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POVERTY OR PLENTY: INNOVATIVE RESPONSES TO POPULATION PRESSURE IN AN EASTERN NEPALESE HILL COMMUNITY

University of Hawaii PH.D. 1983

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POVERTY OR PLENTY: INNOVATIVE RESPONSES TO POPULATION PRESSURE IN AN EASTERN NEPALESE HILL COMMUNITY

A DISSERTATION SUBMITTED TO THE GRADUATE DIVISION OF THE
UNIVERSITY OF HAWAII IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

IN ANTHROPOLOGY

MAY 1983

By

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PREFACE AND ACKNOWLEDGEMENTS

With few exceptions, socioeconomic and demographic research in Nepal has tended to focus on the negative correlates of population growth; these are most commonly illustrated with reference to the deteriorating resource situation in the country. Yet, the generalizations that come from this work are based on a scant body of data on a topic in which intensive fieldwork in the anthropological mode has been limited. The undue reliance on cursory surveys and macro-level observations suggest that some caution be exercised in accepting all conclusions.

This study is the outcome of twelve months of field research from October 1980 until September 1981 in a village panchayat of Eastern Nepal. It is designed to be a micro-level perspective on the population and resource problem in Nepal and, by extension, a contribution to the literature for all Third World countries.

My journey from more purely academic anthropology to the problem-oriented research of this dissertation really began when I began the graduate program in Anthropology at the University of Hawaii on a grant from the East-West Population Institute. Though I arrived without a strong background in demography and a somewhat cursory understanding of population issues, my Population Institute advisor, Dr. Robert W. Gardner patiently guided me through the literature and provided me with the stimulation and technical background to approach these issues. I owe a deep gratitude to Dr. Gardner for leading me to design a dissertation proposal that focused on the interaction of population and social variables.

My theoretical shape in Anthropology was bolstered through the exceptional attention and efforts of Dr. Alice Dewey, my department advisor at the University of Hawaii. Dr. Dewey not only aided me through academic difficulties in her role as teacher, but went even further with her kindness and careful attention to detail to lead me through the writing. I must always be grateful to her for this support.

Others in the Anthropology Department were likewise helpful in my education as an anthropologist. I would like to single out Drs. Alan Howard, R. W. Lieban and P. Bion Griffin, all of whom who helped and encouraged me at particular moments of my graduate career. In addition, I wish to thank Dr. Les Sponsel who, although he joined my committee in the last stages of my writing, was unstinting in providing theoretical insights from his expertise in cultural ecology as he went over the manuscript.

I wish to thank those who were crucial to my successful field period in Nepal as well. Agni Ghimire, in particular, acted as my field assistant and friend and was with me during the entire field experience to help gather data and provide his own insights on village life. Of the many people who helped me in the village, I must especially thank Mr. Mohan Prasad Baral and his family. Mr. Baral and his family very kindly allowed me to share meals with them during the last stages of fieldwork. In addition, Mr. Baral became that exceptional person whose resoucefulness, knowledge of village life, and great humor made for a truly positive field experience. I wish also to thank here all those members of Barbote Panchayat and the various

government officials of Ilam district who aided me in my research from time to time.

To my employer, the Research Center for Nepal and Asian Studies, at Tribhuvan University, I wish to express my thanks for allowing me leave to go abroad for an advanced degree. And to my honorary supervisor in Nepal, Dr. Bedh Prakash Upreti, a fellow anthropologist, I must also express my solidarity and gratitude.

My research in Nepal was generously supported by a grant from the East-West Population Institute. Those people from the Population Institute who gave their crucial administrative and moral support include Dr. Robert D. Retherford, Assistant Director for Graduate Study, and Ms. Carolyn Ishikawa, Program Officer for Graduate Study. Additional and timely funding for the final stage of writing was generously provided by a fellowship from the Center for Asian and Pacific Studies, University of Hawaii. I wish to thank Dr. Stephen Uhalley and Ms. Peggy Blumenthal for their support.

My thanks are due to my friend, Tom Fricke, a fellow traveller in Anthropology and population studies, who not only helped me to correct basic English throughout the first draft but who also provided moral support in all stages of my writing. I wish also to thank Ms. Jennifer Cramer for her excellent typing of the final manuscript. My countrymen, Mr. Chandra Gurung and Mr. Shankar Sharma provided the maps and graphs for the text; to them, I express my gratitude.

Lastly, I cannot close without thanking my wife, Sajan, and my daughter, Ruma who not only joined me and provided freshness in the field, but also unfailingly supported in all stages of my writing in Honolulu.

The dissertation has nine chapters. Chapters I and II define the theoretical framework and methodological stance of the study, while Chapter III provides the relevant ethnological background to the discussion that follows. Chapters IV and V describe the resource situation in the village and those resources that lie beyond its boundaries. Chapter VI follows with a discussion of population growth in the area over the past 20 years and illustrates some of the socio-cultural and economic correlates of high fertility. Chapters VII and VIII discuss demographic and other responses to population pressure in the village. The concluding chapter is an "inventory" that details the applicability of various theoretical models and policy recommendations based on the findings from the Pipalbote Cluster.

ABSTRACT

The present study is designed, in part, to fill the void of local-level research on population and research problems in Nepal. Relationships which will be examined include those between: (1) population size and growth; (2) resource availability; and (3) adaptive strategies at the individual, family and community levels. This study proceeds from the assumption that the affects of population growth need not always have negative consequences for all people or communities; indeed, it may even be possible to consider the expansion of a people's resource base as a result of growing population in a positive light.

The population chosen for this analysis, called "Pipalbote Cluster" in the text, was picked from a group of village settlements in Barbote Panchayat, Ilam District, Eastern Nepal.

In the course of research, it was found that population had increased over time and that the historical resource base no longer provided an adequate subsistence. Yet, it was clear that people had developed coping strategies that adapted to their changing situation.

Among these changes were: (1) intensification of agriculture; (2) adoption of cash crops; (3) increased use of marginal lands; (4) the development of other sources of income (trade, army service, white collar jobs, and wage labor); (5) out-migration; and (6) various kinds of fertility control.

Multiple working hypotheses were developed from the models of Malthus, neo-Malthusian writers, Boserup and Brookfield to analyze the complex relationship between resources and population. Malthus' views on a static resource base proved inadequate to explaining a

people's changing adaptation and the neo-Malthusian emphasis on controlling population to allow the take-off of economic development also proved unsound in the context of Pipalbote Cluster. Boserup's model of agricultural intensification, on the other hand, provided the starting place from which to construct an adequate explanation for these local processes. In the course of refining the Boserup model for this study, it was found necessary to consider complex factors of environment, technology, and social organization as they interact to both restrict and facilitate agricultural intensification in Pipalbote Cluster. In addition, Brookfield's concept of market involvement was found to be essential ingredient in refining the Boserup model.

The significance of this dissertation is both applied and theoretical. At one level, this study makes a contribution to the still scarce body of demographic work in anthropology in general, and Nepal in particular. The call for current and reliable data has been a major theme for the past decade. Secondly, the mechanisms by which populations adjust to changing resource situations are still only tentatively known and the need for solid demographic data and local-level studies for the sake of development programs in the Third World is obvious. This study from Nepal is intended as such a contribution.

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CONVENTIONS AND TRANSLITERATION

Nepali words are written in the text as they are pronounced in the field and their English equivalents are given. Rupee refers to Nepalese currency and wherever necessary it is converted into equivalent American dollars. A glossary is made for the elaborate meaning of such Nepali words.

The term "caste" is used in terms of Hindu Nepalese social structure and defined accordingly. Ecological words used in the text should be taken as a heuristic device rather than as literally meant biological.

CHAPTER I

INTRODUCTION

1.1. THEORETICAL ISSUES

1.1.1. Resource and Population: Some General Models

The relationship between resource availability and population size has long been debated by biological and social scientists (Wynne-Edwards 1962; DeVore 1965: Malthus 1798; Marx 1971; Boserup 1965; Ehrlich 1968; Eckholm 1976; Macfarlane 1976; Cohen 1977).

Biologists, until recently assumed that animal populations increased to the limit of food supply and even beyond so that they suffer a population collapse. Recently, studies have shown that animals have biological mechanisms which limit population numbers keeping them within the capability of the environment to sustain itself and them (Wynne-Edwards 1962; DeVore 1965). Theories of human population growth and its relation to resources (food), have similarly undergone change in recent years. Malthus (1798) the first scholar to recognize and make a major contribution to our understanding of human population growth and its economic consequences used a similar model to that of early biologists whom he inspired (e.g. Darwin). Human beings do not fit completely either biological model because they could respond rapidly to environmental change through cultural adaptation in such a way to increase food production. This study, primarily deals with the social science approach in discussing the relationship between resources and population size.

Malthus believed that population has a tendency to grow geometrically while food production increases arithmetically and that the ultimate consequences of population growth are poverty, misery, and death. Neo-Malthusian scholars (Ehrlich 1968; Davis 1967; Brown 1975)

believe that only the control of population growth allows economic development.

The Malthusian theory does not take into account technological development in agriculture. In fact, this model assumes a static social organization and relatively inflexible resources; thus population dynamics are the only cause of both equilibrium and disequilibrium in a society. Adaptation, either individual or collective, has little scope in this static formulation (see Klienmann 1980; Kantner 1982). The neo-Malthusian scholars rejected moral constraint as the only acceptable means of birth control, but they had difficulties in accepting the fact that in spite of poverty, high fertility is economically rational in many societies of the world (see Mamdani 1972; Caldwell 1976).

A second theoretical position on population/resource models was presented indirectly by Marx (see McLennan 1971). Marx's approach to population problems arose in reaction to Malthus. He believed that poverty is the product of a poorly organized society rather than increase in population. He was deeply interested in discovering the relationship between organization and production. The means of production are the available resources including human labor. The mode of production is the extractive technology. The organization is the function of a social system which contributes access to the means of production (see Godelier 1975). In other words, to Marx, it was the capitalistic mode of production which was creating the problem of population growth.

Marx's model is useful to analyze the mode of production and the distribution of resources in relation to a society's structure, however, his model ignores the basic concept of "scarcity." Scarcity of natural

resources can occur not only due to the mode of production and organization but also the unprecedented population growth and the limited resources available to the people.

The third group of theorists on population/resource models to be considered here consists of Boserup (1965), Clark (1967), Wilkinson (1973), Spooner (1972) and Cohen (1977), who state their arguments from anti-Malthusian and neo-Malthusian perspectives. Boserup and her followers regard population growth as an independent variable which in its turn is a major factor determining agricultural developments. They believe that population growth is the major force stimulating changes in the productive methods of a community. This force transforms the community into a much more advanced and productive society. In fact, Boserup's suggestion is that agricultural techniques respond adaptively to population pressure. To her, the driving force behind agricultural evolution is population pressure. The same approach is taken by anthropologists like Harner (1970), Smith and Young (1972) and others.

Boserup's theoretical model is useful to examine agricultural change, but the value of its causal orientation regarding why such intensification occurs seems limited. Moreover, Boserup considers technology as a freely moving variable, but in certain ecological settings better technology may not be useful for intensifying agriculture (see Geertz 1963; also see my concluding chapter). In fact, Boserup's emphasis is on population growth and she tends not to pursue a detailed consideration of environment, social organization and technology. Moreover, Dumond (1965) shows agricultural change can occur independent of population pressure.

A fourth position on population/resource models and agricultural involution is presented by Geertz (1963). He suggests that intensifying swidden cultivation in fragile ecological settings may bring environmental degradation and poverty rather than prosperity.

Geertz establishes a "polar" agricultural framework which oversimplifies the picture. In fact, Brookfield (1972) points out that there is a complex gradation of ecosystems which differ greatly in their capacity of response to additional inputs above that level. In addition, Geertz's concept of involution as applied to irrigated agriculture seems to say that peasant farmers are investing increasing amounts of labor in irrigated agriculture not to raise output but to give workers a share of the harvest. This assertion fails to make a distinction between increase in man-hours of labor (intensification) which yields greater output (albeit with decreasing marginal productivity) and the sharing out of a given number of man-hours among a greater number of workers. Further, recent studies (see Hansen ed. 1981; Husken 1982) have shown that the concept of agricultural involution is no longer a viable model for interpreting post-1965 rural developments in Java.

A fifth position is put forward by Brookfield (1972). He thinks that intensification of agriculture may take place due to such factors as markets, social production, and other forces in addition to population pressure. He separates "subsistence production" from "social production," which comprises goods produced for other uses than staying alive such as prestation, ceremony, and ritual, and hence having a primarily social value. Brookfield's arguments should be given a due

consideration as they refine the population based theory of agricultural intensification.

A sixth position on population/resource models is presented by Abernethy (1979). She considers that population pressure results in the elaboration of cultural mechanisms which restrain population growth, so that there is oscillation around a point at which resources and demand for resources are balanced (p.13).

I do not rule out evidence that cultural factors have played significant roles in the homeostatic pattern of population growth, but it is also a known fact that human populations have grown throughout their history and this is so even today. I argue that along with the cultural means of controlling population growth, human populations have often been successful in developing new adaptive strategies to maximize the available resource base including the adoption of new tools and technology.

I maintain that population pressure on resources is a dynamic, not a static phenomenon. The interaction between population and resources is not a one-way cause and effect process but rather a systemic process. A number of system components such as population, social structure, technology, environment, and production mutually interact to produce population and resource covariation.

Figure 1 illustrates each theoretical position.

1.1.2 Expanding the Framework: Change and Adaptation

Change. My research includes time depth to take into account cultural change. Barth (1967) raises the problem that most

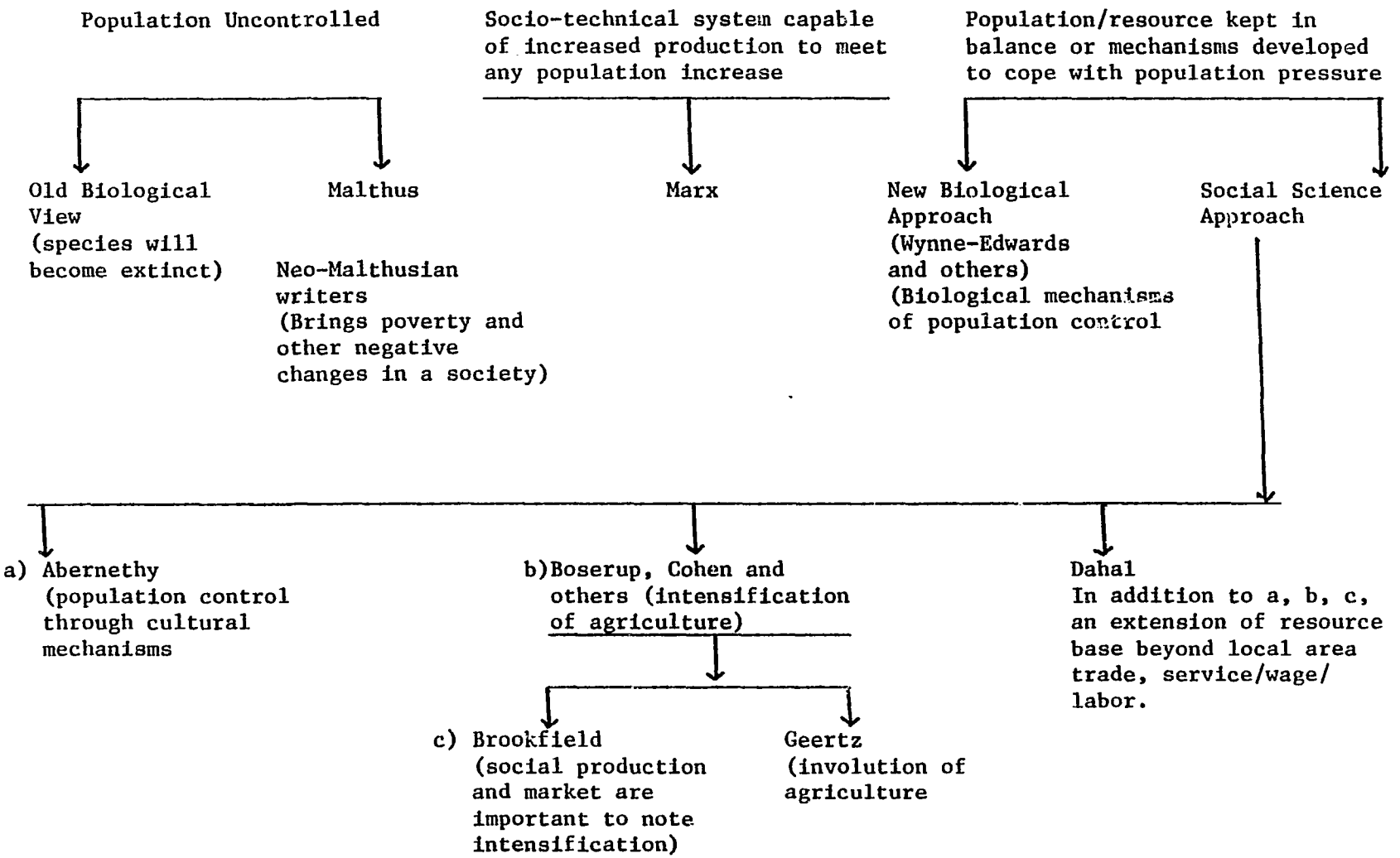


Figure I-1
Theoretical Models

ethnographies are synchronic and cannot deal fully with change. Fortunately, for my research, data on land tenure, cropping patterns, population, and ethnic distribution were available for an appreciable length of time. This has allowed me to deal diachronically with the patterns of socioeconomic change in the area.

A further problem is the assumptions which are made about change. For example, Finney (1973) shows how subsistence-oriented Tahitian peasants changed to an increasingly cash-crop and wage-based economy and how they adopted western tools and technology and changed both their economic and value systems. However, Salisbury's (1962) work on the Siane people shows that economic development does not necessarily change a people's value systems and world views. People may not want change only for economic gain.

The works of Ortiz (1967, 1973) also raise the question of not only economic gain but also the food security of the people. While analyzing the Paez farmers of Columbia, she shows that their decisions concerning what to crop, and how much coffee to grow, do not depend on the cash value alone, but also on how much land they can spare to grow coffee and still maintain their subsistence crops for an assured food supply. For the Paez, food security is a major goal.

My research indicates that people are motivated by more than one goal. Food security is of major importance, but people also aspire to a better standard of living and some at least welcome the changes which bring a release from traditional economic obligations.

The sources of change may be many, including both pressure and new opportunities: the opening of markets and factories, the

development of roads which speed transportation and lessen the geographic isolation of the village connecting it with wider national and even international economic systems, new technology, and government programs. On the other hand, all the above sources of change may be linked with variables such as population growth and resource limitation.

Adaptation. Adaptation in general, concerns the relation between biological survival and as social and behavioral process (see Bennett 1976: 849), this research deals exclusively with the latter sense of the word. I am following Bennett (1969: 11) who separates the short-range choices of individuals as adjustment to their environment (adaptive strategies) from the long-range processes that result from these choices. In other words, I am examining the current adaptive strategies of the people and diversification within these strategies; and identifying the long-range variables and conditions that create and reinforce these diverse adaptive strategies.

Julian Steward's approach of "cultural ecology" (1955:30-42) is useful to analyze adaptive behavior. In cultural ecology, Steward brought culture and environment together to make a single unit of analysis. Steward developed his idea of cultural ecology in connection with his theory of multilinear evolution (1955). He maintained that certain cultural features interact more closely with the environment than others. He referred to these features as the "culture core" or the "constellation of features which are most closely related to subsistence activities and economic arrangements" (1955:37). However, Steward's approach analyzing culture and environment together seems inadequate, as it gives a secondary importance to the remaining cultural features

(i.e., other than "cultural core"). I maintain that it is sometimes difficult to establish this boundary between the cultural core and other secondary features of culture, and unless one takes most of the cultural features into account, analysis becomes partial. My study does not assume a priori that some particular components of a culture are more important than others; rather it identifies empirically those features of culture which are important for subsistence activities. In my research, human cultures are treated as systems of adaptation, and it is hypothesized that when subsistence patterns change there are also changes in diverse aspects of culture.

Finally, this research also takes into account "The Population and Demographic Approach" of ecological anthropology (see Anderson 1973:194-196). This approach shows the relationships between specific demographic variables (fertility, mortality, and migration) and certain aspects of social structure and behavior (see Lorimer 1954; Davis and Blake 1956; Douglas 1966; Macfarlane 1976). As I am especially concerned with population growth (birth, death, inmigration, and outmigration) and its interrelationship with the local culture, this research shares many ideas with this approach.

