbands. However, it is the custom for the wife not to eat unless her husband eats as well and serve the husband first. In the family both male and female children are valued and cherished by their parents from birth. It is also common for both older brothers and sisters to look after their younger siblings. Though sons and daughters are equally valued, they do not get equal property rights. Only when people have no son they can make a special arrangement to leave their property to a daughter.

The Gurung had unique cultural tradition called *rodi*. It is a social gathering organized for young people, both boys and girls, by an adult couple referred to as the *rodi* mother and *rodi* father. The boys and girls work together in the house of the *rodi* parents and in the evening there is singing and dancing. In the *rodi*, Gurung youths can choose a boy or girl as a marriage partner, but the parents have the final say (Macfarlane, 1976). However, nowadays the *rodi* cannot be observed anymore. Now the mothers groups (*amasamuha*) organize social gatherings for singing and dancing, where both girls and boys and adult men and women can come, in the communal house of the village. The communal house is managed by the mothers group and has several social functions. Boys and girls nowadays meet at school or go to the cinema together. *Ghantu* is another traditional institution, which can still be observed in the village. During seven days the early history of the Gurung, when they were still hunters, is recited and a virgin girl has to dance. This girl is not allowed to have sexual relations while she is doing this because that would prevent the gods from inspiring her. So, a girl who is performing in the *ghantu* ritual would not be allowed to participate in the *rodi*. The musical instruments are played by men.

According to Gurung culture, relatives and neighbourhood people have to invite the bride and bridegroom to a special dinner called *bheikai*. The relatives who were involved in 'handing the bride to the groom' have to invite the newly married couple for a meal. The relatives offer gifts in kind and/or money, according to their own interest and their economic status. Before marriage, the girl may also demand gold ornaments to be bought from the boy's side during marriage time to offer to the bride. Later, if the wife divorces or leaves the husband's home, she must return these ornaments to her husband or his family. If she does not return them, she has to pay compensation. In that case the community leaders decide upon the amount of cash or goods to be paid.

At the time of a funeral a daughter's presence is important. If someone has no daughter they have to ask someone else's daughter to do the *asupiuri* ceremony. The presence of a daughter and son-in-law in the procession is important. When conducting the ceremony the



daughter leaves her hair down until the ceremony is over. If the daughter wishes to participate in the funeral ceremony like her brother she is allowed to do so.

*Putpute* is a ceremony only for boys when they reach the age of about ten years old. While doing *Putpute*, three men dance together, two of them in a woman's dress. The man in the middle wears traditional Gurung clothes for men and is the main dancer. The host, who is the father of the boy, gives money to the man, and places *tika* (coloured rice) and yoghurt on the forehead of those who participate in the *putpute*. There is no similar ceremony for girls.

### 4.3.3 Kinship and marriage

The Gurung have a patrilineal kinship system and virilocal residence. This means that upon marriage women follow their husband to his compound and live with his family. There is a preference for marriage with a cross cousin, either the mother's brother's (*mama*) daughter or the father's sister's (*phupu*) daughter (Bhattarai, 2003). After marriage the girl is not strictly bound to go her husband's house. She can stay in her parents' house if she wishes. The daughter-in-law generally calls her mother-in-law *phupu*, which means something like auntie, like she did before marriage. In earlier times, the daughters of the sisters of the father had to tie a knot with the mother's brother's son, but this custom is in decline. Marriage with someone of another caste is not allowed. Although polygamy is prohibited by law, in the research area Gurung men often take a second wife after having the first or second baby with their first wife. In such cases the polygamous husband goes to live with his new wife, without providing for the children by his first wife. The first wife suffers a lot both mentally and economically. She has to struggle to secure the property for herself and her children that she is entitled to.

#### *Marriage arrangement*

*Ketimagne* (asking for a girl's hand in marriage by drinking wine) is the name of the custom of asking for permission to a girl's parents to marry their daughter. A relative from the boy's side goes to the girl's parents to propose. It is customary to drink wine on this occasion that is offered by the family of the boy. At the time of *pung-khane* (drinking wine), all the relatives from the girl's side gather together, including the girl's parents, and drink wine from the *pung*, a special ceremonial pot for the wine that is brought along by the representative of the family of the boy. Sometimes a date for the marriage is decided upon on this occasion, if not, a day is fixed to decide on that. Nowadays, the *ketimagne* is the formalization of a partner choice that already has been made, in which girls have a say as well and should agree to the choice of husband. After *pung* the boy and girl are considered engaged and can meet and go out together. The number of love marriages is increasing among the Gurung.

#### *Wedding*

Relatives and friends organize the wedding. An important person is the *lokanti*, who has fixed the date for the wedding, for which an astrologist is consulted, and offered the formal proposal. He is also the one who heads the wedding procession. The kind of music played at the wedding and the guests to be invited for the procession are decided upon in advance by the *lokanti* in accordance with the wishes of the bride's family. Prior to the wedding the bride may ask for clothes and ornaments from the bridegroom, which have to be presented at the wedding.

The wedding procession (*janti*) starts from the groom's house to go to the bride's house, where various rituals take place in which rice and red powder are thrown as an auspicious gesture. The groom and his relatives and friends who form the procession, are given food by the girl's family and hand over the wedding presents to the family of the bride. The presents consist of shawls for men (*bharko*) and women (*khasto*). The bride and groom are also tied together with a shawl, called *lagankrimo*, that symbolizes their marriage tie. Without these rituals a Gurung wedding is not complete. At the *tika* ceremony the bride and groom are adorned with money and flower garlands. After that, the *lokanti* brings the new couple to the bridegroom's home. When they arrive, the bridegroom's sisters first close the door and then open it for the new bride. Then, they kill a cock in the doorway and disperse its dismembered parts to the right, left, and in front of the door. The belief is that this offering will protect the couple against evil forces entering the house. Then they open the door and take the bride inside. Once inside, the couple is received with another *tika* ceremony. The couple goes through the house to the kitchen or the place where food is stored along a path demarcated by dry rice and lights made of burning oiled white cotton thread (*batti*). After the *tika* ceremony the wedding guests, including relatives and friends of the bride, are given food. The norm is that the food should always be eaten first by the bride and bridegroom and then by the relatives and friends. After eating, there is singing and dancing, which sometimes last for several days. At that time people bring money or gifts for the couple. These days, mothers' groups occasionally help at weddings with the cooking and serving the food and wine, for which they are sometimes paid.

#### **4.3.4 Pregnancy, childbirth and death**

##### ***Pregnancy***

Pregnant women go to field to do the agricultural work until delivery time. Sometimes, women even deliver their babies while in the field. There are no food restrictions that have to be observed by pregnant women or special foods that have to be eaten. However, if the husband is good, he will give thought to what his wife needs in terms of food and health, both physically and emotionally. There are no special ceremonies for the expectant mother during pregnancy.

##### ***Child birth and the postpartum period***

When a woman gives birth close female relatives are in attendance. In several villages there is still the traditional birth attendant, called *dhahiama*, who helps at the delivery and comes each day for seven to nine days to bath and massage mother and child. Other people are not allowed to touch the mother and the baby during this period. The female relatives will look after the mother and child and cook, because the mother is not allowed to prepare food and touch firewood until the naming day (*nwaranday*) which is seven days after birth. On this occasion the *dhaiama* will be given some clothes and money for her services. According to local culture, people put the placenta wrapped in leaves in a bamboo basket and put it into a kind of rubber tree, called *khirro*, because of the milky fluid that comes out when you make an incision. People believe that if they put the placenta in a *khirro* tree, the mother will have a lot of breast milk to feed her child.

The naming ceremony among the Gurung is held after nine days in the case of a son and seven days in the case of a daughter. Rice dough, called *torma*, is prepared specially for this occasion. The ritual is carried out by Gurung priests who give the name to the child and let it taste some *torma*. Then all people present eat *torma*.

***Arghun (death)***

*Arghun* is a part of the death rituals of Gurung society. Different types of death entail different types of ceremonies. For example, for those who die at home in a normal situation there is a ceremony called *sicko* (meaning corpse), and for those who die in an accident outside the house there is another ceremony. Both ceremonies are conducted at night by a Gurung priest. The *sicko* goes on for a day and night (24 hours) and is generally done inside the house. The wife's relatives bring white cloth for wrapping the dead body. Before the body is wrapped in white cloth the daughters or daughter-in-law have to put oil on the body. If people do not have a daughter of their own they have to pay someone else's daughter to do it. After the body is wrapped in white cloth it is taken to the burial ground. But these days some Gurung also opt for cremation. In Gurung culture both men and women can follow the funeral procession. Upon arrival at the burial place the white cloth is opened and a son has to put a light (from burning cotton thread) in the mouth of the deceased. Then they close the white cloth again and bury the body. The relatives have to place a tombstone on the grave, made of a stone and mud that has the form of a small temple. The location for graves is always uphill, to bring the deceased closer to heaven.

After the burial another ceremony, called *arghun*, is required. It can be held immediately after the burial but also later, provided it is done within one year after death. Sometimes families combine the *arghun* of their deceased in a collective ceremony. For the *arghun* ceremony an effigy (*putla*) of the deceased is made from bamboo and pieces of cotton in different colours. Together with agricultural produce this is placed outside the compound. The daughter-in-law makes the *putla* and gives it to the Gurung priest (*lama*), who takes it out of the compound where a daughter has to place yoghurt on a plate made of leaves next to it. After that *tika* is placed on the forehead of all people involved in the ceremony. A male person does this for the male guests, a female person for the female guests. The *arghun* is concluded by eating together.



## Chapter 5

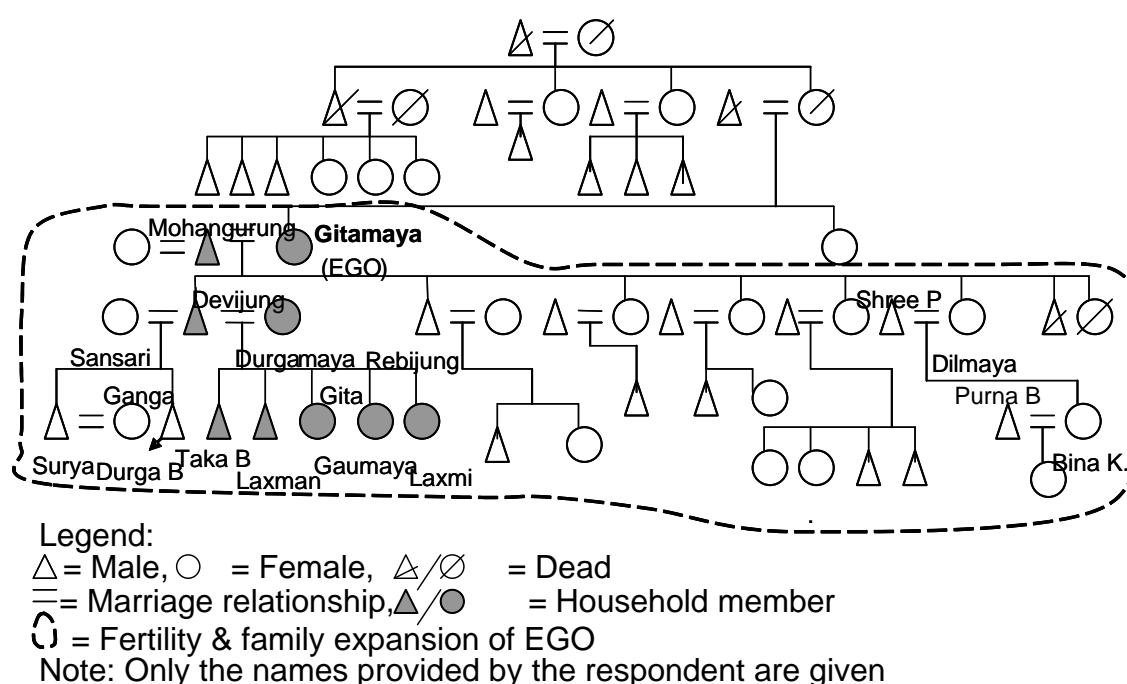
### Women's Life Stories

This chapter presents the life stories of six Gurung women. The aim of the chapter is to show how, in a Gurung woman's actual life course, she deals with reproductive issues and the responsibility for sustaining her family. The life stories paint a picture of women's agency in real life, in making decisions, taking initiatives, and engaging in activities to improve their lives for themselves and their children. The stories also include women's own reflections on their life and circumstances. As much as possible the stories are told in chronological order, following the life course. The names of the women are pseudonyms.

#### 5.1 Gitamaya: single daughter and soldier's wife

Gitamaya is a sixty-three-year-old woman. She is an only daughter. She is a normal Gurung housewife from the village of Ghyausibas. She is living with her husband and the family of her son Devijung, his second wife Durgamaya and her five children. Gita is a third wife of Mohan Gurung, but now she is the only one still alive. She has land in her name from her parents. The genealogy of Gitamaya is given below in Figure 5.1.

Figure 5.1 Genealogy of Gitamaya



#### Childhood

Gita had a very nice childhood. She did not attend the *rodi*<sup>1</sup> and remained a virgin until her marriage. Gita was a *Ghantu* girl, she felt that she was a good *Ghantu* dancer. She followed the traditional customs but expressed the feeling that an educated person has a free life, because boys and girls can go to school or college and can choose their own partner without

<sup>1</sup> See Chapter 4

consulting their parents. But she never had a chance to go to school. Gita narrates an episode in her life, crying when she was telling it.

*Many years after marriage also I was staying in my parents' house which was in the adjacent village, now almost fourteen years ago. When my parents died, my father's sister claimed the land and property owned by my father. I had many arguments with her about my parents' property. At the end she also took some property of my parents and claimed the house. After that I destroyed my parent's house and came to my husband's house to live with him. At the end, a woman has to follow the husband to his house, and that is what I did.*

### **Marriage**

When she was eighteen years old Gitamaya was married to Mohan, a Gurung man eleven years her senior and a soldier in the British army. They had met in the pastures when Mohan was on home leave. Mohan sent his relatives to Gita's parents to convince them to let him marry her. Gita's parent decided to marry her to Mohan. Gita never thought to marry Mohan as he was much older than her and she was more likely to marry her cousin's son. Later, her cousin's son allowed her to marry Mohan although he had cultural rights to marry Gita. After all, he wanted to keep the relationship with Gita as brother and sister between them.

Mohan from the neighboring village, professionally an army man, showed an interest in marrying her and arranged the marriage. Mohan was already married to two other women. Gita was his third wife. She agreed to marry Mohan because he was a soldier of the British army. Gita's marriage was arranged according to Gurung customs and culture. After their marriage, a dinner party was organised for all relatives of her mother's side and husband's side to greet the new bride and groom. At that time, it was customary for the relatives to bring food and drink, wine, and chicken. But in the case of Gitamaya she had dinner only with her father's sister and after that they came home and slept at home. That was the first time she had sex with her husband.

*I had my first menstruation at the age of fourteen. I panicked when I had the first menstruation. I asked my mother about the blood and my mother said that it was a sign I now was a woman and further explained that now I could conceive and have a baby. I was eighteen years old when I had sex for the first time with my husband. Those days we had sex every night. When we were young we had sex two to three times a day. In Gurung culture we don't observe abstinence during the menstruation period. We refrain from sex only at the time of maternity. Sometimes if I reject sex my husband becomes angry with me.*

### **The marital relationship**

Gita was Mohan's third wife. Actually Gita attended Mohan's first marriage party in her childhood. Mohan was the son of a maternal relative of Gita. Mohan's first wife already left him when he was in the army and his second wife died. Mohan used to marry and leave his wives in the village until he came home on leave after two to four years. After marrying Gita he continued his job in the British army for fifteen years before he retired and returned home. Gita had a hard time when she faced famine due to storms and floods. In 1960 she faced two famine crises when her children were young. She remembers the hard days of having no corn or millet, wheat, rice and maize and hardly being able to provide for her children and run the household. Her husband used to send some money for living expenses,

but not enough to sustain her livelihood. Sometimes she needed to borrow from her relatives to buy food or take a job as a labourer to earn money to pay for the expenses.

*My husband never wrote me a letter while he was in the British army. When he sent letters he always wrote to the family. Males are selfish; they just love for their sexual satisfaction. Men are free everywhere, they do whatever they like and spend their time with whatever they get in their hand. When they see beautiful women they just get attracted to them. When they need you they flatter you and say “you are my dear”, but when they meet other beautiful women they start to change their behaviour towards their wives. Therefore, as a wife, a woman should control her husband in her own way. Many times Mohan and I had quarrels and discussions about the children’s health and education, property and sex. When my husband becomes angry he tells me to leave the house. He does everything to me like kicking and hitting. Then I have to fight with him. These days, my husband is crazy and always remains angry with me without reason. He does not provide me with food and clothes. My sons and daughters gave me all the clothes and ornaments I am wearing. Sometimes, my husband gives me only a packet of cigarettes.*

Her feeling is that marriage, family and children are necessary for a woman’s life. Gita notes that because of the support of her own parents and their kindness to her and her family, she had a good relationship with her mother-in-law. Gita thinks that the social norms and traditional values in the Gurung village are such that women cannot reject their husband and remarry. Therefore, a woman should have control over her husband and make him behave well. She should also bow to him and love him.

### ***Motherhood***

Gitamaya is the mother of eight children, five daughters and three sons. Two of her children died young, a son at the age of four and a daughter at the age of six. She gave birth to her first child, a girl, while in Singapore with her husband at the age of twenty-one. Her other children were born in Nepal. She gave birth every two years. When her husband came home on leave she used to become pregnant and have another child. She gave birth until the age of thirty-five. Her last child was born after her husband’s retirement. She had her menopause at the age of fifty. Gita recalls the hard times when her four-year old boy and six-year old daughter died. She thinks she could not look after them properly at that time. She had to walk three to four kilometres to fetch water every morning, had to go to the neighbours for the grinding of cereals, and to go to the market to buy necessary goods took a day’s walking. Staying apart from her husband, she had to care for her children and attend to her social obligations on her own. She says that having children makes a woman’s life good and makes her like “God”. For a woman it is always good to have children, sons or daughters, especially in old age. Gita expressed that she is proud to be a woman and that it is only women who can give birth and experience motherhood. Women do everything in the household and on the farm, give birth, and look after the children and the husband. In this sense, women win from men.

### ***Family relations and parental property***

Gita inherited property from her parents. She wants to give this property to her son and some property to her daughters as well. Regarding the property transfer to the daughter she is referring to a local proverb saying that giving property to daughters is like “killing a cow and feeding donkeys”, because a son lives with you and a daughter has to go to her husband’s house. Since the death of her parents she has been making a living mostly from her parents’ property. Because she was an only child she inherited parental property,

including the land, household utensils and ornaments. She inherited one acre of land, 0.5 acre of paddy field and 0.5 acre of rain-fed upper land (*pakho*). Gita received her parental property after her parents' death. These days her family is making a good living from the crops produced on this land.

Gitamaya's eldest daughter Dilmaya married at twenty to a soldier named Shree Prasad Gurung of the Indian army. He was from the same village. After marriage, Dilmaya gave birth to a daughter. After four years of marriage, Shree Prasad died from paralysis while on duty. Dilmaya became a widow at the age of twenty-four. After her husband's death, she did not have a boyfriend nor wanted to marry again, because she needed to look after her daughter. If she had remarried, her daughter would not have received her motherly love and care. She got help from her mother and other relatives after her husband's death. Now, Dilmaya's daughter Binakumari is married to Purna Bahadur, who is also in the Indian army. Dilmaya adopted the son of her younger sister to care for him. Dilmaya received about 0.5 acre of land from her husband's property and 0.5 from her mother, from which she gets agricultural production to sustain her livelihood. In addition, as a widow she receives a pension of NRs 3000<sup>2</sup> per month from the Indian army.

Gitamaya's eldest son Devijung has two wives Sensari and Durgamaya. Sensari has two sons, both of whom are employed in the Indian army. Durgamaya has three daughters and two sons. Devijung's first wife Sensari is separated from him and lives with her parents in the same village. She has not taken her full share of the property and land from Devi. Devi's second wife Durgamaya lives with Gita. Gita's daughter-in-law Durgamaya is a very hard-working lady. She wakes up early in the morning at 4 o'clock and does all the household chores, feeds the livestock, cleans the house, goes to collect fodder in the forest, collects vegetables from the kitchen garden, does all the cooking, and looks after the children and makes them do their homework. She also participates in a mutual labour exchange arrangement with neighbours to work on the paddy fields. She works from morning till night. Sometimes she also has to serve food to those who come from elsewhere to work on the family farm.

### ***Life at present***

Gitamaya is happy and enjoying her life. Only once in her life, when there was famine and two of her children died and her husband was away, she had problems in providing food and expenses for her children. Apart from that she did not have many economic problems in her life. Crops, vegetables and other food materials produced from her farm meet most of the household livelihood needs, the other things she can buy. Mohan pays for these expenses from his pension money upon the request from his wife. These days, her husband is also receiving a monthly pension of NRs 12000 from the British army, which is just enough to pay the bills and family expenses.

*Compared to our early days, I am feeling comfortable now because you have things like ready-made clothes, schools, better roads, and radio and television. We now have a drinking water facility in the household, there is a rice mill in the village so we don't have to grind it ourselves anymore. These days, we do not need to work so hard as we did in the past. In the past we had to wake at 4 o'clock in the morning with the cock's crow. There are a lot of development activities going on. Regarding property, I want to give my property to my sons. I would also like to give something to my daughters, either money or a small piece*

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<sup>2</sup> In 2003 one US dollar was 72 Nepalese Rupees



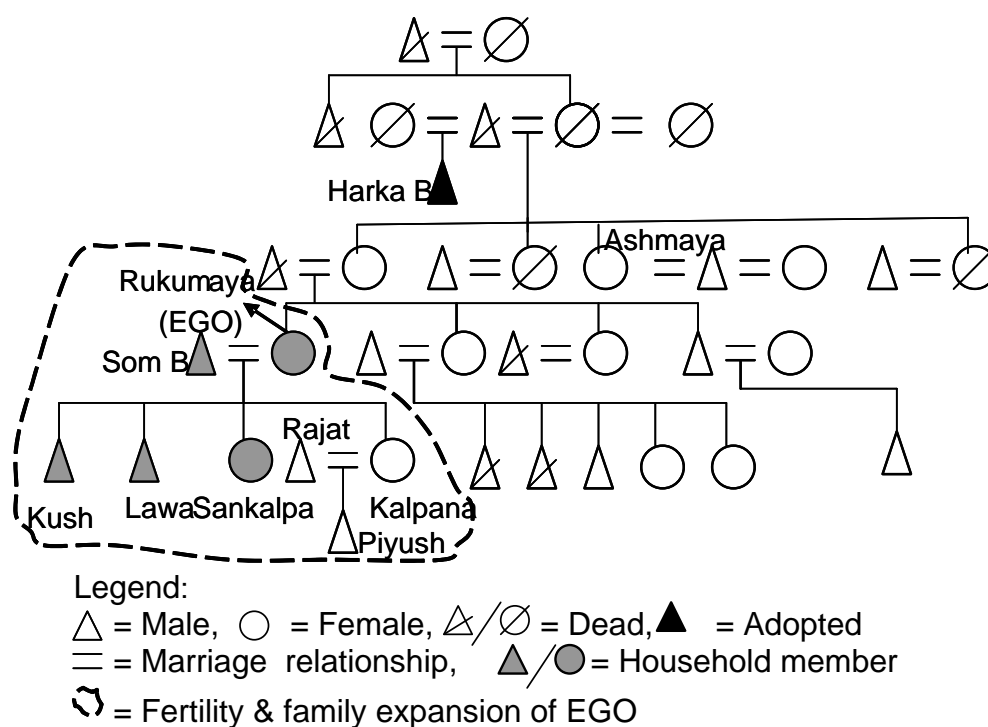
*of land. I already gave 0.5 acre of lands to my eldest daughter. My eldest daughter loves me and my sons, and her parents-in-law like me as well.*

Gitamaya also has experience of foreign travel. She was in Singapore for two years together with her husband when he was in the British army.

## 5.2 Rukumaya: mother of twins

Rukumaya is a forty-five-year-old woman. She is living with her children in Bhoteodar. Her husband is working in a factory in Saudi Arabia. He sends money to Ruku for her household expenses. She has a normal life in Bhoteodar. She is chairperson of the mothers group of her community and a member of different social groups in her area. The genealogy of Rukumaya is presented in Figure 5.2.

Figure 5.2 Genealogy of Rukumaya



### Childhood

Ruku's childhood in a remote village was very happy one. She had many friends and did not have to think about social obligations. However, she had little time to play because she had to help her mother in the kitchen or go to collect water, fodder and firewood, and prepare rice and millet flour. She regrets that she is unable to read and write. She had no chance to go to school when she was young, unlike children now.

### Getting married

It was not Rukumaya but her parents who selected a boy to marry her. She was married when she was twenty years old. When she was fifteen she had an engagement ceremony (*Pung-khane*) with her uncle's son like other Gurung girls in the village. She was engaged

twice because her father decided to marry her to somebody else, this being her present husband. Ruku followed her parents' wish and agreed to the arranged marriage. Unlike common Gurung practice Rukumaya is not married to her father's sister's son but to the son of another close relative of her father, following her parents' choice.

Ruku was married according to Gurung customs, but she was not brought to the old house of the bridegroom's family in the village but directly to Bhoteodar where the family had migrated. According to Gurung culture, relatives and neighbours invite the bride and groom to the dinner, but in Ruku's case this was not possible because her relatives and neighbours lived too far away.

### ***The marital relationship***

Now, her husband works in a company in Saudi Arab as a mechanic. Mostly he is earning money to pay for his children's education. Ruku has to look after her children and property in Bhoteodar. Ruku and her husband have a very good relationship since their marriage. They decided together regarding having children and helped each other with bringing up the children, doing the household work, and so on. They also planned together for their future and working together for their own and their children's future. They tried to give the children a good education and maintain the household economy to ensure a sustainable livelihood. They also decided together to build a house in Bhoteodar. Until now Ruku does not have to ask for money from relatives or any of the agencies. Whatever the needs she has, she can manage from her own resources.

### ***Motherhood***

Ruku has two daughters and twin sons. She had a baby daughter when she was twenty-one and a second daughter when she was twenty-five years old. After her second daughter they thought to stop having children, but after seven years they decided to try to have one son. They got twins: Lova and Kusha. Now the boys are thirteen years old and they are at high school in Bhoteodar. Her eldest daughter Kalpana finished high school and married Rajat. She already has a one year old son, Piyush. Her second daughter is at college in Bhoteodar. Ruku had no interest in having more children, but had four including the twins. She likes to look after her children and enjoys the time spent in caring for them. She has high hopes for her children's future.

### ***Family relations and inheritance property***

Ruku said that she feels very comfortable with her husband and other members of her husband's family. Both the male and female members of her family participate in all kinds of household and agricultural work equally. Her father-in-law helps her in preparing rice, cooking, cleaning, and collecting fodder and firewood. She said that she has a very good relationship with her husband and her father-in-law and others. Her parents had no son which is why she received a part of the agricultural land from her parents. A part of the land is still occupied by her uncle who is an adopted son of her grandparents. Thus she owns land in her own name. Ruku thinks her family is a very modern family since everybody understands each other and does their share in the work that has to be done. Ruku says:

*Women should have education first, and then be employed to have a good life. Women's excellence, wisdom, honesty and respective behaviour to others enriches life.*

Ruku got some land from her mother's side. Her grandmother's land was with her mother's sister Ashmaya. Ashmaya's husband was employed in the Indian army and he married another woman after five years of marriage. Ashmaya has no children and she gave some

land to Ruku too. Ruku's grandfather had three wives. Ruku's mother was an only daughter. The first wife of Ruku's grandfather has an adopted son. Because of that he is Ruku's uncle. Ruku is expected to look after her mother and her aunt Ashmaya, but they are living on their own. Her uncle lives near their village and he looks after them if needed. However, when they get old Ruku has to take care of them because she is the one who will inherit their land and other property.

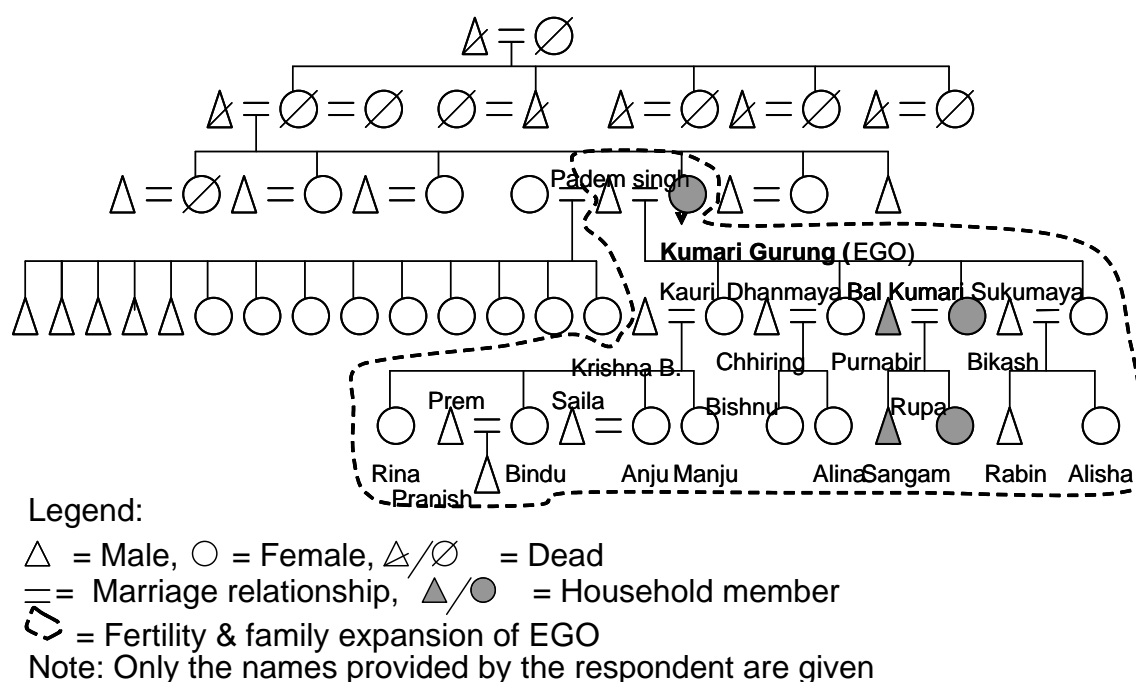
### *Life at present*

Ruku has property in her own name. She received 1.3 acres of land from her mother, some land from her aunt, and a house in Bhoteodar from her husband. Her mother had inherited the land from her grandmother. Ruku's family property is registered in her name. She derives her livelihood from her husband's earnings (NRs 15000 per month) and from the rooms she has for rent in her house in Bhoteodar. The farm produce is used by her mother and aunt Asmaya. From her husband's earnings she spends around NRs 10000. The rest is used for going to meetings, buying gifts, medical expenses, entertaining guests, and for travelling expenses when she goes to visit her relatives in Kathmandu. She is economically fully dependent on her husband, but she does not care much for wearing expensive clothes and ornaments. Social life is her source of happiness.

## 5.3 Kumari: mother of four daughters and soldier's wife

Kumari is seventy years old. She was married to Padam Singh, a Gurung soldier in the Indian army from a neighbouring village. She is separated from her husband and is now enjoying life with her daughters and their families. She owns a small hotel in Bhoteodar. Her eldest daughter lives there and looks after her hotel. Her third daughter lives temporarily in Kathmandu and another one lives in the Netherlands. She visits them in turn. Her daughter in the Netherlands sends money regularly. Figure 5.3 presents the Kumari's genealogy.

Figure 5.3 Genealogy of Kumari



### **Childhood**

Kumari recalls her childhood about which she has good memories:

*I was born in Calcutta and my father and mother loved me very much. Later when I was grown up, I used to go to drop lunch for my father at his office. Those days were the happiest days in my life. In those days, it was not customary to send daughters to school. As a result, I could not get an education. I had my childhood friends in India. I came to Nepal at the age of 11. When I came to Nepal I had to learn to speak Gurung and had to adjust to village life. In the beginning it was not easy for me to mix with people. I was living in Ukhari village which is very far from the road area and I had a hard time to climb the hills. Food habits, clothing and culture were different. I had to carry heavy loads of fodder and firewood in a bamboo basket on my back up and down the hill. I remember that my relatives loved me and I had very good relations with my maternal relatives. My childhood was a happy one.*

### **Getting married**

At the age of twenty Kumari married Padam Singh, following her own choice. Kumari explained that she chose her husband herself.

*I had contact with a guy from Dhudhapokhari area who was the brother of my sister-in-law. He used to come to my brother's place occasionally to celebrate festivals together. He liked me very much and we decided to get married.*

She did not pass through the *pungkhane* ceremony, but the other marriage ceremonies were carried out. Some Gurung newly married couples offer a live goat to the bride's parents at the time of the Dashain festival, but Kumari and Padam Singh took a meal of goat meat and a bottle of local wine. Kumari reflected on her partner choice as follows:

*My husband was very handsome and gentle when I met him. Actually I was not mature enough and I knew that he wanted me and he liked me very much. He often travelled to my place to see me and talk with me. Before marriage he showed his love for me and after we married he still loved me.*

### **The marital relationship**

Kumari and Padam Singh had a good life until Kumari was thirty-five years old, when he fell in love with another woman:

*He gave me love, helped me to look after the children, washing the children's clothes, and doing household work. Later, he stopped giving time and love to me and the children when he fell in love with another women. Finally, he left me and the children. I did not want to leave my children and took the responsibility of taking care of them. If I had followed the path of a second marriage like my husband did, my children would have grown up differently and they would have a worse life than they have now. I thought that if I fell in love with another man and would marry him there is always the chance that he would acquire another wife.*

Padam Singh married a beautiful girl, Khuli, who was twenty-four years younger than him. Khuli was a helper in Kumari's house. Kumari had no good relationship with her husband after he married Khuli and she felt very bitter about her husband. After he married Khuli,

Padam Singh took her to India and they lived together there. When Kumari reported this to the army authority Padam Singh was not allowed to keep his second wife with him in India. Khuli left India and came back, and lived in Padam Singh's house in a neighbouring village. After separation from her husband, Kumari was forced to do all the work and look after her four daughters herself. Her *pewa*<sup>3</sup> money helped her in sustaining her livelihood. She recalls this very difficult period of bitterness in her life. She had no house and decided to rent a tea shop in Bhoteodar and run a small business from the little money she had.

### ***Motherhood***

Kumari is a mother of four daughters. She gave birth to a first baby daughter after one year of her marriage and subsequently to three more girls. When Padam Singh left her, all girls were under twelve years old: the eldest was eleven, the second was six, third was four, and the youngest one was only one year old. She had one miscarriage. Kumari was a good mother. She also organized and actively participated in her first grand-daughter's marriage, performing all the proper cultural rituals.

As a separated mother she looked after her four daughters and grandchildren single-handedly. She combined the role of mother and father for her daughters and now combines the role of grandmother and grandfather for her grandchildren, by giving love and care and by doing all the rituals, and she feels proud of it. When she compares her own children and grandchildren with the children of the neighbourhood, she finds that her children and grandchildren are doing well. She is very happy to watch the progress of her daughters. She says:

*I decided to place my feet strongly and stand up for myself by not depending on others. Every woman needs to be sure that she is right and is doing well for herself and her children. Women are the ones who do all the household work and look after the children, but men contribute little or do nothing. I did not want to marry again, because of worries about my four daughters' future. I looked after them when my husband took a second wife. I migrated to Bhoteodar with the help of my sister. At that time there were very few houses and few people living in this area.*

### ***Family relations***

Kumari has no good relationship with her husband. After a few years of separation from her husband, her situation improved. Padam Singh came twice to ask for money, but Kumari refused him and he returned empty-handed and never visited her again. When he did not get money from her, he did not turn up again. Nowadays, Kumari's family are her daughters and their families. Her eldest daughter is married to Krishna Bahadur, a man from an adjacent village. All Kumari's daughters are married now and live with their husbands. Some of her granddaughters are already married. Her youngest daughter is living in the Netherlands. Padam Singh and Khuli attended the marriage ceremony of her youngest daughter. However, she has no feeling of love for him anymore. She still feels bitter and recalls the days when he beat her many times after he had fallen in love with Khuli.

*He treated me badly and left me and my daughters in a very difficult situation, with no one to help me. I had a hard time when I was left with little children and no home. Housing was*

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<sup>3</sup> *Pewa* is a personal property. Women who have no other property rights depend on their *pewa*

*my problem at that time. I had to rent rooms and the house owner used to tell me to go out without notice. It was also very hard to pay the children's monthly school fees. I needed to work for eighteen hours a day to earn a little money to meet the expenses. My time and money were very tight at that time.*

Kumari mentions that her husband's second wife gave birth to fourteen children, and that they are now living in a nearby village. Kumari's maternal uncle was also employed in the Indian army. She wanted to visit him while her husband was in India, but to her regret she was unable to do so. After the separation from her husband she did not remarry. She never feels bad about not having a son. Her four daughters have all been educated up to high school level.

### ***Life at present***

Kumari and her daughters are now independent. Her eldest daughter is in Bhoteodar, the second one in China. The third daughter lives in Kathmandu, while the youngest one is working in a restaurant in The Hague. Her husband, Bikash Gurung, who was employed by the British army, has a good job in The Hague. Nowadays, Kumari lives in Kathmandu together with her third daughter and her family. The hotel in Bhoteodar is managed by her eldest daughter Dhanamaya and her husband Krishna. Krishna worked in Korea for ten years and now he is back in Nepal, staying in Kathmandu with his family, with whom Kumari is living now. They are renting a flat, paying a monthly rent of NRs 5000.

When Kumari's husband left her she invested NRs 50,000 *pewa* money in a tea shop. In those days, on average her earnings were NRs 1000 per day. Later, she sold land she got from her parents for NRs 55,000 to invest in a small hotel in Bhoteodar. Now her eldest daughter and her husband manage it. Nowadays, Kumari is happy looking after her property, keeping in contact with her daughters and their families and with other relatives and friends. She receives €100 per month from her youngest daughter in the Netherlands. She feels she is retired now and can rest, having the money from her daughter. However, sometimes there is a problem, for example when an unexpected guest comes and stays in her flat Kathmandu for a longer period of time without paying.

Kumari's life story shows that women's agency and empowerment are important. She did not receive any property from her husband and did not like to go and ask for it either. Her husband never supported her after he left her and her children. She thinks that she is better off than her husband. These days, her situation is quite good. She has a nice house and affectionate daughters. She likes to look after her house and receive her daughters whenever they come home.

## **5.4 Ashmaya; a single mother**

Ashmaya is a forty-four year old woman from Nayagaun village. She is separated from her husband. She has one son named Shyam, who is eleven years old. Now she is living with Shyam near to the house of her parents-in-laws. Her genealogy is presented in Figure 5.4.

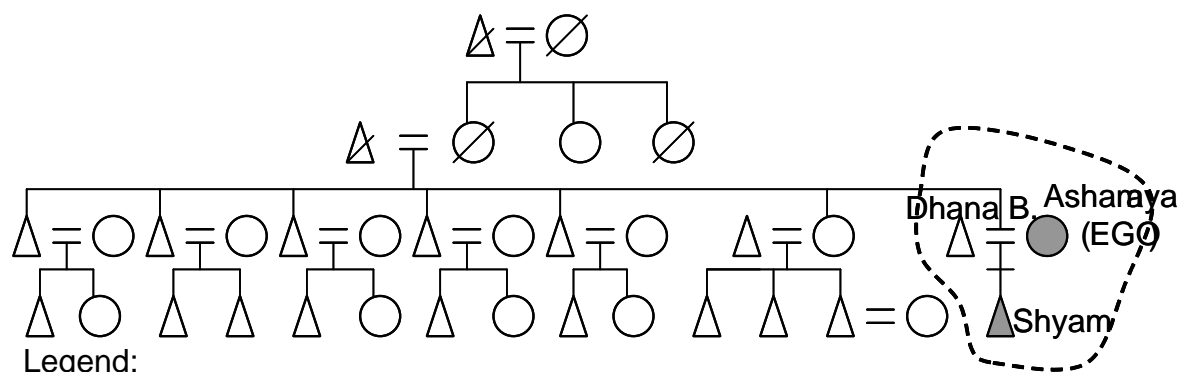
### ***Childhood***

Before her marriage Ashmaya was living with her parents in another village. She had a normal childhood, like any other Gurung village child.

### **Marriage and the marital relationship**

When she was seventeen, her marriage was organised according to Gurung traditions. She spent thirteen years of happiness with her husband in a joint family with her parents-in-law. Her husband married a second wife when Ashmaya was thirty-three years old. She was pregnant with her first child at the time her husband left her. She gave birth to a baby boy and had to take care of him without his father. She said that she is still waiting for her husband to return. Ashmaya was married when she was seventeen and the first time she had sexual intercourse with her husband was when she was nineteen. She adds that she still feels positive about her husband, even though he does not look after her.

Figure 5.4 Genealogy of Ashmaya



Legend:

△ = Male, ○ = Female, /△/○ = Dead

== Marriage relationship, ▲/● = Household member

○ = Fertility & family expansion of EGO

Note: Only the names provided by the respondent are given

### **Motherhood**

After her husband had left her Ashmaya was forced to look after her son on her own, having only a little property, a small thatched-roof house and a piece of agricultural land of about 0.5 acre. Ashmaya gave birth to her son at her parents-in-law's place. When she had the child her parents-in-law gave her a small piece of land to use for crop production and advised her to live separately from them. After that she brought up her son alone. She managed to provide for food, clothing, schooling and other living expenses. She thinks about her son's education and future. If he becomes a great man her dream will come true.

### **Family relations**

Ashmaya does not have a good relationship with her parents-in-law, brother-in-law and sister-in-law, and other relatives from her husband's side. Since her husband married his second wife, his relatives no longer care for her or help her. Her mother-in-law even said to her that her grandson was not fathered by her son and that her son was forced to marry a second wife because of Ashmaya's behaviour. Ashmaya has not received any property for her and her husband from her husband's family. Her father-in-law always tells her to leave but she has no place to go.

### **Life at present**

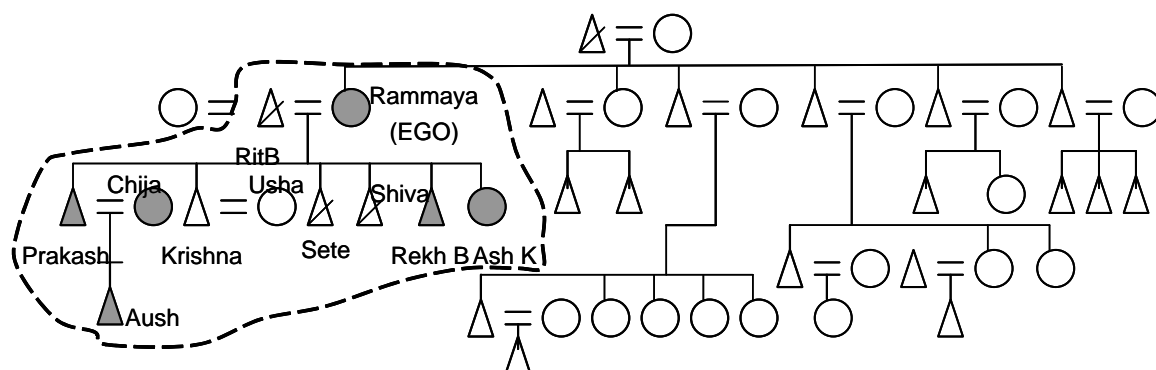
Ashmaya never married again. She did not get the opportunity to marry for the second time or to find a new partner, neither did she want to. She did not own land in her name and experienced a very hard time. The production from the piece of land she got from her

parents-in-law was not enough to sustain herself and her son, which is why she had to work as a labourer. The crops produced from her little piece of land were not enough to feed her boy. She has some livestock (chickens and goats) and she makes local wine, which she sells. Ashmaya also did not receive any property from her parents, because all the agricultural land of her parents was taken by her brothers. However, she explains that she has been receiving support from her brothers during sickness and in other emergency situations. Although she was experiencing hardship, she did not want to go back to her parent's home. Ashmaya said that she would not feel comfortable there. She would like to choose another man and marry him but is afraid that a new husband might not fully accept and look after her son. Because of her son's future she was not prepared to take the risk of entering a second marriage. Some time after her husband had left her and she was still young, an Indian army man was interested in marrying her. However, she refused because she could have lost her son. These days she is engaged as the chairperson of a mothers group. Through this group she wants to change the women's situation in the village.

### 5.5 Rammaya; mother of daughters and sons

Rammaya is a fifty-seven year old woman. She lived separated from her husband since she was thirty-one, and now she is a widow. Rammaya can live well from her land and the money sent by her son in Hong Kong. She lives with her other son Praksh, his wife Chija, their little child Aush, together with her unmarried son and daughter, Ash Kumari and Rekh Bahadur. Figure 5 presents the genealogy of Rammaya.

Figure 5.5 Genealogy of Rammaya



Legend:

△ = Male, ○ = Female, △ = Dead

= = Marriage relationship, ▲/● = Household member

⊕ = Fertility & family expansion of EGO

Note: Only the names provided by the respondent are given

#### Childhood

Shukhamaya thinks that she had a better childhood than many others. Before marriage Shukha was living with her parents in another village. There she used to help her parents on the farm land and her mother by fetching water, collecting fuel and fodder, cleaning the house and cooking food. She had no chance to go to school.



### ***Getting married and the marital relationship***

She married when she was twenty years old. Shukha's marriage was a traditional Gurung marriage. It was arranged through an intermediary in her husband's village. Rammaya thinks that her husband was good and they had a very good life for ten years. When she was thirty, her husband married another woman and left her with three sons and one daughter. After her husband went to stay with his second wife, she received some land in her own name from him. She received a small dowry from her mother in the form of 11.6 grams of gold. She got nothing from her mother-in-law. When her husband married the other woman his brother started to look after her. She felt that her husband was a good man who could not help being attracted by other women. When her husband married his second wife he lived in Bhoteodar with her. But he still used to come and help Rammaya, together with his wife, at the time of planting and harvesting and at other occasions. He looked after his children and Rammaya and did not forget about his responsibilities. Also he tried to create a good relationship between his two wives. Rammaya was forty-five years old when her husband died.

### ***Motherhood***

Rammaya gave birth to six children with intervals of two years. Her two sons died within a few days after birth. She said that their births were premature. She took good care of her remaining three sons and one daughter. She is happy that her son Krishna managed to get a job in Hong Kong. But she is worried about the son and daughter who are still in high school. She wants her daughter to marry a man of the British army and also wishes to send her younger son to Singapore with the help of her eldest son Krishna. She feels that because of their father's care the children were given the opportunity to get a good education. However, the daughter failed in class 8 and left school. She is now seventeen years old, unmarried, and living with her mother. Rammaya's younger son also dropped out from school, when he could not pass class 9. Her second son Krishna studied at the university and has a bachelor's degree. He married Usha, who was born in Hong Kong while her father was in the British army. Because she was born there she was entitled to a Hong Kong citizenship. Krishna and his wife are now living and doing business in Hong Kong.

### ***Family relations***

After marriage, Rammaya did not depend on her parents-in-law for her clothing and other things. Her parents gave her what she needed. Her parents also gave a dowry to her husband. She was quite independent and (happily) living with her husband's family. She arranged the marriage of two sons with the help of her husband's brother and her own elder brother. Her relatives from her parents' side are also supporting her.

### ***Life at present***

Rammaya has four acres of *khetbari* land and 0.5 acre of *pakhabari* land (see Chapter 4). She has a share-cropping arrangement with another person for this land. She receives NRs 20,000 per year in cash from her son Krishna to meet livelihood expenses. The money is used to pay the agricultural labourers that she occasionally hires. Rammaya has a full-time job doing household work and looking after her own family. Except for the money she receives from her son, she also earns some money selling oranges from her garden. The oranges were planted ten years ago and now they are a source of income. Rammaya made all household decisions herself. She has a better home now compared to many male-headed households in the community. She is happy and feels proud of running her life smoothly.

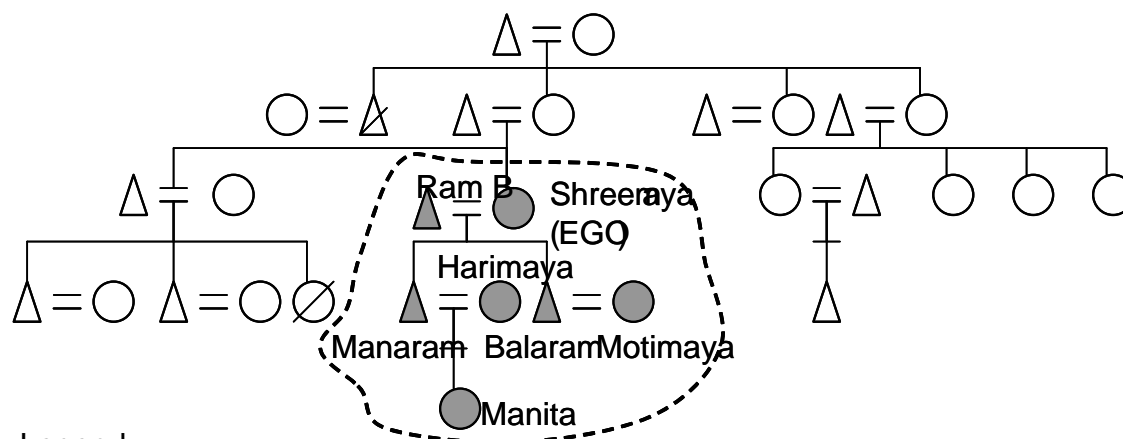
## 5.6 Shreemaya: mother of two sons

Shreemaya is forty-eight year old women from Ratanpur village. She is living with her fifty-one year old husband Ram Bahadur Lama and her eldest son and his family. Although she has no school education Shreemaya is a very active woman in her village. Figure 5.6 presents her genealogy.

### Childhood

Shreemaya's father died when she was a child. Her mother became a widow and did not have much land to sustain their livelihood. She had to work as an agricultural labourer. Shreemaya therefore had a very poor childhood. She had to help her mother all the time for the family to survive. She had hardly any clothing and could not go to school.

Figure 5.6 Genealogy of Shreemaya



Legend:

- △ = Male, ○ = Female, △/○ = Dead  
 = Marriage relationship, △/● = Household member  
 ○ = Fertility & family expansion of EGO

Note: Only the names provided by the respondent are given

### Getting married

Shreemaya fell in love with Ram Bahadur, a Lama boy from the same village. Their parents did not appreciate their intention to get married, because the Lama boy was of a lower caste. However, Shreemaya and Ram Bahadur married by themselves without following the Gurung tradition. Shreemaya believes in fate and says that her marriage will be completed in heaven. Shreemaya had her first menstruation at the age of seventeen and she married at the same age. She had her first sexual intercourse with her husband only after marriage. She gave birth to her first child after a year.

### The marital relationship

Shreemaya and Rambahadur are running their married life smoothly. They have a good husband-wife relationship. But these days she does not like to have sexual relations anymore. Shreemaya explains that her husband had himself sterilised in Chitwan while he was on the way to visit his relatives, without informing her. She therefore could not realize her wish to have a daughter. Most of the time Shreemaya and her husband go to work for daily wages. They decide together on the household expenses. Regarding selling livestock (goat and chicken) and oranges from their garden, Shreemaya is the decision-maker.

### ***Motherhood***

Shreemaya has two sons. She gave birth to Balaram at the age of twenty. After four years she had another son, Manaram. After that she could not have more children because of her husband's vasectomy. Shreemaya's first son, Balaram, married Harimaya and they have a girl named Monita. Shreemaya likes Monita very much and she feels proud of being a grandmother. She feels fortunate to have a granddaughter to replace the daughter she always wanted but never had. Manaram is twenty-eight. He was married recently to a thirty-five year old widow, Motimaya, who has two children from her previous husband. Shreemaya wants to help completing the cultural marriage ceremonies, depending on the demand of Motimaya's parents. Shreemaya is happy that Manaram got his driving license. She hopes he will get a job as a driver soon. Shreemaya recalls the hard times when she did not have enough money for the education of her sons. She sometimes fears that her sons may give priority to their wives and will not take care of her in her old age, which is why she wanted a daughter. Shreemaya would have preferred to have daughters rather than sons because, according to her, daughters always give more care and love to their parents than sons.

### ***Family relations***

Shreemaya's mother cannot provide financial help to her because she is a widow and poor. When Shreemaya needs financial help she goes to her friends and neighbours. She gets no help from her relatives. When she is sick and needs money for medical expenses, she has to borrow it from the bank or another organisation.

### ***Life at present***

The agricultural production from their land is sufficient for six months. All land is held in her husband's name. They have only 0.3 acre of rain-fed *pakho* land, on which some orange trees are planted. From the sale of the oranges, they can earn NRs 5000 per year. For the remaining six months, Shreemaya and Ram Bahadur have to buy rice, wheat and other necessities from the money they earn as daily wages. All of the family members work for daily wages, whatever work is available. In their family no-one has a regular job. Shreemaya's life is easier since 1995 when the road construction in the area began. Foods and other daily necessities are now easily available in the local shops and the neighbourhood market. Livestock-and-crop farming combined with agro-forestry forms the basis of the livelihood of Shreemaya's households and the other households in Ratanpur.

Loans are now available at a monthly interest rate of 3 percent. Three years before, it was 5 percent, but nowadays the interest rate has dropped mainly because people have more money. SAGUN, a local NGO, has a program to provide NRs 6000 money on credit to support income-generation activities of poor households. It provides the money in two instalments of NRs 3000 each. Shreemaya also benefited. She got a first instalment of NRs 3000 without interest from SAGUN. She already bought three goats from this money and will receive the second instalment in six months' time. Shreemaya's income-generating activities enable her to live more comfortably than in the past. Shreemaya is very conscious about the environment and the local natural resources. Her women's group raised their voice to protest against the ecological destruction by the Middle Marshyandi Hydropower Project in the area.

Shreemaya is president of a mothers group, which plays an active role in village development and organizes campaigns to protect the local environment. Besides looking

after her family, she is also campaigning and working for women's rights and empowerment, and their participation and active role in development processes. Being a president of the mothers group she holds some power within the community. She is supporting women to promote education, health care, and legal awareness. She believes in development and is aware of the changes that are taking place. She likes spending more time working for women, educating them and increasing women's ability to generate an income.

## **5.7 Discussion and conclusion**

The stories show the important role of women in livelihood generation, providing food for their family, and bringing up their children. In doing this parental property is a major asset for women. Having parental property (*pewa*) can make a difference in their daily life, especially at a time when they have to provide for their children almost alone because their husband does not fulfil his responsibilities or has left to marry another wife. Because of *pewa* money Gita and Kumari (Cases 1 and 3) had a better livelihood, even though they needed to work hard to meet the demands of their children. Women who receive parental property are relatively more comfortable compared to those who do not. *Pewa* can be used to build a house, to buy land, or to meet major expenses such as those of the marriage of (grand) children. The stories show the women to be strong and resourceful in facing various challenges. One of those is the limited access of women to property, especially land. Property rights of women are a national issue in Nepal. The stories (see Case 3) show how women use their agency to overcome this obstacle of limited access to property.

For reasons of economic security, Gurung girls like to marry army men. If the husband is working in the army and receives good pay, women feel more secure and being a wife of an army man is prestigious in society. In case the husband dies, the wife is entitled to a pension, which can be a great support for her and her children. The first wife does not lose this right even if the husband marries a second wife. If the household income is not enough women engage in income-generating activities to supplement it (Case 5.6). Women are not just passive consumers but are active in economic production and social reproduction. When the husband has left them to marry another wife they focus on the future of their children. Most divorced and widowed women do not want to remarry for fear of losing their children or jeopardizing the future of their children. Apart from carrying out these productive and reproductive roles some women also participate in community activities (cf. Moser, 1993). The work of Shreemaya (Case 5.6) in the mothers group and her involvement in the protest against the MMHP Project is a good example

In spite of the evidence of women's agency provided by the stories, in Gurung villages the general thinking still is that only men can be the head of the household. They are referred to as 'the pillar' of the house, even though women are actually the managers of the entire household. Although the Gurung are less patriarchal than the other main groups in Nepalese society, the normative picture is still that of the man being the head or the boss and the woman being dependent. But the actual reality, as revealed in the life stories, shows that women are the pillar of the household and family, and that they, unlike men, always put the interests and future of their children first.

## Chapter 6

### Household Livelihood, Food Security and Nutrition

This chapter analyses the household livelihood, food security and nutrition situations of the research population. In the first part of the chapter, data on household livelihood, livelihood activities, women's role in livelihood generation, household resources, and assets that influence people's daily lives are analysed and presented. The second part focuses on food security indicators, the role of women in livelihood, food security, and nutritional status.

#### 6.1 Demographic and socio-economic characteristics

##### 6.1.1 Demographic characteristics

The discussion in this section focuses on the demographic, socio-economic, and cultural profiles of the research population. Demographic characteristics are age and sex composition, household size and headship, and livelihood-related activities. The general socio-economic condition of the households was assessed indirectly by asking respondents about such topics as access to water and electricity, toilet facilities, possession of consumer goods and household utensils, source of energy, and household surroundings. The tables below present a number of demographic and socio-economic characteristics of the research population. As compared to the census 2001 population, the proportion of females was relatively higher in the study area (CBS, 2003a). Table 6.1 presents the data on population and household size in the research villages.

*Table 6.1 Population and household size of Gurung research villages*

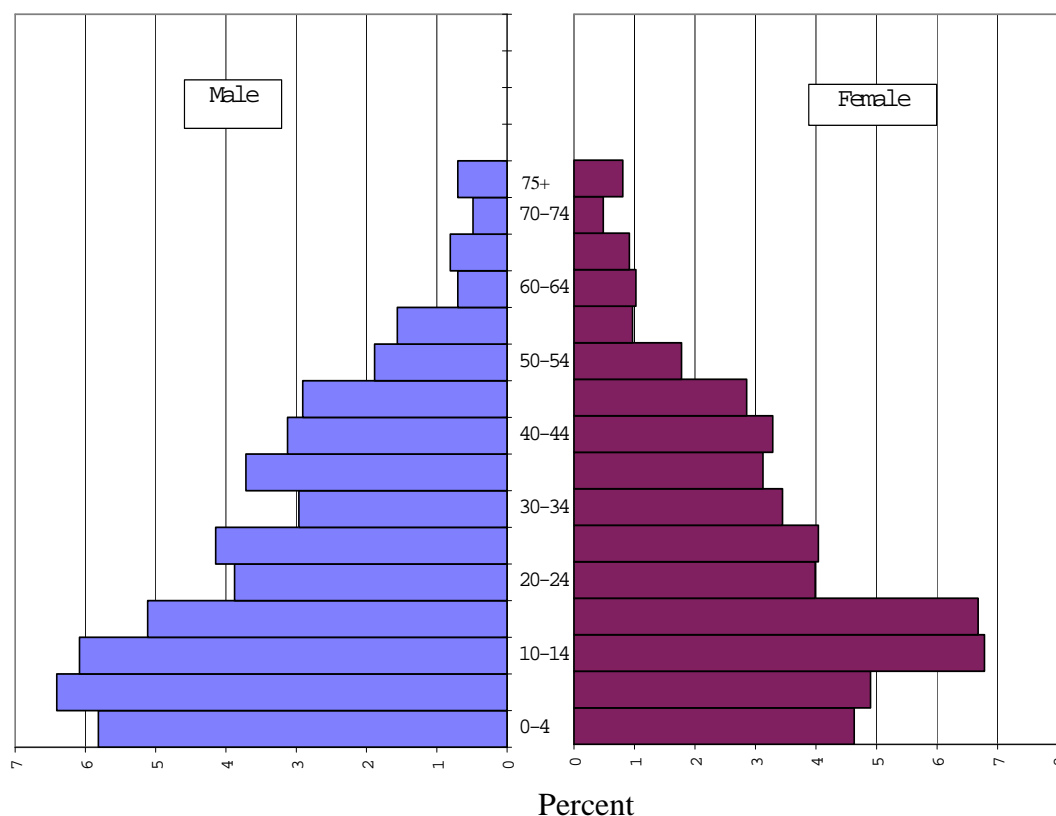
Villages	Sample population 2003			Sample HH size 2003	
	Male	Female	Total	Total HH	Average HH
Udipur	254	259	513	97	5.28
Bhoteodar	578	565	1143	222	5.41
Beshisahar	102	98	200	38	5.26
Total	934	922	1856	357	5.19

Source: Field Survey, 2003

##### *Age and sex composition of the sample research population*

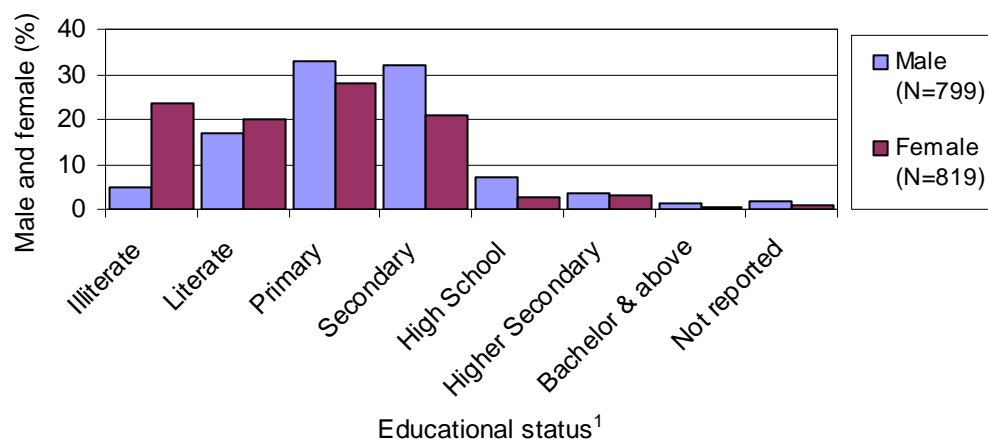
The age and sex composition of the research population is shown in Figure 6.1. For both sexes above the age of 50 the pyramid narrows sharply, which indicates low life expectancy. The pyramid shows that the female age groups of 10-14 and 15-19 are relatively large, which may be due to an overestimation of age in the younger age groups of 0-4 and 5-9. Another reason may be the reluctance to report the age of 20, which is found among some ethnic groups in Nepal. Finally, the irregularities may be due to general misreporting of age (Appendix 3).

Figure 6.1 Age pyramid of the sample research population



## Education

Figure 6.2 Educational status of research population aged  $\geq 6$  years by sex



Source: Field Survey 2003

Note: Illiterate = unable to read & write, Literate (literate through non-formal education), = able to read & write some, Primary (formal education) = class 1 to 5, Secondary = class 6 to 10, High School = school-leaving Certificate, Higher Secondary = 10+2 years of schooling, Bachelor = undergraduate

The data show that 59 percent of women in the study area are literate. Figure 6.2 shows that male educational attainment is higher than that of females. There are still gender disparities in education. The literacy level in Nepal of those aged 6 years and above has increased

significantly during the last two decades. The 2001 population census reported 54 percent literacy in the country, 65 percent for males and 43 percent for females (CBS, 2003a). Also, the female literacy rate among the same age group has increased. However, the proportion of educated males is still higher than that of females and male levels of educational attainment are higher.

### **Occupation**

A major section of the male population is involved in the service sector. Females do have less opportunities to get a job outside the home where they would be paid monthly. The occupational status of the research population is shown in Table 6.2.

*Table 6.2 Occupational status of the research population  $\geq 10$  years old*

Occupational Status	Male		Female	
	N	%	N	%
Agriculture	155	21.95	128	17.20
Business, self-employed	63	8.92	44	5.91
Cottage industry	3	0.42	10	1.34
Daily wages	10	1.42	4	0.54
Services with monthly payment	206	29.18	27	3.63
Domestic work only	31	4.39	295	39.65
Dependant	18	2.55	16	2.15
Student	198	28.05	206	27.69
Unemployed	17	2.41	2	0.27
Not reported	5	0.71	12	1.61
Total	706	100	744	100

*Source: Field Survey 2003*

## **6.1.2 Housing and household characteristics**

### ***Housing and household size***

Among the research population in the sample, 74 percent of households owned their own home, 24 percent lived in rented accommodation, and two percent had no house of their own and were living in other people's houses as caretakers. Fifty-one percent of the households live near a road that can be accessed by motor vehicles. Housing in Gurung villages is influenced by the local environment, the local availability of construction materials, and the economic status of the household. Three types of houses were found in the study area: Type 1. Ordinary houses – made of bamboo and wood with a thatched roof (43%); Type 2. Semi-solid houses – made of stone and mud with a corrugated iron sheeting roof (24%); Type 3. Solid houses – made of stone and concrete with a concrete roof (34%). Among all households, 81 percent have toilets. The people living in the houses without toilets use public places like forest areas, streams or riverbanks. With regard to the type of toilet, the largest number of households (34%) have a modern toilet though without automatic flushing, and a small number of households (8%) use pit latrines. The households have a variety of flowering plants around the house such as marigolds, oleander, jasmine, chrysanthemums, roses, poppies, lilies, sunflowers. The average household size found is 5.19. The details are presented in Table 6.3.

Table 6.3 Household size of research population

Household size	Number	Percentage
1-2 persons	17	4.8
3-4 persons	114	31.9
5-6 persons	158	44.3
7-8 persons	48	13.5
9-10 persons	12	3.4
11+ persons	8	2.2
Total	357	100

Source: Field Survey 2003

### Household headship

The household head is defined as the member of the household who manages household activities, makes most of the decisions and takes responsibility for all household-related matters (CBS, 2003b). According to the census definition (CBS, 2003a), household members cannot be considered 'head' if their age is below 10. In the sample, 66 percent of the households were male-headed and 34 percent female-headed. Generally speaking, the eldest male member of the household is regarded as head. Because the society under study is patrilineal in nature, households in the research area usually reported an adult male member of the household to be the head, regardless of his age. The relatively high proportion of female-headed households is mainly due to the out-migration of Gurung men, which creates *de facto* female-headed households. In this category, households of married women who are temporarily separated from their husband are included as well. A woman who is a *de jure* household head would be a widowed, long-term separated, or divorced woman.

### 6.1.3 Economic characteristics

The 2001 census consistently defined the economically active or economically independent as the population aged 10 years and above that is actually engaged in the production of economic goods and services. The economically inactive population or dependants are those who are engaged only in household work, students, disabled persons, pensioners, and others dependants who do not participate in the household or farm work (CBS, 2003a).

**Economically independent:** In this research study the economically active population is considered to consist of individuals aged 10-59 years who are directly involved in earning an income from work in industry, services, cottage industry, industry and agricultural production, as well as those who are self-employed. Additionally, the population aged 10-59 who are actively involved in household and farm work are considered to be the economically active population in this research. Women who are engaged in economic activities and household activities, child rearing, and those who care for other household members are also considered economically independent.

**Economically dependent:** The economically inactive or dependent persons are those who have no direct income and depend on the income of others, like the unemployed, children, the elderly, students, disabled persons and pensioners.



In the national data the total economically active population is 45 percent, with the percentages for females and males being 37 and 57, respectively (CBS, 2003a). In our sample of the 650 economically independent persons aged 10 and above, 67.2 percent is male and 32.8 is female. When comparing the percentages of economically independent and dependent men and women in this research, it appears that the percentages of the economically dependent are higher for women than for men in all age groups, but especially in the ages 25 and above. The percentages of the economically independent are higher for females only in the ages 10-19. This is because women start engaging in agricultural activities at an earlier age than men. Table 6.4 presents details on economic dependence in the research population.

*Table 6.4 Economically dependent and independent population by age and sex in research villages*

Age group	Economically independent						Economically dependent					
	Male (N=437)		Female (N=213)		Total (N=650)		Male (N=269)		Female (N=531)		Total (N=800)	
	N	%	N	%	N	%	N	%	N	%	N	%
10-14	1	16.7	5	83.3	6	100	112	48.3	120	51.7	232	100
15-19	18	48.6	19	51.4	37	100	77	42.5	104	57.5	181	100
20-24	44	59.5	30	40.5	74	100	26	37.1	44	62.9	70	100
25-29	68	68.7	31	31.3	99	100	8	15.4	44	84.6	52	100
30-34	50	73.5	18	26.5	68	100	5	9.8	46	90.2	51	100
35-39	66	75.0	22	25.0	88	100	4	10.3	35	89.7	39	100
40-44	52	61.9	32	38.1	84	100	6	17.1	29	82.9	35	100
45-49	51	68.0	24	32.0	75	100	4	12.1	29	87.9	33	100
50-54	31	77.5	9	22.5	40	100	4	14.3	24	85.7	28	100
55-59	23	74.2	8	25.8	31	100	6	37.5	10	62.5	16	100
60-64	11	68.8	5	31.2	16	100	2	11.8	15	88.2	17	100
65+	22	68.8	10	31.2	32	100	15	32.6	31	67.4	46	100

*Source: Field Survey 2003*

## 6.2 Livelihood

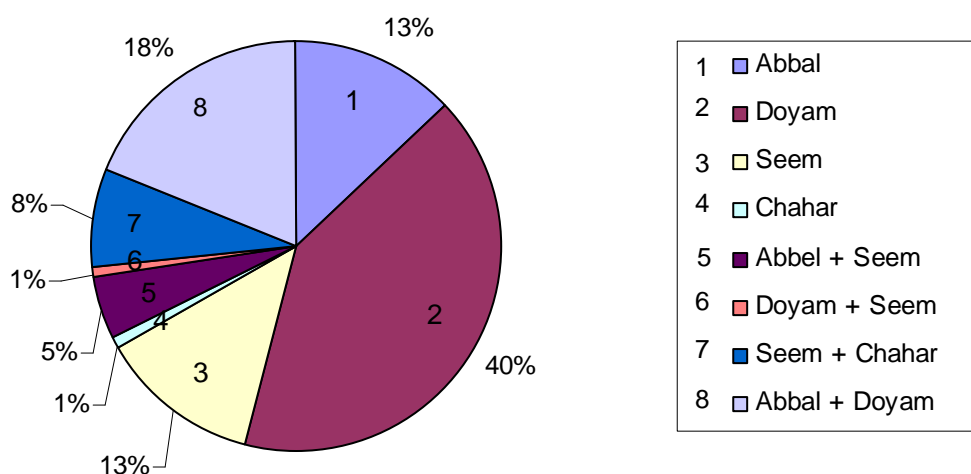
“A livelihood comprises the assets (natural, physical, human, financial, and social capital), the activities, and the access to these (mediated by institutions and social relations) that together determine the living gained by the individual or household” (Ellis, 2000:10). The conceptual framework of rural livelihood designed by Niehof and Price (2001) was used to analyse the findings. The relationship of livelihood to the household, the assets that households in the study area possess, and the way they pursue their livelihood will be discussed in this section. Types of land and land ownership will be discussed first because of the importance of land in an agricultural community. Additionally, special attention will be paid to the role of women in livelihood generation.

### 6.2.1 Type of land and land ownership

The land for agricultural production is divided into four groups on the basis of land productivity. These groups are: *abbal*, *doyam*, *seem* and *chahar*. Of the four categories of

land found in the area, *abbal* is the most productive and of the best quality. It is irrigated land, where three crops of rice, maize and lentils can be harvested in a year. Cash crops like fruit trees and mustard also flourish in this type of land. The second type of irrigated land is called *doyam*. Depending on the agro-ecological conditions and labour availability, two or three crops (rice, maize, and lentils) a year can be harvested on such land. *Seem* is wetland, which produces only one crop of rice per year. This type of land is suitable only for rice. From the productivity point of view, *chahar* is the least productive type of land. It cannot be irrigated. The only crops which can be grown there are corn, millet, mustard, lentils and beans, and it only yields one or two harvests a year. Figure 6.3 presents the responses to the question about type of land owned.

Figure 6.3 Percent of types of land people own in research population



1. **Abbal:** First-class land with the highest productivity and regular irrigation facilities.
2. **Doyam:** Second-class land with the second highest productivity and semi-regular irrigation facilities.
3. **Seem:** Third-class land with the third highest productivity (wetland).
4. **Chahar:** Fourth-class land with low productivity, where no regular irrigation facilities are available (Shrestha, 1985; Singh, 1988).

Source: Fertility survey 2003

Among the 343 respondents, 87 percent of the households own their own land and 13 percent own no land.

### 6.2.2 Household livelihood portfolios

The household livelihood portfolio is the combination of livelihood activities and ownership of assets and resources. This section discusses how the people in the area make a living and what assets and resources they have access to.

Agricultural production in marginal land, community forestry, conservation of natural resources, management of agro-biodiversity, and the cultivation of fruits and vegetables form the basis of household livelihood portfolios in the study area. Among the cereals, rice is the main crop produced, with 98 percent of the respondents growing rice. The majority of the respondents also cultivate millet, maize and wheat crops. More than 90 percent of the respondents cultivate mustard and beans or peas on their farmland as well. They also keep chickens, goats and pigeons for meat, and practise dairy farming, producing milk, ghee, and

yoghurt. Using fresh products from their own farm or garden is preferred rather than getting such things from distant sources, also because their purchasing power is so low. They cannot afford to buy foods such as green vegetables or fruits. Unfortunately, almost all households have so little land that the products from their land can only supply the required household with food for just a few months of the year. A bartering system exists, as well as a system of food or livestock exchange in the villages.

Quite a number of men (almost 30%, see Table 6.2) earn an income by working in the services sector. This may include working in the army, in development projects, or in schools and other government institutions. Those who have a business or are self-employed have a tea shop or a small retail shop or sell handicrafts like mats and baskets made from bamboo.

A livelihood comprises the capabilities and assets, including both material and social resources and activities required for a living. Assets can be natural, physical, human or social capital. Land, forest, water, bio-diversity and other natural resources represent an important source of natural capital in the rural areas. People meet their livelihood needs not only through their own monetary income but also through a variety of resources including subsistence production, state provision of services and access to common property (natural capital). In a rural area such as the study area, empowering people to practise the sustainable management of natural and agricultural resources is crucial. This empowerment has to be seen in terms of understanding social and environmental values and being able to act upon them. For livelihoods to be sustainable, it is not only assets that are important, but also capabilities, including use of social resources, participation in social activities and exercising agency.

*Table 6.5 Household ownership of tools and household utensils (N=343)*

Utensils	%	Utensils	%
Small cauldron	99	Grass-cutting knife	64
Cooking pot	98	<i>Bhujju</i> (big water pot)	61
Water jar	98	Axe	51
Big bowl	97	Medium-size sickle	42
Cups and glasses	95	Plough balance	34
Wooden spoon	86	Small sickle	32
Jug for drinking water	82	Spade without handle	24
Small water jug	81	<i>Karuwa</i> (special bronze jug)	24
<i>Khukuri</i> (traditional knife)	80	Saw/hammer	21
Big cauldron	80	Weed killer	16
Spade with handle	72	Rice cooker	13
Big sickle	64	Kettle	6

*Source: Field Survey 2003*

Household possessions form a large part of their asset base. As mentioned above, most households (74%) have a house of their own and most households (87%) own some land. Households also own a variety of utensils and agricultural tools. Ownership of these items is shown in Table 6.5.

### 6.2.3 Women's asset ownership and role in livelihood generation

*Pewa* is women's personal property. It can be given to them by their parents (see also Chapter 5). *Pewa* can be land, livestock, money, gold, or utensils. It is typically not a big amount, unless the parents are able and willing to provide well for their daughter. In the study area, women can also acquire *pewa* through share-cropping or share-rearing arrangements. Another source of *pewa* is dowry. Generally speaking, women have little *pewa*, not enough for their livelihood. However, it empowers women and gives them a certain measure of confidence. Many women may solve their minor financial problems by using their *pewa*. Some of them invest it in income-generating activities.

Table 6.6 shows that women's property increases after the age of 25. At this age they are settled and may start keeping livestock or they may buy a small piece of land either from their own income or from *pewa*, or by using money from other sources. Of all 343 married women in the sample, 12.0 percent own land, 12.2 percent own a house, 9.0 percent own livestock, 15.5 percent have *pewa*, and 12.2 percent own other property. The general conclusion is that ownership of assets by women is rather limited.

Table 6.6 Percentage of property ownership of married women by age

Age group	Land N=41	House N=42	Livestock N=31	<i>Pewa</i> N=53	Other property <sup>1</sup> N=42
15-19	4.9	4.8	6.45	9.4	4.8
20-24	4.9	2.4	12.9	11.3	2.4
25-29	14.6	19.0	12.9	13.2	19.0
30-34	24.4	26.2	12.9	7.6	26.2
35-49	14.6	19.0	12.9	22.6	19.0
40-44	26.8	23.8	29.0	18.9	23.8
45-49	9.8	4.8	12.9	17.0	4.8
Total	100	100	100	100	100

<sup>1</sup> Including gold, money, utensils

Source: Field Survey 2003

Twenty three percent of women in the study area have a yearly household income in the range of NRs. 50,000 to 70,000 (about \$700-800)<sup>4</sup>. In only 23.9 percent of the cases the yearly income is above NRs. 100,000 (about \$1,388). For a few households it lies between NRs. 1,000 and 5,000 (about \$13-70).