1.2 DEFINITION OF CONCEPTS

1.2.1. Population Pressure

In 1966, an international multidisciplinary seminar on population pressure was held under the chairmanship of Zelinsky (see Zelinsky et al., 1970), but no consensus on the definition of population pressure was attained. Some participants viewed population pressure as synonymous

with population density. Some felt that pressure exists only when an imbalance occurs between the numbers of people and the resources available to them.

To make this concept more meaningful, let us examine some definitions of population pressure given by anthropologists, geographers, and sociologists. Harner, an anthropologist, defines population pressure as

> ...the demand on subsistence resulting from both density of population and its level of technology in relation to a specific environment (1970:68).

To Clarke, a geographer defines population pressure as

> ...population pressure is caused by the imbalance between human numbers and needs and the physical and human resources in the area in question (1970:305).

The sociologist Browning defines population pressure as

> ...a maladjustment between the resource of the community or society and the needs of the people living within it (1970:72).

Theoretically, population pressure occurs when population increases above "carrying capacity" within a given food or other resource production system. However, "carrying capacity" (see below), "resources" and "population size" (optimum or ideal) may carry a variety of meanings, all affecting the eventual interpretation.

But the research question remains, what is the population size which causes pressure in a particular habitat or resource zone? An existing equilibrium can be upset if the carrying capacity is diminished or is elevated fast enough, if the population size increases, or if the desired standard of living is rising (Zelinsky 1970; Harner 1970; Brush 1975).

For the purpose of this research, I find useful the definition of population pressure provided by Harner (1970). The population of my field area has grown over the years in relation to the land available to feed it. Agricultural tools have remained substantially unchanged for over a century. In addition, the desired standard of living has risen over the years, which causes pressure on the available resources. How the pressure has built up in the Pipalbote Cluster (field area) is discussed in Chapter III.

1.2.2. Resources

"Resources" according to Zelinsky, are the "means available to maintain population" (1970:5). This definition is appropriate to my research work. I have included land, animals, and houses as the major capital assets or resources existing within the village system. Military and other government service (either in Nepal or abroad) and the resulting pensions and wages are income sources which are not dependent on local resources but rather those available in the larger society. Finally, the overall development of the Nepalese economy, bringing with it new roads, increased urban populations and a more cash-oriented economy, has produced expanded opportunities in trading and service occupations which constitute another type of resource for the villagers. No assessment of the success of the people's adaptation to population increase is complete without a consideration of all these economic resources.

1.2.3. Carrying Capacity

"Carrying Capacity," a term which denotes the maximum population an environment can support without undergoing deterioration (or

"the man-land balance system"), is a highly abstract concept and is hard to assess empirically (Odum 1975). Actually, the term carrying capacity was borrowed from biology by some of the ecological anthropologists (Vadya, Rappaport, and others) and they introduced to anthropology a "new ecology" paradigm (see Brush 1975).

Anthropologists have made several attempts to compute carrying capacity using a population/resource ratio (Allan 1949; Brookfield and Brown 1959; Carneiro 1960; Conklin 1959; Gourou 1966; and Rappaport 1968). All of them have tried to measure the carrying capacity of subsistence cultures. In measuring the carrying capacity they have utilized a limited number of easily defined variables: 1) land available; 2) land requirements per capita; 3) number of fallow years; 4) number of production years per plot; and 5) population.

But to measure the agricultural potential of an area has proved immensely difficult. One has to include all of the following variables to note the agricultural production: land quality in all aspects; available technology and capital; and many cultural characteristics such as attitudes toward food, work ethics and social, economic, and political organizations. In technology alone, for example, one must note site selection, cutting, burning, cropping, and fallowing, and in each of these phases, one must note the types of tools used. In cropping, for instance, one must account for different skills and methods used in site selection, seed preparation, ground preparation, planting, weeding, protection from pests, harvesting, storage, and food preparation (see Brush 1975:807). Moreover, the fallow periods depend upon the plot (for

example, the distance of the plot and the amount of manpower available at home for cultivation).

Many researchers (Poffenberger 1980; Caplan 1970), however, without serious empirical work have concluded that the man/land ratio in Nepal is already too high or that the carrying capacity of the land has diminished. But in Nepal, there are different categories of land as well as different beliefs and faiths in agricultural practices. Further, the value attached to a particular food varies from community to community. More important is the fact that in Nepal we are not dealing with an isolated, non-monetized, subsistence economy. As noted above, the people are exploiting a variety of resources which lie outside of the village area. Any assessment of "carrying capacity" must deal with these sections of the resource base. My research will illustrate how difficult it is to measure the carrying capacity of land and to assess the population/resource problems in Nepal.

1.3 THE RESEARCH PROBLEM

1.3.1. Resource and Population: Nepal's Case

In the last 10-15 years, there has been an increasing amount of socioeconomic and demographic research on Nepal by scholars of various interests and disciplines (Worth and Shah 1969; World Fertility Survey 1976; Macfarlane 1976; HMG/MCH 1980; Blaikie et al., 1980; ESCAP 1980; Banister and Thapa 1981). The main focus of these works tends to be on problems of population and resources, and most authors have evaluated Nepal's population growth negatively in relation to the available resources.

In 1974, an ARTEP report opened with a bleak statement, "Nepal is a poor country and daily becoming poorer" (p. 1). In other words, the report observed that Nepal's resource base is at the minimum to support her growing population.

Caplan (1970:6), referring to the Eastern Hill Region of Nepal, stated that "pressure on land was recognized as the principle cause of emigration as early as the 1890s." Some authors like Poffenberger have given a bleak evaluation of the population/resource problem in Nepal. Poffenberger writes, "...throughout the hill regions of Nepal, population exceeds the carrying capacities of the ecosystem" (1980:18).

Recently, Bajracharya concluded in his Ph.D. dissertation that "Forest clearance to supplement food production is a major reason for deforestation" and "Existing forests can provide a substantial fuelwood supply but arable lands cannot satisfactorily meet food nees" (1981:XI). Some authors (Elder et al., 1974; Gurung 1975) point out that due to rapid population growth, there has been an increasing search for new land to bring under cultivation, as a result of which a large amount of forest has been cleared for human settlement in Nepal.

The planners of Nepal think that there is an imbalance between population growth and food production and they predict that by 1985 Nepal will have a deficit of 188,000 tons of food grain (The National Planning Commission 1980).

Historians like Kirkpatrick noted the food problem in Nepal as early as 1793. He wrote that "we shall see no great room for imagining its population to be considerable" (1811:182-183).

There is also a growing awareness of ecological deterioration in Nepal. Eckholm (1976), for example, shows that some south Asian countries, particularly Nepal, are losing productive land through an accelerating process of environmental destruction. In his chapter on "Refugees from Shangri-La," which concerns Nepal, he points out that "...in probably no other mountain country are the forces of ecological degradation building so rapidly and visibly..." (p.76).

From the above statements it is clear that many authors evaluate Nepal's population growth negatively, and believe that Nepal is undergoing a serious socioeconomic and ecological crisis. Such studies, with few exceptions, are based on macro-level data, although for Nepal it is a serious question just how far such data are usable. One could ask whether these data do not mislead as much as they inform. For example, Kanskar, a population expert on Nepal, is highly critical about the collection procedure of Nepal's census data and thus its reliability and applicability. He writes,

> Due to the physiographic and climatic vicissitudes of the country coupled with administrative difficulties and inefficiencies, the population data of Nepal lacks accuracy, consistency and comparability (1977:1).

He further writes,

> The population censuses of Nepal are characterized by lack of synchronization, lack of proper documentation, lack of timely preparation, frequent changes in the census schedules, frequent changes in the administrative boundaries, absence of reliabilities... (1977:7).

Campbell et al., doubt the validity of the survey research data, such as that from the World Fertility Survey, which are so much in vogue in Nepal today. They write,

> Survey research, as it has been conducted in Nepal often yields data of highly questionable validity and thus of limited utility to development planners (1979:3).

These researchers indicate the inaccuracy of Nepal data for general interpretation; Nepal still lacks quantitative historical as well as adequate contemporary data on births, deaths, and marriages from which demographic patterns can be accurately deduced. Though the census in Nepal began in 1911, the collection of vital registration data started only from 1976.

Anthropological studies have accepted the image of "poverty" of Nepalese people without examining the available resources critically. General anthropological research in Nepal began in 1952, but only after 1970 did a trend develop among anthropologists to study population phenomena within Nepal, using direct and indirect measures to discern the causal factors of population growth (Campbell 1974; Goldstein 1975, 1982; Nag et al.,1978) and also the effects of population pressure on resources (Macfarlane 1976). Several migration studies have been carried out in Nepal to show the effects of population pressure on resources on the hills (CEDA 1973: Gurung et al., 1973; Elder et al., 1974; Dahal et al., 1977). However, except Macfarlane's (1976) study of a Gurung village, not a single study has gone into any detail on the interrelationship between population growth and resource deterioration in Nepal. Even Macfarlane became something of a victim of the western model of "poverty" and neglected to document the Gurung adaptation in positive terms, preferring to concentrate on the negative aspects of growth despite his demonstration that the Gurungs of Thak are the most prosperous in the region in terms of per capita income. Though

Messerschmidt (1976) shows how ecological pressures were largely responsible for bringing about adaptative responses (from pastoral nomadism augmented by hunting, swidden agriculture and trade to sedentary rice agriculture augmented by transhumance and migrant labor (soldiery) to the Gurungs of western Nepal, his focus is more on ecological consequences rather than population dynamics. Poffenberger (1980) tried to discuss the adaptive strategy of hill people, but his statements are quite broad and not very useful.

An interesting question to be raised here is that, if the food situation in Nepal was so serious in the past, how are people surviving today? What have been the adaptive strategies of Nepalese hill people over time and what sorts of social, demographic, and economic responses have people made to cope with population pressure? Some researchers (Weiner 1971; Caplan 1970) considered emigration to be the major response to population pressure in the hills of Nepal operating for a long period of time, and some researchers (Gurung et al., 1973; Elder et al., 1974) considered that the recent hill-to-Terai migration (started primarily after 1960) was motivated by a population growth and lack of resources in the hills.

Were emigration and migration the only responses to the population pressure in the hills? In fact, there can be several possible responses of individuals, families, and communities to a rising level of "population pressure." Davis (1963) discusses the multiphasic responses of highly industrialized areas like Japan and Europe, where significant demographic changes have taken place. Davis observed abortion, delayed marriage, non-marriage and out-migration were the major responses for

the growing population in these areas (p. 362). However, it is to be noted here that Davis talked about responses to opportunity, not pressure. Some of the studies done in the third world countries present interesting findings.

Lee's (1972) study shows how population growth resulted in a shift of the settlement pattern from nomadism to sedentary life among the Kung bushmen. Bailey's (1957) village study in Orissa, India shows that people changed their traditional occupations when the increase of population was greater than the increase in resources. Studies done in the Philippines (Stewart 1977; Griffiths 1978) show that people introduced more cash crops and used improved variety of seeds in local agriculture when growing populations could no longer be supported at previous standards of living by traditional means with the available resources. Rambo (1972) demonstrated how the peasants of northern and southern Vietnam differ in their social systems and adaptation patterns when the increase of population was greater than the available resources.

The movement of people from one area to another seeking new resources in response to population pressure is common in many South and Southeast Asian countries (see Goldstein 1978). If there are no such options the population growth may be reduced through the cultural practices of infanticide, reduced coital frequency, abortion (see Nag 1962; Douglas 1966; Birdsell 1968) and through modern "family planning."

An interesting test of the relation between population, technology, and agricultural development comes from Salisbury's (1962) work in New Guinea. Salisbury shows that introduction of new technology

to raise food production may not be taken for granted by the people if there is no pressure on available resources. In the Siane area, when steel axes were introduced they increased the efficiency of male labor in agricultural production substantially. The response of the men was not to increase agricultural production nor was there apparent population increase. The men chose to put fewer hours into their gardens (which nevertheless continued to produce sufficient food for subsistence) and instead to invest the time freed in warfare, feasting, and other "luxury" activities. Population and agricultural production remain balanced at the previous level. The only change was a shift in labor allocation.

The above studies clearly demonstrate that there is not a single response to population pressure. In addition, they also suggest that population growth can be a major force bringing changes to communities in their productive methods and other successful adaptations to the changing situation.

It was mentioned above that various experts have asserted that Nepal is a poor country which is being forced further into poverty and environmental degradation by population increase. This dissertation, based on micro-level data, shows that in at least one area of the hill region, the people are responding successfully to population pressure. They have been able to expand their resource base, primarily by adding new economic strategies in such a way as to maintain and in some cases perhaps even improve their standard of living. Further it is suggested that this successful adaptation may well be found elsewhere in Nepal. I suggest then, that economic development has kept abreast of population

pressure for the moment. Problems may exist in some areas and the future may hold challenges, but at the moment the picture is not as bleak as many experts have painted it.

1.3.2. Research Objectives

Hypotheses

1. Population growth can be a force for positive socioeconomic and cultural change when people can develop ways to expand their resource base.

2. Certain cultural patterns and historical factors predispose a group to chose particular adaptive responses to population pressure.

To test these hypotheses, this research examined three main variables: 1) population size and growth; 2) resource availability; and 3) adaptive strategies at the individual, family, and community levels. The data of these variables were gathered from a village in Eastern Nepal. This research indicated that population had increased and that the former resource base was no longer sufficient to support the population. However, it was clear that the people had developed a number of strategies to adapt to the changing situation. These changes are: 1) intensification of agricultural techniques; 2) adoption of cash crops; 3) increased use of marginal land; 4) the development of non-agricultural sources of income (trade, army service, white collar jobs, and wage labor); 5) out-migration; and 6) fertility control through various mechanisms. (For details of responses to population pressure as illustrated in the text, see Figure 2.)

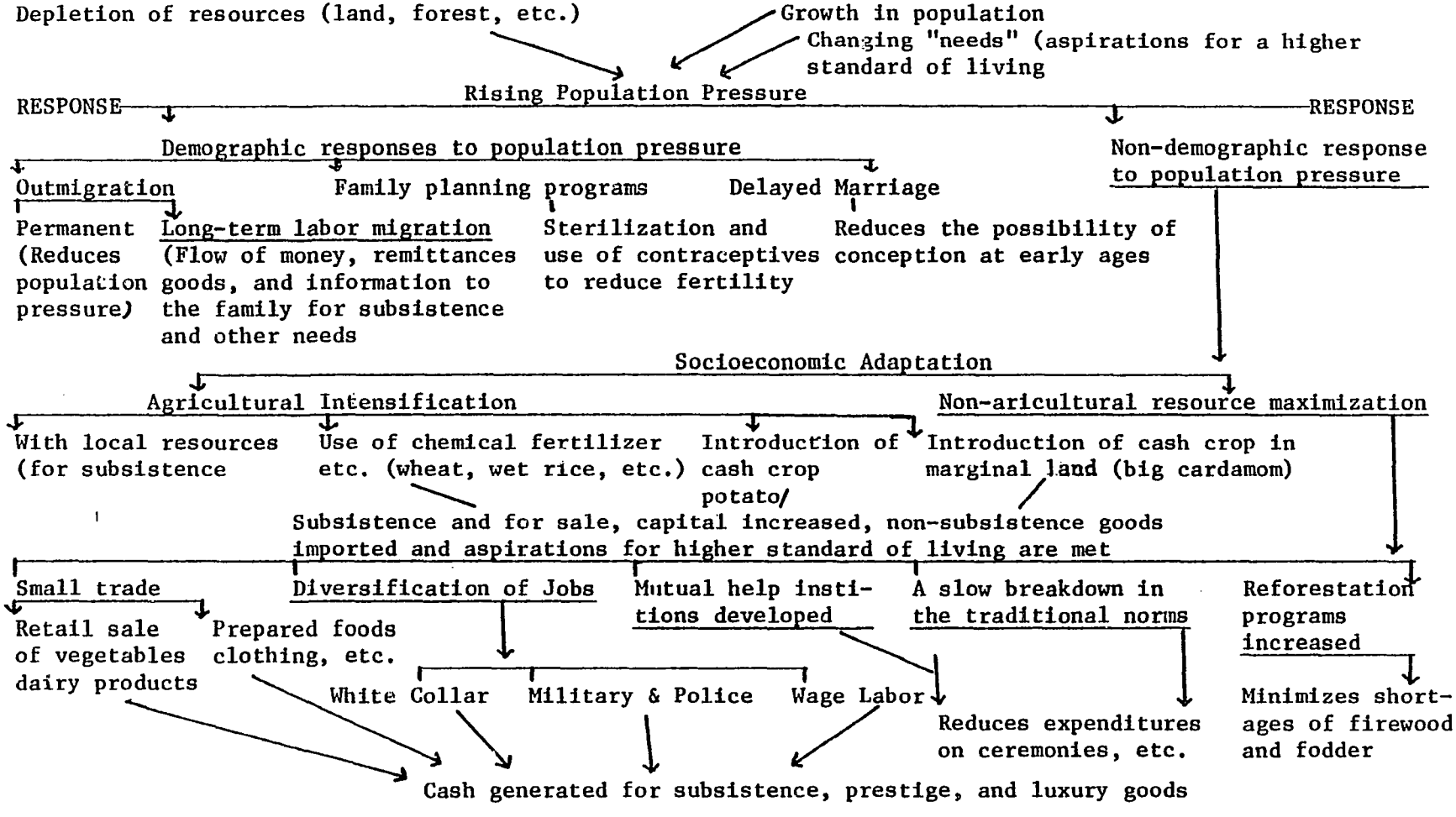


Figure I-2

Reponses to Population Pressure

CHAPTER II

DATA AND METHODOLOGY

2.1 SELECTION OF A FIELD AREA

My research focused on the relationship between population growth and economic development. When population increases, it is likely that there will be pressure on resources. A possible indication of unsuccessful response to population pressure is the development of grain deficit in the area. However, I maintain that people will attempt to take measures to overcome population pressure through various socio-cultural mechanisms such as agricultural intensification, introduction of cash crops, outmigration, and lowered fertility.

In choosing a research site, then, I sought an area with high population growth and outmigration rates. In addition to having these two demographic characteristics, I sought an area that was experiencing grain deficit, increasing development of cash crops and urban markets, and overall agricultural intensification.

The Eastern Hill Districts as a whole have the highest out-migration rate of all districts in Nepal (see Nepal, Central Bureau of Statistics 1974; Rana and Thapa 1975:52). For this reason, I chose them and in particular the Ilam district.

Since the census figures are not broken down by district, I do not have specific outmigration data for this level. However, my own village-level data conform to the general regional outmigration pattern. Figures do exist for the overall population growth rate in Ilam district. Between 1920 and 1961 the population of Ilam district

increased by 42.36 percent and between 1961-1981, the population of Ilam grew by 42.5 percent (Nepal, Central Bureau of Statistics, 1977).

Figures show that Ilam district is a grain deficit area (see the Agricultural Sample Survey of Nepal 1962). The cash crops like tea, big cardamom, and potatoes have been incorporated into the Ilam economy for a long period of time (Amatya 1975; Ojha 1980).