Women look after family members, make livelihood arrangements, and are actively involved in work both 'inside' and 'outside' the household. Work inside the household includes storing, preparing, cooking and serving food, cleaning the house, washing, preparing beds, and other household chores, as well as care work. Work outside the household includes taking care of livestock, farm management, agricultural work like planting and harvesting, and collecting water, fodder and fuel wood from the forest. Selling vegetables and milk is another economic activity practised by women. Fifty-one percent of women earn some income, which they spend on their family's livelihood. Children are an

<sup>4</sup>One dollar US was NRS 72 at the time of the field research 2003

indirect livelihood asset for families because they are expected to support their parents during old age.

Currently, one of the major strategies being used by development organizations is to involve women in all the development activities carried out in the rural areas. The government supports women to raise their quality of life by conducting integrated programs using a participatory approach. In the year 2003/04, there were 30 women registered for an income-generating program, in which financial help is provided for rearing goats and chickens. Development organizations and institutions in the district try to empower women by involving them in different activities, and encourage their active participation, as well as enhance health and literacy awareness. The government officer reported that they distributed more than NRs. 100,000 to communities in the district to implement different development programs, such as the supply of drinking water, child nutrition, education and health awareness, and veterinary services. These activities need to be thoroughly monitored and evaluated so that the money gets put to its proper use. Priority is also given to so-called disadvantaged groups such as untouchables and other poor and down-trodden people. However, despite these activities and attempts at community development, livelihood generation activities in the villages are not yet involved in the mainstream development program, and women's roles in livelihood generation and their contribution to the household are still not fully appreciated.

In reality, the women do not just depend on government programs. They are organizing themselves and have created mothers groups in the villages. The mothers group collects contributions from its members to create a fund called *dhukuti*, from which the members can draw in turn. The order of drawing from the fund is established by consensus. Members can also borrow from the fund, for which they have to pay interest. In the literature, a group like this is referred to as a ROSCA<sup>5</sup> (Ardener, 1995). Some of the groups lack a literate person to keep the records. If that is the case, they may use a male secretary or request help from the literacy class to increase the literacy of the group.

## 6.3 Food security

Food security can be achieved by cultivating food crops, buying food, gleaning, collecting food from the forest, and food exchange, which together is referred to as food procurement. Food storage is also an important element in food security.

### 6.3.1 Food procurement

Typically, food procurement in the village is achieved through food production and buying food. Women also collect from the forest, carry out gleaning, and exchange food.

#### *Food production*

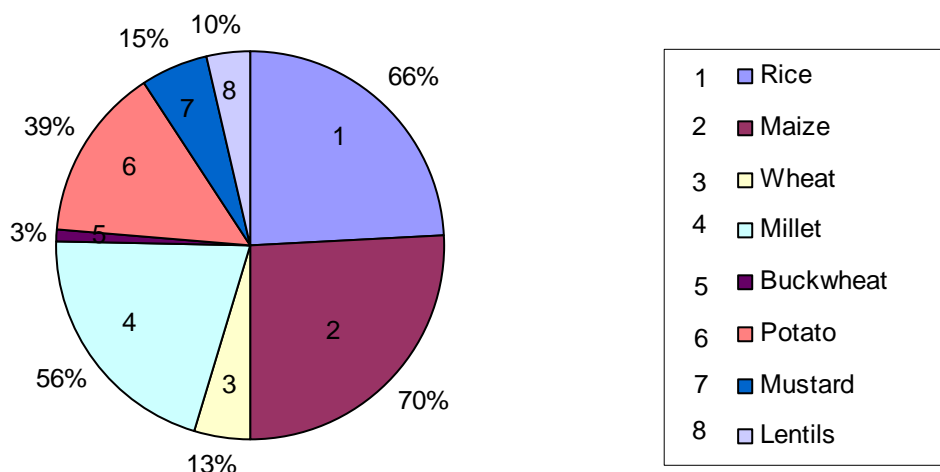
With regard to staple food production, maize occupies the first place (70%) and rice comes second (66%). Potato (39%) and millet (56%) are also frequently grown. Other minor crops produced by smaller numbers of respondents are mustard, wheat, lentils and buckwheat. Only seventeen percent replied that they had enough food from their land to last the whole year. Since for most of the people the food produced from their own land can only meet the household's requirements for a few months of the year, it is almost impossible to store food

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<sup>5</sup> Short for rotating savings and credit association

for the following year. The following figure presents the food crops produced in percentages.

Figure 6.4 Percentages of types of crop produced in research area (N=343)



Source: Field Survey, 2003

### ***Kitchen garden vegetables***

A majority of the respondents answered that the reason they did not grow vegetables was that they either did not have enough land, had no idea how to maintain a kitchen garden, or had no knowledge of the nutritional importance of eating vegetables for their household livelihood. The twenty percent of respondents who have a vegetable garden said that they grow different types of vegetables in the kitchen garden and that it has been a common practice in their household (Table A6.1). Those who do not grow vegetables buy them cheaply in the main season and preserve them by drying or fermentation and storage to use them in the off-season. The main types of preserved vegetables for the off-season are chickpeas, fermented dried green leafy vegetables, fermented bamboo shoots and dried bean paste. Respondents expressed that they felt good about preserving and storing their own vegetables rather than having to buy vegetables in the off-season when vegetables are expensive.

### ***Buying food***

The 85 percent of households who do not produce enough on their own land to satisfy all household food needs have to purchase food from the market or obtain food from other sources. Table 6.7 shows that the majority of the households (84.8%) is self-sufficient in maize, but only 51 of 343 households (14.9%) do not have to buy rice. The table presents details on buying food for the most important food items.

Table 6.7 Yearly expenditures on food according to food item (N=343)

Food item	% Households not buying	Range of yearly expenditure in NRs
Maize	84.8	300-96,000
Rice	14.9	660-152,000
Wheat	91.0	180-20,000
Millet	72.9	250-50,000
Mustard	58.6	500-62,000
Potato	81.9	200-5,000
Buckwheat	78.4	160-30,000
Lentils	68.2	240-20,000

Source: Field Survey 2003

The foods that are mainly bought in the village shops are tea, sugar, salt, noodles, milk, ghee, meat, fish, etc.

### ***Gleaning food***

Gleaning still takes place in the rural areas and is mostly done by women. For a variety of reasons, gleaning activities are slowly declining. Only six percent of the respondents said that they were engaged in gleaning, mainly collecting rice, maize, millet, wheat, potatoes, sweet potatoes, yams, fruits and vegetables. In the past, people used to glean rice and potatoes in the paddy fields, but nowadays many paddy fields have been converted into market areas and roads.

### ***Food collection from the forest***

People also use forest foods as a supplementary food source for the family. Out of 343 respondents, 41 percent claimed to collect forest food, divided into 3.2 percent males, 28.6 percent females, and 9.6 percent both. Thirty-four percent replied that they get berry fruits from the forest, 32 percent collect strawberries, 25 percent take yams, 22 percent collect *niuro* and *jaluko* (a kind of fern and taro which are found together in one place), 16 percent collect hog plums, 15 percent *githavyakur* (a kind of forest root food), and the rest collect various other types of foods (e.g. chestnuts, mangos) or do not use any forest fruits at all. It is only during the period of May through August that no forest foods are generally collected, since people are busy harvesting maize and planting rice in that period. The kind of food collected also depends on the time of the year, since some foods are seasonal. The quantities collected on a yearly basis are: chestnut: 193 kg.; berry: 48 kg.; *lapsi* (sour fruit used for pickle) 33 kg; *githavyakur* 27 kg; fern and taro 26 kg. The quantities for other items are much lower.

Forest food is not used when there is no forest in that particular area, or women have no time to go to the forest, or that the forest is not safe. Because of the civil war that was being waged in Nepal at the time of the field study, both the government's army and rebel fighters have set up military posts and training camps in the forest, which makes people scared to go there. A fifty-five year-old village woman said:

*'We don't go into the forest because of gun-firing by army and rebel fighters. We prefer to starve to death than die in the cross-fire of bullets. I therefore do not go there. My neighbours are afraid to go into the jungle to harvest yams and other forest foods'.*

### **Food exchange**

Exchange of food items between households is traditional practice in rural Gurung villages. The food items normally used for exchange are shown in Table 6.7.

*Table 6.7 Exchanged food items by season between households (N=343)*

Description of the item	Season
Ghee for honey	Spring, autumn, and winter
Milk for honey	Spring
Potato or sweet potato for rice	Summer and autumn
Peanuts for strawberries or rice	Spring and Autumn
Turmeric, garlic, and ginger for rice	Autumn
Sesame for buckwheat	Winter
Medicinal herbs for rice or maize	Autumn/Winter

*Source: Field Survey, 2003*

If people have the right type of land (*abbal* or *duyam*) to grow enough rice, they feel secure because they can always exchange rice for other foods. Since the types of foods grown differ for low lands and mountainous lands, food exchanges also involve exchange of foods between different areas.

### **6.3.2 Food storage**

Among the respondent 83 percent who were unable to produce enough food from their land for the entire year and buy and store food, 9 percent possessed storage that would remain for only one month, 16 percent for 6 months, 49 percent for 7 to 11 months, and 26 percent had stores that would last for 12 months. Mostly people store both dry and raw food materials. Raw rice, maize, wheat, millet and dry veggies are the foods used for storage. The production from the kitchen garden that cannot be stored are consumed straight away. People do not own refrigerators in which food can be kept for longer periods. Foods most frequently stored are: crops from the land (25.5%, average total weight of 162 kg.); peas and peanuts (21.2%, average total weight 142 kg.); spices (18.8%, average total weight of 3.6 kg.); cereals (14.6%, average total weight of 135 kg.); and vegetables (14.6%, average total weight 10 kg.).

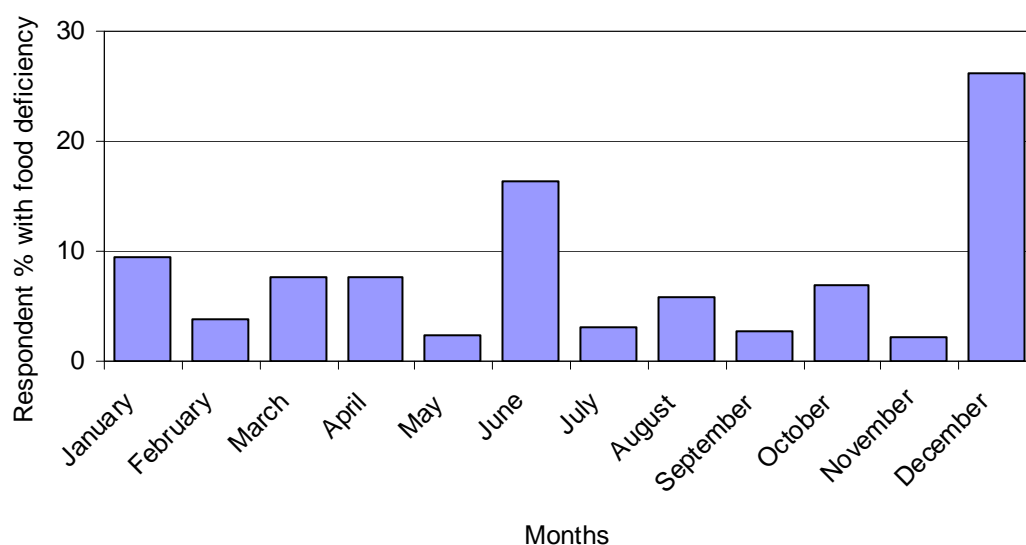
It is common for people with little agricultural production to use internal storage facilities, and those with more abundant production to use external storage facilities. For internal storage, a traditional metallic drum is used by most households (39.2%). Furthermore, jute sacks and big and small bamboo baskets are used. For external storage, most households (78.8%) have a shed made of wood and straw. Maize is kept in bundles and tied to a wooden pillar outside the house.

### **6.3.3 Seasonal food shortage**

In the rural areas, the maize harvest is in June-July and the rice harvest starts in December. This explains why in these periods many households experience food deficiency. Figure 6.5 shows the percentages of households reporting food deficiency according to the month of the year.



Figure 6.5 Percentages of households reporting food deficiency (N=343)



Source: Field Survey, 2003

### 6.3.4 Energy sources for food preparation

As for the types of devices used for cooking, 45 percent of all respondents use locally improved stoves named *chulo* that are made from mud, 33 percent of respondents use gas stoves, and 9 percent used kerosene stoves for cooking. At the time of the survey, almost all traditional old mud stoves had been replaced by the technologically improved version of the mud stove, the *chulo*, since the latter requires less firewood and produces less smoke.

The most important source of energy for households (44%) is fuel wood, collected from natural forests, managed forests, shrub areas, cultivated areas and other non-cultivated areas. Other energy sources are crop residues, like, for example, rice husks, maize cobs and jute sticks. Animal manure is also a traditional source of energy. These are all traditional sources. Non-traditional sources of energy are LPG gas (33%), electricity and gas from cow and buffalo dung, the technology for this being provided by development agencies in the district. Traditional sources of energy are slowly being replaced by non-traditional and commercial energy sources. Forty-five percent use fuel wood, 33 percent LPG gas, and nine percent electricity. Some households use kerosene and cow-dung gas. Respondents reported that they use different types of energy sources for cooking, heating and other purposes.

### 6.3.5 Women's role in household food security

The farm activities of rural women in cultivating cereals, vegetables, and fruits, and in livestock farming for the production of milk and meat all contribute to the household's food security. Women also make dry food from vegetables, beans and rice. The dried food is then stored for the off-season. They prepare dry radish, dry fermented vegetables, dry bean nuggets, pickles, dry meats, chillies, dried taro roots and steamed and dried taro leaves, and a variety of other foods. Men do help the women, but women do the planning and most of the work. If men have money they are inclined to go and buy food from the local shop, using the money they earned to buy a 'one-time' dinner, without thinking about long-term

food security. Women are the ones who are concerned with storing the food produced from their land and kitchen garden. Whatever is not immediately consumed is dried and kept for the season when such food is not available. Men are involved in slaughtering livestock and cutting it into chunks to be dried. Men also are involved in hunting. However, food security planning as well as food processing and food procurement are generally jobs for women.

Regardless of whether their role is a mother, daughter, daughter-in-law, or sister, women always feel that it is their responsibility to feed the household members. Men typically expect women to do the household chores, including cooking. Among the women respondents, none said that their husband did the cooking. Eighty-two percent reported to be responsible for preparing, cooking and serving food to the individuals in the household, while in 14 percent of the cases, the mother is responsible, and in 5 percent of the cases their sister or daughter is responsible.

## **6.4 Nutrition**

### **6.4.1 Food customs**

In the Gurung villages, people may eat in three groups: first the men and elderly people, then the children, and finally the women. However, in the area under study, 63 percent of the respondents reported eating together in one group sometimes, while 33 percent reported eating in two groups, with the men and the elderly eating first and the women and children after that. In special cases, there is flexibility when, for example, a woman has to go out early she will be served first. In some households, top priority is given to the children. Generally speaking, the respondent herself or her mother-in-law is responsible for distributing the food.

Among Gurung households and in Nepal in general, two or more adult people eating together from the same plate is not allowed and is regarded as being impure (*jutho*), even among members of the same household. This also applies to the study area. If someone has eaten or tasted food from a bowl or pot, then it is not acceptable to serve food from this bowl or pot to other members of the family. Eating, tasting or taking food from the food pot or from the serving bowl is considered rude. This is why 99 percent of the respondents replied that they eat from different plates. The same percentage replied that they eat with their hands. While eating, people sit on the floor on thin mattresses. For drinking water, traditional metal beakers are used.

### **6.4.2 Nutrition and daily menu**

Generally speaking, people eat three times a day: morning, afternoon and evening. The morning meal is between 7 and 9 a.m., the midday meal between 2 and 4 p.m., and the evening meal between 7 and 9 p.m., but the meal times also depend on whether there is much work to be done on the farm. Rice, maize and millet form the staple food. Most food is derived from own agricultural production. As described in Chapter 4, the common meal consists of rice or maize, some curry, lentils, and pickle. Women feed children whatever they have at home and do not consider whether the food is nutritious. The food intake of children under five years of age is discussed in detail below.

### 6.4.3 Breast feeding

Women breastfeed their infant for the beneficial effect of the child's health and survival. At the same time, breastfeeding protects the mother against pregnancy because of postpartum amenorrhea, which helps to lengthen birth intervals. The general thinking is that breastfeeding is the best food for babies. Most mothers in the village breastfeed until the next child. In the survey, 44 percent of the women were currently breastfeeding their children. Almost all women (99%) said they breastfed their child until it is at least two years old. Many women (95%) claimed to do so until the child reached the age of three. The child fully depends on mother's milk up to five to six months of age. Culturally, baby daughters are allowed to eat cereals after five months, sons after they have reached the age of six months. When the mother is very busy in the field, the child is brought to her to be breastfed. When nursing mothers have to work, they try to go home three times a day to breastfeed the baby.

### 6.4.4 Daily food intake of pregnant women and children under five

Good food for both mother and child is important for the maternal and child nutritional and health status. Health status in the study areas is intricately related to poor diet and the low level of healthcare facilities. The results of the 24-hour food intake recall show that most children have a below-standard food calorie intake. The situation is particularly severe among women and children. There are many causes for this, but most often they relate to chronic malnutrition and the lack of an adequate food supply at the household level. An inequitable distribution of food within households is also a common occurrence.

Only twenty-four women were found to be pregnant among the respondents in the survey. Of these, 11 were taking three meals a day, two of them ate only once a day, and five were eating four in a day while they were pregnant. During the pregnancy, they prefer to eat locally available foods and foods containing fat and protein. Among the food items consumed by these women, the largest percentage were rice, lentils in vegetable curry (49%), fruit and fruit juices (27%), followed by meat, fish and eggs (27%). With respect to the food preferences during delivery time, most women (70%) drink local soup at the time of delivery, made of vegetables, spices and some meat, while six percent prefer rice, and five percent have porridge containing rice or beans and vegetables.

Based on the 24-hour food recalls, the following picture emerges of the food intake of children under five. In the morning, in terms of weight in grams, buffalo and cow milk, fried lentils, meat, maize cob and rice (in that order) are consumed most. At mid-day soft-boiled rice, fried rice, rice bread, maize cob, and beans (in that order) are consumed most. For the evening meal, soft-boiled rice, cow and buffalo milk, mixed vegetables, rice, and pulses are the most popular foods. In terms of calories, the children under five derive most calories per day from cow and buffalo milk, mother's milk, fried lentils, fried rice, soft-boiled rice, maize cob, and meat (see Table A.4.1).

The diet changes as the child grows older. Together with mother's milk and the milk of cows and/or buffalos, mothers feed their children semi-solid foods regularly until the age of three. After that the children are given more solid foods like rice, curry, vegetables, and meat. The calorie intake of the 42 children under five for whom the food recalls were done varies considerably, also according to the age of the child. The food items that the 42

children consume can be found in Table A.4.3. To answer the question about the adequacy of their diet, their calorie intake has to be compared to WHO standards. The comparison is given in Table 6.8.

*Table 6.8 24-hour calorie intake of under-fives in comparison to WHO standards (N=42)*

Age in years	Number of children	Children below calorie standard	
		N	%
<1	6	5	83.3
1 to 2	17	14	82.4
2 to 3	11	10	90.9
3 to 5	8	8	100.0
Total	42	37	88.1

<sup>1</sup> *The World Health Organization recommended the following daily calorie intake for children under 5 years: below 1 year 850, 1 to 2 years 1150, 2 to 3 years 1350, 3 to 5 years 1550 (WHO, 1985).*

*Source: Field food survey, 2003*

The conclusion from Table 6.8 is that the large majority of the under-fives in the sample do not consume enough calories by WHO standards. Another conclusion is that the inadequacy of calorie intake increases with age, presumably because the two youngest age groups still derive calories from mother's milk. The poor nutritional status of the children, in terms of adequacy of calorie intake, does not seem to be a problem that the mothers are aware of. In the focus group discussions, they said that it was only possible to feed the children properly if you have fewer children and increase production from the land.

## **6.5 Conclusion**

Agricultural production is the basis for the livelihoods in the area under study. Most people are able to survive on their own agricultural production and the resources in their natural surroundings. Working in the services sector provides an important source of income, but mainly for men. Rice, maize and millet are the main crops produced. Most households, however, do not produce enough food to last them for the whole year. They have food stored for a few months only. There is food deficiency in most households prior to harvesting time. The households in the area under study try to safeguard their food security in various ways,. They acquire food by growing food crops in the fields, cultivating vegetables in the kitchen garden, buying food, gleaning, collecting food from the forest, and via food exchange. In food exchange, rice plays the role of 'currency'. Rice from the lower-lying lands is exchanged for products from the mountainous areas. The majority of the people in the area are hard-pressed to meet their food and other livelihood requirements and are perpetually struggling to manage their food and livelihood needs.

Nutritional status was investigated in detail by using 24-hour recalls for children under five. The results show that most of these children do not have an adequate calorie intake. The youngest children who are still being breastfed are relatively well off. The education of mothers, in a situation where educational attainment of women is still below that of men, might help to create more awareness about the nutritional needs of their children.

## Chapter 7

### Marriage, Fertility, and the Value of Children

This chapter analyses the research population with respect to parameters such as marital status, timing of first marriage, age-specific- and total fertility rates, and infant- and child mortality. Proximate variables such as age at marriage, family planning, breast-feeding and use of contraception are also analysed. Regression analysis is done on numbers of children ever born (CEB) in relation to fertility determinants and socio-economic variables. The same analysis was done for family size and food production from natural resource production and agricultural production, household income and assets. Finally, attention is paid to the value assigned to children in Gurung society and the preference for sons or daughters.

#### 7.1 Marriage and divorce

Marriage is an almost universal norm in Nepal, and childbearing is only socially acceptable for married women. Illegitimate children are not included in the national census. By law, for every birth there must also be a legal husband of the mother and a legal father of the child, which is why parents want to marry off their teenage daughters. However, child marriage is decreasing slowly while there is a growing trend in postponing marriage. The data show that sixty percent of women in the age group 15-19 delayed marriage, while only five percent of women in the age group 25-29 did so. By law, all individuals must be at least twenty years old before they can marry without parental consent, and eighteen if they have parental consent. However, in practice, parental consent is still important. In forty percent of marriages, the bride is under fifteen and thirty-three percent of all those marrying are adolescents, where fifty percent of adolescent girls are pregnant or already have become mothers (CBS, 2003a).

In Gurung society, a couple will discuss their marital problems with their family only if the problems are very complicated and if the couple are unable to resolve these themselves. If that does not work, they can start divorce proceedings. Traditionally, if a husband and wife do not want to stay together anymore they will go through the *sinkapangra* ceremony. This involves putting forest nuts and a thin stick of bamboo on a plate made from the green leaves of a particular forest tree. They break the thin stick of bamboo sticks left and right and say: "From today we break the marriage relationship and we are not married anymore". Then they put those sticks on top of nuts and breaks the nuts as well, repeating the same saying. However, nowadays people go to the village administrative office or their people's government village (Maoist). The Maoists forced the husband either to pay money to the wife to live from or to give her property. These days many women in Nepal go to the people's government for legal procedures. However, in 2003, at the time the fieldwork was done this was not yet the case. Nonetheless, not many women in this sample were divorced (see Table 7.1).

In the focus group discussion, some women mentioned that men take a second wife easily. They cheat on the first wife and behave nicely to the second wife. Women have no means or rights to protect themselves from this situation. If women want to challenge the husband, their family and society will not support her. Women in the village have to face many problems if they want to file a divorce case. After the divorce, a woman will get nothing

from her husband. Therefore, a woman's life after divorce or separation becomes a struggle (Chapter 5, Case 5.4).

*Table 7.1 Marital status according to age group of men and women aged 10 and above*

Age Group	Marital Status							Total
	Unmarried	Married & living together	Married not living together	Separated	Divorced	Widow (er)	Absent spouse	
10-14	238	0	0	0	0	0	0	238
15-19	161	48	7	1	0	0	1	218
20-24	46	69	25	0	2	0	2	144
25-29	19	74	54	1	2	1	0	151
30-34	1	81	34	0	1	0	2	119
35-39	5	87	30	3	1	1	0	127
40-44	2	87	27	1	1	3	2	119
45-49	1	83	15	3	1	4	1	108
50-54	1	83	4	1	1	8	1	68
55-59	0	52	1	0	0	3	0	47
60-64	1	43	1	1	0	6	0	33
65+	2	48	0	1	0	26	1	78
Total	477	692	198	12	9	52	10	1450

*Source: Field Survey 2003*

Table 7.2 shows that age at marriage of women is significantly related to current age, the higher the present age of women, the lower the age at marriage. In the past, there were many child marriages in rural areas because of religious and social reasons. This is why the women in rural areas became pregnant and had their first child at an early age, which led to a high number of children-ever-born.

*Table 7.2 Age at first marriage according to present age (ever-married women 15-49)*

Present age	Age at first marriage				Total
	10-14	15-19	20-24	25+	
15-24	4	61	16	0	81
25-34	2	56	45	12	115
35-49	14	62	43	28	147
Total	20	179	104	40	343

*The value of Chi-square is significant ( $p < 0.001$ )*

*Source: Field Survey 2003*

Eighty-nine percent of the women in the sample married after menarche, which started at the age of fifteen for most women, and in some cases as early as age twelve. Today, the age at marriage is increasing and in the age group 15-19, no women had married before

reaching menarche, while in the upper age-groups there are many cases of women marrying before reaching menarche. The results show that the probability of marrying before menarche increases with age. In the past, parents believed that they would go to heaven if they gave away their daughter in marriage before her menarche, but this is no longer the case since they are better educated and informed.

*Table 7.3 Timing of marriage in relation to menarche according to age (ever-married women 15-49)*

Age Group	Menarche				Total	
	Before menarche		After menarche		Number	Percent
	Number	Percent	Number	Percent		
15-19	-	-	38	13.1	38	12.2
20-24	2	9.1	34	11.8	36	11.6
25-29	0	0.0	56	19.4	56	18.0
30-34	2	9.1	50	17.3	52	16.7
35-49	4	18.2	33	11.4	37	11.9
40-44	6	27.3	43	14.9	49	15.8
45-49	8	36.4	35	12.1	43	13.8
Total	22	100.0	289	100.0	311	100.0

*Source: Field Survey 2003, missing observations: 32*

Age at marriage among the Gurung is higher now than at the time of the study of Macfarlane (1976). At that time, the legal marriage age was eighteen for men and sixteen for women. It is still twenty one for men and the age for women has been raised to eighteen (CBS, 2001b:2). New Era (2002) found that, on average, women in rural areas marry about a year younger than the men do. In urban areas, women are, on average, two years younger than their husband at the time of marriage. There is also a positive relationship between education and age at marriage: women with no education marry two years earlier than women who have secondary education, and three years earlier than those who finish high school. This relationship is less pronounced for men. Women who marry early will, on average, have a longer exposure to the risk of becoming pregnant and therefore early age at marriage often entails an early start for childbearing, and higher fertility.

### ***Cohabitation and coital frequency***

As can be seen in Table 7.1, of all 694 ever-married women aged 20-50, only 481 women are married *and* living together with the husband, while 185 women (26.7%) are married but *not* living with the husband. In the age group 25-29 the figure for those married and not living with their husband is as high as 40.9 percent. This has implications for coital frequency and exposure to the risk of pregnancy. The reason why so many married women do not live with their husband is the labour migration of Gurung men, which partly relates to the traditional preference of Gurung men for jobs in the army.

For women who are living with their husband, it is difficult to avoid sleeping with their husband and refusing sexual intercourse. The husband would suspect that there is another man in the picture. Suntalimaya expressed this as follows:

*'I cannot sleep separately; my man comes to me wherever I go, even when I am at my parents' home. He does not leave me alone if he wants to have sex. I cannot avoid him. He does not follow the cultural rule of not having sex in certain situations'* (by which she means when women are menstruating or during the post-partum period).

### **Pregnancy**

The survey data show that fifty percent of the respondents were pregnant in their first year of marriage. Eighteen percent of women became pregnant after one year of marriage, while ten percent of women became pregnant after two years of marriage. Only a few women had their first pregnancy after more than three years of marriage. In the national data, ten to twenty percent of young unmarried people have pre-marital sexual exposure but social realities constrain access to family planning services for them, especially girls (CBS, 2001b). The women in the sample use their agency by trying to regulate their pregnancies, including by getting an abortion in case of an unwanted pregnancy.

## **7.2 Fertility**

In this section the fertility pattern, age-specific fertility rates, the total fertility rate, and the parity progression ratio (PPR) of Gurung women are presented, and compared with Nepal fertility figures. Furthermore, the demographic and socio-economic determinants of fertility (number of children-ever-born) are investigated in a regression model.

### **Fertility in Nepal and the research population.**

Fertility in Nepal has been decreasing since the census 1990. The total fertility rate (TFR) was lower in the study area than the national TFR of 2001. The TFR arrived at for Gurung women was 3.27 (see Table A6.1 for details), which is lower than the national TFR of 3.88 estimated for 2001. Table 7.4 presents the fertility trends in Nepal.

*Table 7.4 Total Fertility Rates Nepal, 1993-2005*

Period	TFR	Source
1993-95	4.64	Nepal Family Health Survey 1996, MOH, 1997
1998-00	4.10	Nepal Demographic and Health Survey 2001, MOH, 2002
2001	3.88	Karki, 2003.
2005	3.50	UNFPA, 2005

*Source: NDHS, 2001; UNFPA, 2005*

### **7.2.1 Fertility patterns**

This section will discuss the fertility levels, trends and differentials of the research population. As said above, fertility rates in Nepal show a declining trend. However, the age-specific fertility rates show a pattern of higher fertility for the same age groups than those in the of the sample. Both in the national data and in our sample the age groups of 20-24 and 25-29 show the highest fertility (see Figure 7.1).

### **Period fertility measures ASFR and TFR**

The number of births occurring in any year in a population is determined partly by demographic factors such as the age and sex distribution of the population. The number of



married couples and their distribution by age, and duration of marriage, affect the number of children born to women. The national Total Fertility Rate (TFR) for 2005 is estimated at 3.5. The TFR indicates the number of children a woman would have when reaching the age of 50 if she had experienced the age-specific fertility rates of the period concerned at every age. The national data show the declining fertility trend in Nepal (see Table 7.4). Table 7.5 shows the age-specific fertility rates of the Gurung women in the sample. Based on these, the TFR for the sample of Gurung women is 3.27, which is lower than the national average. Figure 7.1 shows the age-specific fertility rates of the Gurung women in comparison to the national averages. The pattern of the highest fertility at ages 20-30 is the same for Nepal and the Gurung women. However, the age-specific fertility rates of the Gurung women at these ages, and – to a lesser extent – also at the ages 30-40, are lower than the national age-specific fertility rates. The relatively high number of married Gurung women who are not living with their husband (see above) may explain the lower fertility levels.

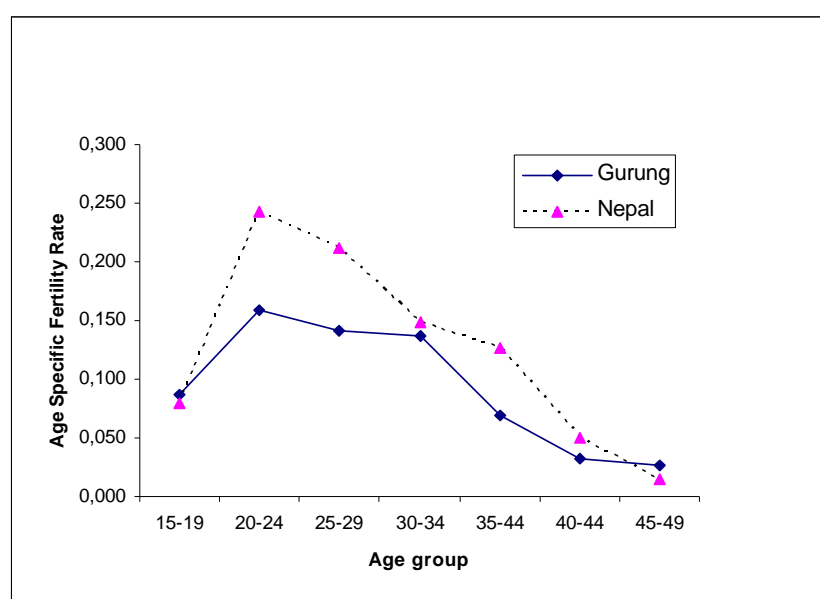
*Table 7.5 Age-specific fertility rates of ever-married women aged 15-49 (N=343)*

Current age of women	Age-specific fertility rates
15-19	87
20-24	159
25-29	142
30-34	137
35-39	69
40-44	33
45-49	27
TFR*	3.27

Source: Fertility survey 2003

\*TFR=  $\sum ASFR \times 5/1000$

*Figure 7.1 Age-specific fertility rates for Nepal and Gurung women*



Source: Fertility survey 2003 and CBS, 2001

### **Parity, cohort fertility**

In this section we will explore the longitudinal fertility of Gurung women. A way to look at parity (cumulative numbers of children born to women) is to calculate the parity progression ratio (PPR), which is a measure of the probability for women of a certain age (or birth cohort) of having another child given a certain number of children-ever-born (cf. Newell 1984: 58). Table 7.6 presents the numbers of children-ever-born (parity) of the Gurung women in the sample, according to age group. Table 7.7 presents the parity progression ratios of the oldest cohorts (age groups 40-44 and 45-49). The parity (P) of the age group 40-44 is 3.46, that of the age group 45-49 is 3.60. This shows that the parity of the older age group is higher than that of the younger one and that the parity of both age groups is higher than the total fertility rate, calculated on the basis of current age-specific fertility. If it is assumed that no major reporting mistakes have been made, the comparison of the  $P_{40-44}$ , the  $P_{45-49}$  leads to the conclusion of declining fertility among Gurung women.

*Table 7.6 Parity of women by age group (ever-married women 15-49)*

Number of Children	Current age group							Total
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
0	21	5	1	0	3	1	2	33
1	17	21	21	6	4	6	4	79
2	3	12	27	19	9	11	5	86
3	0	1	5	19	15	13	15	68
4	0	0	2	10	12	7	3	34
5	0	1	0	4	5	6	11	27
6	0	0	0	1	1	4	3	9
7	0	0	0	0	0	2	2	4
8	0	0	0	0	0	1	1	2
9	0	0	0	0	0	1	0	1
Total	41	40	56	59	49	52	46	343

*Source: Fertility survey 2003*

### **7.2.2 The proximate fertility determinants**

Relevant proximate determinants include age at marriage, proportion of marrying, use of contraception, induced abortion and postpartum non-susceptibility. Other factors affect fertility through the proximate determinants.

#### ***Age at marriage***

Marriage is a mark of women's status in Gurung society. The marital status is also the condition in which bearing children is socially accepted. The earlier women marry, the higher the risk of early pregnancy and childbirth. Table 7.8 presents data on the number of children ever born according to age at marriage of the mother. It shows that age at marriage of the mother has a significant relationship ( $p < 0.001$ ) with the number of children-ever-born.

Table 7.7 Parity progression ratios ever-married women aged 40-44 and 45-49

Children ever born (CEB)	Women 40-44	Women 40-44 with at least CEB	PPR Women 40-44	Women 45-49	Women 45-49 with at least CEB	PPR Women 45-49
0	1	52	0.981	2	46	0.957
1	6	51	0.882	4	44	0.909
2	11	45	0.755	5	40	0.875
3	13	34	0.617	15	35	0.575
4	7	21	0.666	3	20	0.650
5	6	14	0.571	11	17	0.353
6	4	8	0.500	3	6	0.500
7	2	4	0.500	2	3	0.333
8	1	2	0.500	1	1	0.000
9	1	1	0.00	0	0	0000
Total	52			46		

Source: Fertility survey 2003

Table 7.8 Children-ever-born by mothers' age at marriage

Age at marriage	Women and children-ever-born			
	No. of Women	%	No. of Children	%
10-14	20	5.83	60	7.5
15-19	179	52.18	420	52.5
20-24	104	30.32	224	28.0
25+	40	11.66	96	12.0
Total	343	100	800	100.0

Chi-square value significant ( $p < 0.001$ )

Source: Fertility Survey 2003

### Family Planning

Today, most women practise birth control and many women think that two children is enough. Women use whatever family planning devices are available. Forty-eight percent of the 343 women were using family planning methods. Of these (N=164), 39.6 percent used permanent methods and 60.4 percent were using temporary methods. Table 7.9 presents the data on use of family planning in the sample. Some of the contraceptive users reported experiencing side-effects. The main complaints include stopping of menstruation or extra bleeding, weakness, vomiting, pain in lower abdomen, while others had headaches or breast pain. Free contraceptives are available in the health posts and hospitals. Contraceptive pills and condoms can also be bought in the shops.

Table 7.9 Use of modern family planning methods by men and women

Family planning method used	Sex	Family planning tools used	Number	Percentage
Permanent method	Male	Vasectomy	27	16.5
	Female	Minilap or Tubectomy	8	4.8
		Laproscopy	30	18.3
Sub total			65	39.6
Temporary Method	Male	Condom	9	5.5
	Female	Pills	26	15.9
		Injection	60	36.6
		Norplant, IUD, and Calendar Method	4	2.4
Sub total			99	60.4
All Total			164	48.0

Source: Fertility survey 2003

No significant relationship was found between educational status and use of family planning. Table 7.10 shows where the contraceptives are obtained.

Table 7.10 Sources of contraception of contraceptive users

Sources	Number of users	Percentage of users
Health post	54	32.9
Hospital	27	16.5
Health worker	3	1.8
Family planning office	8	4.9
Shop	17	10.4
Pharmacy/drugstore	32	19.5
Not answered	23	14.0
Total	164	100.0

Source: Fertility survey 2003

The respondents received information about contraception from the radio (36.4%), neighbours (31.5%), relatives (10.9%), or the health post (4.8%). Some of them (9.6%) knew about contraception through television, newspapers and school education. Seven percent of the contraceptive users did not say where they received the information from.

Both the Bongaarts' and Jones' models (see Chapter 2) of proximate determinants of fertility were used to analyse the data. The relationship between the number of children-ever-born and the variables age at first menstruation, age at first marriage, married but currently not living together with the husband, use of family planning methods, and abortion were tested in a regression model. The results are presented in Table 7.11.