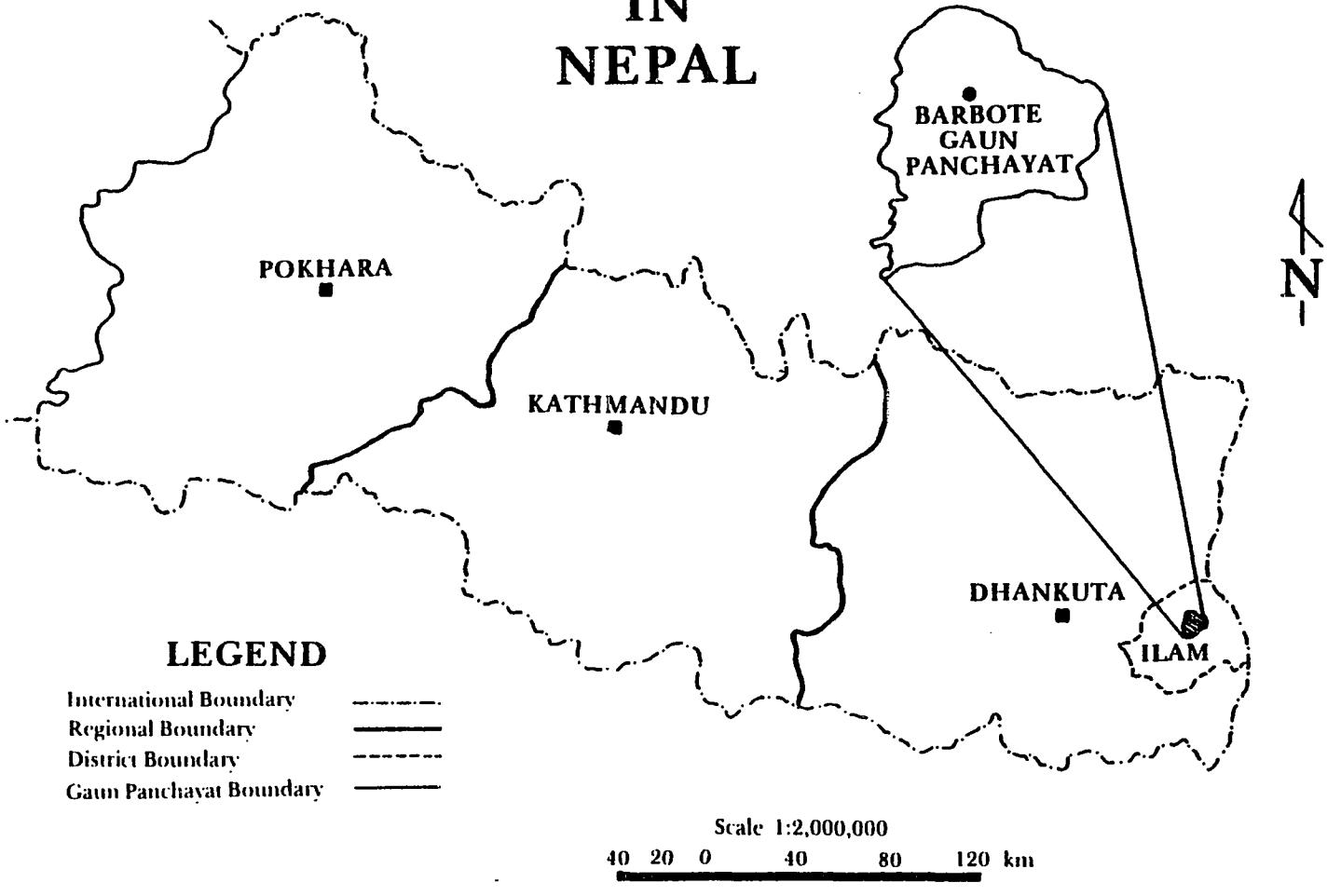
Finally, I chose the Ilam district because it has been ignored by the many anthropologists who have worked in Nepal, aside from a single piece of work by Caplan (1970). It is my feeling that anthropologists should give their attention primarily to areas where little work has been done, so that in addition to our own research, we can also produce data which will prove valuable as a basis for future work in development.

Up to 1981, there were 42 village panchayats[1] (including one town panchayat) in Ilam district. So it was not easy to select a village panchayat to study. However, I observed 20 panchayats covering both the east and west of Ilam bazaar, the headquarters of Ilam district. In most of these panchayats, I spent a day or two and made basic inquiries about the panchayat-level data, such as total households and population, ethnic composition and the estimated number of ethnic groups, the trend of past and recent migration, and major crops cultivated in the area. Finally, I selected Barbote Panchayat for the following reasons: (See Map 1.)

1. A multi-ethnic setting is not atypical in most of the Nepali villages today. This panchayat of Ilam district represents as many

MAP 1

FIELD-STUDY AREA IN NEPAL



ethnic groups as I wanted for study. Comparison of ethnic groups is important to detect variations in responses to population pressure.

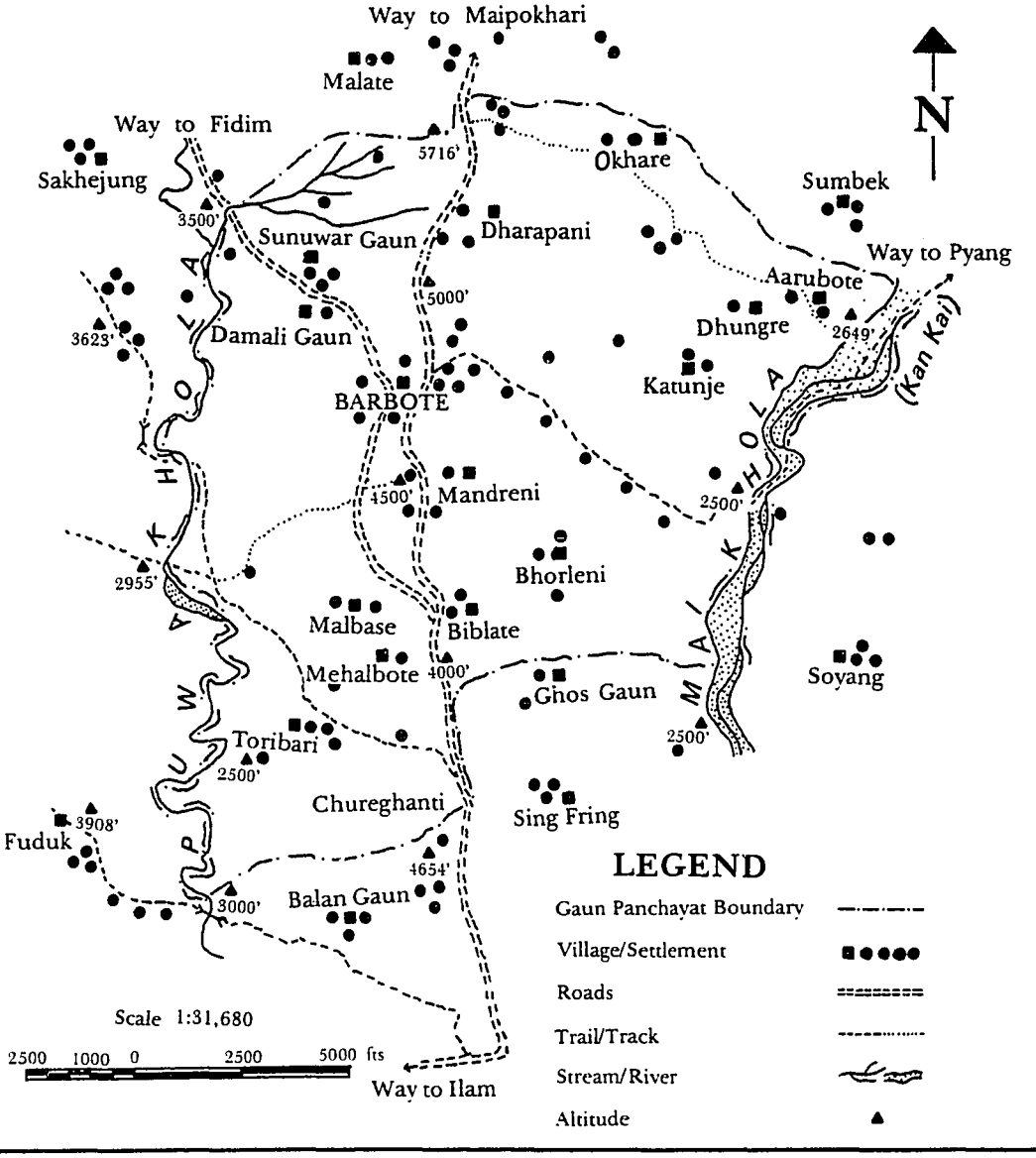
2. The villages within this panchayat are located at various altitudes. Some villages like Toribari are located between 2,000 to 3,000 feet and some others such as Dharapani and Sunuwar gaun are situated above 5,000 feet (see map 2). Due to these altitude differences within the same administrative unit, cropping patterns differ. This was important for me to be able to compare the two cropping zones as well as the responses to population pressure by the people of these zones.

3. When compared to Ilam district as a whole, Barbote Panchayat shows faster population growth over the last decade, i.e., between 1971-1981. During this period, population growth in Ilam district (excluding the populations of two panchayats who were amalgamated into Ilam district in 1975) was a little more than 1.7 percent per annum.[2] Population growth over time is an important variable to note down population pressure in relation to available resources.

4. I was also interested in the influence of an accessible urban center on the development of rural areas. The only urban center of Ilam district is Ilam bazaar, which is adjacent to Barbote Panchayat. I thought that Barbote Panchayat would provide a nice setting to analyze the impact of urban phenomena in a rural area. Moreover, being located close to Ilam bazaar, I had easy access to most of the data and opinions of government officials regarding population pressure on resources.

MAP 2

BARBOTE GAUN PANCHAYAT



5. Barbote Panchayat is one of the panchayats of Ilam district which supply most of the milk and milk products, vegetables and firewood to Ilam bazaar, an urban area of about 10,000 people. In addition, the Ilam Tea Estate is close by and many local and government-level construction works run within the periphery of this panchayat. Thus, there was a high chance of local employment as an additional source of income (resource) for the people. When I was in the field area, the government of Nepal, Road Department, was constructing a motorable road from Ilam bazaar to Phidim (headquarters of Panchthar district), a distance of about 72 kilometers. Since the road passes through Barbote Panchayat, people were provided with seasonal opportunities. In other words, I wanted to find out how people diversify their resource base and adapt when there is pressure on resources.
6. In Barbote Panchayat, wheat, potatoes, and big cardamom were introduced after 1960. Why did the people have to introduce these crops? This was important for me to study in connection with the process of intensification of agriculture and the introduction of cash crops in the area.
7. Finally, this is an interesting panchayat for the readers as this panchayat was studied by a British anthropologist, Caplan (1970), nearly 20 years ago (data were collected in 1964-65). In this panchayat he observed an acute struggle over land (the major resource of the area) between two groups, the Brahmins, the top group in the Hindu hierarchy, and the Limbus, the indigenous group. As I was also interested to find out the interrelationship between

population growth and land pressure, I thought that this panchayat would provide an opportunity to review Caplan's arguments.

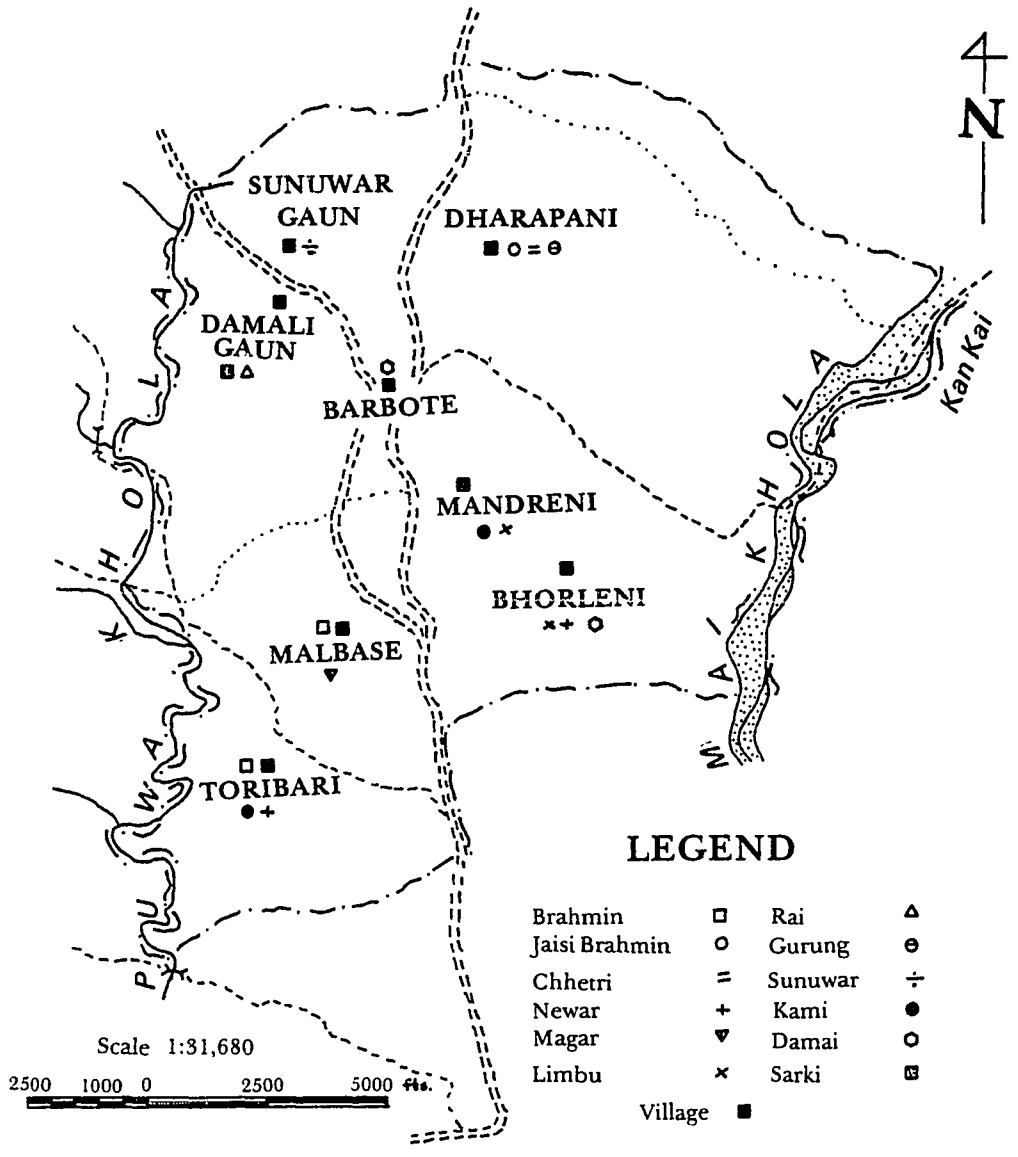
In 1981, there were a total of 15 village settlements with 591 households in Barbote Panchayat. Each village settlement had 15-40 households. To make the research unit more manageable, I selected 100 households from seven village settlements (see below how the households were selected) in Barbote Panchayat: Toribari, Malbase, Mandreni, Bhorleni, Sunuwar gaun, Damali gaun and Dharapani (see Maps 2 and 3). Basically, these settlements were chosen in order to include all ethnic groups in the Panchayat and a range of cropping zones at different altitudes. In other words, the choice of these various settlements is based on sociological and ecological rather than administrative criteria. Hereafter, as a matter of convenience, these seven village settlements will be referred to collectively as the "Pipalbote" settlement clusters (a settlement shaded by a Pipal tree).

2.2 THE DATA

Both micro- and macro-level data were collected to assess population pressure on resources over time and responses to this pressure. Micro-level data included intensive cross-sectional and retrospective village-level data on family and social structure and demographic structure and behavior. Macro-level data included census data, land data, and historical records. Government development programs such as family planning and support of improved crop variety, cash crops, rainfall, and temperature were the sources of additional macro-level data collected in the field.

MAP 3

STUDY AREA IN BARBOTE PANCHAYAT



Both levels of data, their sources, and how they were collected in the field are discussed below.

2.2.1 Micro-level Data

When I selected Barbote Panchayat for study, the population size was large enough to treat as a manageable unit for research (see the size of total population in Chapter III). I selected 100 households for detailed household information. These covered about 17 percent of the total households. The selection was based on a proportionate stratified sample (Sukhatme and Sukhatme 1970, pp. 43-45). The basis of stratification included altitude, household size, land holding, and ethnic composition. The Pipalbote area is classified into two zones, 2,000' to 4,000' and 4,000' and above. This was done primarily to compare the two cropping zones in the area. I observed that the household size is relatively large both in the Barbote Panchayat area and in the Pipalbote Cluster (see Chapter III). Though I wanted to maintain "controls" in selecting household size in the area, sometimes there was no control because the particular ethnic group represented in the area had few households and the group had a large family size. So the selection of the large household size became purposive in many cases (also see Chapter III). Household size is an important variable related to population pressure.

All the households in the seven village settlements of Barbote Panchayat were divided into various land holding categories such as i) landless; ii) less than one hectare; iii) one hectare to two and one-half hectares; iv) two and one-half to five hectares; v) five hectares and more. Each category of land holding was further divided by ethnic

composition. There were 12 ethnic groups in the Pipalbote Cluster. Ethnic groups are important variables as they reflect social stratification as well as the socioeconomic status of the people. Moreover, different ethnic groups had different responses to population pressure.

In the early period of field work, the latest record of the size of population based on ethnic category was noted from the Panchayat Office record. My assistant and I described in detail every household mentioned in the list including the name of the head of household, total members in the family, their age, and marital status. In the beginning we thought that we got the latest good record (up to 1979) of population size of the Panchayat. However, we noted that the census of the young population, particularly the 0-1 age group was poor. As there is high infant mortality in the area, the youngsters are not considered the full-fledged members of the particular household. So we collected a detailed household census of the population of Barbote Panchayat on June 30, 1981. However, the Panchayat record was extremely helpful for identifying the head of household and other members in the family. It was also easy to assess who was missed in the census or not included, or who migrated or married out during the period (1979-1981). Along with the census, we also collected the detailed births and deaths of the Panchayat over the one year period (1980-81). From this data I calculated the crude birth rate, the crude death rate, the infant mortality rate (see Chapter VI), and also identified the people who had migrated over time; who were in the army or in other kinds of jobs in Nepal or abroad.

The census was primarily "dejure," the place of usual residence. A person in the family, whether he is in long-term labor job either in Nepal or abroad, is regarded as a permanent resident. Only the permanently migrated family is excluded from the total counting of population, but we noted when they had migrated and where. This was done with the help of the head of household.

There was no such difficulty in recording the age structure of many of the ethnic groups living in the Panchayat. However, some ethnic groups had some difficulties in estimating their age (see below). We also noted that there was little under enumeration of the age group 0-4 as we were conducting the census by ourselves. There was slight heaping regarding age by single years ending in zero and five, however, we cross-checked the age structure from different local informants as far as possible.

After collecting the complete Panchayat-level census (this census was only the total count of the people of the Panchayat, crude birth and death data over the prior one-year period, and the migration data), I began to take censuses of "different categories" (see below) of the Pipalbote Cluster. I began a detailed dejure census of each ethnic group to identify the age structure (viz., the total members of the household, age and sex), age of woman at the first birth of child, person(s) permanently migrated from the family, and other socio-economic characteristics (viz., ego's relation to each member of his family, education, occupation, land ownership, goods at home, domestic animals, and religion (see Census Schedule 1 in Appendix 1). This type of

information was gathered through the head of household. The head of household was either the grandfather, father, widow or the eldest son.

In order to collect the specific quantifiable agricultural data of the Pipalbote Cluster, I modified the production schedules developed by Epstein (1967). I designed one schedule for one crop (for example, wet rice, wheat, maize, millet, and potatoes, see Schedule 2 in Appendix 1, production analysis per hectare for wet rice) dealing with the various aspects of production. However, the production information (input and output) supplied by different informants did not match coherently even on the same production area. This is due to work ethics which differ from group to group. However, I felt that the production data supplied by informants were reliable (see production analysis in Chapter IV).

In order to estimate the average food consumption per person in a community, different consumption coefficients have been employed by anthropologists (Bailey 1957; Salisbury 1962; Epstein 1962). I designed my own consumption coefficients to reflect the Nepalese physical structure and cultural values (see Chapter V). I collected food data for seven households covering different ethnic groups but the data of only three households were analyzed to calculate the amount of calories, protein, and other nutrients consumed by the people. To be more specific, I observed the food consumption during three different phases of the year: i) the period of enough food; ii) the marginal food period; and iii) the food shortage period (see Chapter V for details). Many times, I tried to observe directly what people ate, but this was rather embarrassing for them and sometimes they stopped eating food or

tried to finish up food quickly when I observed them. Again, I started trying to interview the head of the household with his wife or some other responsible member of the family. As my assistant and cook were locals, I always cross-checked these food consumption data with them. This helped to produce reliable data on food consumption patterns. Food consumption data provided me with an index of economic standard for the people living in the area.

In addition, 100 genealogies from 100 households were collected from the Pipalbote Cluster. As I analyzed the population in the area for the past three decades, genealogical information was significant to note down the population dynamics, kin relationships, and land tenure patterns over time. Further, the genealogical method noted births, deaths, and movements of the current as well as the past situations and, hence, supplied important information about the population growth of the area.