Table 7.11 Regression of CEB on proximate fertility determinants (N women 343)

Variables	Children-ever-born (CEB) N=800			
	Coefficients	SE	Beta value	T-stat.
Age at first menstruation	.164	.073	.238	2.236*
Age at first marriage	.015	.034	.046	.433
Married currently not living together	-.006	.006	-.098	-.958
Use of family planning methods	-.159	.101	-.158	-1.575*
Abortion	-.377	.423	-.089	-.890
Intercept				.330
Adjusted R square 6.5%				

*Dependent variables: total live births*

*\*significant at 10% level, \*\*significant at 5% level, \*\*\* significant at 1% level*

*Source: Fertility survey 2003*

Only age at first menstruation and the use of family planning methods show a significant effect. The other variables do not show direct significance, but in the ANOVA summary table, the total regression residual shows a significant effect ( $p = 0.049$ ).

### ***Women's views on sexuality and reproduction***

In the past, girls were quite ignorant about the relation between sex and reproduction. One of the cases illustrates this matter. Speaking of her childhood, Fulmaya had this to say on the subject:

*'I thought that people had sex only when they wanted a child. I also thought that people would have sex only after marriage and at a time when they felt the need for a child. Thus if a couple wants to have three children they will have sex only three times or if a couple wants to have five children they have sex only five times, and so on. I came to know about sex only during my marriage'.*

Today, as a result of school education and media exposure, people are more knowledgeable about sex, family planning, and abortion, and fertility choices. In rural society, the word 'sleep' signifies sex. In the past, to avoid pregnancy Gurung women would refuse to sleep with their husband and would sleep separately. But most men would not accept that. In the focus group discussion, Suntalimaya expressed her experience as follows:

*'Men like to be together with women, even if a man lives far way he will cross the big hills. If he wants sex, he comes to sleep with his wife and cannot go away without this. For women it is difficult to avoid sleeping with their husband. When I slept at my parents' place during the maternity period, my husband sometimes came to sleep with me. We Gurung have no cultural barrier to having sex during the maternity period, as is the case with Brahmin and Chhettri village women'.*

Sometimes, when women have a child out of wedlock, they have to leave the house and village. If women cannot regulate their pregnancies and use contraceptives or do not take care to have sex only during the safe period, then a pregnancy may soon occur. If a woman avoids sleeping with her husband, he may doubt his wife's character and suspect her of

having a boyfriend outside the home. This is the main reason that women simply cannot avoid having sex with their husband. A few days after delivery, a mother will typically take her newly-born child to the mother's parental home to rest. However, it is not possible for all women to do this; those who are poor have to work for their livelihood. Among the Gurung community it is not so that if a wife goes to her parents' house she will be safe from sexual advances from her husband, because he may visit her and claim his rights even when she is in her parental home.

### ***Induced abortion***

In the early days, when no family planning devices were available, women used herbal treatments to try to prevent pregnancy. Failing that, it was quite common to give birth to unwanted children. Sometimes women had up to twenty children. Though abortion is still illegal, doctors in clinics perform them for high fees.

The married or unmarried woman who becomes pregnant through a sexual partner outside marriage faces a major problem. This partner may be a relative or someone from a different caste. The child born as a result of such an illegal contact is socially unacceptable. In the past, women with such an unwanted pregnancy would try to abort the child, using traditional medicines. For example, they would eat honey mixed with the red powder used for the red spot on the forehead (*tika*), ground glass mixed with yogurt, or hot bean soup and a kind of melon. Some women used belly massage or called in help from traditional practitioners. If this has not led to an abortion being induced, they would also eat raw rice and/or put a stone on their belly when lying down, as well as eat honey with lemon every morning before eating solid food. However, these practices rarely resulted in an abortion. Of course, women who have tried to get terminate a pregnancy usually don't want to talk about it. Sometimes neighbours are the source of information. In the sample, a few women (10.5%) admitted to having had abortion.

## **7.2.3 Factors influencing fertility**

### ***Education***

In Nepal there is a strong link between level of education and fertility (TFR): uneducated women have a TFR of 4.8, while women with some secondary education have a TFR of 2.3 (CBS, 2001a). Table 7.14 presents the findings on the relationship between educational level and number of children-ever-born (CEB) of Gurung women, controlled for age.

The result shows that the higher the educational level, the lower the number of children. Women's level of education is generally lower than that of men. In Nepal, three out of four women as compared to two out of five men never attended school. Fifteen percent of the women and thirty percent of men have only primary education, while nine percent of the women and twenty percent of men have some secondary education, with four percent of the women and thirteen percent of men having obtained their school-leaving certificate (New Era, 2002). The strong relationship between women's fertility and level of education emphasizes the importance of women's education.

*Table 7.12 Educational status of women and children-ever-born according to women's age groups. Women N =343, Children=800*

Education		Women's current age group (years)							Total
		15-19	20-24	25-29	30-34	35-39	40-44	45-49	
Illiterate	No. of women	-	-	4	24	14	19	27	88
	Total no. of children	-	-	7	81	41	69	102	300
	Average no. of children	-	-	1.75	3.37	2.92	3.63	3.77	3.41
Primary	No. of women	10	15	27	23	31	31	18	155
	Total no. of children	9	23	55	55	93	86	61	382
	Average no. of children	0.90	1.53	2.03	2.39	3	2.77	3.38	2.46
High school and higher	No. of women	31	25	25	12	4	2	1	100
	Total no. of children	8	25	39	23	12	6	5	118
	Average no. of children	0.25	1.0	1.56	1.91	3.0	3.0	5.0	1.18

Source: Fertility survey 2003

### ***Socio-economic conditions***

The relationship between number of children ever born and a number of socio-economic variables was analysed in a regression model. The results are presented in Table 7.13.

*Table 7.13 Regression of children-ever-born (CEB) on selected socio-economic variables*

Variables	Children-ever-born (N=800)			
	Coefficients	SE	Beta value	T-stat.
Age at first marriage in years	-.033	.019	-.079	-1.703*
Employment within 12 months	.027	.035	.036	.766
Education	-.659	.059	-.536	-11.119***
Current occupation	-.045	.031	-.069	-1.466
Annual income	.028	.030	.045	.911
Ownership of land	5.230e-05	.000	.009	.187
Ownership of house	-.098	.086	-.052	-1.134
Use of family planning	-.169	.080	-.098	-2.123*
Intercept				000***
Adjusted R square 28.8 %				

*Dependent variables: total live births*

*\*significant at 10% level, \*\*significant at 5% level, \*\*\* significant at 1% level*

Source: Fertility survey 2003

The results show that there are three variables that affect the number of live-born children: age at first marriage, education, and use of family planning. Education has the highest effect. The other variables – occupation, ownership of house, ownership of land, house, and employment – have no direct effect.

Similarly, a regression analysis was done on the effects of food production, land and asset ownership, and income, on number of children-ever-born. Table 7.14 presents the results.

*Table 7.14 Regression of children-ever-born (CEB) on sufficient food production, income and assets (N women=343)*

Variables	Children-ever-born (N=800)			
	Coefficients	SE	Beta value	T-stat.
Sufficient food production from their own land	.317	.347	.053	.911
Women assets (land, house & livestock)	-.078	.264	-.016	-.296
Land ownership	.000	.000	-.015	-.274
Annual income of the family	.100	.042	.129	2.353*
Total agricultural production (in kg)	-5707e-061	.000	.004	.077
Intercept				000***
Adjusted R square	0.4%			

*Dependent variables: total number of children*

*\*significant at 10% level, \*\*significant at 5% level, \*\*\* significant at 1% level*

*Source: Fertility survey 2003*

The only directly significant effect shown in Table 7.14 is that of annual income.

### 7.3 Infant and child mortality

Most childbirths in Gurung society occur with little skilled health supervision. The maternal mortality rate (MMR) is still high in the country and this high maternal mortality affects women's health. In the national data, sixty percent of infant deaths occur within the first four weeks, mostly in the first seven days after birth (CBS, 2003a). Child mortality in the study area was not as high as expected. In the sample, only nineteen children had died during the twelve months prior to the survey, seven from pneumonia, six from fever or typhoid, three from malnutrition, two from diarrhoea, and one from drowning.

The mortality estimates are computed from information collected in the pregnancy history and reproductive history of ever-married women. For computing the infant mortality, and child mortality and under-five (year age) mortality, the infant mortality rate (IMR) and the child mortality rate (CMR), the West Model Life Table (Brass, 1968) was used (see table in Appendix 5). Based on the West Model Life Table, the IMR for the sample (period 2001-2003) is 57 per 1000 live births and the CMR is 21 per 1000 live births. The IMR found in the sample is lower than the national rate of 60 (UNFPA, 2005: 108). Female life expectancy for the sample is 62.9 years, which corresponds to the national figure.

Among the total number of respondents, fifty percent reported where they went for medical treatment. The details are shown in Table 7.15



Table 7.15 Source for medicine and treatment used in the research area

Place of Treatment	Number	Percent
Government hospital	84	48.6
Medical stores	40	23.1
Health post	16	9.2
Witch doctor	12	6.9
Local traditional treatment	11	6.4
Use of herbs	4	2.3
No treatment	6	3.5
Total	173	100.0

Source: Fertility survey 2003

## 7.4 Value of children and gender preference

Women have different opinions about the desired number of children. Some women want to have many children and some want only a few. Those women who have daughters want to have a son and those who have a son want to have a daughter. Both play a role in the funeral ceremony of their parents. Culturally, daughters and sons are valued in their own way. In Nepal society in general, sons are highly valued. However, daughters are equally important for the family. Daughters are valued in Gurung society. Daughters are indispensable at important cultural occasions in Gurung society, like *Dashain*, *Tihar* and at the death ceremony *Asupiuri* (see Chapter 4). Household work and agricultural work are performed equally by sons and daughters, though they may do different things. For example, sons will plough the fields and cover the roof (see Figure 7.3). As said, in Gurung society, sons inherit the parental property and continue the family line. In this way, sons are the link for the continuation of family property. Some parents support their daughters, by giving them land and property, even when she is married. Furthermore, the sons must take the dead body of the parents to the place of cremation.

Daughters are important in the family in different ways. A daughter is also required to be present during the funeral ceremony. Unlike in many other communities and ethnic groups, among the Gurung, sons and daughters have equally important ritual functions at the time of a parent's death. Gurung daughters are allowed to participate in the funeral ceremony like their brothers. Without the presence of a daughter and son-in-law, the funeral cannot proceed. The daughter has to leave her hair loose and uncovered and has to stand in front of the corpse and put some money on the corpse before it leaves the house. The Gurung believe that their deceased will not reach heaven if these practices are not performed. Table 16 shows the expressed desire for more sons or daughters of respondents who have no sons living with them or no daughters living with them.

The significant chi-square value ( $p < 0.01$ ) seems to indicate a slight preference for sons over daughters, in spite of the more or less equal value attached to sons and daughters in Gurung culture. Figure 7.2 shows the reasons for wanting sons or daughters.

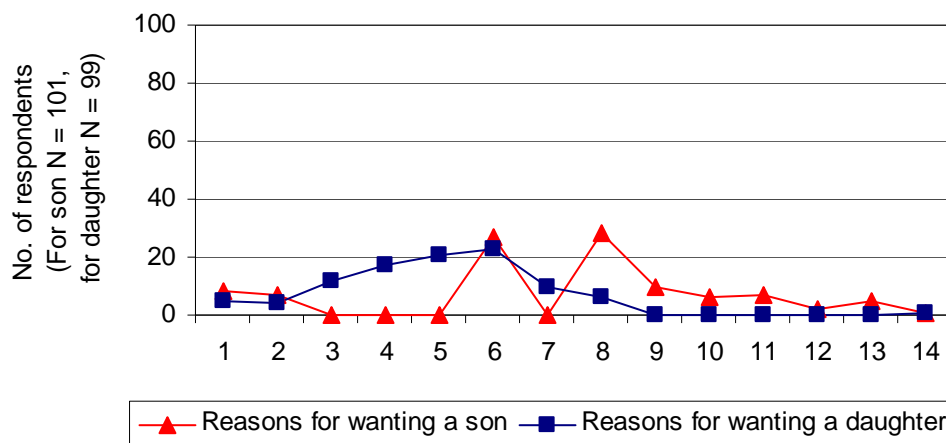
Table 7.16 Women's desire for sons or daughters in relation to having sons or daughters

Not having sons or daughters	Expressed desire for more son or daughters			Total
	Desire for sons <sup>(1)</sup>	Desire for daughters <sup>(1)</sup>	Neither sons nor daughters	
No sons	59 (58 %)	36 (35 %)	7 (7 %)	102 (100 %)
No daughters	40 (27 %)	59 (40 %)	47 (32%)	146 (100 %)
Total	99 (40 %)	95 (38 %)	54 (22%)	248 (100 %)

<sup>1)</sup> Including respondents expressing a wish for more sons and daughters

Chi-square 31.4 ( $p < 0.01$ )

Figure 7.2 Reasons for wanting sons and daughters



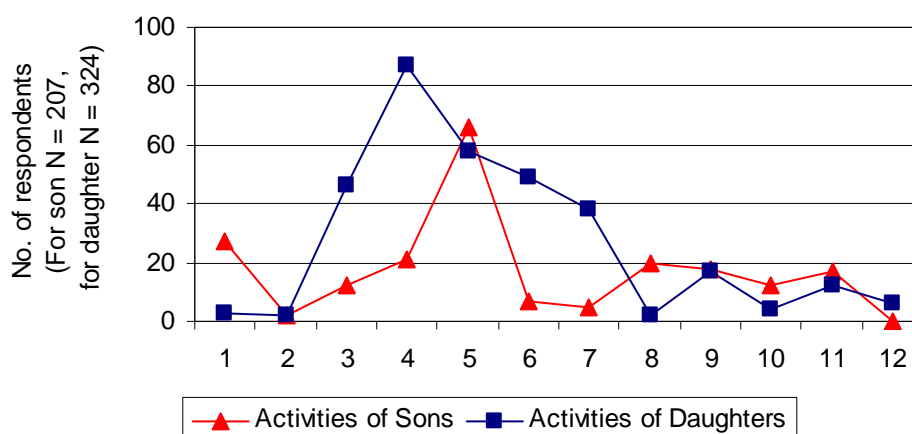
Source: Household and Fertility Survey 2003

\*Multiple answers of female respondents

Note: 1 = Already have sons/daughters, 2 = Both are essential for family, 3 = Daughter as jewel of the house, 4 = To love the parents, 5 = Help in the household work, 6 = Attend the funeral ceremony, 7 = Understand the parents' problem, 8 = Look after the parent at old age, 9 = Gain prestige in society, 10 = Maintain family reputation, 11 = Support the family, 12 = Access to the public sphere, 13 = Continue the progeny, 14 = Others.

The importance attached to sons for looking after their parents in old age relates to the pattern of virilocal residence. Traditionally, the son stays with the parents, while the daughter follows the husband. The data in figure 7.3 shows the different activities of sons and daughters in the household. Because the son stays at home and inherits the property, he is obliged to look after the parents in old age. The daughters follow their husbands. There are some common activities in the Gurung households that involve division of labour. Sons are highly involved in fetching water for the household and daughters work more in the house, which reflects women's reproductive role. Sons do more work outside the house and in agriculture, reflecting their future role as provider.

Figure 7.3 Activities for which sons and daughters are valued



Source: Household and Fertility Survey 2003

\*Multiple answers of respondents

Note: 1 = Agriculture work, 2 = Child care, 3 = Washing clothes, 4 = Cooking food, 5 = Fetching water, 6 = Cleaning dishes, 7 = Cleaning houses, 8 = Going to the market/shopping, 9 = Fuel wood collection, 10 = Livestock stalling/grazing, 11 = Grass/Fodder collection, 12 = Cow dung removal

### ***Personal statements by respondents about sons and daughters***

The birth of a daughter is welcome for religious, cultural and social reasons. Daughters are valued for their help with housework, taking care of younger children and companionship for the mother. Sons and daughters are valued equally because of their importance during the parents' funeral ceremony. The ceremony is not conducted unless a daughter is present. This is not the case in some communities where daughters are not allowed to attend the funeral of their parents. One case study shows that Shreemaya, who has two sons, has a deep desire for a daughter in her family. She prefers a daughter to a son because she believes that daughters give more love and care to their parents. She also considers them a source of inspiration and a crutch for old age. She expressed her wish as follows:

*'If I had a daughter, she would give me deep love, care and affection until old age. I would love to hear her lovely voice saying "Ama", now and in my very old age. She would be looking after my health and help me address female-oriented personal problems. Unfortunately, I do not have a daughter in my life'.*

Shreemaya is not sure whether her sons love her. Apparently, neither son shows love and care to her. Hence, she feels insecure now that she is getting old. She is worried about her future, particularly about her funeral. Her husband had a vasectomy in Chitwan without informing her. She laments that all she has left is the dream of having a daughter. Kumari Gurung is a mother of four daughters and was married at the age of 22 with a young man in the Indian army. Her husband took another wife when she was 35 years old. Her children were all under 12 years old at that time. Kumari looks after them and she feels rich because she considers her four daughters her wealth. Hence, she does not desire a son. She also does not care for her husband and the co-wife anymore. She says:

*'Being a mother of four daughters makes me feel proud and I never feel something is missing because of having no sons. I am enjoying my four daughters and I did not wish to get another partner after separation. Men always want to take advantage of women. I could remarry if I wanted to, but I did not because I want to give my attention to my four daughters. I also do not wish for a son because I am happy with my four daughters now. Sons and daughters are equal in my two eyes'.*

Another respondent, Kashimaya, does not expect to have any more children. She already has a son. Her husband took a second wife when she was pregnant and now she is separated from him. She will not have another child because she has no partner.

*'I decided not to marry again for the future of my son. If I remarry and have other children, it will affect my son's economic security and education as well. I already do not even have the capacity to provide for all the needs of my son, so why marry again? His father does not give me any money for his education. My parents-in-law would like me to remarry so that they can get back the land from my son and me. I do not remarry because of my son's future'.*

Shuku has different views on sons and daughters. Shuku likes to look after her children and think of the future of her children (Case 5.2). She expressed this as follows:

*'I have twin sons, and two daughters, whom I consider my precious property. Actually, I wanted only two children but because my first two children were daughters, I waited for sons and had twin sons. Hence, I now have four children. Gurung families do not prefer sons or daughters. We provide education to our children, daughters and sons equally, if daughters like to have education. However, daughters marry at an early age without completing their education. Daughters feel life is better after marriage. This is the case for me; I also did not continue my education. Anyway, we treat our daughters and sons equally in my family and in the community. We value our sons and daughters equally especially for their role in the funeral ceremony'.*

A thirty-one year-old male respondent, father of a boy, disclosed that he had a vasectomy a year ago without his wife's permission. He inherited little land from his parents and now he has no source of income. He is worried about the production from his parental land, which is not enough to feed his family. He said that his land is already small since his grandfather's property is divided into parts for him and his two brothers. Later his father's brother divided the land into four small parts. His father gave him one part of the land to share among the three of his own brothers. This is the case when there are more sons in the family so that at least part of the land will be theirs. Therefore, he thinks that it will be difficult to provide for his living and produce enough food from decreasing land resources. He says:

*'I have no regular job, not even enough parental property. I therefore had a vasectomy after the birth of my first son. I am sure my one son is valuable enough, like a single moon giving light at night all over the world'.*

The case studies show that most women feel strongly about dedicating their lives to their children. They feel a great responsibility for the children's welfare, education and future.

This is illustrated by the case of the single mother (see above) who does not intend to remarry and have more children. She is happy remaining single and looking after her child.

Sometimes husband and wife think quite differently about the desired number of children. This is evident from Buddimaya Gurung's story:

*'Women are poor and they need children to take care of them when they are old. My husband takes all the decisions and I do not have the freedom or the courage to tell him that I do not want more children. My mother-in-law says she wants at least three grandsons and one granddaughter. She had no daughter and now she has a great wish to have a granddaughter. Actually babies do not come by themselves. Husbands always want to enjoy sex and are not worried about the pain of childbirth. But us women have to bear the pregnancy and have to give birth while we don't want to. My husband is afraid of doing sterilization and does not like to use a condom. I am the one who has to take pills and IUD. When I use contraceptives, it makes me unhealthy'.*

## 7.5 Conclusion

Marriage is almost universal in Nepal and also in the research population. Early marriage affects fertility. The lower the age at marriage, the higher the fertility. The fertility of the Gurung women in the sample is lower than the national level of fertility. One factor is the relatively high proportion of married women in their fertile ages that are not living together with the husband (Table 7.1). Another factor is the relatively high percentage of Gurung women using family planning as compared to the national figures. Education was found to significantly influence the number of children ever born; the higher the educational status, the lower the level of fertility. Household income also proved to be significantly related to the fertility, but in this case it is a positive relationship, implying that poorer women have lower fertility.

Age at marriage among the Gurung is going up. Child marriage no longer occurs. Induced abortion has always taken place but is decreasing now that the use of contraception is increasing. A remarkable feature of Gurung culture is the equal value attached to having sons and daughters, although more women who do not have a son want to have a son than women who do not have a daughter want to have a daughter. However, compared to the prevailing preference for sons in Nepal, among the Gurung, sons and daughters are far more equally valued. It is difficult to say to what extent this is a factor in the lower level of fertility of the Gurung women in the sample.

Women bear the greater responsibility in child-bearing and fertility control. Women's agency is important in deciding on family planning and choosing the method of contraception. However, this is not always acknowledged by the husband and the mother-in-law (see above). Education as well as affordable and accessible health services and information are needed to enable women to exercise their agency. They also should have legal access to safe abortion in case of contraceptive failure.



## Chapter 8

### Women's Agency

This chapter focuses on women's agency and the implications of agency of Gurung women in relation to fertility and the food environment. It examines the link between women's agency and women's reproductive and productive work as well as their roles involving natural resources in the food environment. The chapter concentrates on women's agency at both micro and macro level regarding reproduction and then discusses their role in food production and livelihood food security. On the basis of data collected from the Gurung villages, women's knowledge and skills in land and resource management, production activities, environment conservation and sustainable use of natural resources are examined.

#### 8.1 Women's agency in reproduction

A number of writers have defined agency as a power of action that can be operationalised when a person's action produces a particular desired result. 'Agency' is understood to be the power or freedom to exercise choice in one's actions, free from the constraints of social structure (Giddens, 1984; Greenhalgh, 1995b; Carter, 1995; Barber, 2000). Carter (1995:65) notes that agency can be viewed as "reflexively monitored flows of conduct in the direction of calculation in the broad utilitarian sense of balancing means and ends". It gives individuals unique desires, capabilities, values, interests and goals to accommodate interpersonal and social realities for shaping an individual identity (Meyers, 2002.). The discussion of agency in relation to fertility indicates that there is a need to pay attention to the "diverse flows of conduct of which fertility is composed" (Carter 1995:83). The demographic outcomes of interest are fertility levels, absolute levels of child survival and female disadvantage in child survival. It is well known that, given equal care and feeding, girls experience lower mortality than do boys (Bhattacharya, 2006:263).

Women's reproductive choices reflect their agency and are expressed in fertility behaviour. Fertility behaviour comprises "diverse flows of conduct" (see above), relating to age at marriage, marital life, child bearing and contraceptive use. Education is seen as strengthening women's agency, which is reflected in the significant relationship between women's access to and level of education and their level of fertility. In this way, the exercise of women's agency is highly concerned with controlling fertility through the proximate determinants. An important one is age at first marriage because it determines family formation. The marital relationship and the degree of exposure to sexual intercourse within the marital relationship comprise another set of flows of conduct by which women may (try to) influence their fertility. The use of contraception is another way in which fertility-related agency may be expressed. Fertility behaviour and reproductive choices are also seen as influenced by women's prior childbearing experiences and by whether a child has died in past and the number of living children or the number of sons and daughters.

Fertility behaviour is changing among the Gurung women. This is due in part to the national laws that have raised the legal age of marriage, and, as the case studies show, to the conscious choices women are making to use contraception or not to remarry once divorced (i.e. refraining from regular sexual activity). With regard to fertility decision making, Gurung women express their agency by using contraception or by deciding to have an abortion when contraception fails. The decision to become pregnant and to give birth is

of course also one of the choices that women can make. This means that the conceptualising agency in fertility needs to move beyond “utilitarian explanations of women’s behaviour” (Carter, 1995: 82). Barber (2000) focuses women’s agency on the economic aspect of the future security of the family and has examined some of the constraints surrounding women’s agency in the Asian context in which it has always been directed at achieving a secure future especially for sons. But as Giddens (1984:15) notes, social constraints “are not to be equated with the dissolution of action as such”. Even in the case of South Asia (Barber 2000), women in fact act consciously on their own behalf, either overtly or covertly, and thus the notion of women having a false consciousness and not acting in their own self interest is debatable (cf. Agarwal 1994a). This relates to how people think of everyday actions and to women’s contributions to broader shifts of thinking about women’s lives as entailing meaningful acts that alter structural conditions (Leach, 2005).

### 8.1.1 Proximate determinants of fertility and the role of women’s agency

Agency includes the capacity of women to integrate their experiences into their livelihood strategies. It incorporates women finding ways to realise their ambitions and finding solutions to their problems through the effective reorganisation of their capacity and power. One of the Nepali examples of the role of agency is the Tharu community in Nepal, where much information that women receive on family planning is through their husbands and the social network. These influences, together with individual choice and the social network of women, have an impact on decisions to use family planning methods in women’s fertility-related choices (Boulay and Valente, 2005). In the case of the Gurung women in this study, their agency is applied to use more family planning methods to control the number of childbirths. Women want to have fewer children so that they are able to feed them sufficient nutritious food and to provide them with adequate clothing and an education. One important aspect of fertility in the case of the research population is that the women have a strong desire to control their own fertility. Provided they have access to contraceptives, the women want to control births and to decide when and how many children they should have. In this regard, they can go beyond the cultural boundaries that traditionally compelled them to provide the culturally demanded number of sons and daughters. The social boundaries, created by their husband, in-laws and the kinship networks, influence women to *increase* the number of children, but women’s agency is visible in their actions to *control* the number of childbirths.

*Agency in age at marriage:* the agency of Gurung woman is expressed through marriage at an older age and in selecting their own spouses rather than following their parents’ decisions on whom to marry. *Rodi*, which was the traditional institution for the socialisation of teenagers and their preparation for marriage, has now gradually disappeared in the village (see Chapter 4). At the *rodi*, girls could exercise their agency in finding a suitable marriage partner, and they thereby influenced the timing of their decision to marry. However, schools and colleges now provide a venue for young people to meet and choose their partners, instead of parents choosing husbands for their daughters. The age at marriage shows an upward trend, which is a factor in the observed decline of fertility.

*Agency in marital life:* In this study, divorced or separated women appeared to show no interest in remarriage. A pregnant woman who was deserted by her husband preferred to have an abortion rather than remarry. Because they are not bound by custom to join the husband and his family immediately, most women of reproductive age choose to remain



living with their parents for some time after the marriage. Some women send their husbands to work for the army so that they will be assured of economic support. While on the one hand it was found that a relatively high number of married women were found to be living separately from their husbands (see Table 7.1), on the other hand, if they do live together, the conjugal relationship is highly unequal, as the husband is extremely dominant in the decision-making process. Hence, the empowerment of women should be a point of entry for the transformation of gender discriminatory attitudes and behaviour (Chapagain, 2005).

*Agency in contraception and abortion:* The role of Gurung women's agency is also visible in the use of contraception. The results show that a relatively high percentage (48%) of Gurung women uses a modern family planning method (Table 7.9). In this way, they have the means to control their fertility. However, although family planning methods are widely used, Gurung women also practice traditional abortion. Their agency is also evident in the demonstrations for legal abortion rights, for which Nepalese women have been fighting for years. Thus, women implement their agency in seeking out modern birth control methods, finding help if they want an abortion, using traditional medicine for abortions and pursuing the issue of legal abortion. The cases in Section 5.2 illustrate the vital role women play in fertility choices.

### **8.1.2 Women's agency and fertility-related decision making**

Gurung women's agency is visible in the decision making surrounding the selection of a spouse and the planning of family size. Nowadays, most women marry a man they have chosen themselves, and the decision-making role of women is a major factor in fertility-related choices. Women's desire for children in terms of having boys and girls rests on the cultural value of sons and daughters (Table 7.17), and their attitude about sexuality, abortion and reproduction and the application of agency through their actions helps to control fertility. Some women want to have more children, while others want only a few. The question is to what extent Caldwell's theory of the reversal of intergenerational flows of wealth (see Chapter 2) is applicable for understanding fertility decisions in the rural households. On the one hand, an increasing number of children in the family influences their cost value; on the other hand, their earning capability for the family in the rural context affects household economic well-being and livelihood. In the focus group discussions, women also expressed the opinion that if women have more children, competition for the use of natural resources will increase. This will have consequences for the next generation. For most households the agricultural production from their own land is not enough for the whole year (Fig. 6.5), which is why the women say that an increase in the number of children to feed is a burden for the family and increases pressure on the natural resource environment. At the same time, however, Gurung women also see children as a family asset. If a family has many children, they can earn money or help in agricultural production. Importantly, the children also look after aging parents. Therefore, in relation to decisions about childbearing, women take multiple cultural and economic considerations into account. Thus, with regard to Caldwell's hypothesis the Gurung appear to present a mixed picture

Most couples in the village know that more children can be a burden to them in terms of food and education. However, women use contraception (pill, IUD) more often than men use condoms, and size of families in the Gurung household is becoming smaller (Table 7.4). The women themselves want to limit the number of births, and the data shows that many Gurung women use family planning methods to practice birth control. As compared

to the national data, Gurung women have lower fertility rates. When looking at parity data and comparing parity of different cohorts of Gurung women, fertility shows a decreasing trend. This illustrates that the Gurung women's agency is becoming stronger with regard to decision-making and actions relating to fertility (Fig. 7.1; Table 7.7).

A birth control method may at times be problematic for a woman and the result is an unwanted pregnancy. Side effects can arise from the use of a particular contraceptive, and due to contraceptive failure women may face problems of poverty and potential health consequences when having more children than desired. As one of the respondents explained:

*'Altogether, I now have six children. I do not want more children, as we do not have enough land for crop production for the year. My husband does daily wage work and we are never certain when and how much he will earn to feed our children and to meet our daily living expenses. I therefore decided not to have more children and began to practise contraception. The doctor gave me pills but they did not work well for me; this was how I became pregnant with my last two children. The doctor later gave me an IUD, but it badly affected my health. I had long periods of bleeding, which made me very weak and unable to do much of my scheduled household and farm work'.*

A number of statistically significant factors are linked to fertility, including women's education, age at marriage, their parity of birth in the age group, age-specific fertility rates and timing of marriage (Table 7.10). Women with a higher level of education show lower fertility rates (Chapter 7). Strong statistically significant linkages are observed between education and fertility associated with the food resources environment (Table 7.10). Women's education also has statistically significant linkages with socio-economic and fertility variables. This may mean that educated women have more agency in fertility choices and in earning money to feed their children.

Family and social obligations can influence women to decline the use of contraceptives and to choose instead for more births. While in general it is women's decision whether to choose for contraception and to resist social obligations, one must consider the role of the husband. Using family planning tools, rural women in this study generally consult their husbands because the men have more information about the types of methods and the use of contraceptive devices. The husband may also take his wife to the health post to learn more about family planning methods. Sometimes, as Harcourt (1997:187) says, reproductive choice is not in the hands of women because their husbands determine sexual relations, and women's status depends on producing children, whether or not with a preference for sons or daughters. In some cases, rather than following their own wishes, women feel compelled to follow the desire of the husband and mother-in-law for more children. This is a difficult time for women to decide whether to use contraceptives. In some cases, they do not have time to visit the health post and sometimes the health post has run out of family planning devices. In such cases, women's agency plays a role when they decide to go to their relatives, friends and neighbours to seek help. Thus, women's agency is sometimes facilitated or mediated by their husbands, relatives, neighbours and friends. Nevertheless, despite the difficulties, women's agency in most cases allows them to control their pregnancies and childbirth and to solve the problem themselves. Educated women, however, have more agency than do non-educated women. The education of women shows a highly significant relation to the number of children born (Table 7.13).

## 8.2 Women's agency in livelihood generation and the food environment

For Gurung women, agricultural and livestock production are the basic livelihood sources, and household food processing and food preparation are regular activities. Women are more involved than men in post-harvest activities, specifically the storage, processing and preparation of food (Jiggins, 1994: 211). These activities are vital for both nutritional well-being and food security. Most women are involved in activities such as cultivating food crops, food collection and exchange, food processing, food preparation and distribution. Most Gurung women are engaged in household and agricultural work; very few are active in the service economy. As the case studies show, women who have a small business are more empowered than those who do not, because they can keep the money they earn and can use it as they see fit. Generally, Gurung women have no access to parental property for their livelihood, as they have little legal access to land. They also have less access than men to intangible resources such as education and opportunities to gain skills, which could help them to improve their lives and to develop confidence. However, they have more freedom of movement than women in other ethnic groups, like Brahmin, Chhettries and Newars. Gurung women are less strictly controlled than women in other ethnic groups in Nepal, and they have more freedom to celebrate their own traditional types of social functions and to participate in community activities.

The main staple foods in the area are rice and maize. Women's daily work begins in the early morning with grinding maize and husking rice. Normally in winter when there are water problems, women have to make the one-and-a-half hour walk up to the water source (stream) to repair the system. Women typically favour growing a diversity of crops and vegetables, and in addition to their involvement in crop production and livestock management, women are also managers in horticulture, silviculture, pastoral activities, post-harvest operations and social forestry in their own surroundings. Both environmental and social constraints are major issues that impede women in gaining access to enough resources to carry out all of their food system-related tasks.

While the traditional form of livelihood generation in the rural villages is subsistence farming, people these days – if they have money – can also buy industrially packaged foods like noodles, biscuits, bread or other types of processed foods, if they have money. If women do not have enough food at home, they need to purchase food to meet their consumption needs. However, because of the higher price of the processed food, people cannot afford to buy it for regular consumption. Many women in the study area whose husbands had left them for a second or third wife are facing the challenge of making a living for themselves and their children. For example, Kumari Gurung (Case 5.3) in Bhoteodar was left with her children when her husband decided to reside with his second wife. Kumari is separated from her husband and does not want to re-marry. She would rather be independent, look after her children and provide them with a better future. She used her *pewa* money to accomplish this. In Kumari Gurung's own words:

*'I do not even consider a second marriage. All men are just out to take property and power from women rather than to give them anything. If I have a boyfriend or partner or marry another husband, he will also want to have my property and force me to work hard for him. In the end, he might also leave me. I therefore prefer to keep my distance from men. I can do for myself whatever is necessary in my practical life. I can and do take care of my children. I do not need a selfish man to look after my property or the children and me.'*

*Marriage is meant for the improvement of lifestyle, to make a better family life. It is not intended to make life difficult with a husband and his relatives'.*

As described in Chapter 5, *pewa* is a woman's private property in the form of cash or kind. It can be *pewa*-land, livestock, ornaments or valuable household goods, either given by the parents or purchased (Cases 5.1 and 5.3). *Pewa* is a form of security for a women in the event that her marriage does not work out and she needs to live on her own. Some women who have no *pewa* or too little land or income from a husband's job set up small teashops or make wine for house-to-house sale. Without sufficient education and opportunities, women are dependent on husbands or relatives for economic support. Women's agency and their livelihood activities are closely related to their marriage and the husband's attitude. Women whose husbands work for the British or Indian army and who are receiving income from them have no problems maintaining a livelihood; their families have a better standard of living compared to those who are dependant only on agriculture or on income from labour.

In the focus group discussions, reasons given for migration are the need for higher income, the desire for an urban way of life, and the scramble for newly opened lands. These reasons reflect the society's economic and political relationships (Thapa and Conway, 1983). In cases where husbands are working overseas or in distant places in the country, the men send money to their wives or during holidays they return home with the money they have earned. If they send or return home with a large sum of money, they buy agricultural land for the purpose of increasing crop production, thus improving the family livelihood situation. In the focus group discussion, women in the village of Ratanpur stated that they are always in need of assistance for economic support. Sometimes they expect financial support or food from their parents and relatives, but in many cases this is not forthcoming. In the end, they have to depend on their husband's property. Due to discriminatory customs, women are hard-pressed to meet their livelihood needs, not only economically but also socially. For example, if a woman speaks loudly in pointing out some problem or talks about injustice, a family member or a local authority often does not accept what she says and does not want to help to solve the problems. This is illustrated by the proverb: "A crying hen is not a good sign".

Women in rural Gurung villages have the primary responsibility for looking after children and livestock, fetching water, gathering, processing, storing and cooking food as well as for other domestic chores. These overwhelming responsibilities keep continually them busy. In general, when men leave the village, women are faced with a labour shortage. Because of male migration from villages to towns and cities for work, women's workloads both at home and on the farm have increased. Thus, their responsibilities in carrying out daily household activities, increasing land productivity, and maintaining biodiversity on the farm for food security purposes have become heavier. In such a situation, they cannot increase food production.

In the past, women in Ratanpur provided food for their families through their own strenuous efforts. There was no road nearby, nor did facilities exist to transport the agricultural produce or the purchased consumptibles. The availability of transportation in the meantime has made life easier for women, who also consider that available transport has facilitated access to the health post, to schools for children, and to the market. According to respondents, the productivity of agricultural land has recently declined,

mainly because of pollution resulting from the Madhya Marsyangdi Hydro-power project construction work and to the fragmentation of land into smaller-size plots. More recently, the production of oranges has become the main source of income for the villagers in Ratanpur.

### 8.3 Women's agency in agriculture

The survey results show that women's contribution to agricultural production is significant in Gurung villages. The women must manage household activities by themselves and run the family on the basis of their own decisions. However, they have minimal access to and control over resources, although they contribute to food production and to the livelihood of their household. In many ethnic groups, including the Gurung, women have no ownership rights to the house and to agricultural land. Agarwal (1994b) examined women's struggles for land rights and gender equality in the South Asian context. Much of her argumentation regarding women's resistance to male power structures and unequal property rights is applicable here. Perceiving the inequities, women in Nepal are demanding land rights and rights to their parental property, and thus use their agency to determine what they need to acquire recognition and equality at a personal and organisational level.

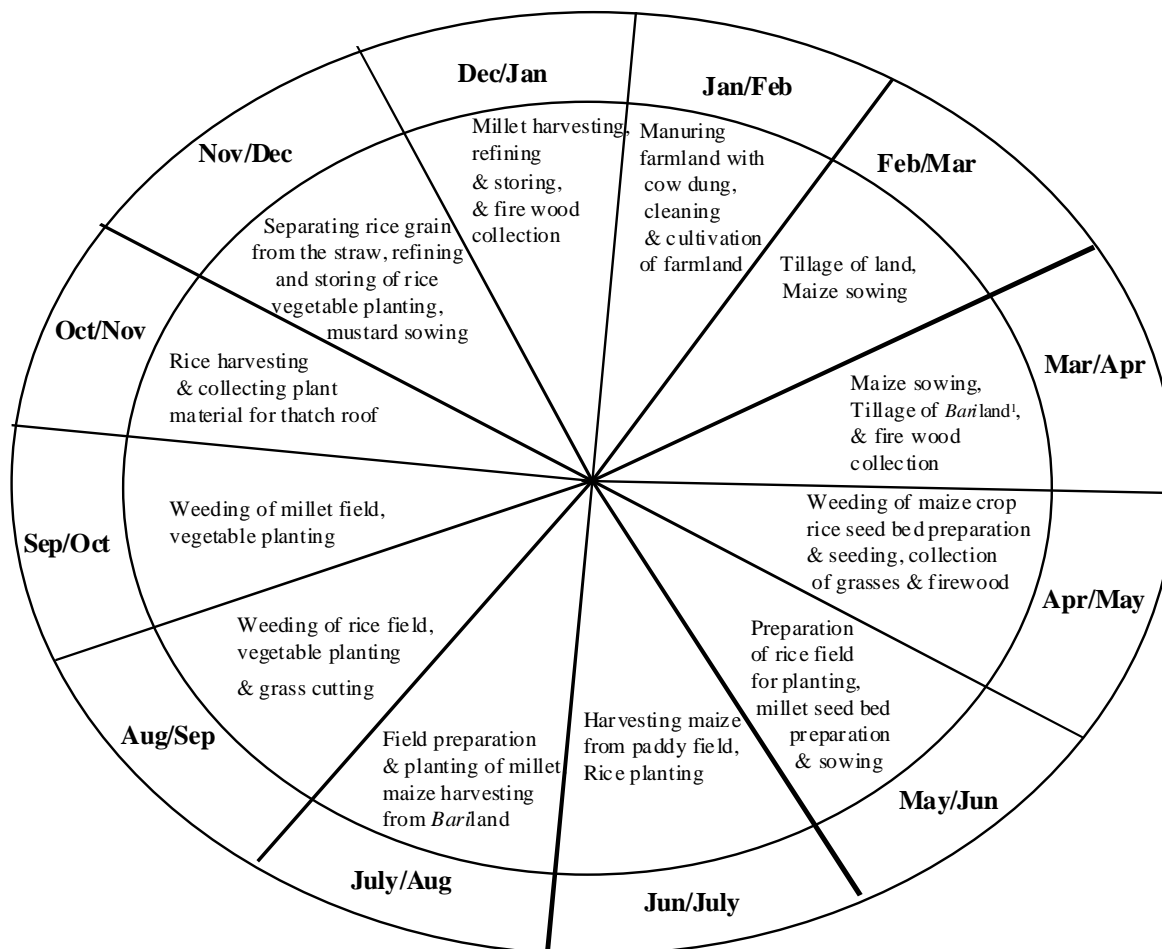
The women are exceedingly busy in the peak agricultural season. In addition to the agricultural work, they also collect food from the forest and tend the livestock. The research results show that all the Gurung women are involved in agricultural activities, although only 13 percent of them are producing sufficient food for the whole year to feed their family. The majority of Gurung women do not have enough land for food crop production, and supplement their food supply by working for others in their own or neighbouring villages in a sharecropping arrangement. Natural resources like water sufficiency, soil quality and biodiversity are crucial for food provision for the household, and women's work and control over these are important. Access to land, credit, inputs and support services are scarcely available to women, and they want to have the same legal rights to land and capital as men do. However, it is unlikely that the tradition of sons rather than daughters inheriting parental land will change in the near future.

In Gurung villages, most women are engaged in agricultural activities and in intra-household work, and their agency is applied in different ways to the agricultural and food environment. Agricultural crops produced in the Gurung villages are rice, maize, potato, wheat, millet, sugarcane, mustard, sesame, beans, black gram, lentil, peanut, yams and sweet potato (see Chapter 6). Livestock products are egg, meat, milk, yoghurt, ghee, butter-cultured milk, and whey. The vegetables grown in the kitchen garden are chilli, garlic, mint, turmeric, onion, eggplant, capsicum, cucumber, pumpkin, bottle guard, squads, coriander, fenugreek, spinach, cauliflower, cabbage, spark-guard, sponge-guard, bitter-guard, taro, okra, peas and cowpea. Some women and children engage in gleaning crops such as rice, maize, potato wheat, millet, peanut, sweet potato, yam fruits and vegetables. Women are also involved in weeding, transplanting, harvesting, and post-harvest work, tree-felling work, and fuel and firewood collection. Where mainly maize and millet are grown, the production from non-irrigated land (*bariland*) – some of which has been converted from forest by deforestation (agricultural expansion) – depends entirely on the monsoon rain. Women expressed their relationship to the earth as follows:

*'We have to battle every day with the earth, stones, soil and forest. Our lives relate to the earth; we need to work with stones, streams and storms, soil and forest. Without this fighting with soil and stone, we cannot survive in this village. Going to schools and institutions is not our life at all. Our life relates only to the earth. We Gurung women in rural villages are managing to survive with the soil, water and biodiversity in our hills and mountains'.*

Women are involved in the local forest consumer groups and agricultural co-operatives. As members of those groups, women devote time to conserving the environment, focusing on soil, water, forest and other natural resources. This is how women's agency is also engaged in increasing land productivity for agricultural food production, thus improving the family's food and livelihood environment. Figure 8.1 shows how women divide their time in agricultural work over a one-year period.

Figure 8.1 Seasonal calendar of agricultural work performed by Gurung women

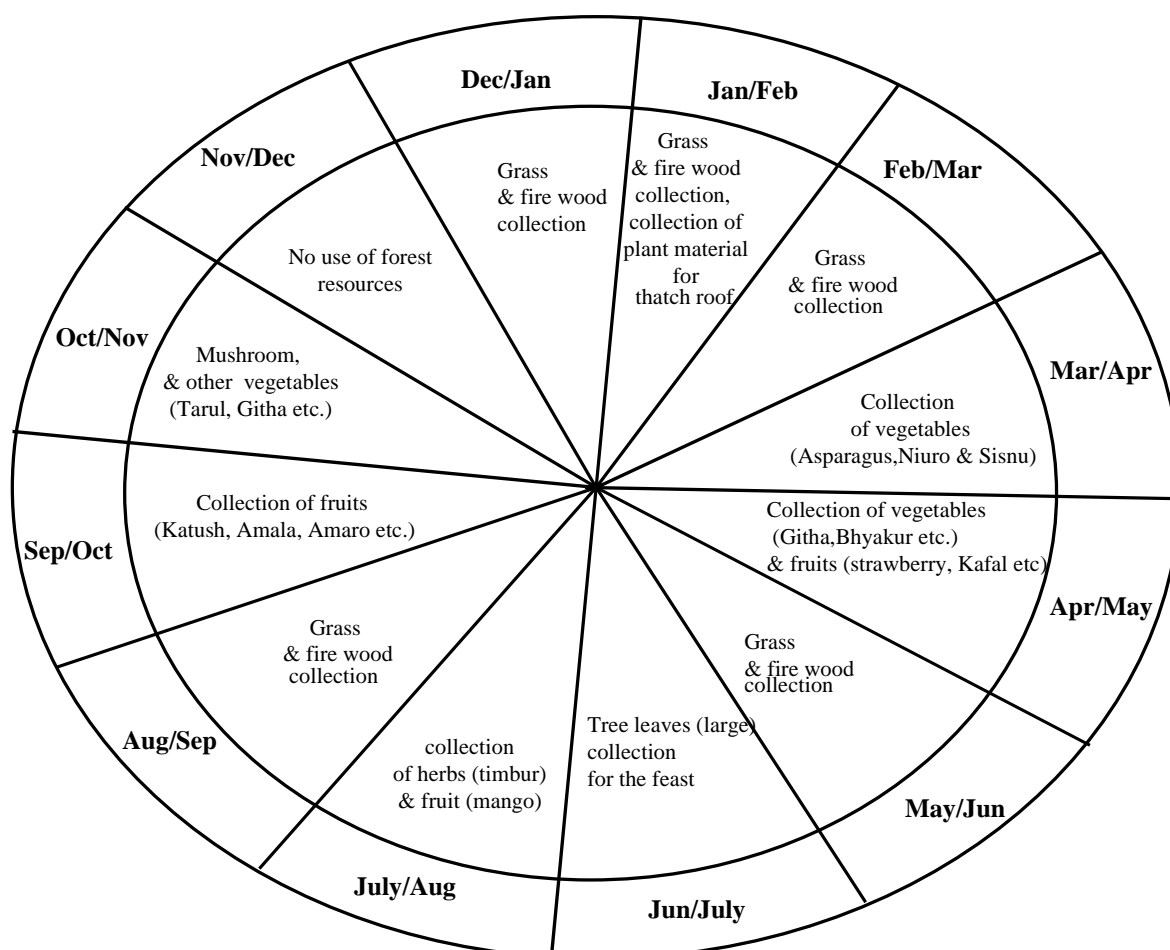


Source: PRA 2003

Lands around the villages are heavily forested and in a natural ecological condition. The forests are essential to sustain biodiversity and natural resources for village life, and women in the village maintain the ecological balance on a regular basis for fodder and fuel use and water supply as well as to protect agricultural land downstream. Through their root system and foliage, the forests play an essential role in soil protection, providing fuel and construction wood along with fodder for animals. The forests also provide vegetables,

fruits, honey and wild food species, organic fertilisers, medicinal plants and many additional raw materials for other uses. In villages, the wood and forest products are crucial for people's daily lives, and the women play major roles in resource use. The activities undertaken by women working together under their own agency are presented below in Figure 8.2.

Figure 8.2 Seasonal calendar showing environmental activities of Gurung women



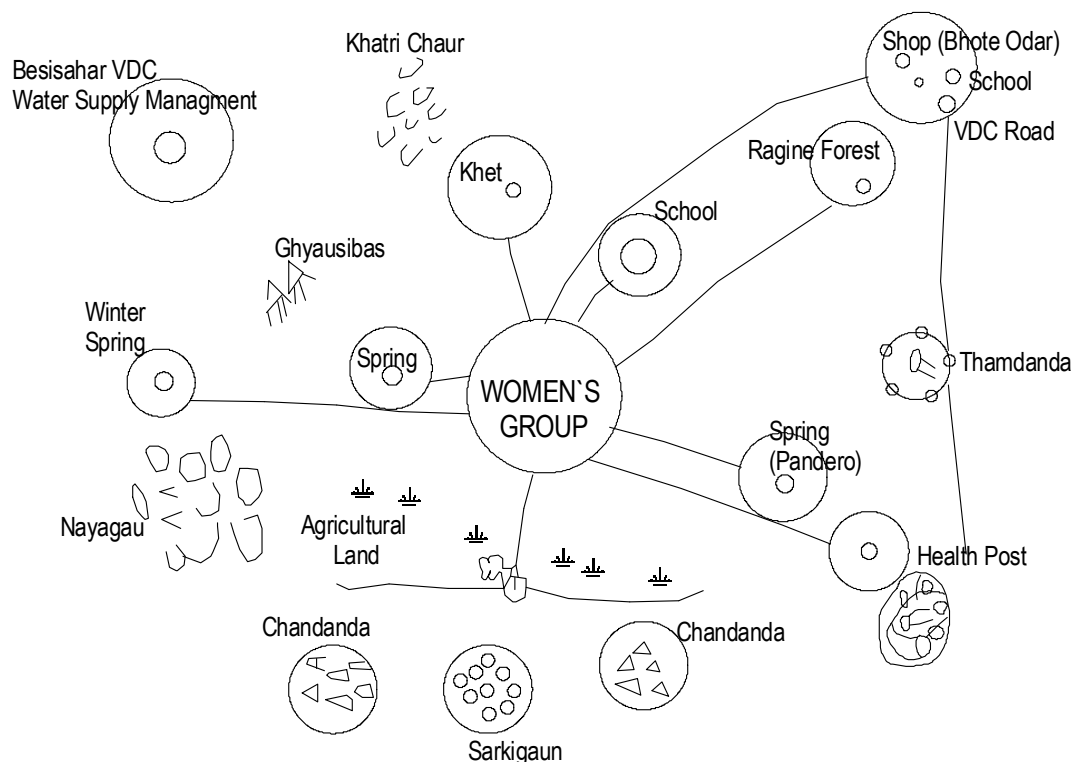
Source: PRA, 2003

The women express their agency through working in their surroundings in different institutional activities. These relate to agricultural work, forestry, maintaining the supply of drinking and irrigation water, domestic work, marketing, children's schooling, family health and adult education as well as other function that relate to their daily lives. Every woman has to travel frequently from one place to another to participate in meetings, to discuss the activities of the various groups and to carry out development work. Figure 8.3 illustrates the different types of women's activities in various places and institutions in the village of Balithum.

Each village has its own *Amasamuha* to discuss women's problems or to make decisions for carrying out development activities. Members of the *Amasamuha* in Balithum have to travel frequently to Besishahar to talk about the assistance to women's development activities and do administrative work; the journey on foot takes almost three hours. Even to travel from one group to another located within the same village takes more than half an

hour. The members of *Amasamuha* use the collected money for the benefit of group members or for whatever the group decides to invest in. On occasion, if a member has a serious health problem, they lend money for her treatment or they invest it in activities that generate an income. Most recently, the *Amasamuha* has decided to invest in the construction of a building in which they can set up their office and conduct meetings and social gatherings for the benefit of the whole community.

Figure 8.3 Rural women's activities with relation to different institutions in Balithum



Source: Women's contribution to the Participatory Rural Appraisal in Balithum, Bhoteodar

Members of the *Amasamuha* cannot solve every problem on their own. They still need assistance or advice from experts, as they want to develop themselves but do not always know how to go about it. The group is striving to develop the confidence to empower every woman in the village, to participate in the development activities, and to expand and realise their own initiatives. This group will then be profiled as a collective group of rural women working together towards their own goals and to enrich their own lives. In this manner, identifying their desires, having a vision, transforming this vision into goals and translating these into action is a clear expression of their agency.

#### 8.4 Women's agency in food and nutrition security

The decision of women to have or not to have children is partly conditioned by their estimation of whether they can provide sufficient food in the event of an increase in family size. The natural resources available to women are also important to consider with regard to



maintaining the food supply. Therefore, women are the actors not only closely connected with the reproduction and maintenance and care of human resources but also the management of natural resources with regard to food production. The dynamics of food security at the household level rely primarily on agricultural production in the Gurung villages. Natural resources are the foundation and source of food provision. Women in Gurung villages have a direct role in producing and managing food, processing, procuring and securing food production, storing food, managing the natural food environment and meeting household needs. For women, these practices vary according to the local agro-ecological conditions. Overall, food security is a serious problem in the rural areas. Local people have also expressed a strong desire for the establishment of community enterprises based on the wild food resources for long-term income generation (see also Shrestha *et al.*, 2005).

One of the respondents explained how she tries to cope with poverty and the lack of sufficient food. The respondent had four children and her family was experiencing economic hardship. She had difficulties managing daily life, with insufficient food for her children. She wanted to prevent her last pregnancy but family planning (contraceptive pills) failed:

*‘My children and I have a stressful situation. I often do not eat enough for days at a time. Whatever food I can collect is not even sufficient for my children. My children often go hungry as well. They look to me for food. My husband also has no job or even casual work. I myself do not have any job. There is no employment opportunity around our villages. We do not have money for living expenses, nor do we have land for agricultural production. We cannot ask for money from relatives or friends. We just cannot go to others asking money or food. I have to tolerate whatever difficult situation we have, as we have no options to improve our situation. We poor have no way to go for a better life’.*

Because for the majority of households food from their own land does not meet the need for food for the whole year, they have to supplement their food supply from other sources. Some women use the money from remittances from their husband (Case 5.2). Women in some households look for wild foods in the forest areas to feed their families. The survey results show that in most households children less than five years old suffer from a food deficiency, in terms of nutrients and calories (see Table 6.8). This could be why – as is the case in many other rural areas in Nepal – women try to produce different types of food or grow different type of vegetables or fruits in the kitchen garden (HKI, 2003), which helps to diversify the diet and contributes to food security. Household food availability and access to food influence adequate dietary intake and the health status of individuals. Some women also go to glean food, but these days little food is collected. Women also participate in food exchange during the harvest season and store for food security. Gurung women are far more active than their husbands in providing food for their household, and in which they follow their own strategies.

## 8.5 Conclusion

Gurung women’s agency in reproduction is illustrated in a number of ways. Firstly, in the manner women try to influence the timing of their marriage and the selection of their marriage partner. Secondly, once married, women try to gain independence from their husbands, in a number of instances even opting for a physical separation. Thirdly, divorced

or widowed women with children show a reluctance to remarry. A fourth way of exercising women's agency in reproduction is by using contraception and, in the event of an unwanted pregnancy, in trying to obtain an abortion.

At the same time, Gurung women play an important role in food production and in household food provision, even though the agricultural land available among the majority of households is limited and fragmented. Women are hard-pressed to ensure better food availability and security for their families. Gurung women's responsibilities are growing with regard to agriculture production and other farm activities, forestry and livestock production and management, wine making, running teahouses and other activities. Much of their work involves producing food for their households. Their heavy workload also includes food processing and preparation for consumption, or storing the produced food. Any rule or practice that creates unfavourable situations for women diminishes their ability to provide food for their family and adversely affects food security. The research shows how Gurung women contribute to reproduction, care for their children to the best of their abilities, try to improve the food situation and environment, and, of course, dream of a better future and strive to realise their aspirations for their children.

A complex relationship exists between childbirth, household activities and agricultural food production. The collection or storage of food for food security is exclusively the work of women in rural areas. The livelihood standard of the family worsens if a woman gives birth to too many children, making the household more vulnerable. Women's agency has been identified as an important factor in fertility decline, sustainable management of household livelihood and food security. The relationship between women's empowerment and their agency helps to balance population growth and the food environment. Most Gurung women now prefer to have fewer children than in the past, although women who are still not fully knowledgeable about birth control may follow their husband's advice regarding the choices. In carrying out their reproductive roles and making fertility choices, women face many practical problems and constraints. They are dependent on the availability of resources and economic conditions. Despite the value attached to children – both sons and daughters – women are aware that those who have more children face more economic difficulties in their feeding and care.

While women in the village are lacking in many aspects of social and economic power, some changes can be clearly observed. The women's groups (*Amasamuha*) in the villages are raising women's collective voice from the grass-roots level. After a long struggle, and compared to the past, women are now achieving certain rights and liberties, and government and non-government sectors are making efforts towards women's empowerment. Thus far, however, official policies and plans formulated for empowering women exist mainly on paper.

## Chapter 9

### People's Views on Population and Environment

This chapter describes people's views on changes in the population and the environment and relationship between these two aspects. The first section focuses on local people's views on demographic and environmental changes, presenting the results of Focus Groups Discussions (FGD) and Participatory Rural Appraisal (PRA). The second section describes the impacts of the Madhya Marshyandi Hydropower Project (MMHP) and the socio-economic and environmental changes in the area.

#### 9.1 People's views on population and environment

Table 9.1 shows people's views on demographic changes in the study area over the last forty years.

*Table 9.1 Demographic changes in the study area*

Subject	40 years ago	Now	Reasons
Marriage	In the past, most marriages arranged. Age difference between the bride and bridegroom was high. Mostly the age at marriage of girls was below 12, that of boys not fixed. For example, a 60-year-old man could marry a 12-15 year-old girl without her consent. In the case of a man marrying a second wife, he was obliged to give half of his property to his first wife. Divorce was not so common. Husband or wife who wanted to get a divorce had to pay. Bride's parents used to give kitchen materials and livestock to the bridegroom's family.	Girls marry at the age of 20-22. Bride's parents ask her if she wants to marry the proposed candidate. Bride's parents offer house, jewellery, money, and land to the groom and his family. Love marriage is increasingly popular. Divorce is more common, especially when the husband marries a second wife. In that case, normally the first wife seeks divorce from the husband.	Education, new values, due to modernization and communication play major roles.
Fertility choices	Couples had no facility to control births. Men decided on the number of children, not women.	Wife is the one to decide on number of sons or daughters in the family.	Easy access to contraceptives, health posts, hospitals.
Breast feeding	After delivery, mothers used to offer breast-feeding to their babies until the next birth.	Mothers breastfeeding until the baby is 2 years old. Spacing of childbirth is common.	Spacing of childbirth is increasing and breast-feeding continues.
Subject	40 years ago	Now	Reasons
Birth rate	Birth rate was high as peoples used to prefer large families. Couples	Most couples have 2-4 children.	People know the problems

	used to have of 5-12 children. There was a strong feeling that children are the gift of God.		of population growth and are conscious of their future. They are aware of family planning and contraceptives are available.
Food during Child Delivery	Mothers were fed chicken and soup after delivery, up to one month, and then given mutton. Poor households could not afford mutton, but each household used to prepare nutritious food (rice, ghee, etc) for the new mother after delivery.	These days too, each households feeds chicken and goat meat together with rice and other nutritious food to the new mother. They use ghee to cook food or serve ghee together with rice.	Breast- feeding and food in delivery time has not been changed.
Child mortality	Child mortality was relatively high because of high number of children born and lack of health facilities.	Child mortality is low as health services are available. Fewer children are born and they survive.	People are better educated. Health posts and hospital opened near by.
Migration	Family migration was very rare. After 1956 some families started migrating to the <i>tarai</i> areas, like Chitawan.	Because of water problems in the high hills and job opportunities elsewhere, migration increased to areas where facilities are available.	Because of high productivity of the low land and access to road and other facilities people move from high low land area.

Source: PRA timeline, FGD 2003

The above clearly suggests that demographic and other social changes are taking place in the area over the last forty years. Particularly the age at marriage of the girl has increased substantially, child mortality is going down, and people are migrating to new places to tap new resources and economic opportunities.

In the past, marriage used to be arranged but nowadays a girl has to give her consent. Because of the increasing levels of education of boys and girls and new legislation of the age at marriage, in recent years marriage age is increasing. In the past, there was no family planning and couples had little means to practise birth control. Because of this, the birth rate was high. Today this is not the case and the family planning services are available in all villages. Women in the villages can obtain various contraceptives free of charge. People now have a more positive attitude towards having few children. In the past people were

having many children, which was seen as a blessing. Because of lower birth rates, and the availability of health facilities, child mortality has declined.

In the past people used to settle at one place and spent their whole life there. These days people are more mobile. There are migration flows from high to the low land areas and from the rural village to the roadside areas. At present, people from the villages have moved to the project area because of business and job opportunities. The district experienced some population growth during the 1981-2001 period. Nevertheless, the population has increased mostly in the market and road areas within the district and not in the high hill areas. The environmental changes in the study area over the last forty years given in Table 9.2

*Table 9.2 Environmental changes in the study area*

Subject	40 years ago	Now	Reasons
Environment	There were more trees, less houses, and less people. People entirely depended on agriculture.	Less trees, more houses, population explosion in the villages, particularly in the market and on the roadside area for jobs.	Modernization process is helping people to seek opportunities in the new areas.
Land	Land was fertile and produced more crops	Production capacity of the land is declining because of increasing erosion and overuse of land.	More intensive use and poor soil condition of land locally.
Agricultural production	Family members used to work together and the production was good enough to sustain the family.	Due to increased population pressure and land division into small pieces, agricultural production decreased. The landscape of the area has changed	Shortage of family labour as children goes to the school and youths are away from home for employment. Shortages of compost fertilizer as people raise few animals.
Division of work	Men used to work together with women in the household work	Mostly women do household work and men do outside jobs.	Men benefited more from education and new resources than women.
Forest	Only old and big trees cut and timbers used for building and construction purposes.	Tree seedlings planted. The forest areas conserved. Community forestry system to preserve forest has become popular.	The knowledge broadened and increased awareness of the value of forest and forest products.
Land sliding	Heavy flooding and landslide occurred frequently, sweeping away few houses and people.	No big landslide has occurred during the past forty years because of the preservation of forest.	Local people are conserving forest area and the farming system has improved.
Subject	40 years ago	Now	Reasons
Forest resources	Firewood, timber and grass were enough to	Forest resources are decreasing despite protection.	Market value of timber and increasing demand for

	use for domestic purposes.		firewood and timber for various purposes.
Water sources	Water sources were sufficient for domestic consumption and irrigation.	Water sources are decreasing because of the construction of new houses and declining forest area.	Increased population growth and local market.
Food	Maize flour porridge ( <i>dhido</i> ), and nettles plant from the forest ( <i>sisnu</i> ) were common food.	People use same food but have more choices like rice and noodles and vegetables these days.	Foods are available in the market for purchase; income of people has gone up.
Forest food	There was a lot of forest food like <i>githa</i> , <i>bhyakur</i> , <i>niuro</i> for local consumption	The availability of forest food is reduced to almost nil.	Increased population pressure and decreased forest areas.
Seasonal food	There was enough rice, maize, millet, soybean to use for the consumption of people.	The staple food production has decreased, but vegetables and fruits have increased.	New resources and agricultural technology.
Barter system	People used to exchange agricultural products between households and communities.	Some families still exchange their agricultural products so that they do not have to go to the distant market places where they do have to pay with cash.	Some people still feel comfortable in exchanging fresh farm products for some other goods.
Gleaning	In the earlier days, people used to glean in the irrigated and non-irrigated land after the harvest.	Gleaning has almost stopped these days.	People have other opportunities to utilize time.

Source: PRA timeline, FGD 2003

Table 9.2 suggests that the land, water, forest, and environment systems as a whole have changed over the last forty years, and that people have adapted to these changes. No doubt, the productive capacity of land, particularly of cereal crops, has declined, but orange farming is increasing in the village area. People find ways of coping with the shortages of cereal grain production. They have opportunities to earn cash, which they use to buy food and provide for daily needs. The people have different perception on gender these days. In the past, the participation of men was more in economically productive activities outside the home but due to increasing education of females, women are also involved in different economic sectors these days. The women these days raise collective voices if they are discriminated against by men in day-to-day social, economic and political activities. Locally, forest resources are decreasing but the local people have positive attitudes towards the forest conservation. The sources of natural water are reducing these days because of the construction of new houses and decreasing forest area. The problem of shortage of water is aggravated because of the Middle Marshyandi Hydropower Project in 2001.

In the past, local people used to consume forest food products quite a lot. The collected forest food made partial fulfilment of livelihood in the area, and not sold outside of the

district. Because of population pressure and destruction of forest, the seasonal availability of forest food has decreased. In the past, there was a high exchange of food items for other items through barter. Barter still exists in agricultural and livestock products, but people are now more conscious about profitability and the local cash economy has become more important these days. In the past people used to glean residual crops, but not anymore, as very little is left for gleaning. Respondents in Gurung village reported that these days the traditional crop farming practice has been gradually replacing to agro-forestry system integrating orange trees, fodder trees, crops and livestock.

Respondents also mentioned that since children started going to school and youths to distant urban cities or overseas for new jobs, women of the households rarely find time to graze their animals in the forest. For this reason, the number of livestock in each household has decreased. Local forests are converted into community forest and one can see replacement of old timber trees with healthy young plants. Through the forest user groups the local people are managing and protecting the forest these days. Table 9.3 shows that the village of Bhoteodar has substantially changed in recent years, because of the development of roads and the Middle Marshyandi Hydropower Project.

*Table 9.3 Bhoteodar Village: Yesterday and Today*

Past (Before the project)	Present (after the project)
1. Bhoteodar village was without a good road up to 2001.	1. Bhoteodar village has the blacktop road since 2001.
2. There were hardly 10-12 households (about 60 people) in the area up to 1980s. The area fully covered by trees.	2. Today, the number of houses totals (1000 population) more than 2001. Cutting of local trees started for constructing more houses in the area. When the road was built, many people moved to the near by road area and built houses for business purposes. A lot of agricultural land was used to build concrete houses on.
3. There was no piped water drinking facility and electricity in the village. All the people used to go near by river or stream to fetch water. Kerosene lamps were used for lightening the houses	3. Still, there is problem of drinking water but piped water supplied through the local water supply system. Electricity came to the village for use after 1998.
4. There was a big cave in the area, and this cave converted to a water tunnel to produce electricity.	4. There is electricity in the whole village area.
Past (Before the project)	Present (after the project)
5. There was no big development project and there were no institutions like government offices and NGOs, nor a health post and a hospital near by. The environment was clean.	5. The Marsyangdi Hydroelectric Project has started in the area in 2001. Many offices and institutions and opened there. However, the local people claim that there is little advantage of this project for finding good business or jobs. Additionally, the area has become polluted.
6. The village was nice but without economic	6. More social and economic development in the

activities.	local area, but the construction vehicles are disturbing the public and killing birds like ducks and chickens.
7. No shops and other institutional offices around, only one primary school.	7. Today, there are many offices and institutions including the high school and campus.
8. Flora and fauna were conserved.	8. Today the Forestry User Group is formed to preserve the forest.
9. The area was environmentally rich	9. The environment gradually is polluted.

Source: Focus Group Discussion, 2003

Forty years ago, there were only ten to twelve households and the area was not polluted. Today, there are more than 200 households in the village. The number of vehicles is increasing, and this is causing environmental pollution and affecting human health. Not only the roadside areas but also the mountain rural villages are affected by increasing population, fragmented land holdings, and rapid increase in the number of houses. Today there are many people from outside as labourers, receiving low pay. Some people engage income-generating activities such as running a restaurant, hotel, or tea-stall, or having a small shop. An owner of one of the hotels in the area narrated his experience that his income has increased to some extent but, at the same time, the family expenses have also increased. Some local residents expressed their views on the changes as follows:

*'In the early days the land productivity was high and there was surplus production in each household. People had enough food from their own agricultural production for family livelihood. In the past, if someone had to buy rice, maize, wheat from the local people or from the market, that person had to feel shame, as he was not producing enough food for the family. However, the agricultural land has marginalized and the productivity has declined. The majority of families now have to depend on outside income for buying food'.*

Respondents of the Bhoteodar area said that the population in Lamjung district is growing and that the cultural and natural environment in the present era are much different from the past. The price of commodities is high today, due to inflation. Gangamaya recalls that in earlier days she paid 25 *paisa* (US\$0.34) for a bottle of ghee (clarified butter) and 12 *paisa* (US\$0.16) to hire a person for a day's labour. Every year the price of grains is increasing. One year the price of rice for one *pathi* (4 kg) was one rupee, the next year two rupees, and now it costs 150 rupees (US\$2.08). "Remembering the past, it is like a dream today", she says.

A fifty-years-old man expressed his views about food and clothing in the past and nowadays like this:

*'In that past, we had no good clothing to wear and variety of food to eat. In those days, we celebrated festivals in different ways. Every Thursday, neighbourhood people used to meet and eat together. In the past, we used to eat rice and meat only at the Dashain festival. Although, the rice was cheap at that time people had no money to buy it. People used to wear rough and old clothes. People had no opportunity of earning extra money but only relied on agricultural production, and thus had less money for buying rice and clothes. These days everybody is wearing nice clothes and eating good food, it does not matter whether rich, poor or members of low castes. Today, people have knowledge on how to earn money and make their life comfortable as much as possible'.*



Life is more comfortable today than in the past. The cultivation of agricultural land and other economic activities have become easier. The availability of irrigation, fertilizer, and pesticides for farming is changing people's life. Nevertheless, the production for livelihood is not enough, especially in the northern hill area. The people's living standard is low since their little earnings from hard work are not enough to buy foods and clothing needed for their family. For these reasons, economically active persons, particularly young boys and girls, are migrating to other places away from the rural villages. The village is slowly lacking active man power, resulting in old people staying in the village to make their livelihood. The old people are waiting at home for the income from their beloved younger ones who are working or employed in the urban areas or outside the country. These days, respect for women has increased in the society. This is because women not only work at home but also participate in many social and economic activities outdoors. The nuclear family is gaining popularity and the traditional extended or joint family is breaking down. This is shown in Table 9.4.

*Table 9.4 Respondents' views on the extended/joint family system (N=317)*

Statements	Yes		No	
	Number	%	Number	%
Increases financial burden	274	86.4	43	13.6
Increases social status	225	80.4	62	19.6
Affects individual decision-making	249	78.5	68	21.5
Increases family income	207	65.5	110	34.7
Establishes good relation among the family members	196	61.8	121	38.2
Enables higher fertility/more children	141	44.5	176	55.5
Decreases chances of birth control	117	36.9	200	63.1
Controls family growth	107	33.8	210	66.2

*Source: Field Survey 2003*

The majority of the respondents (86.4%) also said that the extended/joint family system leads to an increased financial burden for the family. At the same time, they said that large family size enhances social status of the family as it increases the family income and helps to establish good relationships among family members. However, a large number of respondents also said that the joint family system affects individual decision-making, only 45 percent respondents say that the extended/joint family system leads to higher fertility and only 34 percent say such a family system controls family growth.

The following table presents respondents' views on the statements about population and environment, with which they could strongly agree, agree, strongly disagree, or neither agree nor disagree (don't know).

Of the total 317 respondents, the large majority of respondents agree (when combining 'strongly agree' and 'agree') that population growth affects agriculture production, environment, and availability of land in a negative way. Forty-eight percent respondents strongly agree with the statement that 'population and environment education is necessary for the next generation'. Almost no one disagrees with the statements that 'population pressure

makes land scarce' and that 'high population growth and less land are major problems in Nepal'. Similarly, the majority of respondents express their concern about the lack of water affecting agricultural production. From this, it can be concluded that there is a strong awareness about population pressure and environmental problems and the connection between these. At the same time, the respondents acknowledge the importance of family planning and free family planning services and the important role of population and environment education. It is also interesting that they see agricultural production as well as wage labour and services as major livelihood sources, which points to increasing livelihood diversification.

## **9.2 Impacts of the Madhya Marshyandi Hydropower Project (MMHP)**

One of the major reasons of the shortage of forest and agricultural land in the study area is the establishment of the Madhya Marshyandi Hydropower Project (MMHP) in 2001. Almost all 498 households in the area are affected by this project. More than a thousand families who together have 52 hectares of productive land are directly or indirectly affected by the project, because of the project's effects on water sources for domestic use and irrigation. The influx of outside labour creates social problems. A project like MMHP has both positive and negative impacts.

### **9.2.1 Positive impacts and developments**

The MMHP has caused many social and cultural changes in the research area. There are more employment opportunities, the number of small businesses has increased, and there is interaction between the local people, outsiders and foreigners. The establishment of such development infrastructures has long-term benefits. The production of electricity has positive impacts for people in the district and will be a source of income for the district. People in the area have become familiar with modern technologies, which they can use in producing goods and services. Also the people are now more concerned about the protection and management of natural resources.

*Table 9.5 Male and female respondents' views on statements concerning the relation between of population and environment (N=317)*

Statements	Response				
	Strong-ly agree	Agree	Dis-agree	Strongly disagree	Don't know
Population growth affects the agricultural production	50.8	39.7	4.7	0.9	3.8
Population and environment education is necessary for the next generation in Nepal	48.3	44.5	0.9	0.8	5.7
Lack of water affects agricultural production	41.3	53.0	4.1	0.3	1.3
High child birth causes food problems in the household	41.0	53.3	3.8	0.9	0.9
Free family planning is the only important service to decrease the population growth in Nepal	40.7	47.3	7.6	0.3	4.1
Lack of earnings is a misfortune for the family	39.4	54.9	5.0	0.6	-
Unemployment leads to the starvation of the family	37.9	45.1	14.5	1.9	0.6
Use of contraceptives controls population growth	37.2	53.6	5.0	0.6	3.5
Personal health and education are the foundation for everything	35.3	59.4	0.9	-	4.4
Population education helps to make traditional and cultural customs less important	33.4	50.2	3.5	2.5	10.4
Family planning practice is the only resource to control population growth	33.1	55.5	7.6	0.9	2.8
Family health greatly affects earnings of the family	30.3	65.3	1.3	0.3	2.8
High population growth leads towards degradation of land	30.0	56.5	1.3	0.7	11.4
High population growth and less land are major problems in Nepal	29.0	59.0	2.2	-	9.8
Wage labour and services are the major source of livelihood	28.4	53.6	14.5	2.2	1.3
Agricultural production is a major livelihood source in Nepal	28.4	56.5	8.8	5.0	1.3
Population pressure makes land scarce for the people in Nepal	28.1	59.0	1.3	-	11.7
Population control helps to create a healthy environment	26.8	62.5	4.7	0.9	5.9
Population growth affects the environment negatively	24.4	66.2	4.1	0.6	4.2
Child mortality increases the population growth	23.7	39.4	18.6	8.8	9.4
Men's and women's participation is needed to reduce population growth and conserve the environment	22.4	59.9	5.7	0.9	11.0
The role of women greatly affects the natural environment in Nepal	16.7	50.2	14.8	4.1	14.2

*Source: Field Survey 2003*

Socially and economically deprived people try to make use of job opportunities. The project aims at a good understanding between project staff and local people. They organized a training campaign to provide professional training in carpentry, plumbing, electric setting, sewing, and so on. The project also provided an income-generation program in the area. More than two hundred fifty local youths have different income-generating training, like in herb collection, poultry farming, horticulture, and health services.

The growing of the market economy, employment of local people, and the construction of roads up to the district headquarters in Beshisahar increase the mobility of people. There are many opportunities for locals as well as outsiders to market essential commodities and run restaurants and hotels. As a result new shops, hotels, and residential structures are established in the area. Along the roadside, the price of land has increased more than ten times in a decade. This has changed the village, which has become more like a town, with better facilities and amenities. Now, there are more than two hundred NGOs working in the district, and their work is directly or indirectly related to the environment, the forest, and natural resources, with involvement of the rural communities. According to the forest officer of the area that food production has increased in the district because of more productive use of available agricultural land:

*'Because of improved agricultural technology and adoption of high yielding varieties of crops the land productivity increases these days in the Gurung villages. Farmers obtain improved varieties of crops, vegetable seeds, fruits and fodder tree saplings from agricultural farms and research centres. They also attend training courses organized at the village, district and central levels. These training courses transfer information to the farmers about land preparation, fertilizer and pesticide application, soil management, and other farming methods aiming at production increase'.*

At the same time, however agricultural land was destroyed by the project, which is why the agricultural production in area is not enough to live on for a year (see Chapter, 6). One of the most developments in the area is women's involvement in protecting the environment.