Most of the data collection method followed the traditional methods of the anthropologists, mainly participant observation and case studies along with the unstructured interview. Different census schedules designed for collecting quantitative information were also cross-checked with these techniques. In addition, the family norms, values, caste structure, tools and technology and data discerning the social and cultural constraints and values that influence population growth and adaptation patterns were collected mainly through the traditional methods of the anthropologist.

2.2.2 Macro-level Data

1. Nepal has kept census records since 1911. However, the censuses up to 1941 are total counts only. The relevant data (census data on Nepal, Ilam district and Barbote Panchayat) regarding population growth over time were collected through national censuses, as well as with the help of genealogical methods. Further, villagers' testimony of their past experiences regarding the history of the village panchayat and its population were useful to record.
2. As there is much inaccuracy in informants' accounts regarding land holding (a vital resource in the Nepalese economy), along with informants' accounts, land records were collected through the District Government's Mal (Treasury) Office. Land records and taxation records of the area were collected since 1912. It was thus possible to collect details of landholding under different types of tenure in rural settlements over time where land is the major source of wealth and livelihood. Through land records, I was able to document the number of land owners as well as the fragmentation of land over time. In addition, the land data provided insight into the extent of nutritional problems due to population growth (see details of landholding and land pressure in Chapter IV). Particular attention was paid to the nature of errors in land records, so that when any inconsistency was found (sometimes two landowners were observed in the same plot of land) they were noted and included in the record.
3. Factors of topography, climate, seasons, water sources, and other physical properties of the environment of the study area were

collected through the various government agencies as well as through direct observation. These factors were analyzed as the "restricting factors" for overall agricultural intensification in the Pipalbote area.

2.3 ANALYSIS OF DATA

Analysis of data is done both descriptively and statistically. In the descriptive phase, I have discussed the nature of habitat within which the village panchayat is situated. Consequently, factors of topography, climate, rainfall, temperature, and other physical properties of the environment relevant to my field area are presented. The setting is described in historical perspective so that population pressure in relation to available resources can be assessed properly. I have also included all agricultural crops and discussion of how and when they were introduced into the area and when they are utilized for subsistence purposes and market exchange.

Cross-sectional and longitudinal data (economic, demographic, and sociological) collected in the field are used to evaluate population pressure on resources and both demographic and non-demographic responses to pressure and to test some of the relevant theoretical models.

The research aims to present a holistic picture of a community taking all ethnic groups living there into account. Each ethnic group living in my field area represents a language and culture of its own and this is particularly so among the Matwali group. For example, a Newar is completely different in terms of language and culture than a Rai, Limbu, Gurung, or Magar. But unlike the Matwali group, the high caste group (Upadhaya Brahmin, Jaisi Brahmin and Chhetry) have a common

language and culture. So though the Brahmin and Chhetry households comprise 49 percent of the total households in Pipalbote, they are usually lumped together as a single unit of analysis. Similarly, each ethnic group of Untouchables practices a different caste occupation though they share a common language and are treated as a group for analysis. In other words, if the cultural differences among various groups is completely ignored, the significance of cultural factors is lost.

So, wherever possible, I have given data for all ethnic groups. However, if the sample data on each ethnic group results in very low numbers, I have sometimes combined the data for ethnic groups on the basis of three broad categories: the high caste group (Upadhaya Brahmin, Jaisi Brahmin, and Chhetry); Matwali (Newar, Limbu, Rai, Magar, Gurung, and Sunuwar); and Untouchables (Kami, Sarki and Damai). Since the ethnic groups within these categories are similar enough for my purposes and the statistical categories are large enough to have meaning for the analysis.

2.4 CULTURAL CONSTRAINTS FOR COLLECTING DATA

Collecting good data is a prime aim of any research, but it is possible only when one understands the culture of the group he is studying. A number of anthropologists have written a great deal about how they collected data in the field (see Malinowski 1922; Casagrande 1960; Epstein 1967; Pelto 1970; Berreman 1972). In addition, a number of research works illustrate how a researcher encountered problems while collecting population data in particular (see below).

Through a census, an anthropologist would like to learn how people organize and manipulate their socioeconomic relationships. Some anthropologists are quite wary about the simple mechanistic approach of taking a field census (see Gould 1976; Richards et al., 1954). In addition, there is much ethnographic evidence of human behavior and beliefs which can lead to ambiguity and error while collecting census data (see Goodenough 1955; Malinowski 1930; Evans Pritchard 1951; Haimendorf 1964; Keesing 1970). A close look at any particular census report indicates that there are substantial errors in the way the census format is designed and the way in which the data are collected.

In Nepal, and especially in my field area, where there are different ethnic groups, cultural prejudices are bound to enter into the work. From the native point of view, there was a question of "trust" for supplying information to an outsider (researcher).

As a native of Nepal and reared in a similar cultural setting to that of my field area, initially I had to face some problems while collecting data in the field. The local people thought that I was raising a question to an informant regarding village life, the answers of which I knew well. Some villagers even suspected that I was "testing" them concerning their language and culture. To an extent, villagers' suspicions were correct but I always told them "I have come here to understand your culture from your point of view and not mine." I had to repeat this type of statement to most of the informants continuously for 2-3 months. Later, villagers realized that I really had problems in understanding them, and they started explaining more and speaking more to me.

In the beginning of field work, I also noted that the local people do not invite outsiders to ceremonies being celebrated in their houses. At the end of field work, some people still did not invite me. Some ethnic groups like the Limbus and Rais believe that if an outsider is present, the ceremony will be ineffective. If somebody goes there, however, without an invitation, they will allow him to stay. A good local informant was needed therefore, who could tell me what was going on in the village area, or what particular ceremony was going to be organized in a clandestine way. In this context, at least one regular informant had to be someone from inside the culture and locality. So I selected a local assistant, a Brahmin male who could inform me about what was going on in the village area. On the other hand, I hired a local Chhetry boy as a cook who not only provided me a good meal, but also mentioned all sorts of food items, and where and how they are available in the village panchayat area. Moreover, through them, I became popular in the local context which enabled me to collect some private and confidential data about the villagers.

However, the ethnic groups like the Limbus create some difficulties while giving details of their age structure. Many of them had no birth certificates of their own and the age factor was not very important for them unless the question of death and marriage arose. So sometimes we had to make an educated guess on the age of the father or mother, or when the couple was married. At the same time, we noted the birth spacing of the children and how elders compare their relative age with other ethnic members living close to them. On the other hand, old

generations, due to the high rate of illiteracy among them and lapse of memory, tend to give only rough estimates of their ages.

Among high caste groups an informant usually did not pronounce the name of his wife or her husband while giving the family census. So many times we had to obtain help from a son, daughter, or from the neighbor concerning the name of the informant's wife or husbahd. Some informants did not even supply information regarding the use of family planning services. Especially, asking questions regarding the laparoscopy of women was considered a serious offense to many village women.

Land is always considered an integral part of culture by Nepalese ethnic groups. Landholding reflects the socioeconomic status of a person. In addition, as long as a man maintains rights to land in a village, he must as a result of owning that land maintain a galaxy of social relationships to the members of that village where he chooses to reside (see Dahal et al., 1977). So sometimes informants do not provide the correct information of landholding. Some informants declare more land than they hold to show their socioeconomic status and some informants want to minimize "risk" by not showing their exact land-holding. We observed many instances of this case at the village context. To cite an example, we asked a question of an affluent Brahmin farmer about how much land he held in the village. He gave a figure which we cross-checked with the official figure and found correct. As this figure of landholding was low, we made an inquiry to another informant about his landholding. He pointed out that he also holds lands in the name of his two sons. As before, we checked the name of the informant's

sons in the official landholding register and found them as landowners in the village. Finally, we also found that even the informant's wife had some land in her name. All the family members were living in one household and practically everybody was sharing the income of all the land.

To an outsider, there is multiple land fragmentation, but in reality, land was intact in a single household.

In sum, I was able to obtain good economic, sociological, and demographic data with the help of my assistant who was a part of the village and knew much of the information firsthand, and also because my extended residence in the village.allowed the villagers to grow to trust me.

CHAPTER III

THE SETTING

3.1 ILAM DISTRICT

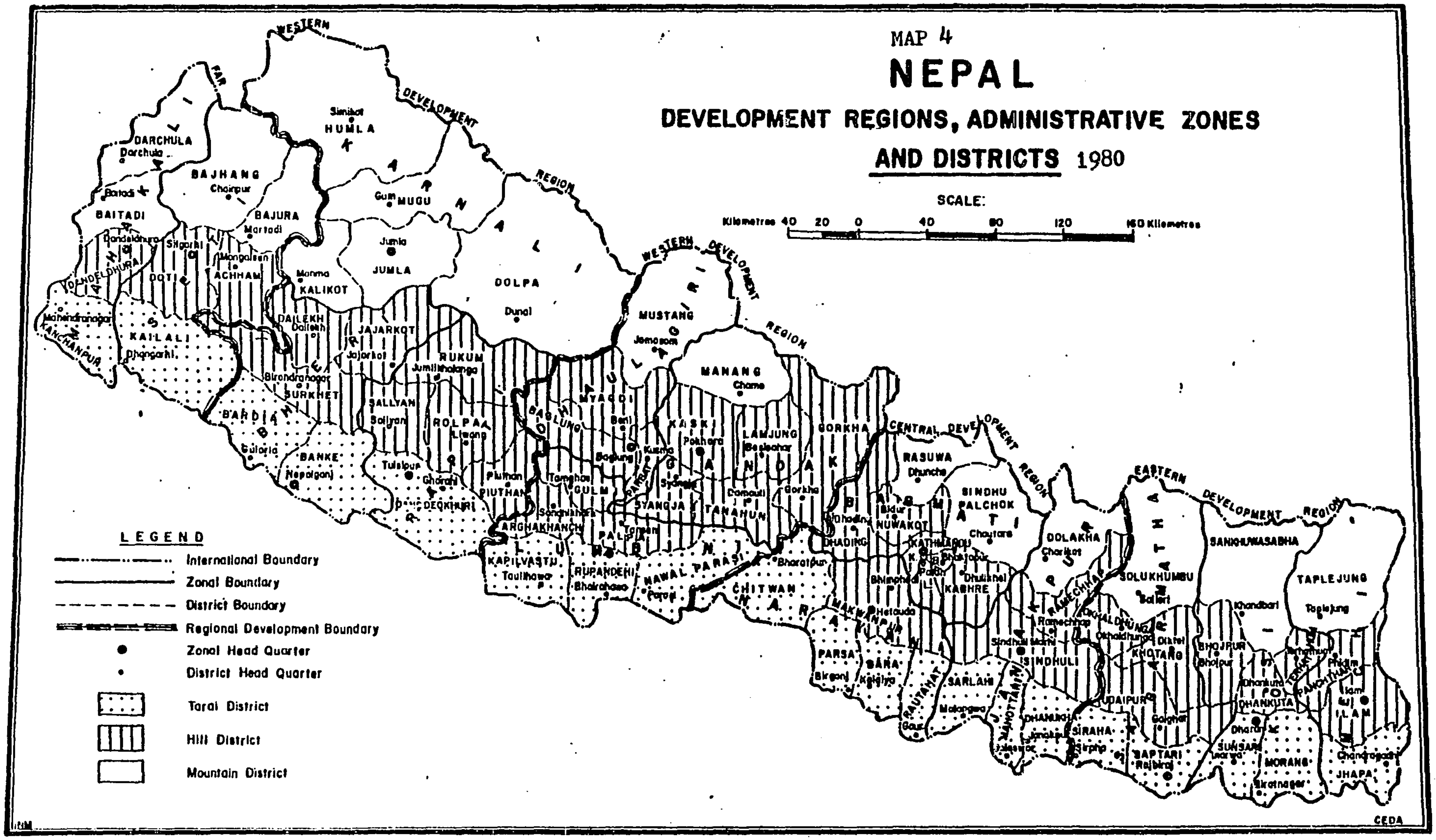
The seven village settlements--Toribari, Malbase, Bhorleni, Mandreni, Sunuwar gaun, Damali gaun and Dharapani, which for convenience I will call the "Pipalbote settlement clusters," are situated in Barbote Panchayat, Ilam district (located in the Hill[3] Region of Nepal), Eastern Nepal.

Traditionally, the Hill Region of Nepal has been the cultural and political center of the country. This region is basically inhabited by the peoples of the hill Nepali "caste"[4] groups and the so-called Matwali groups (see the discussion below). Nepali is invariably spoken even though some groups have their own mother tongue. Ilam is one of the districts located in the Hill Region of the extreme section of the Eastern Development zone (see Maps 1 and 4).

3.1.1 Ilam District: The Historical Context

Historically, Ilam was one of the districts of Limbuwan or the land of the Limbus. Originally, Limbuwan comprised what are now the six districts of Terathum, Dhankuta, Shankhusabha, Ilam,Taplejung and Panchthar. It covers approximately 4,500 square miles or about 8 percent of the present kingdom of Nepal (see Caplan 1970). Before the merger of Limbuwan with Nepal in 1774, Limbuwan was ruled by its own Limbu chiefs.

The earliest records of Limbuwan date just before 1770, when there was a quarrel between the Sen King, Kamadatta Sen and the Diwan, Buddhi Karna Rai over the throne of Bijaypur (which also covered


MAP 4
NEPAL
DEVELOPMENT REGIONS, ADMINISTRATIVE ZONES
AND DISTRICTS 1980
SCALE:
Kilometres 40 20 0 40 80 120 160 Kilometres
LEGEND
International Boundary
Zonal Boundary
District Boundary
Regional Development Boundary
Zonal Head Quarter
District Head Quarter
Tarai District
Hill District
Mountain District
FAR WESTERN DEVELOPMENT REGION
WESTERN DEVELOPMENT REGION
CENTRAL DEVELOPMENT REGION
EASTERN DEVELOPMENT REGION
DARCHULA
BAJHANG
HUMLA
BAITADI
BAJURA
MUGU
JUMLA
DOLPA
KALIKOT
DOTI
ACHHAM
DADELDHURA
KAILALI
KANCHANPUR
DAILEKH
JAJARKOT
RUKUM
MUSTANG
MANANG
SURKHET
BARDIA
BANKE
SALLYAN
ROLPA
MYAGDI
BAGLUNG
KASKI
LAMJUNG
GORKHA
RASUWA
SINDHU PALCHOK
DOLAKHA
SANKHUWASABHA
TAPLEJUNG
PIUTHAN
GULMI
SYANGJA
TANAHUN
DHADING
NUWAKOT
KATHMANDU
KABHRE
SOLUKHUMBU
DANG DEOKHURI
ARGHAKHANCHI
PALPA
KAPILVASTU
RUPANDEHI
NAWAL PARASI
CHITWAN
MAKWANPUR
PARSA
BARA
RAUTAHAT
SARLAHI
SINDHULI
RAMECHHAP
OKHALDHUNGA
KHOTANG
BHOJPUR
DHANKUTA
ILAM
MAHOTTARI
DHANUKHA
SIRAHA
UDAIPUR
SAPTARI
SUNSARI
MORANG
JHAPA
CEDA

Limbuwan). The Sikkimese King seeing a good opportunity to expand his territory, took advantage of the disorganization caused by the quarrel and in 1768 he captured that part of Ilam of Bijaypur province which lies east of the Mai river.

Caplan writes, "The incorporation of Limbuwan into the Nepal state was a result of both negotiation and conquest (1970:4). In fact, the attacks of the Sikkimese threw the Limbus into great disorganization and some Limbu leaders were looking for alternative strategies to expel them from their territory. In 1972-73, when the Gorkha troops attacked and captured the whole Manjh Kirant[5] (the area immediately west of Limbuwan) some petty Limbuwan chiefs fearing the Gorkhas, fled away to India, Sikkim, and Bhutan and some Limbu chiefs also asked the Gorkha to help them to regain the territory captured by the Sikkimese. With Limbu support, the Gorkha, by the end of 1774, captured the whole region thus reunifying Limbuwan as a part of the emerging Nepalese State (Acharya 1968:608-612). That is why King Prithivinarayan Shah, assured Limbus a measure of internal rule under their chiefs and guaranteed their rights in return for their support.[6]

3.1.2 Ilam Today

Today's Ilam district has an area of 1,535 square kilometers. Its eastern bounday is the international border with the Indian state of West Bengal (particularly Darjeeling district). To the west and north borders the Nepalese districts of Dhankuta and Panchthar and the southern border is, of course, the plain of the Terai, and particularly Jhapa and Morang districts (see Map 4).

The population of Ilam has nearly doubled in the last 40 years. The population of Ilam was 91,362 in 1951, but it rose to 177,442 in 1981 (for details of population growth in Ilam district see Appendix 5). According to the 1971 census, Ilam was composed of 64 percent Nepali speakers (basically the high caste ethnic groups and Untouchables), followed by 13.95 percent Rai-Kiranti speakers and 9.16 percent Limbu speakers, the remaining speak various dialects.

Of the original seventeen Thum[7] (subdivision) Limbuwan, Ilam District contained four Thums: Ilam danda, Puwapar, Phakphok, and Maipar. These divisions were done primarily to facilitate the administration and to collect land revenue. In 1960, Ilam was reorganized and divided into 50 administrative village panchayats. However, after the second constitutional amendment in 1975, there are now 42 village panchayats including one town panchayat in Ilam district. Since 1818, Ilam bazaar has been the headquarters of Ilam District.

Topography

Ilam district is located between 26°4' to 27°8' latitude and 87° to 88°10' longitude and is covered by high and low mountains. Geographically, the district is divided into two regions: i) the Hill Region; and ii) the Bensi.

The Hill Region

The Mahabharata Lekh covers the whole northern section of the region. The highest mountains located in this region are: Sandhaku (12,072 feet), Santapur (11,000 feet), Chintapu (11,000 feet), and Deorali (9,900 feet). The soutern section of this region is covered by the Chure Range. Most of the human settlements have been made on the

slopes of many of these hills. In this region the primary grops grown are maize, millet, buckwheat, potatoes, and big cardamon.

The Bensi

In the southern part of the district the rivers such as the Mai (which becomes the Kankai when it reaches to the Terai), Puwamai, Deomai and the Jogmai flow south and have created a vast plain with loamy and alluvial soils. This area is known as "bensi" and is suitable for the cultivation of crops such as wet rice, wheat, and vegetables.

As a whole, the topographical structure of Ilam district is highly varied. It touches the Terai (plain area) in the south where the altitude is normally 1,000 to 2,500 feet. This area is predominantly a malarial area. Between 2,500 to 5,000 feet the Chure Range, a cluster of unstable mountains, rises from the Terai lands to Ilam. Above this the Mahabharata Lekh Range with elevations between 5,000 to 10,000 feet, constitutes the middle hill region of Nepal. Much of the area of the district is covered by the Chure Range and the Mahabharata Range.

Ilam district is also classified by hydrographic patterns, and is known as "Charkhola" (four rivers) or the district drained by the Mai, Puwamai, Deomai and Jogmai rivers. A Thum (as mentioned above) is that region drained by a particular river and named for it.

During the rainy season, these rivers are also the main cause of land erosion. After as little as a half-an-hour of rain, the river is flooded and the color of water changes from clear to the darkest brown. The rain water is stripping the topsoil from the hills.

As the two ranges, the Chure and the Mahabharata, vary in altitude, the climate in this region also varies. The climate is

subtropical in the lower region (Chure Range) whereas above 5,000 feet (Mahabharata Range) it is alpine. In the subtropical region of the district the climate is hot and humid during the rainy season (June to September) with a temperature between 23°C to 27°C maximum and a minimum of 15°C to 19°C. The minimum temperature during winter is about 8°C (November to January). The hottest temperature recorded was 29°C in May 1968.[8]

Although the hills usually are drier than the plains, Ilam district has one of the highest rainfalls in the hill regions of Nepal. The 25 year rainfall record of Ilam district (1956-1981 of Ilam bazaar) shows that the minimum annual rainfall recorded was 1414.2 mm (57") in 1962 and the highest was 1936 mm (77.44") in 1974.[9]

The normal monsoon begins in June and continues until the last week of September. However, when I was in the field, the monsoon had already started by the second week of May. The local people said that this was not the normal pattern of the monsoon.

The pattern of rainfall over time in Ilam district is stable and therefore favorable for agriculture. The people of Ilam say that serious drought or famine is very rare. However, the timing of the onset of the rains is variable and thus a particular crop may be damaged in some year either due to shortage of rain or too much rain.