### **9.2.2 Women's involvement in natural resource management**

Traditionally women always had to work in the farm or field whether they have property rights or not. Women have little access to and control over resources including land rights. Therefore, women's agency for preserving the local environment has to be mobilized at a collective level, which is done by the mothers groups, *Amasamuha*. The shortage of forest area is causing a lot of problems for women in their daily lives, because they need the forest for collecting fodder and firewood, and they need the water sources in the forest. The women in the area got involved in forest user groups as well as in the *Amasamuha* groups. Thus, in a collective way they start raising voices from the village to get the rights of control over the natural resources, land, and parental property. The women are also strongly attached to their traditional and religious values, which is why some *Amasamuha* groups are more engaged in building religious temples than empowering themselves to the situation of women.

Women have worked in the fields and practiced natural resource management from their childhood. Therefore, women's active participation is an important focus in forest management. There are different types of forest ownership in the country: community-

owned forest, social leasehold forest (half government, half private), and privately-owned forest. According to forest officials, in the district development programme for sustainable forest management there are 70 percent women and 30 percent men. In this programme, women are involved in forest user groups for management and protection of the forest, planting and cutting trees in a sustainable way. It is further added that at least 33 percent of women should join the consumer groups in the local community, to build their confidence (District Forest Office Record, 2003).

The majority of women involved in user groups are uneducated, and others have a low level of education. The level of knowledge women have, has a direct effect on their decision-making power and role in matters of policy. Gurung women have a lot of practical knowledge of managing the forest and other natural resources, but when the time comes to write reports or circulars on policy matters, they face difficulties. In many cases, women are not properly informed and loose decision-making power. They have no way to oppose the working style practiced by men. However, participation of women in forest and environment-related training and workshops helps to improve their communication skills and make them more confident. The *Amasamuha* groups are helping them to discover their potential, but that is not yet enough to develop their skills and improve their livelihood. The forest officer of the project area expressed his experiences as follows:

*After the forest reform policy was implemented, natural resource management has improved and the forest sector is developing rapidly. The livelihood generation in this district has benefited from forest products; 20 to 25 bunches (each bunch of about 25 kg) of firewood is used monthly by each family, in which women play a major role.*

The main sources of income from the community forest are fuel wood, timber and herbs. Women are the ones who take herbs to the market, but they give the money they earn with this to their husband back home. The forest resources available in the rural are sufficient for the people because of the forest resources located in the remote uphill areas, and the transportation cost is high to bring down the products to the roadside areas where population density is high. People buy firewood for cooking and timber for building purposes. The wood from this district also supplies other market places like Pokhara and Chitwan. Men but also women carry these products from the remote area to the roadside. Almost all forest area in the district was handed over to the community for effective management. The community forestry group decides on the sale of timber and firewood for public use. Medicinal herbs such as *chiraito* (swertia chirata hamilt, cheretta family), *Sugandhawal* (valering jatamansi, valerianaceac family) are planted, and these herbs and forest-honey are a main source of income for the people. The herbs are marketed supplied to Kathmandu and Pokhara, and as far as India. However, the benefits go to intermediary rather than the producer. Because of unorganized local marketing system, the producer has to be satisfied with the little money he or she receives from the intermediary. Most intermediaries are men. However, the village forest products which women collect from the surroundings, i.e. mushroom, *Niuro*, bamboo bud, *vyakur*, *githa*, and *jamun* (see Chapter 6) are largely used for household consumption and to sell in the local market. In this way the income of women has increased in recent years.

### **9.2.3 Negative impacts**

When the MMHP started, the population increased rapidly in the local area because of people coming to the area for the purpose of work and business. The internal migration from both the uphill areas and other districts has increased. The project puts pressure on the natural resources. The use of heavy machines and chemicals for construction of tunnels, bridges and the power-house created major problems. The consequences are pollution, noise, and minor earthquakes. Construction of public buildings such as schools, health centres, cooperatives, and cottage industries has encroached on agricultural and forest lands. The importance of traditional social, cultural, and religious values is gradually decreasing. The diversion of the river from one part to another destroyed the cremation places like *Jalashraya Ghriha*, a place to sleep before dying, and local markets at religious celebrations, such as *Shivaratri*, *Thuloekadashi*, *Krishnaastami* and *Janaipurnima*, which have to be near the river. The construction work also displaced the temple, cremation *ghats*, landing places for bathing and burial on the river bank, and *sattals*, traditional village inns. Because of heavy waste produced by the construction work, the water of the Marsyangdi river is badly polluted. Due to the drying up of the river, thieves and robbers have now easy access to formerly isolated villages.

Because of the lack of disposal and dumping sites, waste and garbage have not been properly managed. Waste such as glass and plastic is thrown around residences and along the roadside, effecting the environment. Ecological destruction around the dumping and blasting sites proceeds rapidly. Noise pollution is also problematic for the locals' daily life, and there is the risk of accidents caused by the heavy vehicles. A woman living in Bhoteodar says she is unhappy due to this development project because it has destructed her land and created many problems to people. She says that she cannot sleep due to the noise created by bomb blasting and that private houses including hers are being cracked. Another resident complains that his *gobar* (cowdung) gas plant was destroyed due to the earth quake caused by the blasting. Another woman says she has become sick of asthma and heart disease, and believes that this is caused by the blasting and the difficulty in breathing because of polluted soil particles in the air. Particular major negative impacts of the project are discussed in more detail below.

### **9.2.4 Socio-cultural and economic changes**

There are direct social, cultural, and economic impacts of the project on households and institutions in the study area. Land is increasingly fragmented and is changing hands, to the benefit of some people, who received money for their land from the project, and to the distress of those who have to cope with the damage to and the pollution of the land. Part of the impact on the social structure and norms has to do with the change in economic activities. People's life styles are changing and there is much more inter-ethnic and inter-caste exposure, which sometimes causes conflicts. The diversion of the Mrshyangdi river has affected the fishery resources in the project area and has influenced the livelihood and income of farmers' families living around the MMHP project area. Some resource-poor families who were engaged in fishing in the river for their livelihood are affected adversely. The people of hilly areas, who love nature and entirely depend on farming for their livelihood, are suffering heavily from these effects. While interviewed the forest officer states:

*There are differences between households with large and small family sizes when it comes to managing the forest and other natural resources. However, people are looking for alternative access to livelihood in an easy way. In the past the people depended on the land and today they have other opportunities beyond land and natural resources; they have small businesses and services as extra sources of income. Because of the dam and other constructions, many religious places such as the shrines, the inn, and guesthouse of the temple were badly damaged or destroyed.*

While formerly living from subsistence agriculture, people are now more exposed to the market economy and increasing cash flows. Economic activities are becoming more cash oriented, leading to unpredictable changes in the existing social relationships and social values and undermining the social structure and values based on long-standing sentiments and neighbourhood relationships. The market economy and exchange of goods and production services affect the socio-economic environment. The people say that social feelings of brotherhood and sisterhood and reciprocity are decreasing these days. People are inclined to expect direct compensation. Local people are mixing with people from different parts of the country, and thus a hybrid kind of culture is developing instead of the traditional Gurung culture. Especially youths are no longer acknowledging traditional norms and may become addicted to using drugs, gambling, or other bad behaviour, rather than trying to get a job. However, many local youths are queuing to get a job but have little chance to be recruited. Prostitution has begun to exist along with the construction of the dam. The prostitution profession is growing rapidly.

### **9.2.5 Ecological changes**

The MMHP has polluted the environmental surroundings. The growing numbers of tools and machines used in the project have brought air and soil pollution in the areas along the road. Farmed and forest animal species, birds, butterflies, fish species, plant species are disappearing, leading to loss of biodiversity. Gradually agricultural land and other natural resources are destroyed. Because of increased population pressure, forest and vegetation areas are converted into building areas and construction sites. Common resources, like river, forest and the natural environment under government ownership, are severely affected.

The ecology is also affected by the project construction. The construction of a tunnel made cracks in the land, which affect the vegetation in the villages. The agricultural land for rice production is damaged by blasting in the villages Ratanpur and Gyausibas. Most orange trees in Ratanpur are dried up and other forest trees and plants are drying up in other villages. Agro-forestry developed after the introduction of plants like orange and other citrus plants and fodder trees in the crop-farmed terraces on the hill slopes. The decline of water reserves in the paddy lands impedes the growing of the rice plant. The District Agricultural Development Office (DADO) reported that 0.5 percent of the total land is being destroyed by land erosion such as flood, landslide, etc., 1.5 percent is being destroyed by migration of people from the mountain belt and new settlement in market areas.

Due to the construction activities, water supply in adjoining project areas is already facing shortages. The water tapped from spring or stream sources changed due to the water shortage. Drinking water managed by user groups, implemented by district water supply office and NGOs, is not sufficient. People are crowding the community taps, which

generates conflicts and dissatisfaction among the traditional users. Water sources have disappeared around the project construction area because of cutting out land to make it flat. Streams and water springs which are primary sources of water in the community have also been destroyed. Of those streams or sources that were not directly destroyed by construction work, the volume of the water flow has decreased. This decreased water flow can no longer supply a sufficient volume of water for drinking and irrigation purposes. Many trees around in the project area were chopped. Construction wastes were thrown into clean river or streams and water springs, causing deaths of water plants and animals. The water shed and the water resources are also destroyed by the construction of underground tunnels. Because of this and increasing population pressure, especially during the summer season, the locals have a hard time getting drinking water. The project has collected and distributed water by tanks from distant sources, but was not sufficient for people's needs. Local inhabitants residing above the tunnel alignment had inadequate drinking water supply and irrigation water had decreased the water quantity. Spring sources also dried up due to construction activities of the power tunnel. The construction sites are also dusty due to insufficient water sprinkling.

The fertile top soil of agricultural land is either cut down or destroyed by construction work. Air pollution increased because of soil particles in smoke mixed with dust from the construction sites. The use of different types of machinery tools and blasting may have increased surface soil erosion. The farmers are using chemical fertilizers and pesticides, which have changed the soil quality, and, according to the people is negatively affecting land productivity. Forest is destroyed on a larger scale than ever before. Ongoing deforestation is likely to damage the quality of life. Vibration of blasting has caused more landslides and soil erosion. Not only human beings, but also plants and animals are facing a polluted atmosphere. Innumerable plants and trees were chopped. Rare species of plants are at the state of extinction. There is no strict rule for collecting fodder for animal and firewood for cooking and other human activities in the forest areas. However, the forest user groups are protecting the forest and try to control the collection of forest resources.

#### **9.2.6 Changes in the health situation**

The pollution of land, water and increased noise affect the people's health directly. Health hazards appeared in the community in the form of food poisoning and infection diseases such as diarrhoea, amoebic dysentery, para-typhoid, hepatitis (A and E), cholera, etc. After the operation of project, some government-health posts in Udipur and private nursing homes in Bhoteodar were established. MMHP has appointed a doctor in the clinic to provide health care and make people aware of the family planning program. It is also running a program for the public named "community awareness program". It has organized other many programs for the sake of the local people, such as general health awareness, maternal health, and drug trafficking awareness. These programs are implemented in the villages of Udipur, Bhoteodar, Sundarbazaar and Beshisahar. Certainly, this is a consolation for local communities. However, environmental pollution, unhygienic accommodations and restaurants, drinking, and smoking have caused more health related problems. In the same way, dusts, fumes, and noise cause diseases like bronchitis, high blood pressure, common cold and cough, depression, abnormal heart beat, and so on. Blasting affects the nervous system of old people and babies and causes deafening sound pollution. Growing gatherings and assemblies increase the risk of epidemics. The local people have complained about young girls becoming sexually accosted by men from outside the village. People also



whisper that the number of HIV- infected persons is increasing. A growing number of people is said to suffer from psychiatric disorders.

### 9.3 Conclusion

The population in the area is rapidly growing due to development projects such as MMHP and migration of people from high to low-land areas and from the villages to the road-side areas, appear to be the major causal factors behind demographic and environmental changes in the study area. There is also visible environmental degradation, due to population pressure and the construction and project activities. The local people seem to be clearly aware of these changes and of the negative effects of population growth and the desirability of family planning (see Table 9.5). At the same time, local society is changing from one based on subsistence agriculture to a semi-agrarian society, with the cash economy becoming increasingly important. Access and exposure to better facilities and better economic opportunities stimulate population growth through migration, which negatively affects the environment. The MMHP has had mixed impacts: on the one hand causing increasing population pressure and environmental degradation, but on the other hand also enlarging economic opportunities and bringing development to the area.

The changes in the area opened up new opportunities for women. In social life women are now more respected and through women's organizations (*Amasamuha*) their voice has increased. They can also make use of economic opportunities to improve their livelihood and control their fertility by family planning. Forty years ago, people entirely depended on farming and the natural resources available in the area, and people had no problem in using the forest resources. Because of increased population pressure, the limited natural forest resources declined and the forest was degraded. The farming environment has changed and improved. Currently, both environmentally and economically sustainable farming systems are adopted, which has not only increased household income but also enriched the diet of the people and improved the environment. Women groups have contributed to achieving the goal of a green and healthy environment by planting fruit and fodder trees in the terraces on the hill slopes and in the private and community forest areas.



## Chapter 10

### Conclusions and Discussion

#### Introduction

The first part of this chapter provides answers to research questions based on the findings reported in this thesis. The second part addresses the theoretical significance of the findings. The chapter concludes with a section on policy implications.

#### 10.1 Answering the research questions

In this section, the questions addressed in the research are answered based on the results. The first and fifth questions are jointly answered and address the interrelationship between women's reproductive and productive roles, their fertility choices and practices and their productive work in agricultural food production and food security for the household. Similarly, the answer to research questions three and four are combined and, lastly, questions two and six are answered together.

##### Research questions 1 and 5

1. *What are women's reproductive roles and how do they relate to fertility choices and practices?*
5. *How are women's reproductive and productive roles interrelated?*

Research findings from the qualitative data show that reproductive roles involving the care and feeding of children and the concern for their future is linked to women's fertility choices. The primary concern is being able to care for the children to whom they give birth, and the results show that the resources at a woman's disposal to provide for her children are of extreme importance. Women's comments in focus group discussions and from case study material clearly show that the number of children desired must be in balance with the available resources. Those women who actively seek or use birth control methods give as a primary reason the lack of resources to care for more children, including insufficient land for crop production.

Women also take other factors into account when making their fertility choices; indeed, children are also thought necessary to care for the mother in her old age, particularly in light of the low level of assets available to poor women. This factor, however, is balanced by the number of children desired. Providing the best future for her children through focusing resources on food, education, health and access to future resources also means that the mother will have a potentially more secure old age, thanks to the children's support.

Results from the fertility survey among 343 women show that a relationship exists between socio-economic conditions and fertility, but not a direct statistically significant relationship except for age at first marriage, education and income. However, when the factors are combined an overall statistically significant positive relationship (Table 7.13) can be observed. When we examine the total number of children born (dependent variable) in relation to sufficient food production and to the income and assets of households, the results show a statistically significant positive relationship to annual household income. Total agricultural production (in kg) did not prove statistically significant as a single variable in

the aforementioned analysis, but was a component in the overall statistical significance in the analysis of the combined variables (regression analysis, Table 7.14). The field survey results illustrate that income is an extremely important variable, supported by the fact that 85 percent of the households do not produce enough food on their own land and, to fill the gap, must obtain it from elsewhere, primarily the market. Only 17 percent of households replied that they had enough food to last them the whole year. Likert scaling (field survey) results show that 83 percent of the 317 respondents agree with the statement that “unemployment leads to starvation of the family”.

Women’s direct ownership of productive assets is limited. The fertility survey results demonstrate that of all 343 married women, 12 percent own land, 12 percent own a house, 9 percent own livestock, 16 percent have *pewa* (personal property) and 12 percent own other property. An examination of the economically active individuals in households shows that out of 744 females, 531 (71%) are classified as economically dependent versus 213 as economically independent, based on the results of the field survey. It should be noted, however, that 295 of those classified as dependent are women engaged only in domestic work in the household but who receive remittances from employed male family members. In terms of economical independence, men (62.2%) outnumber women (32.8%).

Overall, women’s roles include a heavy domestic burden linked to their reproductive role. They are the primary care-givers to children, and they fetch water as well as gather, process, store and prepare food for consumption. In addition, they have other domestic chores in addition to looking after the livestock at the homestead. Outside the homestead women take animals out to graze (not exclusively female work), collect firewood and work in the fields. This work is linked to the annual seasonal calendar, and in each season the women have tasks to perform, ranging from preparation of the soil through to post-harvest activities. Moreover, except for November and December, women are active every month of the year in the collection of wild products for domestic use, including food, fodder, grasses and firewood. This highlights how women’s reproductive and productive roles are interlinked.

Despite the hard work engaged in by women in both productive and reproductive work, the resources available to them generally just meet or fall below subsistence needs, and the women and their children frequently suffer from lack of food. This stress and deprivation, potential or real, is a motivating factor for women to limit their fertility. From the field survey of 317 households, 90.5 percent agreed that population growth affects agricultural production (50.8 % strongly agreed). The data from the 24-hour dietary recall of children aged less than five years illustrates the food stress that families are facing. Out of 42 children, 88.1 percent fell below the World Health Organization recommended daily caloric intake for children under the age of five.

It can be seen from the fertility survey that contraceptive methods are widely used in the community. Out of the sample of 343 women of reproductive age, 48 percent were using contraception, while 39 percent of the families were employing a permanent method of birth control. The fertility data shows that 10.5 percent of the women interviewed had undergone an abortion. Given the sensitivity of the issue, it can be assumed that this figure is probably higher.

The Likert scale analysis shows that women are aware of the impact of high fertility on the environment, particularly food production potential and land degradation (see Table 9.5). Resources in the natural environment are limited, and if fertility increases it will ultimately lead to food insecurity resulting from food scarcity. The women consider that high population growth and land shortage are national problems and that an increase in population has a negative impact on the environment. It is clear that either an increase in the fertility rate or in the damage to the food environment will reduce food production and lead to food scarcity, which will affect livelihoods in the rural villages.

Generally, women in the rural villages attempt to control their family size because they must provide their children with education and all the necessities of life, such as food shelter and clothing. If a woman is under social and cultural pressure to have more children than she desires, she is the one to suffer in her attempt to provide beyond her means, particularly when there is an absence or shortage of cash income to the household. Women's agency relates population dynamics to the socio-cultural environment. Women's *work* relates the natural resource environment, important for their agricultural livelihood, to their responsibility for food provision for their children. As in other rural areas, women in the Gurung villages are responsible for reproduction and for managing the food environment for all members of the household. They constantly combine their reproductive and productive roles.

### **Research questions 3 and 4**

3. *How does women's agency in reproductive roles relate to household livelihood and food security?*
4. *How does women's agency in productive roles impact the natural resource environment and land use?*

Women's agency is crucial with regard to their household's livelihood and food security. On the one hand, evidence points to the relationship between women's concerns for food sufficiency and security, and, on the other hand, to concerns about their reproductive role and providing for their children. The data shows a difference, however, with regard to women's age. Older women have more economic independence because of to *pewa* money, husband's remittances and the independent use of a husband's lands when the husbands are working elsewhere or temporarily not living at home. They are thus more independent than younger women in terms of taking actions on their own behalf. Older women in the focus groups were also more concerned and vocal with regard to the relationship between population pressure and environmental problems and to controlling the integrity of the food resource environment.

Gurung women play a vital role in food production and in household food provision even though the agricultural land is limited and holdings are fragmented. Given these limitations, women combine the management of their food resource base with their reproductive concerns, and women's efforts to produce a sufficient and varied food supply is in evidence from the findings. Women have become active participants in the local forest consumer groups and agricultural co-operatives as well. Perhaps one of the most important illustrations of women's agency are the *Amasamuha*, women's groups that are formed in each village and that are focused on women's self-help and development. These groups meet to discuss their needs collectively, to collect money and to decide how to allocate money to group members in need. The *Amusamuha* is involved with the forest consumer groups and the agricultural cooperative, and the groups have contributed to achieving the

goal of a green and healthy environment by planting fruit and fodder trees on the hill-slope terraces and in the private and community forest areas. Through the community-based natural resource management practices in which they actively participate, women build and reinforce their awareness and improve their agency. Their actions in the *Amasamuha* support women's livelihood and the environment.

The Gurung women in this study are responsible not only for reproduction but for managing the food environment, including the cultivation of cereals, vegetables and fruit. They look after livestock and the production of milk and meat, which contributes to the sustenance of the family, particularly the children. Women feel almost solely responsible for providing for the children and other household members. Yet among the 343 women in the survey (which were only women of reproductive age), only 12 percent of the women owned property (land, livestock, house).

Despite the gender disparity in the ownership of productive resources, women are working actively to enhance the environment. Their agency in marital life and in the use of contraceptives is linked to the livelihood and food security resources available. The qualitative interviews illustrate that women make these connections in their own lives and that their decision-making and actions reflect this linkage, where being able to provide sufficiently for children is a strong motivation to control fertility. Agency with regard to age at marriage is the one aspect that may not be directly linked to livelihood and food security in current circumstances, but it will ultimately affect the pressure on livelihood resources. Although the direct impact of women's activities on the environment was not measured in this research, the data clearly show women's agency on multiple levels and demonstrate that their concerns, decisions and actions link fertility and reproductive responsibility for their children, as well as the food and livelihood environment.

Three factors that link women's agency and fertility have emerged from this research. These are: 1) education level and age at marriage; 2) marital status/marital life; and 3) contraception and abortion.

1) The agency of Gurung woman is expressed through marriage at an older age and in selecting their own spouses rather than following their parents' decisions. The traditional institution for the socialisation of teenagers and their preparation for marriage has gradually disappeared and diverted into the schools and college where young people can find husbands of their own choice and of the same age. A factor in the observed decline of fertility is that the age at marriage is showing an upward trend.

2) Divorced or separated women appeared to show no interest in remarriage. Furthermore, because they are not bound by custom to join the husband and his family immediately, most women of reproductive age choose to remain living with their parents for some time after the marriage. While on the one hand it was seen that a relatively high number of married women were found to be living separately from their husbands (see Table 7.1), on the other hand, if the couple did live together, the conjugal relationship was highly unequal, as the husband was usually dominant in the decision-making process.

3) The role of Gurung women's agency is also visible in the use of contraception. The results show that a relatively high percentage (48%) of Gurung women uses a modern family planning method (Table 7.9). However, Gurung women also still practice traditional abortion. Thus, women implement their agency in seeking out modern birth control methods, in finding help if they want an abortion, in using traditional medicine for abortion

and in pursuing the issue of legal abortion. The cases in Section 5.2 illustrate the vital role that women play in fertility choices.

### Research questions 2 and 6

2. *How do the resulting fertility patterns influence land use and management of the natural resources?*
6. *What is the impact of fertility patterns on the natural resource environment, particularly the food environment in rural areas?*

Most Gurung women desire children, either sons or daughters but preferably both. Yet the research results show that fertility is declining among Gurung women and that Gurung women's fertility (age-specific fertility rate) is below that of the national level (see Figure 7.1). The declining trend also shows in the parity figures, with the parity (P) of the age group 40-44 being 3.46 and that of the age group 45-49 being 3.60.

Among the four types of land *Abbal*, *Doyam*, *Seem* and *Chahar*, 40 percent of land use in the area involves *Doyam* (see Figure 6.3), on which 70 percent of the maize is produced (see Figure 6.4). There is a serious food deficiency in the harvesting period, mostly in December (see Figure 6.5). In the focus group discussions, women said that population growth caused serious problems in natural resources (integrity and use availability), and they were concerned about these resources and the impact of population pressure in the area. Older women have a higher fertility (parity progression ratios) than the younger women, and though older women are more likely to be economically independent (Table 6.4), they also have more responsibility for their children, and thus experience livelihood problems. These issues are reflected in the results from the Likert scale data in which the majority of the respondents (56.5%) agreed and some of them (30%) strongly agreed that "high population growth leads towards degradation". The respondents also agreed (59% agreed, 29% strongly agreed) that "high population growth and less land are major problems" and "population pressure makes land scarce for the people" (agreed 59%, strongly agreed 28.1%). A high percentage of respondents (66.2%) agreed that "population growth affects the environment negatively" and some of them (24.4%) strongly agreed with the same statement. They also responded that "the role of women greatly affects the natural environment" (agreed 50.2%, strongly agreed 16.7 %).

Fertility and mortality are declining, but population growth is still high because of the population momentum. The relationship between women's empowerment and the balance between population growth and the food environment reflects to some extent the division of labour and the access to economic resources. Women in the village are materially connected to the natural environment not only for food resources but also for water and energy needs. They are biologically connected to reproduction and are socially connected to the family and community in ways that men are not.

The farm activities of rural women in cultivating cereals, vegetables and fruits, and in livestock farming for the production of milk and meat, all contribute to the household's food security. Women also prepare food for storage by drying vegetables and beans. The dried food is then stored (in addition to the rice) for the off-season. They prepare dried radish, fermented vegetables, pickles, dried meats, chilies, dried taro roots, steamed and dried taro leaves and a variety of other foods. Men do help the women, but women do the planning and most of the work. If men have earned money they are inclined to buy a 'one-

time' dinner from the local shop, without thinking about long-term food security. Women, on the other hand, are concerned with storing the food produced from their land and kitchen garden. Whatever is not immediately consumed is dried and kept for the off-season when such food is not available. Men are also involved in hunting as well as in slaughtering livestock and cutting the meat into chunks to be dried. However, food security planning as well as the procuring and processing of food are generally women's jobs.

The lack of irrigation water in the middle mountains during the dry season has serious implications for food production, also given the fact that most households have very small and fragmented landholdings. Women are hard-pressed to manage food and to ensure better food security for their families. Women in Bhoteodar and Udipur also suffer from the lack of drinking water, due to increasing population pressure, especially since the arrival of the Mid-Marsyangdi Hydro-power Project (2001). In this thesis there is no statistical evidence of the relationship between women's property rights and/or land rights and their control over the desired number of children. However, on the basis of the qualitative data it can be argued that women's fertility behaviour is influenced by socio-cultural factors and that it changes according to the household livelihood situation, which is ultimately dependent on the resource environment. The findings in this thesis point to the strong agency of women with regard to these matters. This can be illustrated by the results of the Likert scale analysis. The majority of respondents (50.6%) agreed that "agricultural production is a major livelihood source." Some respondents (28.4%) strongly agreed on these issues. In addition, most of the respondents (53.3%) agreed that "high child birth causes food problems in the household", with most of them (41%) strongly agreeing. This shows that for the respondents there is a strong relationship between fertility patterns or population growth and natural resource management and food security.

## **10.2 General discussion**

According to the results of this study, Malthusian theory and neo-Malthusianist views have not gained ground. Instead, the study demonstrates that as people become aware of the decreasing resources in the natural environment they begin to take action to reverse the trend. In addition, it is shown that people consider that the availability and quality of natural resources are linked to population pressure. Women in particular seem to be acutely aware of this connection. Malthus might have formulated his theory differently if he had applied a gender perspective.

Many scholars have investigated the significance of the value of children with regard to fertility levels (cf. Bulatao, 1979). Based on the results of this study, some comments can be made. First, the almost equal value attached to sons and daughters among the Gurung might be a factor in the relatively low level of fertility of Gurung women as compared to national averages. However, this can only be inferred from the qualitative data and cannot be quantified. This study found that for several reasons daughters are valued as highly as sons, while in Nepal in general a preference for sons prevails; however, slightly more respondents desired a son if they did not already have one than did those respondents who desired a daughter if they did not have one (see Table 7.16). Caldwell and others developed a theory on the decline of fertility as a consequence of the reversal of intergenerational flows of wealth (Caldwell and Mackensen, 1980). However, the current study provides evidence that the cost of feeding and educating children is becoming an increasing concern for women. It was also found that a positive relationship exists between household income



and number of children. This indicates that poorer households are more inclined to practice birth control, presumably because the cost of children presents a greater problem to them. At the same time, however, children are valued for their social and cultural significance and as a source of security in old age, especially for poor women. This implies that the reversal of intergenerational flows of wealth is not just a matter of economic computation. In the end, it is the people themselves, women in particular, who base their considerations about whether to have another child on both the costs of bearing and raising children and on the socio-cultural value of children, both sons and daughters.

In models on the determinants of fertility, the emphasis is on socio-cultural variables that influence the intermediate variables (Davis and Blake, 1956) or proximate determinants (Bongaarts, 1978), rather than on environmental variables. Only in the model of Jones (1990: 100) are environmental factors mentioned, but Jones does not elaborate on the issue. In this study it was found that environmental factors influence people's views on population increase and fertility levels in two ways: 1. directly, because of their awareness that increased population pressure affects the natural resource environment negatively, which is reflected in responses to the statements that were put to the respondents (using a Likert scale); 2. indirectly, because the natural environment is valued for providing resources for the agricultural production of food, and increasing population pressure is seen as a threat to household food security. It is through household food security that natural resources needed for agricultural production are linked to women's fertility choices.

Many demographic studies centre on the relationship between women's status or gender inequality and fertility (Greenhalgh, 1995b; Tiwari, 1995; Mason, 1995; Caldwell, 1991, 1981; Niehof, 1985; McDonald, 2000). Some look at institutional change (McNicoll, 1992), because the status of women is embedded in social and political institutions and it affects women's fertility choices and their empowerment to exercise their agency. Niehof's (1985) research among women in two types of villages in Madura, Indonesia, shows that fertility is significantly lower in the fishing village where women had far more autonomy than in the other village, which was agricultural. Women in the fishing village derived independence from their important role in the local fishing autonomy. They were able to exercise their agency in practicing birth control and they did so. In this study, the concept of agency was employed. The empowerment and autonomy of women can be seen as enabling them to act and to exercise their agency. Education is a primary factor in empowering women and in enhancing their capability for agency. This study found a significant negative relationship between level of education and level of fertility, meaning that women who are better educated have lower fertility. Daily and Ehrlich (1996) emphasised the importance of education for girls and demonstrated how, in Pakistan, educating girls is a cost-effective way to bring about the decline of both fertility and child mortality. Education influences fertility through empowering women so that they can decide whether to use contraception; it also lowers fertility by influencing the age at marriage.

In this study the concept of agency was used to investigate the direct and indirect relationships between fertility and the food environment, and the interrelationships between women's productive and reproductive roles. Gurung women proved to show their agency in marital life, fertility choices, contraceptive use, producing and accessing food for their family, managing their livelihood in the absence of their husbands and by engaging in activities to improve the environment. However, the histories of six Gurung women (see Chapter 5) illustrate that women still face many cultural, economic and institutional

constraints. These constraints are found in women's private lives, in social and political institutions, and in regulations. In their private lives, women face the problems of lack of access to their husband's property, especially when the husband takes a second wife, and the unequal inheritance pattern. Although by law daughters have the same rights as sons, in practice they generally do not inherit land from their parents, because it automatically goes to the sons. Discriminatory laws, legislation and gender inequality in the constitution make women second-class citizens. They have to fight hard for equity and justice. At the local level, they do so by participating in mothers groups (*Amashamuha*), which shows how women exercise their agency to overcome constraints. It also proves how important it is to address women's strategic gender needs for improving their daily lives and for solving their practical gender needs (cf. Moser, 1993).

To conclude this section, the variables in the model on which this study was based (see Figure 2.1) and which proved to be of significance for linking population and environment through women's agency will be briefly discussed. The model as presented in Figure 2.1 shows women's agency placed in the centre and linking the clusters of population (on the left-hand side) and environment (on the right-hand side). Within the population cluster, it was seen that women's agency showed in the fertility choices they make and in the actions they take to effectuate those choices (by using contraception or having an abortion) and in the decisions they take with regard to first marriage (age of marrying and selection of the husband), marital life (living together with the husband or not) and remarriage after being divorced or having become a widow. Within the environment cluster, women's agency showed in activities, actions and decisions with regard to agricultural production, food procurement and processing (the food system) to safeguard household food security, livestock management and the management of natural resources. Through women's agency, particularly through their reproductive role, which includes their part in the food environment system and their fertility choices, the two clusters become connected. Women's agency in both domains is inspired by their awareness regarding man-made environmental degradation and the population pressure on the natural environment and the food production system, and their experience of problems associated with feeding, educating, and raising children according to their ideals.

### **10.3 Policy implications of the study**

Population policies in Nepal are based on the global debate on development and population growth. However, despite the official anti-natalist population policy at the national level, there are still many socio-cultural and economic factors that favour large family sizes and make it important for a woman's status to have children, preferably sons. At present, Nepal lacks a good and comprehensive population policy with effective plans and programmes. Due to political conflicts there is no effective development planning, development activities cannot be implemented and projects are closing down. People in the villages are waiting for good village-level infrastructures that can help them improve their livelihood.

As is known from the literature and also clearly emerges in this study, women's education is crucial for their empowerment and agency, including in controlling their fertility and the use of family planning methods. Women would benefit from free education, also beyond primary school level. Policies should be designed that take as a point of departure the premise that what is good for women is also good for children and for the livelihood environment as a whole. Government policy should better control and limit the negative environmental effects of development activities. The implementation of projects'

environmental impact assessment (EIA) and social impact assessment (SIA) is urgently needed to control environmental degradation and to prevent increasing social inequity. Women's groups and organisations are important to express women's voice; hence, the government should listen to what they are saying.

Government planning and programs should be based on an understanding of the complex relationships between population and the environment. Development projects in the areas of population need to focus on reproductive health, quality of services, women's empowerment, adolescent health and male responsibility in family care. Since women, not only among the Gurung but almost universally, are the food managers and providers for their families and children, the government should ensure that the food resource environment is not affected negatively by development activities and that it is improved as much as possible. The interrelationships between women's activities relating to fertility and those relating to food production and consumption are crucial and should be addressed at policy level. In this regard, women's workload should be taken into account. Development policies relating to population and natural resource management should be designed and implemented from a gender perspective.

Gender-sensitive policies and programmes can only be realised if the gender perspective is systematically included in all ministries and institutions and if the representation of women at policy-making levels and their access to political power are improved. Gender units should be established within the ministries and institutions such as the Government Planning Commission, the Ministry of Women and Welfare, the Ministry of Agriculture, the Ministry of Population and Health, and the Ministry for the Environment and Science. These units could assist in the collection of gender-disaggregated data about the natural resource environment, food production and consumption as well as household food security and nutrition. Institutions at the local level involved in women's reproductive health, education and family planning should be aware of the connections between high population growth, land fragmentation and environmental degradation. There should be compulsory education and programmes on issues such as gender, health awareness, property rights and sex education for high school students. Women should participate more actively in family planning training programs at the local and national level, and men's awareness about their family planning responsibilities should be increased. There should be programmes related to sustainable land use, forest preservation, land ownership and control and prevention of soil erosion. Greater public investment needs to be made in local bio-physical, hydrological and institutional interventions that are crucial to increasing food yields, water use efficiency, local land care and protection of biodiversity.

Women should have legal rights over their children. Although the new government is working on a law that enables children to legally use both their father's and mother's names, it is not yet in effect. The mother's name should be added to the certificate of citizenship. There is still considerable confusion about women's access to legal abortion, especially for women who are not married. For unmarried women and teenage girls it is also difficult to gain access to contraception. In the event of an unwanted pregnancy, an illegal, hence unsafe, abortion would be their only option. For this reason, legal abortion must be a right for all women, irrespective of their marital status. In addition, legal abortion is important to complement a good family planning programme. In Nepal, a great deal of work still needs to be done in terms of implementing the Cairo Agenda of Reproductive Rights for Women.