Flora and Fauna

Trees and shrubs commonly found in the district are presented in Appendix 2 with their botanical names. I have categorized them separately into three headings:

1. Trees common used as fodder for animals
2. Trees commonly used as firewood
3. Trees commonly used for making houses and other construction works.

In addition, I have also included some important shrubs used as fodder and commonly grown in Ilam district. The importance of firewood and fodder in the local setting is discussed in Chapter IV.

The fauna observed in Ilam district are: rabbit, fox, mongoose, deer, porcupine, and kala (a cat-like wild animal). The people say that leopard, wild pigs, and tiger are also sometimes observed.

3.2 THE PIPALBOTE CLUSTER

The Pipalbote Cluster of settlements is situated within the administrative boundary of Barbote Panchayat. Barbote Panchayat is located on the eastern slope of a 4,500-foot ridge of the Ilam danda subdivision (see Caplan 1970), just north of Ilam bazaar, which is the headquarters of Ilam district (see Maps 1 and 2). The total area of the panchayat is about 10 square miles. There is a motorable road from Ilam bazaar to Barbote Panchayat. It takes about half-an-hour to one hour and a half to reach Ilam bazaar from the Barbote Panchayat area. The panchayat is bordered in the east by the Mai river, in the west by the Puwa river, in the north by Mayapokhari Panchayat and in the south by Ilam bazaar (see Map 2). The altitude within the panchayat area varies from about 2,000 feet in the south or close to the river basin areas and to more than 5,800 feet in the north.

The Pipalbote Cluster is not a definitive residential unit as it is bordered by other settlements. The settlements of the Cluster are located at different altitudes and settled by various ethnic groups (see Map 3).

There are trails in each settlement (gaun) and each settlement has trails connecting it with others. These trails are for the most part rough, steep, and stony in the winter, and muddy and slippery in the rainy season.

There is no shortage of drinking water in the Pipalbote Cluster. However, in a few places, people have to walk for 25-30 minutes to fetch water. The first piped water was brought to Ilam bazaar from the Madi river in 1938 and since then taps have been made available at five places in Pipalbote. In Toribari, a rich village of the Pipalbote Cluster with a majority of Brahmin population, where there is no official distribution of piped water, many people have brought water into their houses in plastic pipes from the nearby perennial streams or ponds. Some households which cannot afford this go to nearby dhara (fountains) to fetch water and to wash clothes. In other words, the people of Pipalbote have been drinking clean water for a long period of time.

However, water for irrigation is still minimal in the whole village panchayat area. Except in the low-lying fields where the river basins are close, the local people have no other means for irrigating their fields except the rain. In some cases, an irrigation channel has been constructed from a long distance.

Vegetation in Pipalbote seems to be adequate for local use but collecting firewood is a problem for the villagers. As there are restrictions on collecting firewood in government-protected forests, often villagers fell their own trees grown on their farms or collect dry bamboo or cut down green bamboo on their farms to make firewood. Bamboo is the most commonly grown tree in Pipalbote. In the vicinity of most of the households one finds dense bamboo forests (see the detailed discussion of firewood and fodder in Chapter IV).

Many times tea stalls and grocery shops are the common places for gathering people. There are about three such places in Pipalbote. The local people also gather in the office of village panchayat and in schools (there are three primary schools and one upper middle school in Barbote Panchayat) on public occasions (such as to make a settlement, discuss a particular dispute either within a village or between an outsider or to finalize some construction works within the village area).

In the Pipalbote area, services of a family planning worker and junior technical assistant for agriculture are available throughout the year. In addition, there is a cooperative society, post office, and plant nursery offices in Barbote Panchayat which readily provide services to the people of the Pipalbote Cluster.

3.2.1 Housing

The houses are normally constructed on unirrigated land along the crest of the main ridges at altitudes above 2,500 feet. Houses are scattered and can only be reached by a series of narrow foot paths. The types of houses and their estimated costs are given in Chapter IV.

For the most part, the houses are separated from each other to provide sufficient space around the house for planting vegetables and sometimes fruit trees along with vegetables. An area in front of each house is cleared and leveled to provide a courtyard in which most of the domestic chores are carried out.

Houses do not vary much in design among various ethnic groups. Except in some houses there are no separate rooms to sleep, even in the two-storey houses. Houses are usually compact and have few windows. This structural plan is a response to cold weather. Furniture is minimal (note the important furniture in Chapter IV) in most of the households.

3.3 HISTORY AND SOCIAL STRUCTURE OF VARIOUS ETHNIC GROUPS

There are 14 ethnic groups living in Barbote Panchayat. Table III-1 gives a statistical breakdown of the whole panchayat.

At the time of my field work, the Pipalbote Cluster contained a population of 775 men, women, and children. The ethnic breakdown of the Pipalbote households is given in Table III-2.

Both tables clearly show that the high caste group represents more than 52 percent of the population. This type of village is common in most of the districts of Nepal today. Though there is no detailed ethnic census for high caste groups, their population can be inferred by looking at Nepal's population censuses taken on the basis of mother tongue. The 1952/54, 1961, and 1971 censuses show 48.73 percent, 50.96 percent, and 52.44 percent Nepali speaking populations. In Ilam district, the Nepali speaking population was 64.07 percent in the 1971 census. The groups whose mother tongue is Nepali only are the high

TABLE III-1

Households and Populations in Barbote Panchayat
By Ethnicity and Sex, 1981

Ethnic Groups	Households (Total)	Population			% of the total Population	Average Household Size
		Male	Female	Total		
High Caste Group	302	951	930	1,881	52.54	6.2
Upadhaya Brahmin	180	580	551	1,131	31.59	6.3
Jaisi Brahmin	80	233	243	476	13.29	6.0
Chhetry	42	138	136	274	7.66	6.5
Matwali	240	729	697	1,426	39.81	5.9
Newar	33	115	90	205	5.73	6.2
Magar	12	37	38	75	2.09	6.3
Gurung	13	57	54	111	3.09	8.5
Limbu	104	292	301	593	16.55	5.7
Rai	50	149	142	291	8.12	5.8
Sunuwar	22	59	55	114	3.19	5.2
Jogi	3	9	11	20	0.56	6.7
Tamang	3	11	6	17	0.48	5.7
Untouchable	49	140	134	274	7.65	5.6
Kami	31	78	80	158	4.41	5.1
Sarki	9	28	29	57	1.59	6.3
Damai	9	34	25	59	1.65	6.6
TOTAL	591	1,820	1,761	3,581	100.00	6.1
Percentage		50.82	49.81		100.00	

TABLE III-2

Households and Populations in the Pipalbote Cluster
By Ethnicity and Sex, 1981

Ethnic Groups	Households (Total)	Population			% of the total Population	Average Household Size
		Male	Female	Total		
High Caste Group	49	216	189	405	52.25	8.2
Upadhaya Brahmin	40	178	152	330	42.59	8.3
Jaisi Brahmin	7	24	29	53	6.83	7.6
Chhetry	2	14	8	22	2.83	11.0
Matwali	44	161	161	322	41.56	7.3
Newar	5	21	18	39	5.03	7.8
Magar	3	7	10	17	2.20	5.7
Gurung	3	14	11	25	3.22	8.3
Limbu	17	65	67	132	17.03	7.8
Rai	10	35	36	71	9.17	7.1
Sunuwar	6	19	19	38	4.91	6.3
Untouchable	7	26	22	48	6.19	6.8
Kami	4	9	12	21	2.71	5.3
Sarki	1	6	5	11	1.42	11.0
Damai	2	11	5	16	2.06	8.0
TOTAL	100	404	371	775	100.00	7.8
Percentage		52.13	47.87		100.00	

caste groups (Upadhaya Brahmin, Jaisi Brahmin, and Chhetry) and Untouchables (Kami, Sarki, and Damai) although some educated Gurung or Rai speakers may call themselves Nepali speakers. The population of Untouchables is low in Nepal (estimated to be less than 5 percent of the population in total). It is my observation that the high caste groups represent not less than 30-40 percent of population in Nepal as a whole. Moreover, they are concentrated densely in the Hill Region of Nepal (my field area, and this region covers 39 of the 75 districts of Nepal). Thus my field area seems quite typical of large areas of Nepal.

These various ethnic groups are briefly discussed here in their historical and socioeconomic settings.

All ethnic groups of my field area can be categorized as those having their origin in the Hindu caste system, and those ethnic groups who have been kept separate from the caste system and grouped under the term Matwali. The high caste groups and Untouchables are always included within the framework of the Hindu caste system.

There are four Varnas (colors) in the Hindu caste system: Brahmins, the priests; Chhetries, the rulers and warriors; Vaisyas, the traders and farmers; and Sudras, the Untouchables. Each ethnic group of the Hindu caste system is discussed here in its traditional as well as its present roles so that a pattern of social change can be deduced more effectively.

3.3.1 High Caste Groups: Brahmins and Chhetries

I observed two types of Brahmins in my field area: Upadhaya Brahmins and Jaisi Brahmins. Upadhaya Brahmins were traditionally priests and performed the priestly services in religious ceremonies and

rituals. As the Jaisi Brahmins had no right to perform the priestly services, they always practice agriculture as a means of livelihood. Chhetries were both warriors and agriculturists. However, today, the Chhetries of the area are no longer warriors, instead they are basically agriculturists. Some of them also work in the local government offices and some do trading and wage labor. Upadhaya Brahmins along with their traditional occupations also farm, trade, and do white collar jobs. Similarly, the Jaisi Brahmins along with agriculture also practice trading, white collar jobs, and wage labor.

Brahmins (both types) and Chhetries wear the sacred thread, have the endogamous marriage patterns (marriages must be performed within their own caste, but sexual or marital relations within a clan of the caste are strictly forbidden), and they claim superiority in cultural and social spheres over Matwali and Untouchable groups. The Brahmins and Chhetries in the area are locally addressed by different clan names such as Ghimire, Bhattarai, Baral Pokhrel, Rijal, Khadka, etc.

The history of settlement of these high caste group in the area is interesting. No written records are available and hence the evidences drawn here are either through the help of a genealogy or from the "memory culture" of the local people.

It is said that the movements of high caste group towards the eastern hill region of Nepal from western Nepal coincided along with the conquest of eastern Nepal by King Prithivinarayan Shah after 1770. Uprety (1975) thinks that the movements of Kumain Brahmins from the far western Nepal to eastern Nepal started as early as 300 years ago. Caplan, while talking to Ilam district writes,

> Following the Limbu invasion, large-scale migrations of non-Limbus entered the district (1970:7).

To Caplan, these non-Limbu groups were basically the high caste Hindu groups.

But Hindu immigrants and particularly the high caste group were insignificant in numbers when they entered Barbote Panchayat. Today, however, their numbers have increased greatly. The high caste clan, the Chimires (see below) form an absolute majority in the panchayat and the Pokherel, Bhattarai, and Barals (all high caste clans) are also sizable groups.

Only three Ghimire men came to Barbote Panchayat area about five generations ago. The old Ghimire informants claim that they came to this area from far western Nepal. Of these, two men, named Radhakrishna and Roopnarayan, settled in the Barbote Panchayat area, whereas a third, named Madusudhan, settled in another panchayat. The Ghimires settled in Barbote Panchayat have 64 households (10.83 percent of the total households) and 457 persons (12.76 percent of total population) today.

3.3.2 Untouchables: Kami, Sarki and Damai

The Untouchable groups such as Kamis, Sarkis, and Damais of the area are still placed in the lowest Hindu social strata and food and drinks still will not be accepted from them.

Kamis are blacksmiths who, along with their traditional caste occupation of making and repairing iron tools, also practice agriculture. The blacksmiths have settled in this panchayat along with the high caste ethnic groups. Some blacksmiths came as recently as in 1955 from Panchthar district.

The cobblers or Sarkis basically practice agriculture rather than their traditional occupation of leather work. Only one Sarki in the panchayat told me that he used to make dhap (a leather sheath for the Khukuri), but his income from this source is very low. Sarkis of this area have settled in the panchayat for the last two to three generations, some coming from as far as Charikot, the headquarters of Dolokha district.

The Damais or tailors practice their traditional caste occupation of tailoring along with agriculture. Most of the tailors settled in the area belong to a single clan, Sewa, and all of them came from Mabu village, about three hours' walk from Barbote Panchayat. Some came as early as in 1961 and some as recently as in 1975.

The Untouchable groups observe all Hindu rituals and festivals but use priests of their own.

3.3.3 Matwali

The social position of Matwali groups is in the middle between high caste and Untouchable groups. Like high castes, the Matwali do not accept food and drinks from Untouchables but some foods (particularly rice and pulses) cooked by them are also not accepted by the high caste group.

The Matwali groups of my field area are: Newar, Magar, Gurung, Limbu, Rai, Sunuwar, Tamang, and Jogi. Traditionally, they used to consume liquors (mad or mat) and hence they are known as Matwali. Except Newars who are always treated as caste and they have the hierarchy within them, all other ethnic groups fall outside of the caste

system. Each ethnic group in Matwali represents their own language and culture (see below).

Newars

Traditionally, Newars are predominantly Vaisya group and practice trade as their main occupation. Today, agriculture is their primary occupation while trade is a secondary one.

Though the Newars of Ilam basaar claim that they came to Ilam along with the conquest of King Prithivinarayan Shah (after 1770), the Newars of Pipalbote have no such history. Most of the Newars of Pipalbote are the descendents of three families and have settled here in the last three to four generations. One Newar family has settled as recently as 1978. They cannot speak Newari and exclusively use the Nepali language to communicate with others. They celebrate all Hindu Brahminic festivals and conduct all rituals within a procedure similar to the Brahmins.

Magars

Magars are a minority group in Pipalbote as well as in Barbote Panchayat. Four types of Magars are observed: Ale, Rana, Lungeli, and Pulami. Rana Magar came to this area from Dhankuta nearly 8-10 decades ago. Ale Magars have marital relations with the Rana Magars and were encouraged to settle down here by the Rana Magars. The Lungeli Magars outnumber the other Magars (six households in the panchayat). According to a Lungeli Magar, his grandfather came to this area and his descendents have established six households today. The only Magar household is a Pulami Magar who came from Panchthar in 1963. He came here as a cowherd in a Brahmin household and today he has set up his own family.

The Magars of this area are the most highly Hinduised group among the Matwalis. They cannot speak Magar kura (mother tongue) and use only the Nepali language.

Gurungs

Like Magars, Gurungs are a minority group in Pipalbote as well as in Barbote Panchayat. Originally Ranbir Gurung came to settle here with his family. This family came from Darjeeling district, India. This is their third generation and this single family has expanded into four families today. The other three Gurung households are relatives either agnatic or affinal of Ranbir Gurung and settled in this area along with him. Of the three other Gurung households, two came from Panchthar district in 1975 and 1979, and the other Gurung came from Mai Majhuwa Panchayat (Ilam district) in 1979.

Gurungs no longer practice their traditional occupation of sheep herding, speak exclusively Nepali, and follow everything in the Hindu Brahminis patterns except their mortuary rites.

Gurungs are one of the wealthy groups in the area. Ranbir Gurung constructed two big suspension bridges over two big rivers of Ilam district as a charity. A Gurung is still the mayor or the Pradhanpancha of Barbote Panchayat. One Gurung of the Ranbir family is working in Nigeria as an agricultural expert.

Limbus

Limbus are the original settlers of the area. Even today, Limbus are the second major group in terms of numbers living in the panchayat as well as in Pipalbote.

Except for observing a few Hindu festivals (such as Dasain and Tihar), Limbus still follow their traditional customs and speak the Limbu language at home.

Up to a few decades ago, when Limbus had plenty of land and fewer people to cultivate it, they distributed their land generously on a mortgage basis to other Hindu groups such as Brahmins and Chhetries as well as to other non-caste originated groups such as Rais, Gurungs, and Sunuwars of the area. Today, Limbus are one of the poor ethnic groups in the area. Why this is so will be evaluated in detail in the concluding chapter linking both variables, population growth and available resources.

Rais

There are six-subgroups of Rais in the panchayat: Athpahare, Kharmeli, Damali, Chamlinge, Rapchali and Thulung. Informants like Nardal Rai (53 years old) point out that Kharmali, Damali, and Rapchali Rais came from Bhojpur and Khotang districts nearly three generations ago. The Damali and the Athpahare Rais are in a majority. The Athpahariya Rais came to settle here from Dhankuta district, the original homeland of the Athpahariya Rais (see Dahal 1975) nearly two generations ago. Two Rai households have settled in the panchayat as recently as 1979 from Sumbek panchayat, Ilam district.

Rais, like Limbus are bilingual; they speak Nepali as well as their mother tongue. Unlike Limbus, however, there are dialectical variations within the Rais, and the Rais of this area speak either Bantawa or Chamling dialect. Like Limbus, Rais also follow their own

customs and traditions. In some cases, they have started inviting a Brahmin priest to name their child and to conduct some rituals.

Sunuwars

According to Surbir, a knowledgeable Sunuwar and also the ward president of his area (ward number 5), Sunuwars have settled in this area since his grandfather's time so that this is their fourth generation. He does not know where they originally belonged. The Sunuwars of the area cannot speak their mother tongue and use the Nepali language exclusively, observing all Hindu rituals and festivals.

The interesting phenomena within these Matwalis are the dining behavior amont them. Though every group claims to be superior to another group in ritual and dining behavior, there is, however, no distinct category to place a group above another. For example, the Sunuwars do not eat dal (lentil soup) and millet grain cooked by either a Gurung or a Magar. Sunuwars, Magars and Gurungs do not eat rice cooked either by a Limbu or a Rai; however, Rais and Limbus do eat rice and dal cooked by the former. Gurungs do not eat pork but Sunuwars and Magars do. However, the meat of buffalo is consumed by all groups such as Limbus, Rais, Gurungs, and Sunuwars, except Magars.

3.4 FAMILY

In the local context, a family means all members of a household who are closely related to each other. Occasionally, however, an unrelated servant or a distant kinsman may reside in the household but they are not considered an integral part of the family. In addition, a family is also a unit of residence, worship, land ownership, production, and consumption.

Three types of family structures are prevalent in the Pipalbote Cluster: i) the nuclear family composed of man, his wife, and their unmarried children; ii) the extended family composed of a man, his wife and married sons, and their families and unmarried children; iii) the joint family composed of married brothers and their families. However, these categories are not very specific and I divide them further into different sub-family types. The members I have included in the nuclear family are:

Simple nuclear family

Type 1 - Husband and wife
Type 2 - Husband, wife, and their unmarried children

Augmented nuclear family

Type 1 - Husband, wife and their unmarried children; also a widowed father or mother, a brother's widow and unmarried sisters.

Type 2 - Brothers, one married with child(ren), others (brothers and sisters) unmarried.

Fragmented nuclear family

Type 1 - Widow or widower and their unmarried children

Type 2 - Man or woman living alone

In the extended and the joint family types, I have made the following sub-types.

Extended family

Type 1 - Simple extended family, composed of husband, wife and their unmarried children and also married sons and their families

Type 2 - Fragmented extended family, composed of widow or widower and their unmarried children and married sons and their families; also living with them are widowed daughter and her unmarried children.

Joint Family

Type 1 - Simple joint family, composed of married brothers (at least two) and their families

Type 2 - Fragmented joint family, composed of married brothers and their families; also living with them is a widowed mother or grandmother.

By these criteria, each ethnic group is categorized into different sub-family types (see Table III-3). There are 67 percent of the nuclear families, 28 percent of the extended families and 5 percent of the joint families in Pipalbote. The table also shows that type 2 of the simple nuclear family has the highest percentage (45 percent) of families, followed by the type 1 of the extended family (23 percent).

According to local informants, the extended/joint family was the norm earlier in time (at least one generation ago) among the high caste groups; whereas this was not the usual norm among the Matwali and Untouchable groups. I maintain that this was basically due to economic reasons. The high caste ethnic groups normally held more lands (irrigated and unirrigated) to cultivate than the Matwali and Untouchable and the large family size was the practical alternative to cultivate large plots of lands. Even today, the high caste group has the highest proportion of the joint/extended family types.

In the Pipalbote Cluster, the large family system is still effective for agriculture and other economic pursuits (see Chapter IV and V). My data demonstrate that the joint/extended families are comparatively richer than the nuclear families in the local setting (see the concluding chapter) even though the table shows that there is a high tendency to breakdown the extended/joint family system. This is mainly due to changing socioeconomic and demographic situations in the

TABLE III-3

Family Types in the Pipalbote Cluster by Ethnicity, 1981

Ethnic Groups	Households (Total)	Simple Nuclear Family		Augmented Nuclear Family		Fragmented Nuclear Family		Extended Family		Joint Family	
		Type 1*	Type 2	Type 1	Type 2	Type 1	Type 2	Type 1	Type 2	Type 1	Type 2
High Caste Group											
Upadhaya Brahmin	40	0	15	5	0	0	0	14	3	2	1
Jaisi Brahmin	7	0	1	4	0	0	0	1	1	0	0
Chhetry	2	0	0	1	0	0	0	0	0	0	1
Matwali											
Newar	5	0	2	0	0	0	0	3	0	0	0
Magar	3	0	2	1	0	0	0	0	0	0	0
Gurung	3	0	2	0	0	0	0	1	0	0	0
Limbu	17	1	9	1	1	1	0	2	1	1	0
Rai	10	0	5	1	2	1	0	1	0	0	0
Sunuwar	6	0	3	0	1	1	1	0	0	0	0
Untouchable											
Kami	4	0	4	0	0	0	0	0	0	0	0
Sarki	1	0	1	0	0	0	0	0	0	0	0
Damai	2	0	1	0	0	0	0	1	0	0	0
TOTAL	100	1	45	13	4	3	1	23	5	3	2

*See the definition of Type 1 and Type 2 in the text.

areas (see Chapters VI, VII, and VIII). The breakdown of the extended/ joint family system has some major repercussions:

1. The family estate has to be divided and if possible a separate household has to be built. In this way the fragmentation of land continues in each generation, and also the paternal possessions are equally shared.
2. There will be less manpower to work in the smaller household and hence the bigger landholdings cannot be cultivated.

3.5 POPULATION AND LAND IN THE PIPALBOTE CLUSTER

Demographic statistics are available for Barbote Panchayat for a period of 18 years (1964-81). These data show that there has been substantial population increase in that period. With the increase has necessarily come a need to increase subsistence. Whether or not this has caused destructive pressure on the local village resource base is an open question. To answer this question, one must consider the full resource complement.

A detailed look at Barbote Panchayat shows that in 1964 the population was 2,856 and by 1981, it had increased to 3,581, an absolute increase of 725 people. The statistics are not broken down by village cluster; however, the Pipalbote Cluster lies within the administrative area of Barbote Panchayat and my field data indicate that population growth is typical of the whole area. For example, when the population of individual household was analyzed through the genealogical method, population growth was seen to have occurred in most of the households in the Pipalbote Cluster. A generation ago, a Gurung with three of his

wives entered the area; today this family has been broken down into four families with 42 members. Similarly, a Ghimire Brahmin settled in Toribari village of the Pipalbote Cluster three generations ago. His descendents expanded into three families and subsequently became 17 families with 168 members today. Though some families migrated and some individuals died during the period (in the last one to two generations), population was increasing in the area.

Turning to the other element in the question of the land/man ratio, the record shows that the amount of cultivated land did not increase after 1971. In the Pipalbote area, though the average land-holding per household is about 3.13 hectare, nearly 22 percent of the lands have been utilized for bamboo and thatch fields (see Chapter IV for details). This means only 2.4 hectare for food crops per household.

The yield per hectare is not good in the Pipalbote Cluster and from this limited amount of land holdings, a large number of members (average household size 7.75 members) has to be fed (see Chapter IV). The consumable grain produced on cluster land per person, on average, is about 198.95 kilograms, whereas to feed a person adequately a minimum of 233 kilograms is needed.[10] This shows a deficit of grain of about 35 kilograms per person per year or about 27,125 kilograms of grain deficit a year in total. This suggests that with the present available land and technology, it is difficult to feed the people of the Pipalbote Cluster adequately with food grain in the cluster.

Since population is still increasing and there is virtually no marginal land to be brought under more intensive cultivation, the pressure on the permanent village resource base will continue to

increase in the future. In Nepal, a son gets a share of his parental property including land when he separates from the family (a daughter gets a share of her parental property only if she remains unmarried up to the age of 35). If there are five sons in a family, each son will receive an equal share of the total family estate. For example, a middle class Sunuwar who holds about 4 hectares of land has three sons whose eventual share must be about 1.3 hectare per person. A rich Brahmin of Toribari who holds about 6.6 hectares of land has four sons, a Newar has 2.0 hectares of land but has three sons; and a Rai who has 6.3 hectares of land has six sons. Almost every family of the Pipalbote area is in this sort of situation. So there is land pressure at the individual household level in the Pipalbote Cluster.

The people of Pipalbote also feel pressure on sources of firewood and fodder. This is because most of the timbers from the neighboring forests have been cut and people have to spend an increasing amount of time collecting firewood and fodder.

Finally, the other factor which is creating pressure is the change in lifestyle, i.e., in the definitions of what is acceptable. This is actually a change in the components of "pressure." Chief among these is the aspiration for a higher standard of living on the part of the people. Examples suggest (see Chapter V) that there is more demand for urban consumer goods such as sugar, soaps, modern clothes and western medicines. Villagers are spending money to school their children as an investment, hoping it will secure better jobs for children in government offices, instead of local employment. There is

also an increasing demand for prestige and luxury goods such as radios, watches, and chairs, which bring pressure to bear on resources.

CHAPTER IV

RESOURCES (PART I): LAND AND OTHER CAPITAL RESOURCES

Historically, and still today, Nepal is predominantly an agricultural country. The recent censuses show an ever increasing percentage of agricultural population: 93.5 percent, 93.8 percent, and 94.4 percent in the 1952/54, 1961, and 1971 censuses, respectively. According to the 1971 census, agriculture provides 67 percent of the GDP and 80 percent of the national export earnings. Without doubt, agricultural products are the main economic resource of Nepal. However, since 1965, absolute food production declined slowly and planners think that there is an imbalance between population growth and food production, predicting that by 1985 Nepal will have a deficit of 188,000 tons of food grain necessary to feed her population. Ilam is one of the hill districts of Eastern Nepal where a grain deficit was observed more than two decades ago (Nepal, Department of Agriculture, 1962). The question then is how are people surviving?

In this chapter, I describe land, livestock, houses, household goods, and the human labor as permanent assets or resources of the people of Pipalbote Cluster. As land owning is one of the major resources for the livelihood of the people, it is described at greater length, beginning with the land record since 1912 up to today. Two types of land tenure system are discussed: kipat and raikar. Landholding data of Barbote Panchayat and Ilam district are presented to compare the landholding situation of the Pipalbote Cluster. Cropping patterns and yields per hectare are discussed to show the food situation in the area. Firewood, a major source of energy and fodder, a basic

item to raise animals, are discussed and how people gain access to these items in their day-to-day use is dealt with. I describe livestock, their ownership, and the importance of livestock to the people. I then show the relative capital holdings of the people of the Pipalbote Cluster in terms of land, livestock, houses, and households goods. Finally, I present the information on division of labor which shows that women and children contribute substantially to the the household economy of the area.

4.1 LAND: THE HISTORICAL CONTEXT

Historically, the land in Eastern Nepal and particularly in Ilam district was held under two tenure systems: kipat and raikar. According to Regmi,

> Kipat is a form of communal tenure. Land is held on a tribal, village, kindred or family basis, and the individuals have definite rights in land by virtue of their membership in the relevant social unit. Hence title to land has a communal character, and it is usufructuary, rather than absolute (1963:29).

Raikar land according to the same author is:

> Land which the State retains under its ownership and taxes the private individuals who operate it (1963:17).

As raikar land is directly owned by the State and all Nepalese people had permanent access to this type of land by a normal legal procedure, raikar rights to land was a marketable commodity throughout history and changed ownership frequently. This is so even today. However, the kipat land had a communal character and it is necessary to elaborate here on how it operated and who had access to this land in the Pipalbote Cluster.

There is no clear evidence whether the term kipat was used in Limbuwan before the conquest of King Prithivinarayan Shah in Eastern Nepal in 1774. However, Pradhananga writes,

> Long long ago when there were few settlements and lands were covered mostly by forests, these lands were cleared and made cultivable by the Limbu-Rai Kiranti groups. These lands were popularly known as kipat (1952:1-7).

These statements are further endorsed by Caplan who says:

> In much of Limbuwan, certainly in Ilam, the right to occupy a particular area of land under kipat tenure derived not from a direct royal grant nor from estates of holding conferred by superior authority, but by virtue of being "first settler" (1970:25).

However, there is clear evidence that the word kipat became popular only after King Prithivinarayan Shah conquered Limbuwan in 1774 and gave the royal orders to the local chiefs confirming their customs and traditions.[11] This royal order concerning the kipat system was extended up to 1968, when finally the kipat land system was abolished permanently and all the kipat lands were converted into raikar lands.

The Limbus were the only ethnic group in Ilam district holding land under kipat tenure up to 1968; the rest of the ethnic groups had access only to raikar land. A kipat owner derives rights in kipat land by virtue of his membership in a particular lineage of that ethnic group and its location in a particular area. This, nevertheless, does not mean that land under kipat tenure is necessarily cultivated on a communal basis. From the very beginning, kipat land was used on an individual basis. In addition, government records were kept only for irrigated kipat land; however, as a traditional tenure system, kipat included all cultivated lands, plus uncultivated forests, streams, and

rivers. Thus, it was possible up to a few decades ago, to extend one's holdings by cultivating an unused portion of land within a traditional section.

Up to 1952, kipat constituted about 4 percent of the total arable land in Nepal (Regmi 1976:19). In Ilam district, in 1964-65, 39.7 percent of the total irrigated land was under the kipat system (Caplan 1970:56). This means that the Limbu, who were only 9.16 percent of the population of Ilam district (1971 census), had access to 39.7 percent of irrigated land.

Kipat land could not be alienated to individuals outside the community. Regulations promulgated at least as early as 1799 prohibited such alienation. Prior to 1883, no legal restriction appears to have existed on the rights of a Limbu community to alienate its kipat lands, and many Limbus sold their kipat land to non-Limbu settlers (Regmi 1965:97). Again, government policy was reversed in 1883, when regulations were promulgated specifying that kipat lands could not be permanently alienated and that all alienations made in the past should be regarded as mortgages (Regmi ibid). It is evident that the rights of Limbus to redeem their mortgaged kipat lands whenever they liked contributed to insecurity of tenure among non-Limbu mortgagees, thus discouraging efforts to improve the land. On the other hand, as Limbus held the major portion of land, conflicts emerged between Limbus and non-Limbus to hold land when populations grew (see Caplan 1970, also see discussion below). However, when it became possible to alienate kipat land, Limbus had fallen into debt and lost large areas of their kipat (see details in the concluding chapter.)

4.2 GENERAL ECONOMY IN BARBOTE PANCHAYAT: PAST SITUATIONS

Before 1774, data on the overall economy in Barbote Panchayat are rare. However, we can talk about the past economic situations of the area through an examination of the land history. Before about 1800, there was no shortage of land in the area. Regmi writes:

> Even before officially encouraged by the the Gurkhali government to settle in Pallo-Kirant (Limbuwan), Khas, Magar, Brahmin and other people had been doing so at the invitation of Limbu themselves. Since most Limbus owned extensive areas of land under kipat tenure, there must have been acute shortage of labor. Given primitive methods of cultivation, immigration helped to strike a better balance between available land and labor resources (1971:52-53).

By mid or late eighteenth century it appears that the Limbus had begun to cultivate irrigated rice by technologically simple means. By 1912, when the first records appear in Barbote Panchayat, 18.768 hectare of irrigated kipat land are recorded. With plenty of land at their disposal, the Limbus felt no pressure to diversify and the records show them cultivating primarily maize, millet, and irrigated rice. When the Hindu groups slowly penetrated into the Barbote Panchayat area (see Chapter III), more and more land went to these migrant groups either by fair or foul means (see Caplan 1970) and more land came into use for agriculture. New crops, such as wheat, potato, mustard, and big cardamom, were then slowly introduced.

Unlike elsewhere in Asia (see Conklin 1957), slash-and-burn agriculture was and is rare in the area. Most fields were permanently cultivated and a particular plot of land always had a registered owner. However, in some areas, especially in the Lekh (high altitude area), slash-and-burn agriculture was practiced, as it is still today. This

type of land is considered marginal or waste land by the owner and unless some tenant living close by is ready to work it, such land is cultivated only when the owner has enough manpower. It is usually kept fallow for one or more years. In such fields, it is difficult to construct terraces, but before cultivation, the vegetation is burnt and hoed, maize, millet, and sometimes buckwheat, depending upon the season of the year, are broadcasted. The plow is important for wet rice cultivation and local people claim that it was already in use more than a century ago. Today, the plow is used in all lands, wet and dry, where draught animals can move.

In sum, the main characteristic of this economy (up to 1950) was the rotation of crops rather than the rotation of fields. The agriculture technology remained fairly simple, using plow and hoe and utilizing draught animals wherever possible.

4.3 RESOURCES IN BARBOTE PANCHAYAT AND PIPALBOTE CLUSTER: A COMPARATIVE FRAMEWORK

Land, animals, and houses are the major permanent assets or resources and are normally acquired by inheritence. These resources always have a good market value. Other resources are: trade, military and other government service (either in Nepal or abroad), and the resulting pensions. These latter kinds of resources have always helped people to raise their standard of living but they are not permanent capital resources.

4.3.1 Land

Three land surveys, 1912, 1936 and 1971 have been conducted in Ilam district and records are available in the Treasury Office (Mal).

However, prior to 1971, except for irrigated lands, no exact land measurements were available in the hilly regions of Nepal.

To give uniformity to land measurement, I have converted all units into ropani and ropani into hectare (1 ropani = 0.051 hectare; for all conversions see Appendix 3) to describe the total land area. Irrigated land area in Barbote Panchayat and Ilam district over time was approximately as follows:

TABLE IV-1

Irrigated Land Area in Barbote Panchayat and in Ilam District, 1912-1917

Year	Barbote Panchayat		Ilam District	
	Total Irrigated Land (in hectares)*	% (increase)	Total Irrigated Land (in hectares)*	% (increase)
1912	68		2,979	
1936	145	113.2	3,542	18.9
1971	493	240.0	11,820	233.7

Source: Treasury Office and Land Maintenance Division, Ilam.
* = Figures are rounded off.

The above table shows that Barbote Panchayat had a much higher conversion of unirrigated to irrigated land between 1912-36 (113.2 percent) as compared to 18.9 percent for Ilam district. From 1936-71, Ilam district as a whole catches up in conversion rate (240.0 percent to 233.7 percent). This suggests an earlier experience of population pressure on land in Barbote Panchayat.

Further, when the increase of irrigated land in both raikar and kipat are compared separately over time in Barbote Panchayat, these land records present interesting results. In 1912, the irrigated kipat land

area was 18.8 hectare and increased to 61.5 hectare in 1936, or an increase of 42.7 hectare of land in 24 years. This was a tremendous increase of 227 percent. In a similar time period, the increase of irrigated raikar land was 33.9 hectare (from 49.2 hectare in 1912 to 83.1 hectare in 1936) or an increase of only 68.9 percent.

The amount of raikar land converted may be lower than the kipat land because there was little raikar land left to be put into irrigation. Most of the land was kipat held by Limbu or mortgaged by them to other non-Limbu groups. These latter groups, and particularly the Brahmin and Chhetry groups, from the beginning emphasized wet rice agriculture and were undoubtedly converting their holdings to irrigation. Since there was no significant growth in the Limbu population, it is probably the other non-Limbu groups who were responsible for the majority of the land development and not the Limbu, who were not feeling pressure on land from growing population.

The first scientific cadastral land survey was made in Ilam district in 1971. According to the Land Maintenance Division, the land area in Barbote Panchayat in 1971 was as follows:

TABLE IV-2

Total Land Area in Barbote Panchayat in the 1971 Land Survey

Types of Land	Total in hectare	% of Total Land
Irrigated land	493	27.2
Unirrigated land	951	52.5
Marginal and government reserve land	368	20.3
TOTAL	1,812	100.0

Both irrigated and unirrigated lands are further subcategorized into abbal, doyam, seem, and chahar by government,[12] with abbal being the best. According to the local people, these categories are not very accurate, and the land surveyor can put land as low or high if he is bribed. The total area of land (excluding marginal and government reserve land) on the basis of these categories is as follows:

TABLE IV-3

Government's Categories of Land in Barbote Panchayat, 1971

	Irrigated Land		Unirrigated Land	
	Total Land (in hectares)	%	Total Land (in hectares)	%
Abbal (Excellent)	29.5	5.99	214.8	22.59
Doyam (Good)	191.8	38.90	538.6	56.64
Seem (Fair)	262.3	53.21	192.5	20.24
Chahar (Poor)	9.4	1.90	5.0	0.53
TOTAL	493.0	100.0	950.9	100.0

The above categories of land show that nearly 45 percent of the irrigated lands and nearly 79 percent of the unirrigated lands are excellent to good (abbal and doyam) in Barbote Panchayat.

Land in the Pipalbote Cluster

The total land area owned by the people of the Pipalbote Cluster in 1981 is shown in Table IV-4.

The landholding record shows that irrigated land was almost 3 percent higher in Pipalbote than in Barbote Panchayat as a whole. The

TABLE IV-4

Total Land Area in the Pipalbote Cluster, 1981

Types of Land	Total in Hectare	% of the Total Land
Irrigated land	93.0	29.70
Unirrigated land	220.2	70.30
TOTAL	313.2	100.0

Source: Researcher's field survey.

The land in Pipalbote is mostly doyam and a little seem categories. The unirrigated land is further subcategorized as shown in Table IV-5.

TABLE IV-5

Categories of Unirrigated Land in the Pipalbote Cluster, 1981

Type of Land Use	Total in hectares	% of the Total Land
Staple and other secondary food crops	145.0	65.85
Bamboo and thatch fields	71.2	32.33
Big cardamom	4.0	1.82
TOTAL	220.2	100.0

Only 242.06 hectare of land (irrigated and unirrigated) or 77.28 percent of the land was utilized for producing staples and other food crops. Of this, 149.02 hectare or 62.57 percent were irrigated. Only 1.8 percent of the unirrigated land was used exclusively for producing cash crops such as big cardamom. If the area of uncultivable

terrace faces and slopes are subtracted from this total, nearly 67 percent of the land was available for cultivation.

But unirrigated lands used for bamboo and thatches are equally important for the farmers of Pipalbote, as these lands are the sources for feeding animals, for repairing and thatching houses and for firewood (see the discussion below). Land utilized for big cardamom has produced a great deal of cash income which will be discussed later.

Landholdings per Household and by Ethnicity

Table IV-6 below shows the landholdings on the basis of ethnic category. The table shows that on average, a household in Pipalbote holds about 3.13 hectare (61.41 ropani) of land, while in Barbote Panchayat as a whole, the average farm size was 2.44 hectare (47.88 ropani), excluding marginal and government reserve land). In reality, however, 71.2 hectare (see data above) was bamboo and thatch fields in Pipalbote. If this amount of land is subtracted, total cultivable land available per household is only 2.42 hectare. Similarly, in Barbote Panchayat, if bamboo and thatch fields are removed from the individual household, the size of holdings per household will further decrease.

Further, the table shows that landholding pattern of various ethnic groups differs from one another. Of the 93.0 hectare of irrigated land 60.3 hectare (64.86 percent) was held by the high caste ethnic groups who constitute about 52 percent of the total population. Gurung and Rai make up about 12.5 percent of the population and hold about 12 percent of the land. Other ethnic groups hold proportionately less land. For example, Untouchables hold only 0.60 percent of irrigated land, though they represent 7 percent of the population in

TABLE IV-6

Irrigated and Unirrigated Landholdings in the Pipalbote Cluster by Ethnicity, 1981

	Landholdings in ropani*							
	Upadhaya Brahmin Jaisi Brahmin and Chhetry	Newar	Magar	Gurung	Limbu	Rai	Sunuwar	Kami, Sarki and Damai	Total Land
Irrigated land (khet)	1183	48	37	57	230	201	57	11	1824
Unirrigated land (bari)	1529	124	16	108	391	335	251	90	2844
Unirrigated land utilized for bamboo and thatch (basghari and khar bari)	1083	27	8	40	71	23	120	23	1395
Unirrigated land utilized for big cardamom (Alainchi bari)	42	1	0	4	11	4	14	2	78
TOTAL LANDHOLDINGS (ropani)	3837	200	61	209	703	563	442	126	6141
(hectare)	195.7	10.2	3.1	10.7	35.9	28.7	22.5	6.4	313.2
% of total landholdings	62.49	3.26	0.99	3.40	11.44	9.17	7.20	2.05	100.00
Total Households	49	5	3	3	17	10	6	7	100
% of Total Population	52.54	5.03	2.20	3.22	17.03	9.17	4.91	6.19	100.00

*Landholding figures are rounded in ropani (see the conversion of ropani into hectare in Appendix 3).