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## Glossary

<i>Abbal</i>	first-class agricultural land with highest productivity
<i>Achar</i>	pickle
<i>Ama</i>	mother
<i>Amasamuha</i>	mothers group
<i>Ardhapakki</i>	semi-solid type of house
<i>Arghun</i>	death rituals
<i>Asupiuri</i>	funeral ceremony
<i>Bari</i>	non-irrigated upland
<i>Batti</i>	oil/kerosene lamp
<i>Bharko</i>	shawl for men
<i>Bhat</i>	cooked rice
<i>Bheikai</i>	dinner organised by relatives
<i>Bhot</i>	region of Tibet ( Now Peoples' Republic of China)
<i>Bhoteodar</i>	cave shelter for people (from Bhot)
<i>Bhuju</i>	a big water jar
<i>Bikram sambat</i>	Nepalese lunar calendar
<i>Brahmin</i>	high-caste Hindu group
<i>Chahar</i>	fourth-class agricultural land with lowest productivity
<i>Charjat</i>	four sub-groups of Gurung tribe
<i>Chhettri</i>	warrior caste Hindu group; next to Brahmin in hierarchy
<i>Chiraito</i>	herbal medicinal plant
<i>Chokre</i>	A sub-group of Gurung
<i>Chulo</i>	stove made of mud
<i>Dal</i>	soup made of lentils
<i>Damai</i>	caste group whose members work as tailors and musicians
<i>Dashain</i>	greatest Hindu festival in the name of Goddess Durga
<i>Dhaiama</i>	traditional birth attendant
<i>Dhido</i>	porridge prepared from corn/millet and wheat flour
<i>Dhukuti</i>	revolving fund conducted by a mothers group
<i>Doyam</i>	second-class agricultural land with good productivity
<i>Garud</i>	dragon
<i>Gaunbarne</i>	the practice of abstaining from work day for religious reasons
<i>Ghantu</i>	traditional institution where a virgin girl has to perform a dance
<i>Ghat</i>	cremation area
<i>Ghotane</i>	one of the sub-groups of the Gurung
<i>Ghriha</i>	house
<i>Githa</i>	a wild root ( <i>Dioscorea bulbifera</i> )
<i>Gobar</i>	cow dung
<i>Gurung</i>	one of the Adibasi/ Janajati (ethnic) groups of Nepal
<i>Iho</i>	cyclic calendar of Gurung
<i>Jalashraya Ghriha</i>	rest place before death
<i>Jaluko</i>	wild plant food ( <i>Dioscorea</i> species)
<i>Jamun</i>	wild fruit ( <i>Eugenia jambolana</i> )
<i>Janaipurnima</i>	full-moon day in August; male members of the twice-born caste change their sacred thread on this day
<i>Janti</i>	a procession in a wedding ceremony

<i>Jutho</i>	impure
<i>Kachchi</i> house	house made of bamboo/wood with a thatched/straw roof
<i>Kami</i>	ironsmiths
<i>Kamileberne</i>	traditional practice to protect against child mortality
<i>Karmada</i>	religious name of the <i>Marsyangdi</i> river
<i>Karuwa</i>	bronze jug
<i>Kasturi</i>	special organ of musk deer which produces a good smell
<i>Ketimagne</i>	traditional practice of asking a girl for marriage
<i>Khahare</i>	a stream that overflows during the monsoon
<i>Khasto</i>	shawl for women
<i>Khet</i>	irrigated land for paddy and wheat
<i>Khirro</i>	a kind of milky plant for cattle
<i>Khukuri</i>	traditional Nepalese knife
<i>Kole</i>	sub-group of Gurung
<i>Kolke</i>	sub-group of Gurung
<i>Krishnaastami</i>	birthday of Hindu God Krishna
<i>Lagankrimo</i>	shawl for the bridegroom
<i>Lama</i>	Gurung priest
<i>Lamahanne</i>	a practice of driving out a disease by a priest ( <i>lama</i> )
<i>Lapsi</i>	wild fruit ( <i>Choerospondias axillaris</i> )
<i>Lekali</i>	people residing in the high hills
<i>Lokanti</i>	a person who looks after the bride and bridegroom
<i>Madhya</i>	middle
<i>Magar</i>	an ethnic group of Adibasi/Janajati category
<i>Mama</i>	mother's brother
<i>Maoist</i>	political party using the ideology of Mao
<i>Marsyangdi</i>	river in Lamjung District
<i>Nepalese rupees</i>	Nepalese currency
<i>Newar</i>	caste group, generally involved in business and trade
<i>Niuro</i>	wild plant food (fern species)
<i>Nwaranday</i>	the naming day of a new born child
<i>Odar</i>	cave
<i>Paisa</i>	Nepalese currency; 100 <i>paisa</i> equals one <i>rupee</i>
<i>Pakho</i>	non-irrigated upland area
<i>Pakhobari</i>	non-irrigated upland terraces
<i>Pakki</i>	house made from bricks/cement with concrete roof
<i>Parma</i>	system of labour exchange among the neighbours
<i>Pewa</i>	personal property of women
<i>Phupu</i>	father's sister
<i>Pung</i>	wooden jar container of home made wine
<i>Pung-khane</i>	Gurung engagement ceremony
<i>Putla</i>	an effigy of a dead person
<i>Putpute</i>	rite of passage for Gurung boys when reaching adulthood
<i>Rai</i>	ethnic group; Adibasi/Janajati category
<i>Rodi</i>	traditional entertainment where adolescent Gurung boys and girls can meet
<i>Sagun</i>	name of an NGO
<i>Sarki</i>	caste involved in leather work
<i>Sattals</i>	resting place near the river



<i>Seem</i>	third-class land (wetland) with the low productivity
<i>Shivaratri</i>	Hindu festival to worship the God Shiva
<i>Sicko</i>	part of <i>arghun</i> ritual
<i>Sinkapangra</i>	traditional ceremony to confirm divorce
<i>Sisnu</i>	green vegetable that grows in the wetland
<i>Siwalik</i>	mountain range between the plains and mid-hills
<i>Sorhajat</i>	the sixteen sub-groups of Gurung
<i>Sugandhawal</i>	medicinal herbal plant
<i>Tamang</i>	ethnic group; Adibasi/Janajati category
<i>Tamu</i>	Gurung
<i>Tarai</i>	lowland (plains)
<i>Tarkari</i>	dish of spicy vegetables
<i>Thakali</i>	ethnic group whose traditional homeland is in Mustang district
<i>Tharu</i>	ethnic group of the <i>tarai</i> region; Adibasi/Janajati category
<i>Thuloekadashi</i>	11 <sup>th</sup> day after full-moon; Hindus fast and worship the God Vishnu
<i>Tihar</i>	festival of lights ; second greatest Hindu festival
<i>Tika</i>	coloured rice put on the forehead
<i>Torma</i>	rice dough prepared for the death ritual
<i>Udip</i>	light
<i>Vyakur</i>	wild root ( <i>Dioscorea deltoidea</i> )



## Acronyms

ACAP	Annapurna Conservation Area Project
AIDS	Acquired Immune Deficiency Syndrome
APROSC	Agriculture Projects Services Centre
ASFR	Age Specific Fertility Rate
CBR	Crude Birth Rate
CBS	Central Bureau of Statistics
CDR	Crude Death Rate
CDS	Centre for Development Studies
CEB	Children - Ever - Born
CMR	Child Mortality Rate
CNAS	Centre for Nepal and Asian Studies
CPN/M	Nepal Communist Party/Maoists
CSID	Centre for the Study of Islam and Democracy
CWPE	Committee on Women, Population and Environment
DADO	District Agricultural Development Office
DDC	District Development Committee
ECMR	Environment Conservation Management Rules
EIA	Environment Impact Assessment
FAO	Food and Agriculture Organization
FCHV	Female Community Health Volunteer
FFSS	Fertility and Food Security Survey
FGD	Focus Group Discussion
FHD	Family Health Division
FP/MCH	Family Planning/Maternal Child Health
FPAN	Family Planning Association Nepal
GAD	Gender and Development
GDP	Gross Domestic Product
HERA	Healthy Reproduction: Research for Action
HIV	Human Immunodeficiency Virus
HKH	Hindu Kush Himalaya
HKI	Helen Keller International
HMG/Nepal	His Majesty's Government/Nepal
HMG	His Majesty's Government
ICHSDP	Integrated Community Health Services Development Project
ICIMOD	International Centre for Integrated Mountain Development
ICPD	International Conference on Population and Development
IDS	Institute for Development Studies
IMR	Infant Mortality Rate
IUCN	International Union for Conservation of Nature/The World Conservation Union
IUD	Intra Uterine Device
IUSSP	International Union for the Scientific Study of Population
KITLV	Royal Netherlands Institute of Southeast Asian and Caribbean Studies at Leiden, The Netherlands
LPG	Liquefied Petroleum Gas
MCH	Maternal Child Health

## Acronyms

MMHP	Madhya Marsyangdi Hydro-electricity Project
MMR	Maternal Mortality Rate
MOH	Ministry of Health
MOPE	Ministry of Population and Environment
NARCA	Natural Resource Conservation Area
NCPS	Nepal Contraceptive Prevalence Survey
NCRSP	Nepal Contraceptive Retail Sales Project
ND	No Date
NDHS	Nepal Demographic Health Survey
NFHP	Nepal Family Health Program
NFHS	Nepal Family Health Survey
NFS	National Fertility Survey
NGO	Non-governmental Organization
NRs	Nepalese Rupees
OECD	Organisation for Economic Co-operation and Development
PDA	Population Development Association
PhD	Doctor of Philosophy
POPIN	Population Information Network
PPR	Parity Progression Ratio
PRA	Participatory Rural Appraisal
RHP	Radio Health Program
ROSCA	Rotation Saving and Credit Association.
RRA	Rapid Rural Appraisal
SAARC	South Asian Association for Regional Co-operation
SAGUN	Strengthened Actions for Governance in Utilisation of Natural Resources
SIA	Social Impact Assessment
SLM	Sustainable Land Management
SPSS	Statistical Package for the Social Sciences
TU	Tri-bhuvan University
TFR	Total Fertility Rate
UNDP	United Nations Development Project
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFPA	United Nations Fund for Population Activities, renamed United Nations Population Fund
UNICEF	United Nations Children's Fund
UNRISD	United Nations Research Institute for Social Development
USAID	United States Agency for International Development
VDC	Village Development Committee
WCED	World Commission on Environment and Development
WHO	World Health Organization
WID	Women in Development
WPF	World Population Foundation
WUR	Wageningen University and Research Centre

## Appendix 1

The concepts and variables to be used in this study, together with their indicators for measuring them, are listed in the tables below. They are divided into three clusters:

- I The fertility cluster;
- II The household food and livelihood security cluster;
- III The gender cluster.

### I The fertility cluster

Concept	Definition	Variables	Indicators/ Measurement
1. Fertility	Number of live births per woman.	Pregnancies, Pregnancy outcomes, Live births (M/F, single/multiple), Date of birth, Age mother at birth, Current age of the mother (resp.).	Age-specific fertility rate (ASFR), Total fertility rate (TFR). Parity progression ratio (PPR).
2. Marriage	Legal sexual union between men and women.	Age at 1 <sup>st</sup> marriage (women), Menarche at time of first marriage, Marital frequency (women), Current marital status (women), Time between 1 <sup>st</sup> marriage and 1 <sup>st</sup> live birth.	Age at 1 <sup>st</sup> marriage, and subsequent variables.
3. Fertility determinants	Based on Jones (1990: 100): Exposure to intercourse variables. Conception variables. Pregnancy outcomes.	1. Age at marriage (see above); Monogamy/ polygamy; Widowhood/ divorce; Spousal separation; 2. Coital freq.; Post-birth abstinence. Sterility; Lactational amenorrhoea; Contraception (see below). 3. Abortion (spontaneous or induced).	For indicators, see Marriage and Contraception.  Furthermore: Norms and values relating to the a, b, and c variables (qualitative research); Social and economic conditions influencing the a, b, and c variables (qualitative research and survey).
4. Contraception	Deliberate attempts at preventing conception: Traditional methods and means; Modern methods and means.	Traditional - herbs, abstinence, massage, etc. – (which, when, how); Modern (which, when, how).	See variables. Qualitative research (values, opinions, incidence) and survey (incidence and prevalence, KAP).

5. Changes in fertility choices and perceptions	Perceived value of children (by men and women). Reproductive decision-making.	Values with respect to: Labour potential Son/daughter preference; Social values norms and rights, division of labour Socio-economic security. Decisions regarding number of timing of children.	Tasks of sons and daughters. Gender time and labour allocation (see boxes. I.3 and I.4). Determinants of fertility and contraception: Views on changes regarding 1,2,3.
6. Infant and child mortality	Infant mortality: Number of died children at age <1. Child mortality: Number of died children at age < 5.	Infant child mortality, Causes and prevalence of infant and child mortality.	Infant and child mortality rates. Infant and child morbidity. Nutrition. Incidence of disease and accidents. Quality of health care. Calories of intake food. Mothers nutritional status. Breast feeding.

## II. The household food and livelihood security cluster;

Concept	Definition	Variables	Indicators/Measurement
1. Household	“A co-residential unit, usually family-based in some way, which takes care of resource management and primary needs of its members” (Rudie 1995: 228).	Household type and composition. Household resources and assets and their management. Primary needs.	1a. Household size. 1b. Headship (male/female, de facto/de jure). 1c. Kinship and marriage relations between members and in relation to household head. 1d. Household members and their demographic characteristics (sex, age, marital status). 1e. Dependency ratio. 2a. Household resources and assets: see box II.3. 2b. Household division of labour. 3a. Food: see boxes II.5-10. 3b. Shelter: quality of housing.
2. Livelihood	“Livelihood generation refers to the bundle of activities that people undertake to provide for their basic needs (or surpass them)” (Niehof and Price, 2001: 8). Livelihood is the result of livelihood generation, which requires the use of resources and assets.	Livelihood activities. Household livelihood portfolio. Basic needs. Resources and assets.	Activities undertaken by household members to earn an income, in cash or in kind, or to acquire food. The activities can be: a. agricultural, b. agriculture-linked, c. non-agricultural. The whole mix of livelihood activities undertaken by household members and the different sources of income. Basic needs: in this research the focus will be on food (see boxes II.5-10). Resources and assets: see box II.3.

3. Resources and assets	Livelihood resources are the immediate means needed for livelihood generation (cf. Niehof and Price, 2001: 13). Assets are “a wide range of tangible and intangible stores of value or claims to assistance” (Swift, 1989: 11).	Resources and assets can be divided into Tangible resources and assets. Intangible resources and assets. They are available at the level of: the individual, the household, or the environment (cf. Niehof and Price 2001: 15).	Tangible resources and assets: Personal level: physical strength and health. Household level: space, housing, income, appliances and tools, land, livestock. Environmental level: 1. Natural environment; soil, water, biodiversity (see box II.4); 2. Man-made environment: roads, electricity, markets. Intangible resources and assets: Personal level: knowledge, skills, experience. Household level: management skills, experience, information, social status, kinship relations. Environmental level: 1. Natural environment: none; 2. Socio-institutional environment: information services, social networks, kinship networks, religion, markets and exchange relationships, community organizations.
4. Natural food environment (seasonality and changes over the years)	The natural resource base enabling food production and collection.	Natural resource base; Land. Water. Soil. Bio-diversity.	1. Land types, landscape; 2a. Water sufficiency; 2b. Water control. 3. Soil quality of agricultural land. 4a. Types and varieties of crops. 4b. Wild food species and products (see III.6) 5. Seasonal patterns. 6. Perceived changes over the years.
5. Food production and (seasonality and changes over the years)	Agricultural and livestock food production.	Food production from the farming / Gardening. Livestock food products.	Crops and yields, including gleanings. Livestock products and yields. Inputs to 1 and 2. Labour. Seasonality. Changes over the years.
6. Food collection (changes over the years)	Collection of non-domesticated food.	Wild foods; Fishing. Hunting.	Wild foods: a. what; b. who; c. where; d. how much. Fishing: a. what; b. who; c. where; d. how much. Hunting: a. what; b. who; c. where; d. how much. Seasonality and changes over the years.

7. Food purchase, exchange and redistribution	Household food acquisition not through production or collection.	Food purchase. Food exchange. Redistribution. Borrowing.	1a. Kind of food purchased; 1b. Food expenditure ratio in HH budget. 2a. Food exchange network: who and what; 2b. Regular and at times of need. 3. Institutions for food redistribution. Incidence of borrowing food: a. what; b. who; c. where; d. how much
8. Food security	Access to sufficient food at all times for an active and healthy life.	Household food supply. Food sufficiency. Nutritional adequacy. Seasonality.	Types and quantities of food stored in the HH. 2a. Experience of food shortage (see boxes II.6 and II.7). 2b. Income from liquid assets such as animals. 2c. Subsistence Potential Ratio (SPR) (see Frankberger, 1985:35). 3. See boxes I.10 and II.11. 4. Seasonality.
9. Food processing and preparation		Food processing. Food preparation.	1. Kind of post harvest processing. 2. Processing for food conservation. 3. Inputs for processing. 4. Inputs (water, fuel) for food preparation. 5. Gender and age division of labour in processing and preparation.
10. Food consumption (seasonality and changes over the year)	Food consumption at household level.	Food basket of the household.	1. Types of food and frequency of consumption. 2. Composition and timing of daily meals. 3. Influence of seasonality. 4. Changes over years.
11. Nutritional adequacy children <5 and pregnant women	Sufficient and adequate food intake for a healthy life.	Food sufficiency. Nutritious food. Good health.	1. Food intake of children<5 and pregnant women. a. Diet; b. Quantities (24hrs recall). 2a. Breast-feeding; 2b. Weaning food; 2c. Food taboos. 3a. Incidence and prevalence of malnutrition; 3b. Morbidity: illness during past 6 months: what, how long?



**III Gender Cluster**

Concept	Definition	Variables	Indicators/ Measurement
1. Gender	Cultural construction of masculinity and femininity. Also social expectations about behaviour regarded as appropriate for the members of each sex (Giddens, 1997:582).	<ol style="list-style-type: none"> <li>1. Cultural values about femininity and masculinity.</li> <li>2. Men's and women's reproductive and productive roles.</li> </ol>	<ol style="list-style-type: none"> <li>1. Gender division of labour in reproductive activities</li> <li>2. Gender division of labour in economically productive activities.</li> <li>3. Norms, values, and ideals regarding 1 and 2.</li> <li>4. Gender needs (see next box).</li> </ol>
2. Gender needs (practical and strategic)	Definitions practical and strategic gender needs see below:	<ol style="list-style-type: none"> <li>1. Practical gender needs.</li> <li>2. Strategic gender needs.</li> </ol>	<ol style="list-style-type: none"> <li>1. Needs of women to fulfil their reproductive and productive roles (see box III.1)</li> <li>2a. Needs relating to control and ownership of resources (land) and legal and customary rights;</li> <li>2b. Challenges for women's subordinate position;</li> <li>2c. Restrictions on women's mobility.</li> </ol>
3. Women's agency	Women's ability to identify their own gender needs and mobilise the resources to meet them.	<ol style="list-style-type: none"> <li>1. Ability to identify practical needs.</li> <li>2. Ability to identify strategic needs.</li> <li>3. Ability to mobilise.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identification of practical needs (see box III.2).</li> <li>2. Identification of strategic needs (see box III.2).</li> <li>3. Efforts to meet needs and outcomes.</li> </ol>
4. Women's status in Nepalese society	Equality between the sexes and women's autonomy.	<ol style="list-style-type: none"> <li>1. Socio-cultural, political, economic, and educational status of women.</li> <li>2. Dominant socio-cultural and religious values regarding women.</li> <li>3. Opinions about women and population issues.</li> <li>4. Opinions about women and the environment issues.</li> </ol>	<ol style="list-style-type: none"> <li>1a. Opinion about women's equality and autonomy, and legal rights;</li> <li>1b. Women's political rights and representation;</li> <li>1c. Women's employment and income;</li> <li>1d. Women's education.</li> <li>2. Social and religious values concerning masculinity and femininity.</li> <li>3. National debates on women and population.</li> <li>4. National debate on women and environment.</li> </ol>

## Appendix 2

Time frame for Ph.D. field research activities in Nepal

Activities	2002 October to October 2003												
	Months												
	O	N	D	J	F	M	A	M	J	J	A	S	O
1. Set-up of a field office in Kathmandu, Nepal; a. Affiliation with Centre for Nepal and Asian Studies (CNAS), Tribhuvan University (T.U.), Kritipur Kathmandu, Nepal b. Preliminary meetings with local supervisor Dr. Dilli Ram Dahal c. Searching for the feasible fields sites in Nepal, (Rural Kathmandu or nearby districts) d. Visited couple of places and districts, i. e Dachhinkali, Pharping, Changu Narayan, Bishankhu Narayan, Kathmandu and Nagarkot, Bhaktapur, Kakani, Nuwakot, and Lamatar, Lalitpur.	■												
2. Preparation of questionnaire in Nepali and English language; Household survey questionnaire Key informant questions Questionnaire for 24-hour food intake.		■											
3. Search for field sites in Lamjung, particularly the Gurung villages Bhujung, Ghale Gaun, Khundi, Ghanpohara and the Marsyandi area.			■										
4. Pre-test of survey questionnaire in Bhujung and Ghalegaun in Lamjung				■									
5.Fixed the field area for research study in Lamjung district especially in Madhya Marsyangdi area.					■								
6. Advertisement and selection of field researchers/ enumerators/ facilitators. a. Training for assistants and enumerators and facilitators. b. Household Survey							■						
7. PRA/ RRA and focus group discussion in relation to population linkages on natural food resource environment and gender issues. c. Case study of 24-hour food intake								■					
8. Coding data entry and verification									■				
9. Data analysis										■			
10. Thesis writing in draft										■	■	■	■
11. Revisions											■	■	
12. Return Wageningen University										■	■	■	■

## 1. Household Roster

Women's Agency in relation to Population and Environment in rural Nepal

Demographic Household Survey

Address ----- VDC----- Ward number----- District -----

Name of the household head ----- Age ----- Religion -----

Interview date -----

Description: Household Survey

Details about the household members	Total family number	Relation with the head of household	Sex		Age	Marital status	Age at marriage	Occupation	Work hour per day ( 10-59 years age group)	Educational status ( 6+ age group)	Women to be selected for interview	Remarks
			Male	Female								
1	2	3	4	5	6	7	8	9	10	11	12	13
												Appropriate women for the interview (15-49 years married women)

Note:

7. Marital status 1. Unmarried 2. Married and living together 3. Widow/ Widower 4. Separated but not divorce 5. Divorced 6. Others (state)

9. Occupation: 1. Household work 2. Agriculture 3. Service 4. Cottage industry 5. Industry 6. Wage 7. Student 8. Unemployment 9. Other (state)

11 Educational Status: 1. Illiterate 2. Literate 3. Primary 4. Secondary (7-10 class) 5. High school (S.L.C.) 6. Higher secondary (10+12) 7. Bachelor and above

Marriage related  
Family Number (code):

Name /Mr./Mrs.	Age at Marriage Mr./ Mrs.	Date of Marriage	Duration of marriage (years)	Which marriage is this? First/ Second /Third one?	Remarks
1	2	3	4	5	6

Abortion related  
Family Number (code):

Name of the pregnant woman	Period of pregnancy	Living child ( son/ daughter)	Name of the living child	Date of birth	Mother's age at the time of child birth	Child spacing	Number of death after livebirth	Abortion
1	2	3	4	5	6	7	8	9

Births and deaths in the family over the last five years (1998Feb-2003 Feb)

Birth			Death							
Birth (Name)	Mother's name	Date of birth	Sex	Age	Live dead	Name of dead person	Date of death	Sex	Age	Remarks
1	2	3	4	5	6	7	8	9	10	11

## 2. Household and Fertility Survey

(Translated from Nepali into English)

Household Serial no:

### Reproduction related questions

(To be asked women aged 15- 49 years)

1. What is your date of birth?  
Date .....
2. Your present occupation? (Indicate family survey roster number)
3. Your educational status? (Indicate family survey roster number)
4. Is this your marriage?  
First 2. Second 3. Third 4. Other (state) .....
5. If this is your second marriage how long you have been married?  
1. Year first 2. Year second 3. Year third 4. Other (state) .....
6. How many years of marriage interval did you give birth?  
Years .....
7. After how many years of first marriage did you conceive?  
1. Month ..... 2. Year .....
8. At what age did you have the first menstruation?  
Age.....
9. You had the first menstruation before or after marriage?  
1. Before marriage 2. After marriage
10. Are you living together continuously with your husband after marriage?  
1. Yes 2. No.
11. If you are not staying together, since how long you have been living separately?  
1. Month ..... 2. Year .....

### Marriage History (ever married women under 50 years only)

12. Do your husband has other wives besides you?  
1. Yes 2. No
  13. If yes, how many other wives he has besides you?  
Number.....
  14. Which wife are you?  
1. First 2. Second 3. Third
  15. How old were you at the time of marriage?  
Age.....
  16. If this is your first marriage since which date you started living together with your husband?  
1. Month..... 2 Year.....
  17. If it is your second marriage, can you recall the date when you started to stay together with your husband?  
Month ..... 2 Year ..... 3. Don't know
  18. How old were you when you had had first sexual intercourse with your husband?  
Age .....
- Fertility  
(same respondent women aged 15- 49 years, who has given birth)
19. Have you given any birth to date?  
1. Yes 2. No

20. If yes how many live births you have given?  
Number.....

21. Provide description of your live birth:

Children	Son	Daughter
1. Staying together		
2. Living elsewhere		
3. Dead		
4. Total		

22. Do you have any still birth?  
1. Yes 2. No

23. If yes give description regarding your still birth

	Son	Daughter	Sex unknown	Remarks (neonatal or infant)
Dead birth				
Death after live birth				
Abortion				

*Note: Still birth- after 28 weeks before explosion of fetus  
Early neonatal death -died within 7 days of birth-  
Neonatal death -died within 28 days  
Infant child mortality- died within 12 months*

24. Did you have an abortion?  
Yes 2. No

If yes, which methods did you use?

1. Herbs 2. Doctor 3. Nurse 4. Midwife  
5. Hospital 6. Others (state).....

26. How many children you wished to have?

1. How many sons.....  
2. How many daughters.....  
3. No more child

27. If you wish more sons what are the reason? (in order of priority )

1. ....  
2..... etc.

28. If you wish more daughters what is the reasons? (in order of priority )

1. ....  
2..... etc.

29. What are the major household activities done by son in your household?  
(Major activities in priority basis)

- 1.....  
2..... etc.

30. What are the major household activities done by daughter in your household?  
(Major activities in priority basis)

- 1.....  
2..... etc.

## Child mortality

31. Within the last 12 months did any of your children have died below five years?  
1. Yes 2. No
32. If yes how many children have died?  
1. Male number.....  
2. Female.....
33. What were the reason of death?  
1. Weakness 2. Malnutrition 3. Diarrhea 4. Fever/ Typhoid  
5. Jaundice/ Hepatitis 6. Pneumonia 7. Don't know 8. Others (state).....  
(Questions to be asked only in those families where there is higher mortality)
34. What could be the reasons for higher children death rate in your family? Tick below.  
Poor health  
Malnutrition  
Epidemic  
Lack of health care facilities  
Lack of health education and public awareness  
6. Other diseases (state).....

## Use of Contraception

35. Are you using any contraceptives?  
1. Yes 2. No
36. If yes what type of contraceptive or family planning method you have been using?  
1. Female sterilization  
2. Male sterilization  
3. Temporary  
4. Other (state).....
37. If you are using the natural method of contraception, which type?  
Rhythm or calendar method  
Temperature measurement  
Natural method (ejaculation)  
Fluid examination  
Other (state).....
38. Are you using those devices for controlling birth or spacing?  
1. To control birth 2. Spacing
39. Did you experience any side effect by the use of contraception?  
1. Yes 2. No  
If you have side effects, please mentioned their symptoms? (in order of priority)

1.
2.
3.
4.

41. If you have done permanent Family Planning Method which one you have done?  
Minilap 2. Vasectomy 3. Laparoscopy 4. Other (state).....
42. If you are using temporary Family Planning method which way are you using?  
1. Pills 2. IUD 3.. Injection (*Sangini*) 4.. Norplant 5. Condom  
6. Foam and Jelly

7. Calendar Method      8. Rhythm method      9. Ejaculation      10. Other (state).....
43. From where do you get contraception?  
 1. Health post   2. Hospital   3. Health worker  
 4. Family Planning office      5. Neighbors  
 6. Relative      7. Shops      8. Other (state).....
44. From where did you received the information about contraception?  
 1. Radio 2. Television 3. Newspapers 4. Neighbour 5. Relatives 6. Other (state).....
45. When did you start contraception after birth of your first child?  
 Day..... Month.....
46. What types of contraception did you use?  
 1. Permanent   2. Temporary

## Pregnancy

47. When did you have your last menstruation?  
 1. Before days..... 2. Before weeks... 3. Before months... 4. Before year....  
 5. Already had menopause/ prolepses..      6. Before the birth of last child...  
 7. Never had menstruation (infertile)...
48. Are you currently pregnant?  
 1. Yes 2 No
49. If you are pregnant, which months is this?  
 Month.....
50. Is this pregnancy wanted? or you wanted after some time interval?  
 1. Wanted  
 2. Unwanted  
 3. After some time interval  
 4. Never wanted

## Pregnancy history

Which Marriage?	Pregnancy	Outcome			Interval	
		Livebirth/Stillbirth	Miscarriage	Abortion		
	1 <sup>st</sup>					
	2 <sup>nd</sup> etc.					

## In case of live childbirth

Birth			Still /alive or dead	Death			
Date of birth	sex	Single or multiple birth		Name of dead child	Age of death	Cause of death	
1.							
2. etc.							

## Breast feeding

53. Did you breast-feed your child?  
 1. Yes 2 No



If yes, how many months did you breast feed to your child? Give description.

Name of child under five years	Time for breast feed		Reasons for breast feeding
	Years	Month	
1			
2			
3			

55. Did you conceive while you were breast-feeding?

1. Yes 2. No

Health care related

56. Have you ever been sick within last 12 months?

1. Yes 2 No

57. If you were sick where did you go for treatment?

1. Hospital

2. Traditional treatment locally

3. *Dhami Jhakri* (Witchcraft)

4. Use of Herbs

5. No treatment

6. Other (state).....

58. If you were treated at Hospital did you get facilities?

1. Yes fully facility

2. Okay partial facilities

3. No facility

4. Other (state).....

59. What is the situation of health facility in your family?

1. Good

2. Poor

60. If good, from where do you receive the facility?

1. From the govt. institution

2. From a NGO

3. From own sources and link.

4. Other (insurance, etc.) (state).....

Nutritious food

61. Generally how many meals do you have in a day?

Times.....

62. What type food contained in your meal?

.....

Please provide the description of your meal in a day (within 24 hour)?

Food type	Meal time	Season	
		Winter	Summer
1.			
2.			
3.			
4.			

Preparation of food

64. Who prepares food in your family?

1. Mother 2. Father 3. Sister 4. Brother,

5. Sister in law 6. Daughter in law 7. I myself and 8. Other (state).....

If you prepare food yourself what types of food you prepare?

List of food	Method of preparation	Time Preparation	Types of energy sources technology used

66. How many different groups are formed to eat food in a day at your household?

.....

67. Who is responsible in distributing food at your family?

1. Father 2. Mother 3. Sister or brother, 4. In laws,  
5. Self, 6. Other (state).....

68. Do you all eat in one plate or different plates

1. In one plate 2. In different plates

69. Do you eat by hand or by spoon?

1. By hand 2. By spoon 3. Other (state).....

Please give the description of feeding to children in your family

Age of child	Type of food	Time of food	Season	Whose interest
0 to 5 month				
6 months to 1 year				
1 to 2 years				
2 to 5 years				
6 to 10 years				
10 to 15 years				
15 years above				

71. Is production from your own land enough to feed your family for the whole year?

- Enough 2. Not enough

72. If you do not produce enough food from your land how do you manage?

1. Borrowing from neighbor 2. Procuring 3. Begging 4. Gleaning  
5. Purchasing 6. Exchanging 7. Other (state).....

73. If you do not produce enough food what type of technique you used for procuring food ( in order of priority as returned above (question number .71.)

1.  
2. etc.

Give description of seasonal food at your household

Food	Season	Time (how many times eaten)

75. Do you have food storage technology facility at your village?

- 1.Yes 2 No

If yes what type of technology is available?

List of food	Technology	Place for keeping	Season or month	Who participated? (male or female)

## Nutrition condition of mothers

What type of food you ate during the maternity period?

Types of meals you had (list of food)	Priority of food	How many meals a day	Type of meals
1			
2			
3			

78. What type of food do you prefer at the time of pregnancy?

1. Seasonal balanced of food
2. Food available more locally (cheap but nutritious such as millet, wheat and maize)
3. Foods containing fats as proteins
4. Other (state).....

## Types of house

79. In what types of house do you reside?<sup>6</sup>

- Solid (concrete) 2. Semi solid (stone -concrete) 3. Stone 4. Wooden  
5. Other (state).....

80. Do you have a toilet at your household?

1. Yes 2. No

81. If yes give types and conditions of your toilets?

- Modern with flushes 2. Modern without flushes 3. Simple toilet 4. Pit latrine  
5. Other (state).....

82. If you do not have a toilet do you have a plan to make it?

1. Have a plan 2. No plan

83. Types of ownership of the house?

- Own 2. Rented 3. Living as care taker 4. Others (state).....

84. Is there a motorable road to your house?

1. Yes 2. No

## Land owner related

85. Do you own land?

1. Yes 2. No

If yes, provide the following descriptions.

Type of land	Own-land cultivated (Ropani/ Mato Muri)	Other's land cultivated (Ropani/ Mato Muri)	Own land leased to other (Ropani / Mato Muri)
1. Khet (irrigated)			
2. Khet land (nonirrigated)			
3. Bari (irrigated)			
4. Bari (nonirrigated)			
5. Pakho ( dry upland)			
6. Other (state).....			

<sup>6</sup> Solid (concrete) house (*Paccki*): Build from brick concrete and Rcc roofing

Semi solid (stone -concrete) (*Ardhapaccki*): Build from brick and concrete and cement with corrugated iron sheet roofing

Simple house (stone) (*Kachhi*): Build from stone and mud with thatched roofing

Simple types house (wooden) (*Fusko*): Build half from stone and mud with bamboo and straw roofing

87. What type of land do you have?

1. Abbal 2. Doyam 3. Sim 4. Chahar

Describe annual production from your land?

Products	Yields, quantity produced per annum (in muri or k.g)
1. Paddy	
2. Maize	
3. Wheat	
4. Tury (Rape seed)	
5. Potato	
6. Pulses	
7. Other (state).....	

Livestock

Do you own animals?

1. Yes 2. No

If yes, give details (circle the number)

Animal	Number	Animal	Number	Animal	Number
1. Cow		5. Male goat		9. Pig	
2. Female buffalo		6. Chicken		10. Male buffalo	
3. Oxen		7. Dog		11. Rabbit	
4. Female-goat		8. Cat		12. Duck	

In your ownership do you have following type of properties?

1) House ..... Number.....

2) Land ..... Number.....

92. Do you have own properties in the name of "Pewa" (own's property) as were the property (dowry/cash & gold)

1. Yes 2. No

If you have land as your own property, give details.

	Ropani	Aana	Paisa	Daam	Remarks
Land area					

Drinking water

94. What is the main source of your drinking water?

Piped water tap 2. Well 3. Tube-well 4. Main tap 5. River/ stream

6. Other (state).....

95. If yes piped water where the tap is located?

Tap near house 2. Tap at the house 3. Bathroom inside the house 4. Tap in each room

Other (state).....

96. If you don't have water facilities near your house, how far you walk for water?

Distance.....

97. How many times do you travel for water?

Times.....

Fuel Related

98. Which type of fuel is used in your house for cooking?

1. Wood 2. Kerosene 3. Gas from cowdung 4. Electricity 5. Cowdung 6. Others (state)....
99. Which type of fuel is used in lighting your house?  
Electricity 2. Kerosene 3. Gas from cowdung 4. Others (state).....

#### Employment Related

100. In the past 12 months what type of occupation you have?
1. Farming
  2. Labour job (salary)
  3. Business
  4. Extended eco- activities
  5. Unemployed
  6. House keeping
  7. Student
  8. Other (state).....

#### Annual income

Please give an annual income that you (your family) have? Circle number

1. No income	5. Rs 15,001 to Rs 20, 000	9. Rs40,001 to Rs 50,000
2. Rs 1000 to 5000	6. Rs 20,0001 to Rs 25000	10. Rs 50,001 to Rs 70,000
3. Rs 5000 to 10, 000	7. Rs 25001 to Rs 30, 000	11. Rs 70,0001to 100,000
4. 10,000 to 15,000	8. Rs 30,001 to 40,000	12. Rs 100,000 to above

102. Do you do any activities for earning?
1. Yes 2. No

If yes please give the description (circle the number)

a. Goat rearing	g. Hunting
b. Buffalo rearing	h. Mushroom Farming
c. Pigeon	i. Bomboo knitting
d. Bee keeping	j. Woolen Knitting
e. Rabit keeping	k. Small business
f. Fishing	l. Other (state).....

#### Transportation and Communication

104. What types of communication facilities do you have at your household?
1. Radio 2. Television 3. Telephone 4. None.....
105. What types of transportation facilities do you have at your household?
- Bicycle 2. Motorcycle 3. Motor 4. Others 5. None of them

#### Food Security

106. Is production from your family source enough to feed your family for the whole year?
1. Enough 2. Not enough
107. If not how many months is the deficit?
- Month.....
108. Please give the description of cereal produced for consumption from your land.

1.
2.
3.
4.
5.

109. If there are pregnant women and children in your household please mentioned their food.

Times a day	Types of food	Times of eating	Seasonal food (Winter/Summer)
Under five years child			
1. Pregnant women			
2. Maternal women			
3. Other old persons/ guest (state).....			

110. Do you collect the food items from the forest?

1. Yes 2. No

111. If yes what types of food items are collected?

- |   |  |
|---|--|
| 1. <i>Khjeuri</i>                                 | 11 <i>Chuthro (Berberis aristata)</i>                |
| 2. Berry  | 12 <i>Githavyakur</i> (wild nuts)                    |
| 3. Mango ( <i>Mangifera indica</i> )              | 13 Yam   |
| 4. <i>Khanayo (Ficus cunia)</i> A kind of fruit   | 14 Plum  |
| under ground                                      | 15 Hog plum  |
| 5. <i>Lapsi (Choerospondius auxilaris)</i> a kind | 16 <i>Barro (Terminalia belerica)</i>                |
| of sour fruit                                     | 17 <i>Chiuri (Bassia butyracia)</i>                  |
| 6. Strawberry                                     | 18 <i>Bimiro</i>                                     |
| 7. Guava  | 19 <i>Neuro / Jaluko</i> (kind of fern and a kind of |
| 8. Pear   | taro particular forest food                          |
| 9. <i>Badahar</i> a kind of fruit from tree       | 20. Other (state).....                               |
| 10. <i>Dumri</i> A kind of fruit                  |  |

112. If yes please prove the following description

Who goes to collect	When is collected	What is collected	Amount collected
1			
2			
3			
4			

113. Anybody goes to gleaning from your household?

1. Yes 2. No

If yes answer the following

Crops	When	Where	Who goes	Quantity collected
1. Rice				
2. Maize				
3. Potato				
4. Wheat				
5. Millet				
6. Peanut				
7. Sweet potato				

8. Yam				
9. Fruits				
10. Vegetables				
11. Other (state).....				

## 115. Agricultural product consumed (circle the number)

Crops	Oils/Beans	Livestocks food
Rice	Mustard oil/ Sesmean	Meat
Maize	Beans	Fish
Wheat	Black gram	Butter/ ghee
Others	Lentil	Milk
	Cow pea	Yogurt
	Beans	Whey/ cultured milk
	Chick pea	Egg
	Peas Other (state)...	Other (state).....

Where do you store your food? Circle the following

Inside house:

Stores sack *bora* 2. Small bamboo basket, 3. Big bamboo basket 4. Iron store  
5. Other state).....

Outside house:

Stock of hays in yard or basement, 2. Bundle of tin packed, 3. Unhealed maize bunch,  
3. In tins containers 4. Other (state).....

What types of utensils do you use in your household? Circle numbers

Utensils	Tools
1. Plate	22. Plough
2. Cooking pot	23. Yoke
3. Small cauldron	24. Spade
4. Big bowl	25. <i>Chande</i> (A particular kind of spade which helps to balance the mud)
5. Wooden spoon	26. A small hoe
6. Small plate	27. Sickle
7. Big cauldron	28. <i>Karuti</i>
8. Water Jar	29. <i>Khukuri</i> (Nepalese national weapon)
9. Small cup	30. A spade with along handle
10. <i>Ankhora</i> (Water drinking )	31. Axe
11. A small copper pitcher	32. A small sickle
12. Jug for water drink	33. Wid killer ( Dante)
13. Glass	34. <i>Hinga</i> (Mud balances)
14. Bowl	35. Sickle
15. Big Bowl	36. <i>Rake</i> (an agricultural instrument)
16. Ladle	37. Spade
17. Flat spoon	38. Saw
18. <i>Mana</i> (small unit of crop measurement)	39. Hammer
19. <i>Pathi</i> ( a pot for measure of eight Mana)	40. <i>Karuwa</i>
20. Divided plate	41. Rice cooker
21. Pressure cooker	42. Water boiling jug

## 118. Description of food production (grows)/ purchased growing and slow growing

Yearly food items produced	Experience on food	Food sale pre-estimated	Procurement price estimated

## 119. What do you grow in the kitchen garden? Circle crops produced at your kitchen garden.

Chili	Tomato	Rayo vegi	Radish
Zinger	Garlic	meant	Turmeric
Potato	Onion	eggplant	Capricorn
Cucumber	Pumpkin	Settle guard	Squass
Coriander	Fenugreek	Spinach	Cress
Cauliflower	Bethe	Cabbage	Spark guard
Sporge guard	Bitter guard	Sugarcane	Taro
Okra	Cow pea	Soup	Sweet potato

## 120. Have you ever thought increasing production in your kitchen garden?

1. Yes 2. No

If yes what kind of vegetables? List below

List of vegetables	Seasons

## 122. Do you exchange any food item?

1. Yes 2. No

If you exchange any food item give description

Description	Season	Times
a. Ghee/ honey		
b. Milk/money		
c. Potato/ Rice		
d. Potato millet		
e. Potato maize		
f. Sweet potato/ Potato		
g. Peanut/ strawberries/rice		
h. Yellow powder Zinger		
i. Sesame / buckwheat		
j. Other (state).....		

## 124. What types of food storage do you have in your household?

Food crop	Number	Quantity	Times	Types
a. Agricultural crops				
b. Vegetables fruits				
c. Rice maize and others				
d. Food items from milk (Ghee, cheese, yogurt etc)				



125. Provide floriculture in your residence
- |                        |               |
|------------------------|---------------|
| Marigold               | Jasmine       |
| Amaranths              | Parijat       |
| Oleander               | Dungaree      |
| Jae (A kind of flower) | Chrysanthemum |
| Juie                   | Rose          |
| Belli                  |               |

### 3. Likert Scale questionnaire

General questions for household head or other family member

There are two types of family, nuclear and extended joint family. Give your positive or negative opinion regarding the extended joint family in our society

a. Statements	Yes	No
b. It increases family income		
c. It increases social status		
e. Establish good relation, among the family members		
f. Decreased chance of fertility		
g. Controls family growth		
h. Increase financial burden		
I. Affects decision making roles		

2. What are your reaction in the following statements?

1. Extremely Agree 2. Agree 3. Disagree 4. Extremely disagree 5. Don't know

a. Population growth affects the agricultural production	
b. Lack of water affects agricultural production	
c. Personal health and education are the foundations for everything	
e. Family health greatly affects earning of the family	
f. Wage and service are the major source of livelihood	
g. Agricultural production is main livelihood source in Nepal	
h. Unemployment leads towards the starvation of the family	
I. Lack of earning is misfortune for the family	
j. High child birth makes food problems in the household	
k. High population growth leads towards degradation of land	
l. Role of women affects greatly into the natural environments in Nepal	
m. Population growth affects negatively into environment	
n. Child mortality increases the population growth affects negatively into natural environment	
o. Gender participation helps to reduce population growth and conservation of environment	
p. High population and less land is a major problem in Nepal	
q. Family planning practice is only the resource to control population growth	
r. Use of contraceptive controls population growth	
s. Free family planning is only important service to decrease the population in Nepal	
t. Population control helps to create healthy environment	
u. Population education helps to reduce the traditional bad cultural customs	
v. Population and environment education is necessary for the next generation in Nepal	

## 4. Household Food Survey

Number of household roster:-----

Name of head of the household:-----

### Food habits

In the last month or so did you or other members of your household ever cut the size of your meal or skip meals to save food because there was not enough food or money to buy food? How often did this happen?

Almost in every month 2. In Some months, but not in every month 3. Only in one or two months (if so list the months of the year)

In the last 12 months, did you ever *eat less than you felt you should eat* because there wasn't enough food or money to buy food?

In the last 12 months, were you ever hungry but did not eat because you couldn't afford enough food?

Some time people loose weight because they didn't have enough to eat. In the last 12 months, did you loose weight because there was not enough food?

In the last 12 months, did you ever cut the size of any child's meals because there was not enough food in the household?

In the last 12 months, did any of your children ever skip a meal because there wasn't enough food in the household? How often did this happen?

1. Almost in every month 2. In some months, but not in every month

3. Only in one or two months

In the last 12 months, were the children ever not eating a whole day because there wasn't enough food in the household?

1. Almost in every month 2. In some months, but not in every month

3. Only in one or two months

I was worried whether our food run out before we have money to buy more. Was that often, sometimes, or never true for you in the last 12 months?

1. Almost in every month 2. Sin sme months, but not in every month 3. Only in one or two months

"The food that you bought didn't last, or you didn't have money to get more" was that often, sometimes, or never true for you in the last 12 months?

"You couldn't afford to eat balanced meals" was that often, sometimes, or never true for you in the last 12 months?

"You couldn't feed the children a balanced meal because you couldn't afford that" was that

1. Almost in every month 2. In some months, but not in every month

3. Only in one or two months

The children were not eating enough because the family couldn't afford enough food

1. Almost in every month 2. In some months, but not in every month

3. Only in one or two months

"My family relied only a few kinds of low-cost food to feed the children because we were running out of money to buy food" was that

1. Almost in every month 2. In some months, but not in every month 3. Only in one or two months

Mostly we eat rice when we get the rice crops from our field? Is this true for your your family?

Food consumption

Has the household consumed less preferred foods?

1. Never 2. rarely 3. from time to time (2 or 3 times) 4. Often (5 or more times)

Have you reduced the quantity of food served to men in this household?

Never 2.rarely 3.from time to time (2 or 3 times) 4. Often (5 or more times)

3. Have you reduced your own consumption of food?

1. Never 2.rarely 3.from time to time (2 or 3 times) 4. Often (5 or more times)

4. Have you reduced the quantity of food served to children in this household in the last seven days?

1. Never 2.rarely 3.from time to time (2 or 3 times) 4. Often (5 or more times)

5. Have members of this household skipped meals in the last seven days?

1. Never 2.rarely 3.from time to time (2 or 3 times) 4. Often(5 or more times)

6. have members of this household skipped meals for a whole day?

1. never 2.rarely 3.from time to time (2 or 3 times) 4. Often (5 or more times)

## Appendix 3

Table A 3.1 Population by sex and age in study the villages

Age group	Bhoteodar			Beshishar			Udipur		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
0-4	307	292	609	470	475	945	156	134	290
5-9	384	360	744	591	522	1113	170	183	353
10-14	377	352	729	621	615	1236	184	175	359
15-19	339	297	636	492	461	953	136	173	309
20-24	280	274	554	261	424	685	90	136	226
25-29	225	243	468	274	411	685	94	110	204
30-34	185	222	407	263	347	610	77	83	160
35-39	173	192	365	283	334	617	71	88	159
40-44	152	151	303	233	227	460	67	88	155
45-49	130	124	254	207	152	369	63	64	127
50-54	110	126	236	130	134	264	44	52	96
55-59	78	68	146	89	90	179	42	47	89
60-64	72	66	138	77	83	180	42	53	95
65+	156	152	308	170	170	340	95	89	184
Total	2978	2919	5897	4161	4455	8616	1331	1475	2806

Source: Field Survey 2003

Table A 3.2 Marital status of population 10 years and above by age group.

Age Group	Marital Status							Total
	Unmarried	Married and Living together	Married not living together	Separated, but not divorce	Divorce	Widow/ Widower	Married but physically apart	
10-14	238	0	0	0	0	0	0	238
15-19	161	48	7	1	0	0	1	218
20-24	46	69	25	0	2	0	2	144
25-29	19	74	54	1	2	1	0	151
30-34	1	81	34	0	1	0	2	119
35-39	5	87	30	3	1	1	0	127
40-44	2	87	27	1	1	3	2	119
45-49	1	83	15	3	1	4	1	108
50-54	1	83	4	1	1	8	1	68
55-59	0	52	1	0	0	3	0	47
60-64	1	43	1	1	0	6	0	33
65+	2	48	0	1	0	26	1	78
Total	477	692	198	12	9	52	10	1450

Source: Field Survey 2003

## Appendix 4

Table A4.1 Weight frequency of 24-hours food consumption in gram of under 5 years of Gurung children in Bhoteodar Lamjung

Food item	Morning	Day	Evening	Total
Bean pumpkin veggies	2	0	2	4
Bean veggies	5	0	1	7
Biscuit	7	4	2	13
Bitten rice	1	0	0	1
Boiled maize	0	2	0	2
Buffalo milk	7	1	2	10
Cucumber	1	0	0	1
Fried rice	4	3	0	7
Mother milk	18	16	10	44
Noodle	2	5	0	7
Rice Porridge	0	2	0	2
Potato meat pumpkin veggies	0	0	1	1
Potato pumpkin veggies	0	0	3	3
Potato, bean, pea veggies	0	0	1	1
Powder milk tea	1	0	0	1
Rice	27	4	28	59
Spiced fried lentils	1	0	0	1
Tea	17	8	0	25
Vegetables	1	1	2	4
Bean veggies	0	1	1	2
Bean bottle guard veggies	0	0	2	2
Boiled egg	1	0	0	1
Boiled soft rice	0	4	0	4
Bread	1	0	0	1
Buffalo meat	1	0	0	1
Butter rice	1	2	1	4
Chuck let	0	1	0	1
Circle bread	0	2	0	2
Cow milk	1	0	1	2
Ghoga maize	3	12	0	15
Gourd, potato, veggies	0	0	1	1
Chicken meat	1	0	0	1
Pea, gram pumpkin, veggies	1	0	0	1
Pear	0	1	0	1
Potato and lettuce veggies	0	1	0	1
Potato, meat veggies	1	0	0	1
Potato gourd veggies	2	0	1	3
Potato bean veggies	0	0	1	1
Powder milk	1	0	0	1
Pulse	17	0	20	37
Tea	0	2	0	2
Total	127	73	84	

Table A 4.2 Food intake at Gurung household of children under five (24hr food intake)

Food item.	Frequency	Percentage	Mean gram
1. Crops	85	29.93	80.2
2. Cereals crops	61	21.48	68.93
3. Pea/peanuts	9	3.17	55
4. Vegetables (potato, onion, radix etc)	38	13.38	43.84
5. Fruits	1	0.35	15
6. Spices	1	0.35	200
7. Meat/Eggs	3	1.06	60
8 Milk production	86	30.28	67.2
9. Cash income			
Total	284	100	68.33

Table A 4.3 Summary of caloric consumption mean weight in Bhoteodar Lamjung

Food item	Mean	Std.dev.	Frequency
Bean+ pumpkin+ veggies	29.5	17.63	4
Bean +veggies	54.71	37.60	7
Biscuit	316.23	133.69	13
Bitten rice	100	0	1
Boiled maize	37.5	17.66	2
Buffalo milk	142.5	89.79	10
Cucumber	5	0	1
Fried rice	139.28	205.06	7
Mother milk	284.75	256.50	44
Noodles	323.57	232.51	7
Rice Porridge	50	0	2
Potato+ meat+ pumpkin veggies	8	0	1
Potato+ pumpkin +veggies	18.33	14.57	3
Potato,+ bean,+pea veggies	205	0	1
Powder milk tea	10	0	1
Rice	72.66	55.40	59
Spiced fried lentils	200	0	1
Tea	18.36	4.09	25
Vegetables	73.75	88.63	4
Bean veggies	100	0	4
Bean +bottle guard +veggies	62.5	53.03	2
Bean +potato+ veggies	93.33	73.32	6
Boiled egg	87	0	1
Boiled soft rice	200	81.64	4
Bread	10	0	1
Buffalo meat	10	0	1
Butter rice	87.5	21.79	4
Chocolates	10	0	1
Circle bread	150	0	2
Cow milk	150	0	2
Maize cob	71.66	33.89	15

Gourd +potato+ veggies	8.00	0	1
Chicken meat	150.00	0	1
Pea + gram pumpkin + veggies	12.00	0	1
Pear	15.00	0	1
Potato + leaf mustard veggies	8.00	0	1
Potato+ meat +veggies	8.00	0	1
Potato +gourd veggies	19.33	9.81	3
Potato +bean veggies	8.00	0	1
Powder milk	10	0	1
Pulse	131.18	59.14	37
Buffalo milk tea	18	0	2
Total	128.86	156.09	284

Table A 4.4 The forest fruits used in the area (N=343)

Name of the forest fruits	Number	%
Khajuri	5	1.5
Berry	117	34.1
Mango	20	5.8
Khananyo	38	11.1
Laspsi	35	10.2
Strawberry	111	32.4
Guava	26	7.6
Pear	19	5.5
Badahar	9	2.6
Dumri	9	2.6
Chutro	13	3.8
Githavayakur	52	15.2
Yam	85	24.8
Plum	29	8.5
Hog plum	56	16.2
Barro	20	5.8
Chiuri	21	6.1
Bimiro	18	5.2
Niuro/ Jhaluko	77	22.4
Katus	30	8.7
Orange	10	2.9

Source: Field Survey, 2003

Table A 4.5 Seasonal-gleaning done by gender in Bhoteodar, Lamjung, Nepal

What crops	Seasons		Area		Who does			How much
	Winter	Summer	Non-irrigated	Irrigated	Male	Female	Both	Kgms
Rice	1.7	2.6	2.6	1.7	0.3	2.0	1.5	
Maize	1.5	1.5	2.6	0.3	-	1.7	0.6	
Potato	0.9	0.3	1.2	0.6	-	1.5	0.6	
Wheat	1.5	0.6	1.7	0.3	-	1.5	0.6	
Millet	0.6	-	0.9	-	-	0.3	0.6	
Peanut	1.2	-	0.9	-	-	0.6	0.6	
Sweetpotato	1.2	-	1.2	0.3	-	0.3	0.6	
Yam (Tarul)	1.2	0.3	0.9	-	-	0.3	-	
Fruits	0.9	-	0.9	-	0.9	1.2	0.3	
Vegetables	0.6	-	0.3	-	0.9	1.2	0.3	

Source: Field Survey, 2003

Table A 4.6 The vegetables growing in the household' kitchen garden

Vegetables	Number	%(N=343)	Time	
			Winter (time frequency)	Summer (time frequency)
Chillies	200	58.3	6	1.5
Tomato	237	69.1	1.5	1.5
Rayo sag	248	72.3	7.6	3.5
Radish	230	67.1	6.4	1.2
Ginger	242	70.6	2.9	.3
Garlic	164	47.8	4.1	2.6
Mint	141	41.1	0	0
Turmeric	187	54.5	0	0
Potato	253	73.8	1.7	1.7
Onion	184	53.6	1.5	2.3
Egg plant	107	31.2	1.7	.6
Capricorn	137	39.9	.9	.9
Cucumber	156	45.5	0	5.2
Pumpkin	114	33.2	.3	5.0
Settle guard	83	24.2	.3	2.6
Squass	141	41.1	0	2.6
Coriander	106	30.9	2.3	2.3
Fenegrick	49	14.3	0	2.3
Spanish pepper	57	16.6	1.2	0
Cress	121	35.3	1.2	0
Cauliflower	108	31.5	2.3	1.5
Bethe	111	32.4	1.2	0
Cabbage	127	37.0	1.2	.6
Spass guard	151	44.0	0	1.2
Sporage guard	157	45.8	.3	3.2
Bitter guard	110	32.1	3	6.4



Sugercane	142	41.4	2.0	0
Taro	110	32.1	.6	.6
Okara	131	38.2	.3	7.8
Cowpea	99	28.9	.6	1.7
Soup	101	29.4	1.1	0
Sweetpotato	45	13.1	1.2	2.9
Carrot	18	5.2	3.8	1.7
Beans	14	4.1	1.7	.9
Yam tarul	15	4.4	.3	.6
Bamboo shuits	19	5.5	0.	.3
Bakulla simi	50	14.6	1.5	1.5

*Source: Field Survey, 2003*

## Appendix 5

Table A 5. 1 (Arriaga) estimation of age specific fertility rates for study of Gurung fertility

Based on children-ever-born for one point(s) in time and the age pattern of fertility (Brass)

age groups	children	fertility	fertility	fertility	cumulation of		age specific	
	ever	consistent	pattern	pattern		Fertility		fertility rates
	born	with	by age	by age at		pattern	Adjust	based on adjustment
	(c.e.b.)	c.e.b.	at survey	birth of	a.s.f.r.	by age	Ment	factor for
		(a.s.f.r.)	date	child		at birth	Factors	the age group 25-35
								1.5953
feb 2003								
			recorded	calculated				
15-19	0.137	0.0843	0.046	0.0547	0.0843	0.0547	1.5404	0.0873
20-24	0.662	0.0876	0.099	0.0998	0.1719	0.1544	1.1129	0.1592
25-29	1.280	0.2155	0.089	0.0889	0.3874	0.2433	1.5921	0.1418
30-34	2.500	0.1389	0.089	0.0859	0.5262	0.3292	1.5985	0.1370
35-39	2.397	-0.0609	0.046	0.0434	0.4654	0.3726	1.2491	0.0692
40-44	2.885	0.0237	0.022	0.0205	0.4891	0.3930	1.2444	0.0327
45-49	3.075	0.0088	0.019	0.0170	0.4980	0.4100	1.2145	0.0271
								0.6544
mean age of childbearing: 25.25				26.72				
total fertility rate:		2.49		2.28	3.27			

Table A5.2 Indirect estimation of early-age mortality for Gurung

Enumeration of Feb 2003						Probability of dying before age X							
Age of women	Average no. of children		Proportion dead	Age X	LAT AM	United Nations Models (Palloni-Heligman equations)				Coale-Demeny models (Trussel Equations)			
	Born	Surviving				Chilean	So Asian	Far East	General	West	North	East	South
15-19	.137	.129	.058	1	.055	.061	.055	.056	.056	.057	.055	.059	.053
20-24	.662	.635	.041	2	.042	.043	.042	.042	.042	.041	.039	.042	.041
25-29	1.280	1.240	.031	3	.031	.032	.031	.031	.031	.031	.029	.031	.031
30-34	2.500	2.375	.050	5	.050	.050	.050	.049	.049	.050	.049	.050	.051
35-39	2.394	2.259	.058	10	.058	.057	.058	.057	.058	.059	.060	.059	.060
40-44	2.885	2.574	.108	15	.103	.105	.107	.103	.103	.109	.111	.109	.109
45-49	3.075	2.774	.098	20	.095	.095	.097	.093	.095	.098	.099	.098	.098

Mean age at childbearing = 25.25

Corresponding Mortality Indices											
		United Nations Models					Coale-Demeny Models				
		(Palloni-Heligman Equations)					(Trussel Equations)				
Age of Women	Reference date	LAT AM	Chilean	So Asion	Far East	General	Reference Date	West	North	East	South
Infant Mortality Rate											
15-19	Dec 2001	.055	.061	.055	.056	.056	Nov 2001	.057	.055	.059	.053
20-24	Aug 2000	.037	.041	.037	.037	.037	Jul 2000	.037	.034	.039	.038
25-29	Nov 1998	LT .028	LT 031	LT .032	.027	.027	Jul 1998	.027	.025	.029	LT .036
30-34	Sep 1996	.038	.044	.039	.039	.039	Mar 1996	.039	.035	.043	0.43
35-39	May 1994	.041	.049	.042	.041	.042	Sep1993	.042	.038	.047	.049
40-44	Aug 1991	.064	.081	.070	.065	.066	Jan 1991	.068	.059	.078	.076
45-49	Mar 1988	.057	.071	.062	.055	.058	Mar 1988	.057	.049	.067	.068
Probability of dying between ages 1 and 5											
15-19	Dec 2001	.023	.010	.020	.020	.020	Nov 2001	.021	.031	.013	.010
20-24	Aug 2000	.012	.005	.011	.010	.010	Jul 2000	.010	.013	.006	.005
25-29	Nov 1998	LT .008	LT .004	LT .008	.006	.006	Jul 1998	.006	.007	.004	LT .005
30-34	Sep 1996	.012	.006	.012	.011	.011	Mar 1996	.011	.014	.008	.008
35-39	May 1994	.014	.007	.014	.012	.013	Sep 1993	.013	.016	.009	.010
40-44	Aug 1991	.030	.017	.031	.025	.027	Jan 1991	.027	.033	.021	.027
45-49	Mar 1988	.025	.014	.026	.019	.022	Mar 1988	.021	.025	.016	.021
Life Expectancy at Birth											
15-19	Dec 2001	66.8	67.0	68.9	59.6	64.7	Nov 2001	62.9	62.7	65.1	70.5
20-24	Aug 2000	72.3	72.2	73.5	65.8	70.3	Jul 2000	67.8	69.0	69.1	74.5
25-29	Nov 1998	GT 75.0	GT 75.0	GT 75.0	69.6	73.8	Jul 1998	70.5	72.2	71.5	GT 75.0
30-34	Sep 1996	71.9	71.2	72.9	65.2	69.8	Mar 1996	67.2	68.6	68.3	72.9
35-39	May 1994	71.0	70.1	71.9	64.3	68.8	Sep 1993	66.5	67.9	67.4	71.6
40-44	Aug 1991	64.2	62.3	65.1	57.1	61.9	Jan 1991	60.6	61.9	61.7	64.5
45-49	Mar 1988	66.1	64.7	66.9	60.1	64.1	Mar 1988	62.9	64.6	63.7	66.6

Table A 5.3 Children ever born (CEB) by mothers' age at marriage by current age in rural sample Gurung village.

Age at marriage	Current age (years)					
	15-24		25-34		35-49	
Years	No. of Women	No. Children	No. of women	No. Children	No. of women	No. Children
10-14	4	6	2	9	14	45
15-19	61	49	56	135	62	236
20-24	16	13	45	87	43	124
25+	0	0	12	21	28	75
Total	81	68	115	262	147	480

The value of  $\chi^2$  test is significant with current age of women and children-ever-born ( $P < 0.001$ ).

Source: Field Survey 2003



## Summary

This research investigated the complex relationship between population and environment with a focus on women's role in fertility and the food resource environment. The research was carried out in a Gurung community in Lamjung district, in mid-hill Nepal. The household was taken as the unit of analysis. The study is embedded in demographic theory about population growth and in gender theory. The concept of women's agency was used to link marriage and fertility patterns with household food provision and management of natural resources. Women's role in population and the environment is placed in a changing socio-cultural and environmental context. An extensive review of the literature relating to population, environment, gender, household, livelihood and food security was done, after which a field study was carried out. Both qualitative and quantitative methods were applied in empirical data collection. The research problem addressed concerned the impact on the relationship between population and environment of women's reproductive and productive roles at the household level.

The methods used for generating empirical data were: participatory rural appraisal, household food and fertility survey, participant observation, key informants interviews, focus group discussions, and life histories. The household survey was conducted among 350 households, the fertility survey among 343 women aged 15-49. Among forty households food surveys were conducted. A 24-hours food intake recall was done in 31 households. In addition, two PRAs (Participatory Rural Appraisal), ten key informants' interviews (six males and four females), six case studies and six focus groups discussions, including male and female mixed groups and separate female groups, were conducted. Chi-square tests and regression analysis were applied to elicit significant relationships among the variables. The analysis of the qualitative data was done manually.

Agricultural production is the basis for the livelihoods in the area under study. Rice, maize and millet are the main crops produced. Most people are able to survive on their own agricultural production and the resources in their natural surroundings. Jobs in the services sector provide an important source of income, but mainly for men. Most households, however, do not produce enough food to feed them for the whole year. For the majority of the households the agricultural land available for food production is little and fragmented. There is food deficiency in most households prior to harvesting time. People try to safeguard their food security in various ways. They acquire food by growing food crops in the fields, cultivating vegetables in kitchen gardens, buying food, gleaning, collecting food from the forest, and food exchange, in which rice plays the role of 'currency'. In these activities women play a crucial role. The majority of the people in the area are hard-pressed to meet their food and livelihood needs. Most of the children do not have an adequate calorie intake.

Women are the main food producers in the Gurung villages. Gurung women play an important role in agricultural production and other farm activities, forestry, and livestock production and management. When they need additional income to buy food, they may engage in liquor making, running teahouses or other income-generating activities. The heavy workload of Gurung women involves food procurement, production, storage, processing and preparation. Women in the village often lack the social and economic power they need for improving their household's economic condition. Property rights of women

are still a major issue, also at the national level. Women who receive parental property (*pewa*) are relatively more comfortable compared to those who do not. It can make a difference in their daily life, especially when they have to support their children by themselves because the husband does not fulfil his household duties or has left the first wife with children to marry another wife. The case studies show that women are facing many challenges, especially because of their limited access to land. If the husband is working in the army and receives good pay his wife may feel more secure, because if he dies she is entitled to a pension. If the household income is not enough women engage in income-generating activities to supplement it. When the husband has left her to marry another wife a woman focuses her activities on the future of her children. Divorced and widowed women were found reluctant to remarry for fear of losing their children or jeopardizing their children's future.

The Mid-Marsyangdi Hydro-electric Power Project has had mixed impacts on the local people, causing increasing population pressure and environmental degradation but also enlarging economic opportunities and bringing development in the area. The changes in the area opened up new opportunities for women. In social life women are more respected and through women's organizations their voice has increased. They can also make use of economic opportunities to improve their livelihood and control their fertility by family planning. The farming environment has changed and improved. Currently, both environmentally and economically sustainable farming systems are being adopted that may not only increase household income but also enrich the diet of the people. At the same time, the development project is creating social, cultural and ecological problems. A lot of new settlements at the road side and other constructions are built on former agricultural land. The level of environmental pollution is rising, as is the incidence of prostitution and public health problems. Migrants from other areas, who were attracted by the project, add to the population pressure. Because of increased population pressure, the limited natural forest resources have declined and degraded. These days, people are more concerned about how to make money than about farming. The cash economy is growing.

Rising age at marriage, long spells of separation from the husband in the reproductive period, and increasing use of family planning methods result in fertility levels among the Gurung women in the sample that are lower than the national averages. Child marriage no longer occurs these days and age at marriage among the Gurung women is on the rise. The use of contraception is increasing. Induced abortion has always taken place but is a decreasing trend now. Education proved to be strongly significantly negatively related to fertility. Household income also proved to be significantly related to fertility, though less strongly and positively. Age at first marriage and use of family planning proved to be both significantly negatively related to number of children ever born. A remarkable feature of Gurung culture is the equal value attached to having sons and daughters, particularly given the prevailing preference for sons in Nepal.

The mothers groups (*Amasamuha*) in the villages have started to raise a collective voice against the exploitation of women. They point out that women should not be used only for men's benefit but be treated as responsible citizens and be respected by the husband's family for giving birth to children who can inherit the property. Programs and projects that are meant to empower women should be implemented effectively and efficiently. So far, many policies and plans formulated for women's empowerment by the government exist only on paper. Women's ownership of land remains a problematic issue, as is the case with women's access to legal and safe abortion.

In this study, women's agency has been identified as an important factor in controlling population growth, safeguarding household livelihood and food security, and managing natural resources. Women's agency is the significant link between fertility choices, the food resource environment, and household livelihood and food security. Gurung women's agency plays a direct role in the timing of marriage, fertility choices, raising children, household formation and management, as well as in alleviating family food shortages. Apart from carrying out their productive and reproductive roles, women also participate in community activities and in efforts to protect the ecological environment. Women's agency helps to balance population growth and food resources. However, in exercising their agency Gurung women face many practical problems and constraints. They are dependent on the availability of resources and economic conditions and often lack the necessary entitlements and empowerment. Though Gurung women can be shown to be "the pillar" of their household and family, and are active in economic production and social reproduction, their skills and contributions to family and community welfare are still poorly recognized.





## Samenvatting

In het kader van deze studie werd onderzoek gedaan naar de complexe relaties tussen demografische variabelen enerzijds and milieuvariabelen anderzijds, toegespitst op de rol van vrouwen met betrekking tot fertiliteit en voedselproductie. Het onderzoek werd uitgevoerd in een Gurung gemeenschap in Lamjung district, in Nepal. Het huishouden was de onderzoekseenheid. Het concept *agency* werd gebruikt om rol en activiteiten in het ene domein te relateren aan die in het andere domein. De vraagstelling van het onderzoek werd theoretisch ingebed in de literatuur over bevolking en milieu, huishoudelijke productie, voedselzekerheid, en gender. Bij de empirische data verzameling werden zowel kwantitatieve methoden (survey) als kwalitatieve methoden (zoals case study en focus group discussion) gebruikt. De huishoudsurvey werd gedaan bij 350 huishoudens, die in totaal 343 vrouwen in de vruchtbare leeftijd (15-49 jaar) telden. De vragen over huwelijk en fertiliteit werden alleen aan deze vrouwen gesteld (fertility survey).

Agrarische productie is de basis van het levensonderhoud in het onderzoeksgebied. Rijst, maïs en gierst zijn de belangrijkste voedselgewassen. Ofschoon de mensen kunnen overleven met hun eigen boerderij en de hulpbronnen in de natuurlijke omgeving, produceren de meeste huishoudens te weinig voedsel om het hele jaar van rond te kunnen komen. Ze hebben te weinig land en het land is gefragmenteerd. In veel huishoudens is er gebrek aan voedsel in de periode voorafgaande aan de oogst en de meeste kinderen krijgen te weinig calorieën binnen. Vrouwen proberen aan voldoende voedsel voor hun gezin te komen door de eigen agrarische productie, het kopen van voedsel, het verzamelen van voedsel in het bos, het verzamelen van oogstafval op de akkers (*gleaning*), het verbouwen van groenten in de tuin, en voedselruil waarin rijst betaalmiddel is.

Vrouwen zijn de belangrijkste voedselproducenten in de Gurung dorpen. Als de eigen voedselproductie ontoereikend is proberen ze geld te verdienen met inkomensgenererende activiteiten, zoals het maken en verkopen van wijn of het opzetten van een theehuis, om voedsel te kunnen kopen. Vrouwen zijn betrokken in alle fasen van de voedselketen, van productie en verwerking van voedselgewassen tot het bereiden van de maaltijd en het voeden van hun gezin. Hierbij hebben ze veelal niet de beschikking over de hulpbronnen die ze nodig hebben. Met name toegang tot land is problematisch. Overerving van land en andere eigendommen volgt het patrilineale verwantschapssysteem. Wanneer vrouwen wel persoonlijk eigendom (*pewa*) van hun ouders krijgen, hebben ze het wat makkelijker. De case studies laten echter zien dat vrouwen veel verantwoordelijkheid dragen voor het levensonderhoud van hun gezin en dat dit een zware last is. Wanneer de man een baan heeft in het leger (van oudsher een beroep van Gurung mannen) hebben ze het makkelijker omdat dan een vast salaris en een pensioen zijn gegarandeerd. Daarentegen verkeren vrouwen waarvan de man een tweede vrouw heeft genomen in een benarde positie omdat de man zijn onderhoudsverplichtingen aan zijn eerste vrouw en de kinderen meestal niet nakomt.

Het Mid-Marsyangdhi Hydro-electric Power Project in het gebied heeft zowel positieve als negatieve gevolgen voor de bevolking met zich meegebracht. Enerzijds heeft het project geleid tot meer mogelijkheden om inkomen te verwerven, ook voor vrouwen. Het heeft ook een positieve impuls gegeven aan vrouwenorganisaties en vrouwen kunnen nu meer dan vroeger een rol spelen in het publieke domein. Anderzijds heeft het project geleid tot sociale en ecologische problemen. Er is sprake van vervuiling en van het bouwen op

landbouwgrond. Enerzijds zijn er nu meer openbare voorzieningen op het gebied van gezondheid en educatie, anderzijds is als gevolg van toestroom van arbeidsmigranten de bevolkingsdruk toegenomen, is er meer prostitutie en zijn er gezondheidsproblemen ontstaan. Er is duidelijk sprake van degradatie van de natuurlijke omgeving. Tegelijkertijd is de geldeconomie gegroeid, als gevolg waarvan mensen zich drukker maken om geld verdienen dan om werken op het land.

De vruchtbaarheidscijfers van de Gurung vrouwen in de steekproef liggen lager dan de nationale gemiddelden. Factoren die hierbij een rol spelen zijn: stijging van de huwelijksleeftijd, relatief lange periodes van fysieke scheiding tussen man en vrouw (bijvoorbeeld omdat de man in het leger werkt), toenemend gebruik van contraceptie, en het niet hertrouwen van vrouwen als ze verlaten of weduwe geworden zijn. Kinderhuwelijken komen vandaag de dag niet meer voor. Abortus provocatus heeft altijd plaatsgevonden, met behulp van traditionele methoden, maar lijkt in frequentie af te nemen. Tussen opleidingsniveau van vrouwen en aantal kinderen bleek een sterk significant negatief verband, wat overeenkomt met het beeld in de literatuur. Met leeftijd van het eerste huwelijk is er ook sprake van een negatief verband, zij het licht significant. Hetzelfde geldt voor de relatie met het gebruik van contraceptie. Tussen huishoudinkomen en aantal kinderen bleek een licht significant positief verband te bestaan. Een opmerkelijk en voor het niveau van de fertiliteit relevant aspect van de Gurung cultuur is het belang dat gehecht wordt aan het hebben van zonen *en* dochters, dit vooral gezien tegen de achtergrond van de situatie in Nepal waar nog steeds een sterke voorkeur voor zonen bestaat.

Vanuit de moedersgroepen (*Amasamuha*) in de Gurung dorpen klinkt steeds meer de roep om een eind te maken aan de uitbuiting van vrouwen. De groepen wijzen erop dat de vrouw gerespecteerd moet worden door haar schoonfamilie omdat zij de voor kinderen zorgt waar het patrilineale erfgoed naar toe gaat en waarmee de familielijn in stand wordt gehouden. Ze wijzen er ook op dat veel beleid en programma's bedoeld om de positie van vrouwen te versterken alleen op papier bestaan en niet worden geïmplementeerd. Zo is het voor vrouwen nog steeds vrijwel onmogelijk om land te erven en hebben ze geen toegang tot veilige abortus.

In deze studie werd de *agency* van vrouwen geïdentificeerd als een belangrijke factor in het beperken van bevolkingsgroei, het voorzien in de bestaanszekerheid en voedselzekerheid van huishoudens, en in het beheren van natuurlijke hulpbronnen. De *agency* van vrouwen vormt de cruciale verbinding tussen de domeinen van reproductie, voedselvoorziening en de natuurlijke omgeving en is daarom van groot belang voor het evenwicht tussen bevolking en milieu. In het uitoefenen van hun *agency* stuiten Gurung vrouwen echter op veel hindernissen. Ze zijn afhankelijk van de beschikbaarheid van hulpbronnen en de economische situatie en missen de nodige rechten en macht. Ondanks het feit dat ze aantoonbaar de steunpilaar voor hun gezin en huishouden zijn, worden hun bijdrage aan en actieve rol in economische productie, sociale reproductie en gemeenschapsactiviteiten onvoldoende onderkend en gewaardeerd.

## **Author's CV**

The third of six children, Narayani Tiwari was born to Gyanu Kumari and Moha Nidhi Tiwari on August 8, 1956, at Dandathoke, Chiti, Lamjung, Nepal. She received her high school education at Janakalyan High School at Chiti Tilahar, Lamjung, in 1975. Upon obtaining her School Leaving Certificate, she began to work in the same school as a primary school teacher, where she had to motivate to parents to send their daughters to school. This experience inspired her interest in issues of women's empowerment. She married Tara Nath Pandey in 1983 and gave birth to her son Shreejan in 1984.

Between 1984 and 1989, Narayani started higher studies and obtained a Bachelor Degree in both education and social sciences. At the same time, she was working at the Ministry of Education and Culture in Kathmandu. Combining working and studying became her way of life. She continued higher education and in 1995 received a Master Degree in population studies from the Central Department of Population Studies (CDPS), Tribhuvan University, Kathmandu. She set up schools and NGOs in Kathmandu and remained active in women's groups and NGOs, such as the Population, Women and Environment Development Organisation (PWEDO), and published on women's issues in Nepal.

In 1996, Narayani was granted an ADB scholarship to study at the Australian National University, Canberra, where she broadened her knowledge in the areas of demography and environmental management. In 1998, she migrated with her family to New Zealand. There, in 2001, she completed her Master of Philosophy (MPhil) in development studies at Massey University, Palmerston North, New Zealand. The subject of her thesis was gender and household waste management. She was a board member of the Tarnaki Wanganui Conservation Board (TWCB) in New Zealand, but resigned in 2002 when she received a Sandwich PhD fellowship from Wageningen University and had to move to Wageningen, the Netherlands, to start her doctoral studies. Her diversified experience and interest inspired her to embark on the PhD track. After graduation she intends to apply her knowledge to promote women's agency and social welfare in the area of women, population, environment and development.

## Final TSP

Name of the course	Department/Institute	Year	Credits
<b>I. General part</b>			
Statistical Package for Social Science (SPSS)	Wageningen University	2002	2
Techniques for writing and presenting a scientific paper	Mansholt Graduate School	2001	1
Social Science Research Methods	Mansholt Graduate School	2001	1
Participation in local development course	Agromisa, the Netherlands	2002	
Critical reflection on Science-technology, values and sustainability	Wageningen University	2001	1
<b>II. Mansholt-specific part</b>			
Mansholt Introduction Course	Mansholt Graduate School	2002	1
Mansholt Multidisciplinary Seminar/PhD day	Mansholt Graduate School	2004	1
Presentations	1. Australian Population Conference (APA, 2002), New South Wales University, Sydney Australia. 2. Conduct workshop in “Women’s Agency in relation to Population and Environment in Rural Nepal”, Hotel Orcyde, Kathmandu, Nepal 3. International conference “The agenda of transformations inclusion in Nepali democracy”, 24-26 April , SSB, Nepal 4 The 30 <sup>th</sup> Congress of the International Geographical Union on Glasgow, UK. 5. Second International NHF Workshop, Hanoi Vietnam. 6. International Conference on “Social Sciences in a Multicultural World” SASON, 11-13 Dec. Kathmandu. 7. EA-SDI International Conference, May 23-25, Prague, Czech Republic.	2002 2003 2003 2004 2005 2006 2007	2
<b>III. Discipline-specific part</b>			
Ecological Modernisation Theory and Environmental Policy	Wageningen University	2001	4
Sociology of Households and Livelihoods (SCH tutorial), SCH	Wageningen University	2001	3
Sociological Approaches to Food Security (SCH tutorial), SCH	Wageningen University	2001	3
Gender Studies in Agriculture	Wageningen University	2001	1
Socio-cultural Field Research Methods	MGS and CERES	2004	2
Complex Dynamics in and between Social and Eco Systems	CERES/Studium Generale	2004	2
<b>TOTAL</b>			<b>25</b>