Pipalbote. There were nine households (three from the high caste group, four from the Matwali and two from the Untouchable) who did not hold irrigated land. Another six households were completely landless.

Of the total of 145.0 hectare of unirrigated land utilized for producing food crops, 54.1 percent was held by the high caste group; Untouchables held 3.1 percent and the rest was held by the Matwali group. Similarly, the high caste group held 77.6 percent of all land utilized for bamboo and thatch and 56 percent of all the land planted in big cardamom. While the Sunuwars are only about 5 percent of the population, they held 18 percent of the land utilized for big cardamom.

The above data present an average of landholdings for households by ethnic groups. But what is the amount of land owned by a household within the ethnic category? Table IV-7 shows the amount of landholdings by a household within the ethnic category.

The table shows that 42 percent of the households held between 1.07 - 2.5 hectare of land. A fair percentage of households (9 percent) held more than 7.7 hectare of land. Of the six households which were completely landless, 4 (67 percent) were Untouchables and one was a Sunuwar and the other was a Limbu from the Matwali group. Despite the fact that the Limbus were the original settlers and absolute landlords on their kipat holdings up to 1968, they hold little land compared to other ethnic groups today. This decline will be discussed in the concluding chapter. In addition, the landless people are also making a fair livelihood in the area (see discussion below).

TABLE IV-7

Amount of Land Owned in the Pipalbote Cluster by Households and Ethnicity
(Including the landholding in the Terai)

		Amount of Land Owned by Households in Ropani (Hectare)					
	Households Without Land	1-20 (.051 to 1.02 hectare)	21-50 (1.07 to 2.55 hectare)	51-80 (2.60 to 4.08 hectare)	81-100 (4.13 to 5.61 hectare)	111-150 (5.66 to 7.65 hectare)	151 and above (7.70 hectare and above)
Upadhaya Brahmin	0	4	16	4	6	4	6
Jaisi Brahmin	0	0	2	2	3	0	0
Chhetry	0	0	1	0	1	0	0
Newar	0	0	4	1	0	0	0
Magar	0	1	2	0	0	0	0
Gurung	0	1	1	0	0	0	1
Limbu	1	3	9	3	1	0	0
Rai	0	2	3	4	0	0	1
Sunuwar	1	0	2	1	1	0	1
Kami	3	0	1	0	0	0	0
Sarki	0	0	1	0	0	0	0
Damai	1	1	0	0	0	0	0
TOTAL HOUSEHOLDS	6	12	42	15	12	4	9
% of holdings by household	6	12	42	15	12	4	9

When the landholdings data of the Pipalbote Cluster are compared with data of other anthropologists (see MacDougall 1968; Macfarlane 1976), Pipalbote is better off than other villages (see Table IV-8).

TABLE IV-8

Size of Landholdings in Different Villages of Nepal

Area and the data collection period	Size of Average Holdings in Ropani(Hectare) Less than 5 (less than 0.26 hectare)	5-9 (0.26-0.46 hectare)	10+ 0.47-0.51 (hectare)	% of the total households
Thak 1965	20.66	10.87	68.47	100.00
Sallyan 1967	14.00	36.00	50.00	100.00
Doti 1967	44.00	26.00	30.00	100.00
Pipalbote 1981	6.00	1.00	93.00	100.00

Compared to Pipalbote, in both Sallyan and Doti, there are a small proportion of landholders within 10 or more ropani of land. In addition, the proportion of small landholders in Doti is much higher than in Thak or Pipalbote. On the whole, by Nepalese standards, it appears that Pipalbote is a moderately wealthy community in terms of landholdings.

Density of Population in Relation to Arable Land

Density of population is one of the most common measures of "population pressure." It is defined as the ratio of people to physical space. In general, it gives a picture of crowding or overcrowing of people in an area.

While the density of population per square mile in Barbote Panchayat is about 358 persons (3,581 persons divided by 10 square miles), the relevant index of population density is much higher when one relates population to arable land. In Barbote Panchayat, since marginal and government reserve lands cannot be utilized, only 1,443.35 hectare of land were available for cultivation. So the density of population per square mile is 644 persons. Similarly, the density of population in arable land in the Pipalbote Cluster and in Ilam district (1971) (excluding marginal and government reserve land) is 642 and 502 persons per square mile, respectively.

The above data show that the density of population in arable land is somewhat higher in Pipalbote and in Barbote Panchayat compared to Ilam district as a whole. However, this density of population is much lower in comparison to Tuladhar et al., data (1977) on the hill regions of Nepal, which showed 2,727 persons per square mile in the hills.[13]

Arable land Per Capita

The land per capita is 0.404 hectare in Pipalbote Cluster and 0.402 hectare in Barbote Panchayat (excluding marginal and government reserve land). However, the cultivated land per capita is only 0.312 hectare in the Pipalbote Cluster. However, the cultivated land per capita is higher in Pipalbote Cluster than in Thak (only 0.247 hectare in Thak (Macfarlane 1976:41) and in Nepal as a whole, (in 1962 it was 0.190 hectare Shrestha 1967:51).

However, persons per square mile, or arable land per capita is not a particularly sensitive index to measure the crowdedness or poverty of an area. I will discuss below how the diversification in agriculture

has taken place in the area as population increased. Let us first look at the cropping patterns and after that production figures.

Cropping Patterns

Fields are divided into two categories: khet fields which are irrigable and bari which are upland dry fields. Both types are terraced. Whenever there is enough water available to flood a khet field, it is planted in wet rice. All khet fields can be flooded at best in the rainy season. Some have enough water available in the dry season as well to flood at best a portion of the field. This portion will be planted in wheat or wet rice. When there is not enough water for flooding, the field will be planted in maize or white potatoes. However, potatoes will be irrigated with whatever water is available. Maize, millet, white potatoes, buckwheat, seed mustard, sweet potatoes, lentils, soyabean, sugarcane, and big cardamom are planted only in bari fields.

A number of seasonal vegetables are grown in both khet and bari fields. These include leaf-mustard, radish, cauliflower, tomato, squash, pumpkin, taro, chillies, cucumber, bitter gourd, and long gourd.

Wheat is a winter crop and is usually grown close to the residential areas in order to protect it from monkeys which are prevalent at this period and because during winter many farmers let their livestock roam free for grazing. If a family lacks manpower, potential wheat areas are left fallow. Similarly, maize and millet are not cultivated in every field. Maize is cultivated during March-April (depending upon the altitude of the area) whereas the millet is cultivated in May-July. Sometimes, millet is also interplanted with

maize in higher altitudes. The sweet potato cultivation is minimal as it is not considered a staple food. It is usually served as snacks in the field, or when people relax after work at home. Almost all families have a fenced house garden (kothebari) where they grow a variety of vegetables year round. A detailed rotation of crops is presented in Chapter VIII.

Total Production and Yield per Hectare in the Pipalbote Cluster

The total production in the Pipalbote Cluster in 1980 (the information supplied by 100 household heads) is presented in Table IV-9.

TABLE IV-9

Total Production of Grain and Other Crops in the Pipalbote Cluster, 1980

	Kilograms*	Crops	Kilograms
Unhusked rice	102,563.31	Mustard	1,639.76
Maize	41,085.18	Lentils	1,328.21
Millet	13,739.46	Potato	32,040.00
		Sweet Potato	5,800.00
Wheat	18,526.61	Big Cardamom	1,358.00
TOTAL	175,914.56		42,165.97

*These figures have been converted from muri and maund, local units of weight, into kilograms.

The above data of grain production are based on the estimate of what informants had said about the total production of different crops. But what is the yield per hectare? It is difficult to find out the actual production of an area as the production differs from one plot of

land to another. Moreover, production depends upon the quality of the land, the labor, and the quality of manure and seed utilized in the field. In addition, the size of the field, the distance from the village, availability of water also affects the yield of land. However, total production of a crop in a particular field gives some idea about the yield per hectare. For example, the estimated area of different crops (See Appendix IV) and the production as mentioned above had given an average yield per hectare as follows: 1102.8 kilograms/unhusked rice; 638.8 kilograms/wheat; 425.3/maize; and 507.0/millet.

When I cross-checked the production schedule of different crops per hectare among 27 farmers who were included in my census, production varied from one farmer to another and one plot of land to another. Production schedules from 8 farmers were filled out for unhusked rice, and similarly a total of 19 production schedules were filled out for maize, wheat, millet, potato and big cardamom.

Of eight farmers who were selected for unhusked rice, the highest yield was 292.62 kilograms in 0.153 hectare while the lowest yield was 682 kilograms in 0.612 hectare. On average, 4,901.38 kilograms of unhusked rice were produced by the eight farmers on 4.182 hectare of land. The average yield for unhusked rice was 1,172.01 kilograms per hectare.

In maize, the highest production was observed from two farmers who had utilized the improved variety of seed; one farmer produced 204.15 kilograms of maize in 0.153 hectare and the other farmer produced 204.15 kilograms in 0.102 hectare. In other fields where the local seed was utilized, the lowest yield was 340.25 kilograms from 1.02 hectare

and the highest yield was 204.15 from 0.255 hectare. The average yield of local seed was 639.22 kilograms per hectare while that for the improved variety was 1605.14 kilograms per hectare.

The total production of millet by two farmers was 246.67 kilograms in 0.255 hectare or 880.60 kilograms per hectare. Similarly, wheat production of four farmers yielded 1,429.05 kilograms in 1.224 hectares or 1,170.34 kilograms per hectare. Here only the improved variety of wheat was utilized.

The two production schedules for potatoes showed interesting findings. One farmer who utilized only 0.408 hectare of land for potato cultivation, produced 4,000 kilograms of potatoes, whereas the other farmer produced only 640 kilograms in 0.52 hectare of land. The difference is due to land quality, amount of fertilizer used and the availability of water.

Macfarlane's (1976:42) production figures should be viewed with caution as he reports a high yield in the hill land. He gives an average yield of 2,013.01 kilograms of unhusked rice and 2,675.23 kilograms of unhusked maize/millet per hectare. This seems an unrealistically high estimate for hill land, and this much of yield can be produced only in good quality land in the Terai.

On the basis of my production schedules, the total production of major staple crops was 226,210.13 kilograms, of which 107,798.4 kilograms was unhusked rice and 118,411.73 kilograms consisted of maize, wheat, and millet. In consumable husked rice, the total was 64,679.04 kilograms (assuming 40 percent is lost after husking). Similarly, if 5 percent were removed as waste from other crops, the

total grain available for consumption was 112,491.15 kilograms, thus the total for all staples was 177,170.19 kilograms. On the basis of this calculation, the per capita food consumption per annum should be 228.60 kilograms. If one takes the average between the farmers' estimate (the total grain production by 100 households) and mine, a person, on average, would receive 198.95 kilograms of cereal grains per year. In other words, a person will receive 545 grams of grain per day. I maintain that this estimate should be accurate; farmers usually do not remember their actual production and the area under various crops was probably deliberately underestimated by the farmers.

The National Planning Commission (1978:32) estimates the daily requirements of grain to be 605 grams (i.e. 220 kilograms per annum) in order to derive an average of 2,256 calories of energy per day. Clark (1967:128-129) mentioned that "contrary to general belief, it is quite possible for a man to live almost entirely on cereals." He believes that "minimum and maximum requirements of 1,625 and 2,012 calories per day can be met by the consumption of 185-230 kg/person/year." In Pangma village of Eastern Nepal (Bajracharya 1981:217-220), the average consumption of grain per person per year was 190 kilograms. Similarly, the consumption of 210 kilograms of grain per person per year was reported by Macfarlane in Thak village (1976:168).

In addition, there are other foods to consume like white and sweet potato in the Pipalbote Cluster. When the white and sweet potato yields are distributed among 775 persons, each person will receive 43.92 kilograms of white potatoes and 7.48 kilograms of sweet potatoes per year. Both white and sweet potato, however, are more prone to damage

than other crops by rain, hail and if kept for a long period of time. But if adjustments are made for reduced consumption by children and old people, the situation is "quite favorable."

Grain Surplus and Deficit

How many households have surplus and deficit of grains in the Pipalbote Cluster? The number of households with the surplus and deficit of grains by ethnicity is given in Table IV-10.

TABLE IV-10

Supply of Grains for Households in the Pipalbote Cluster By Ethnic Category

Ethnic Groups	Surplus of Grain (Households)	No Surplus But Enough to Maintain a Family (Households)	Grain Deficit (Households)
Upadhaya Brahmin Jaisi Brahmin and Chhetry	15	17	17
Newar	1	2	2
Magar	0	1	2
Gurung	1	0	2
Limbu	1	4	12
Rai	0	1	9
Sunuwar	1	2	3
Kami, Sarki and Damai	0	0	7
TOTAL	19	27	54
% of Total	19	27	54

The table shows that 54 percent of the households have a grain deficit and the majority of them are the Matwali and Untouchable households. But how serious is the grain deficit per household? The total months of deficit a year, with ethnic categories are given in Table VI-11.

TABLE IV-11

Total Months of Grain Deficit a Year for Households by Ethnic Category, 1980/81

Months of Grain Deficit a year	Household		
	High Caste Group	Matwali	Untouchable
0-2 months	11	8	0
2.1 to 4 months	3	6	2
4.1 to 6 months	2	7	2
6.1 to 8 months	1	9	0
8.1 to 12 months	0	0	3
TOTAL	17	30	7
% of Total Deficit	31.48	55.55	12.97

Looking at the total number of households represented by various ethnic groups in the Pipalbote Cluster, the Untouchable have 100 percent grain deficit, the Matwali have 68.2 percent grain deficit, and the high caste group have only 34.7 percent grain deficit.

The table shows that grain deficit occurs among all groups: among the high caste groups the shortfall period is usually two months or less, for Untouchables, it is in all cases, more than two months, while the Matwali lie between the other two groups. In fact, of the

Matwali and Untouchables, four households were not only landless, but they did not pursue agriculture at all.

This table, however, must be understood in the broader context of total household income. For example, the one Brahmin family which has a deficit of eight months receives substantial income from other sources. The grain deficit in many Matwali groups was met through army service, persions, white collar jobs, trading, and wage labor. Some Untouchables gain substantial cash income from occupations such as tailoring. One of the poorest families of the blacksmith group sustains itself by selling firewood and wage labor.

Changes in the Distribution of Arable Land

Land is normally held in common by the household. However, recent legislation (1964) restricting the size of landholdings has led many families to divide formal ownership among the wife and sons even when the land is actually still under unified control.

In order to analyze the way in which the estates are built up and divided, I looked at the land records of Barbote Panchayat for 1912, 1936, and 1971. Unfortunately, I could not compare 1912 and 1936 in terms of individual owners as informants were unable to identify people named in the 1912 land survey. The total number of landowners recorded in 1912 and 1936 land surveys in both the kipat and raikar land are given in Table IV-12.

In the kipat system, since the household is registered as the landowner, the practice of assigning land to members before real division is not found. The kipat figures do not suffer from the distortion as mentioned above. They show an increase of 44 households in 24 years

TABLE IV-12

Official Figures of Landowners Under the Kipat and Raikar System, 1912-1936

	Kipat (Total Number of Landowners)			Raikar (Total Number of Landowners)		
	Unirrigated	Irrigated	Total	Unirrigated	Irrigated	Total
1912	62	90	152	460	333	793
1936	63	134	197	387	433	820

in the kipat land or about an average of two households per year. On the other hand, the amount of land per household is not noted in the kipat system and the land revenue is assessed by household. The figures on the collection of revenue show that rupees 349 were collected in 1912 and rupees 363 in 1936. This implies an increase of only three households in 24 years on the basis of rupee 6.50 revenue per household per year. Since it is advantageous for the Limbu to under-report the number of households in order to avoid taxation, these figures are probably unreliable. The figures from land records which indicate the addition of 44 households are undoubtedly more accurate.

The figures in raikar land in contrast to those on kipat land overestimate rather than underestimate the increase in landholding units. A comparison of the 1912 figures with those from 1936 indicates substantial but probably artificial increase (793 to 820). A careful cadastral land survey in 1971 shows only 757 landholders (there is no kipat category after 1968 in Barbote Panchayat.) The inflated figures probably assigning land to family member before true division of the household

started even in the earlier days. It is therefore not possible to get a true picture of land fragmentation.

To assess the land distribution over time in more detail, I collected genealogies of 100 households and noted how much land an individual received from his parents and how much land he holds today. Of 100 households, 57 have added some land (34 households from the high caste groups, 21 from the Matwali and two households from the Untouchable). Among the high castes, 85 hectares of land were added to 111 hectares of land received from the parents. All Newar households have acquired some land.

The Limbus are a special case. Many of the parents of the current adult generation had pledge land on mortgage to other ethnic groups. Some portions of these mortgaged lands were redeemed after 1964 when a law was passed returning mortgaged lands to kipat holder even when the debt had not been paid, perhaps 75 percent of the Limbus affected took advantage of this law to regain their land. However, many Limbus were unable to redeem their land by repaying the debt and they also were unwilling to default and reclaim the land under the 1964 law, so they lost the mortgaged area. As a result, the Limbus who in 1936 owned 42.5 percent of the irrigated land, owned only 12 percent in 1971. In consequence, there was a shift in land ownership from the Limbu, who traditionally owned the land, to other ethnic groups. However, population pressure and shortage of land brought a change in Limbus' outlook and today they seem careful not to mortgage land but to keep it intact.

On the other hand, there has also been an absolute increase in the area under cultivation. Of the total of 313.2 hectares of land

cultivated in 1981, 108 hectares of land (34.5 percent) had been added in the last 30-35 years by the conversion of unused land to field land. This suggests that when people received insufficient land from their parents, they slowly converted marginal land to cultivation and registered it in their own names.

4.3.2 Firewood and Fodder

Wood and bamboo are used for various purposes. The most important however, is as firewood. About 88 percent of the people of Pipalbote have their own bamboo garden and thatch fields and 60-70 percent of firewood and fodder requirements are met from personal farms. The villagers normally plant thatch and bamboo where no other crops can be grown.

Firewood

The collection of firewood was no problem in the Pipalbote Cluster before 1960. The population pressure was low and forests were loosely protected by government. In 1980-81, the original forest areas still remained intact within 1-5 miles distance of the settlements, but today, there has been greater surveillance by the government to protect the forests, and the local people need a permit to fell trees for firewood. This has, however, brought a positive change in the area as many villagers have raised their own firewood and fodder trees to meet the domestic requirement (see discussion in Chapter VIII).

The amount of firewood needed depends upon the family size and the number of milch animals raised at home. A family of four to five may need about 30-40 kilograms of firewood per week. In addition, milch animals must be fed with hot soup (locally known as khole) two to three

times a day. On average, a milch cow and a water-buffalo needs about two kilograms and three kilograms of firewood per day, respectively.

On average, a family of five may consume about 170 kilograms or about seven cubic feet of wood per month and this means about 1,085 cubic feet of wood per month in the Pipalbote Cluster. In addition, there were 63 milch cows and 21 buffaloes. These milch animals need about 283.5 cubic feet of wood per month (assuming they provide milk regularly for eight months). It is likely that the people of the Pipalbote Cluster need about 1,368.5 cubic feet of wood per month as firewood. This is a substantial amount of consumption of wood.

Where is the source of firewood? The villagers claim that nearly 50 percent of the firewood is bamboo, another 8-12 percent is maize stalks, corn cob, and small sticks. During winter, villagers go to the nearby forests and collect dry fallen branches which meets 15-20 percent of their firewood requirements. The rest, about 15-20 percent, must be met either by cutting trees in the forest or utilizing their own trees grown on their farm.

Villagers also fell trees for wood for constructing a house and making tools (plow, etc.). However, the construction of new houses was limited in the area (when I was in the field only three new houses were being constructed) and most of the houses were made of stones which require little wood. About 100-150 cubic feet of additional wood may be needed a year as a whole for the people of the Pipalbote Cluster.

Who cuts timber? Is it the local people clearing land for food production and cutting wood who are causing deforestation (cf. Bajracharya 1981)? In my area, I think it is the government which is

responsible for cutting the large amounts of timber, rather than the common villagers. For example, the Forest Department issues a "royalty" (government permit) to a person to cut particular timbers. One person who had obtained a royalty for 100 cubic feet of wood to construct a house, cut more than 400 cubic feet of wood after bribing the local Forest Department officials. When I was in the field, a local Brahmin of the Pipalbote area had taken a tender to supply firewood to an army battalion stationed in Ilam bazaar. I was told that he had already supplied more than 160,000 kilograms of firewood in less than six months from the forests located within the Barbote Panchayat area. Along with this supply, he was also selling firewood locally on the authority of the royalty he obtained to supply firewood to the army. The local people were afraid that if this continues, the whole forest area will be cut in the near future.

Fodder

Forests are also subject to another pressure--the need for animal fodder. Huge quantities of vegetation are consumed by livestock either roaming in the forest or stalled at home. Though forests are protected by the government, many villagers consider forests "common property" not for cutting large timbers, but for grazing animals, and for collecting fodder and firewood.

How much fodder is consumed by an animal? The answers are vague as they raise a number of other factors to be taken into consideration. The amount of fodder required depends upon the size of animals, types of animals, whether the animals are milch producers, and who is their

owner. If the owner has enough manpower at home to collect fodder, it is likely that an animal will be fed more than otherwise.

The following information is based on inquiries with a number of informants about fodder requirements per day for different animals.

TABLE IV-13

Type and Approximate Amount of Fodder Consumed by Livestock in Pipalbote, 1981

Type of Animals	Number of Animals	Approx. Kg. of Fodder Consumed By An Animal Per Day	Total Kg. of Fodder Consumed Per Year
Adult water buffalo	54	20	394,200
Young buffalo	32	4	46,720
Cows	117	10	427,050
Calves	79	3	86,505
Bullocks	140	12	613,200
Goats	164	4	239,440
Kids	81	1	29,565
Horse	2	20	14,600
Sheep	1	5	1,865
TOTAL	670	79	1,853,145

The amount of fodder seems tremendous, but mostly it is supplied from the farm. Moreover, fodder is supplemented by bamboo (on average, a household in Pipalbote had nearly 100 bamboo trees) and amliso (a special grass, also utilized for brooms) and thatch grass. Collecting fodder in the forest happens normally during winter (January through March) when the season is too dry for the growth of new grasses. In the

rainy season (June to September) abundant fodder is available in their fields. Villagers also store maize and millet straw and hay when the crops are harvested. They can be utilized as fodder in all seasons of the year when people are busy doing agriculture and other domestic work.

The charge that villagers are the major factor responsible for deforestation in the area is unwarranted.

4.3.3 Capital Assets

Apart from land, agricultural capital consists of livestock, seed and crops not needed for consumption.

4.3.4 Livestock

The people of Pipalbote depend heavily upon animals for milk, meat, manure, and power. The distribution of animal ownership by ethnic category is given in Table IV-14.

The raising of animals shows distinct ethnic characteristics. The high caste groups basically raise zebu cattle (bulls for traction, cows for milk), water buffaloes and goats; Matwali and Untouchable raise chickens, pigs (Newar and Gurung do not raise pigs), goats, water buffaloes, and zebu cattle. Excluding the numerous chickens, the high caste groups have 58.2 percent, the Matwalis have 38.6 percent and Untouchables have 3.2 percent of the total livestock. Further, the table also shows that livestock raising is not evenly distributed among households and between ethnic groups.

Cows are raised for four purposes: 1) for manuring the fields; 2) for providing milk and butter for local consumption and sale; 3) to bear bullocks for work in the fields; and 4) symbolic value.

TABLE IV-14

Number of Domestic Animals Raised in the Pipalbote Cluster by Ethnicity, 1981

	Cows	Calves	Female Water Buffaloes	Young Buffaloes	Goats	Kids	Chicken	Chicks	Bullocks	Pigs	Horse	Sheep
Upadhaya Brahmin	74	34	35	9	85	15	2	4	51	0	2	1
Jaisi Brahmin	7	8	5	7	17	16	4	0	13	0	0	0
Chhetry	2	4	2	3	8	12	0	0	4	0	0	0
Newar	5	4	1	1	5	9	12	24	10	0	0	0
Magar	3	0	0	2	3	1	7	17	2	2	0	0
Limbu	10	10	2	3	20	10	26	50	20	24	0	0
Rai	8	9	5	3	10	5	17	42	28	14	0	0
Gurung	2	4	1	3	5	3	17	14	2	0	0	0
Sunuwar	3	4	3	1	6	7	4	15	6	2	0	0
Kami	2	1	0	0	1	0	2	6	2	3	0	0
Sarki	1	1	0	0	2	2	0	0	2	1	0	0
Damai	0	0	0	0	2	1	2	1	0	2	0	0
TOTAL	117	79	54	32	164	81	93	173	140	48	2	1
% of Total	11.89	8.02	5.48	3.26	16.66	8.23	9.46	17.59	14.22	4.88	0.21	0.10

Bullocks are the most important animals of all. They are used exclusively for plowing. Bullocks are versatile and fast in dry fields and they are the most useful animals to plow the fields in the hills. Local farmers say that there could be no agriculture without bullocks. The high value placed on them is seen in the cost of hiring a team with the plow and plowman. In the hill region this may be more than the value of the total crop yield. For this reason, if a farmer does not own a team of bullocks, it is difficult to profitably cultivate his fields.

The high caste groups raise female water-buffalo mainly for milk and manure; to other groups (Matwali and Untouchable), it provides not only milk and manure but also a major source of cheap meat. Among many groups like the Rais, Limbus, and Gurungs, a water-buffalo is slaughtered for major ceremonies.

Goat's manure is considered best for agriculture. Its meat is consumed by all ethnic groups and it is comparatively costlier than the meat of other animals. Goats are also an immediate source of cash at any time of the year (see discussion below).

Except for some high caste groups, chickens are used for many purposes by all other ethnic groups. There is considerable consumption of young chickens, sometimes for family rituals and sometimes on feast days. Today, except for the older people in the high caste group, everyone consumes chickens. Like goats, chickens are also an immediate source of cash being easily sold in Ilam bazaar. Eggs usually are either sold or kept for hatching, and only eaten on some ritual occasion.

The pig is an important animal in the day-to-day life of all groups, except the Newars, Gurungs and the high caste groups. The sacrifice of pigs is prevalent in many kinds of rituals and religious activities for the Matwali, for the meat is considered pure and pleasing to the divinities. Pigs figure prominently in the marriage payments that follow a wedding ceremony for the Limbus and the Rais.

The people of this area normally do not raise male water-buffalo, horses and sheep. The local people claim that male water-buffaloes cannot be used to plow in small hill terraces. Raising horses is costly and there were only eight horses in the Barbote Panchayat area. Though sheep raising is a common practice among many Gurungs in western Nepal (see Macfarlane 1976; Messerschmidt 1975), the Gurungs of the Pipalbote Cluster do not raise sheep. The Gurungs of the area are a quite wealthy and elite group and sheep raising is considered a lower occupation. Further, sheep raising also requires large grazing areas which are scarce in the Pipalbote Cluster.

It is difficult to say whether the number of animals is decreasing or increasing. Informants claim that hundreds of animals (basically cows and female water-buffaloes) were raised 2-3 decades ago, but they were pastured 6-10 miles north of today's settlements. Because of the distance involved, fresh cultured butter milk was less available for the villagers than it is now. Today, even though the total number of animals may have decreased, most of the households raise at least some cows and female water-buffaloes and so can drink fresh butter-milk.

Today, with the break-up of the extended family household, less labor is available for tending livestock. In addition, the grazing

areas are becoming smaller and smaller as most of the marginal lands have been cultivated and the forest areas are more protected than before. This would tend to support the claim that there has been a decline in the number of animals held.

According to the local informants livestock are better cared for today as the smaller number of animals allows more intensive care and as a result they now provide more milk per animal.

In sum, the economic functions of livestock can be briefly summarized: supplying food (meat, milk, and milk products) for the livestock owners; products for cash value; traction power and manure. The symbiotic circulation of matter in the ecosystem between human beings and domestic animals is presented in Figure VI-1.

Total Capital Invested in Livestock

It will be interesting to examine the cash people would make if the above animals were sold.

The price of milch cows and female water buffaloes is 40 to 50 percent higher than the non-milch ones. The price also depends upon how much an animal provides milk at a time. The price of bullocks depends on the size of animals, their age and how well they are trained. A female goat is valued by the number of times she has given birth and a castrated goat is valued by its weight. The price of a pig and a chicken depends upon their size and the quality of meat they can provide.

The price of various animals based on interviews with 10 informants is given in Table IV-15.

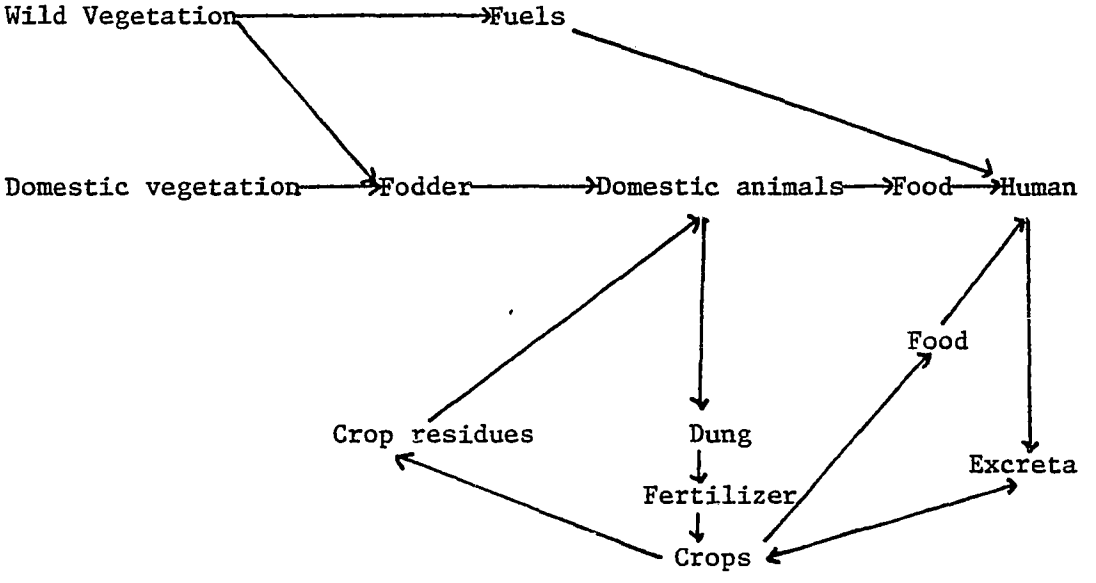


Figure IV-1

Circulation of Matter in the Local Ecosystem

TABLE IV-15

Estimated Price of Various Animals

Kinds of Animals	Number of Animals	Average price for One	Total Rupees
Milch cows	63	750.00	47,250.00
Non-milch cows	54	400.00	21,600.00
Calves	79	65.00	5,135.00
Milch water-buffaloes	21	1,050.00	22,050.00
Non-milch water-buffaloes	33	675.00	22,275.00
Young buffaloes	32	70.00	2,240.00
Goats	123	120.00	14,760.00
Castrated goats	41	200.00	8,200.00
Kids	81	30.00	2,430.00
Chickens	93	14.00	1,302.00
Young chickens	173	2.50	432.00
Bullocks	140	1,500.00	52,500.00
Pigs (adult)	30	275.00	8,250.00
Pigs (young)	18	100.00	1,800.00
Horse	2	1,200.00	2,400.00
Sheep	1	250.00	250.00
TOTAL	984		212,874.00

When this capital is divided into 100 households, each household will receive rupees 2,128.74 ($167.4) or the per capita share of livestock is rupees 274.67 ($23.08). Compared to the data from Thak village (rupees 1,285 from livestock per household, see Macfarlane 1976:89), the capital holdings from livestock are higher in the Pipalbote Cluster.

4.3.5 Agricultural and Domestic Tools

Another category of capital is agricultural and domestic tools.

Almost every household in Pipalbote owns a plow. The estimated price of plows and some important domestic tools is shown in Table IV-16.

TABLE IV-16

Estimated Price of Some Agricultural and Domestic Tools

	Total Number of items	Estimated Price for each	Total Rupees
Plow (halo)*	145	15.00	2,175.00
Pounding machine (dhiki)	80	150.00	12,000.00
Grinding machine (jato)	93	40.00	3,720.00
Mortar and pestle	7	40.00	280.00
TOTAL	325		18,175.00

*Includes price of plow-share.

On average, a household owns rupees 181.75 worth of some agricultural and domestic tools at any one time. There are, however, additional tools which have not been taken into account: spades (kodalo), both smaller and bigger varieties for digging and levelling the field, and sickles (kachiya) for cutting grass. The khukuri, a multi-purpose knife is primarily a weapon but can be used for domestic purposes. A khukuri costs from rupees 35 to 100 and since every household has some spades and sickles, this amounts to another 50 rupees approximately at one time.

Along with these tools every household must have some dokos (sieving basket), manro (mat for drying grain), thunse (storage basket),

dalo (small storage basket), bhakari (big storage basket), chalno (sieving tray) nanglo (winnowing fan), and ghum (rain shield). These are needed for storing, processing, and carrying. The number of items depends upon the household size and the economic background of the family. Each of these items costs a minimum of rupees five for a winnowing to rupees twentyfive for a big storage basket. The villagers do not convert these items into cash as they hardly last one to two agricultural seasons.

Manure

Manure is also an important item of capital in the local context. The villagers estimate that a household which has raised a minimum of two cows, one water-buffalo, three goats, and a team of bullocks can accumulate manure of 150-200 maunds (6,000 kilograms to 8,000 kilograms) per year. Normally people do not sell manure, but one would expect a minimum of one rupee per 40 kilograms of manure if it were sold. Looking at the total number of animals raised, each household then receives the equivalent of rupees 150.

4.3.6 Non-agricultural Capital

I have included household goods (which can be easily observed) as non-agricultural household capital. I have not attempted to estimate less easily observed items such as gold and silver.

4.3.7. House

Five types of houses are observed in the Pipalbote Cluster. These types are presented in Table IV-17 by ethnicity.

TABLE IV-17

Types of House in the Pipalbote Cluster by Ethnicity, 1981

Ethnic Groups	TYPE A Two to three storey, stone walls with galvanized steel roof	TYPE B Two storey, stone and thatched	TYPE C Two storey thatched roof and bamboo matting	TYPE D One storey stone and thatched roof	TYPE D One storey thatched roof bamboo matting	Total
Brahmin, Jaisi and Chhetry	11	38	0	0	0	39
Newar	1	4	0	0	0	5
Magar	0	1	1	0	1	3
Gurung	1	1	0	0	1	3
Limbu	1	14	0	0	2	17
Rai	0	7	1	2	0	10
Sunuwar	0	5	0	0	1	6
Kami	0	1	0	1	2	4
Sarki	0	1	0	0	0	1
Damai	0	1	0	1	0	2
TOTAL HOUSES	14	73	2	4	7	100
% of the total Households	14.00	73.00	2.00	4.00	7.00	100.00

How much capital is involved in constructing each type of house? Informants' answers vary and I have presented the average cost of different types of houses in Table IV-18.

TABLE IV-18

Average Costs of Houses in the Pipalbote Cluster, 1981

House Types (Number of Houses)	Informants' Range of Estimates (In Rupees)	Average Cost of House (In Rupees)	Total Rupees
Type A (14)	8,000 - 15,000	12,500	175,000.00
Type B (73)	2,000 - 5,000	3,500	255,500.00
Type C (2)	800 - 1,200	1,000	2,000.00
Type D (4)	800 - 1,200	1,000	4,000.00
Type E (7)	300 - 500	400	2,800.00
TOTAL			439,300.00

If this capital were divided into 100 households, each household would receive a sum of rupees 4,393, which is lower than in Thak village. Macfarlane (1976:68) gives the total cost of five households in Thak and the average capital involved for a house is rupees 5,060.

Most of the houses have been constructed in the past 15-40 years. The increasing amount of capital invested for houses indicates a period of prosperity. A few years ago, there was no alternative for investing money except to construct a house or buy land. Chances to invest money

for better education were minimal and little in the way of clothes and food was available for purchase. So a big house with a galvanized iron roof was the sole indicator of wealth during this period. Today villages spend their money not only to construct big houses but also for other things as mentioned above. As a result, households whose elaborate homes were built some years ago still get a certain prestige from them; however, the families may no longer be wealthy.

4.3.8 Household Goods

Table IV-19 shows the number of household goods owned by the people of the Pipalbote Cluster by ethnicity.

The table shows that 66.6 percent of the radios, 61.7 percent of the watches, 73.5 percent of the chairs, and 69.7 percent of the tables are owned by the high caste group. Sewing machines are kept both by Brahmins and Damais (tailors), 7 out of 8 local guns are held by the Matwali, fishing nets are exclusively owned by the Rais. The single clothing iron is owned by a Damai and the only forge is owned by a Kami.

The prices of these household goods are based on interviews with a number of informants. (See Table IV-20.)

It is a conservative estimate of items as one new Panasonic 3 band transistor radio costs more than 1,400 rupees in Ilam bazaar. About 60 percent of the radios and watches were of Japanese make and the rest were Indian. As few of them were new, they were given a depreciated price as half or even lower than the original price. On the above estimate, each household is allocated on average, rupees 340.65.

TABLE IV-19

Number of Households Goods Owned by the People of the Pipalbote Cluster, by Ethnicity, 1981

Ethnic Groups	Radio	Watch	Chair	Table	Sewing Machine	Gun (Local)	Loom	Loom for Mats Only	Fishing Net	Clothing Iron	Forge and Tools
Upadhaya Brahmin	15	25	35	20	3	1	0	4	0	0	0
Jaisi Brahmin	2	2	1	1	0	0	0	2	0	0	0
Chhetry	1	2	0	2	0	0	0	1	0	0	0
Newar	2	3	0	1	0	1	0	1	0	0	0
Magar	0	1	2	1	0	0	0	0	0	0	0
Limbu	2	4	3	2	0	3	1	6	0	0	0
Rai	3	5	3	1	0	2	0	3	2	0	0
Gurung	1	4	5	4	0	1	0	0	0	0	0
Sunuwar	0	1	0	0	0	0	0	0	0	0	0
Kami	0	0	0	0	0	0	0	0	0	0	1
Sarki	0	0	0	0	0	0	0	0	0	0	0
Damai	1	0	0	1	4	0	0	0	0	1	0
TOTAL GOODS	27	47	49	33	7	8	1	17	2	1	1

TABLE IV-20

Estimated Price of Household Goods in Pipalbote, 1981

Items	Total Number of Items	Average Price of Each Item (In Rupees)	Total Rupees
Radio*	27	500.00	13,500.00
Watch*	47	250.00	11,750.00
Chair	49	25.00	1,225.00
Table	33	30.00	990.00
Sewing machine	7	500.00	3,500.00
Gun (local made)	8	300.00	2,400.00
Loom	1	100.00	100.00
Loom (for mat only)	17	10.00	170.00
Fishing net	2	40.00	80.00
Clothing iron	1	50.00	50.00
Forge (Blacksmith tools)	1	300.00	300.00
TOTAL	193		34,065.00

*Normally consumer items in Nepal. They are considered stored capital.

4.3.9 Fixed Capital Holdings in the Pipalbote Cluster

The total capital in the form of fixed capital holdings held by the people of the Pipalbote Cluster is as follows:[14]

TABLE IV-21

Total Amounts of Fixed Capital Holdings in the Pipalbote Cluster, 1981

	Amount in Rupees
Land	4,603,000.00
Livestock	212,874.00
Tools, etc.	18,175.00
House	439,300.00
Household goods	34,065.00
TOTAL	5,307,414.00

In total, each household in Pipalbote holds an average amount of fixed capital of 53,074 rupees ($4,460) or the average per capita holding is 6848 rupees ($575.5). Macfarlane (1976:108-109) estimates an average holding of 3,000-12,00 rupees which covers most of the Gurung families in Thak. In addition, unlike Macfarlane, my figures here exclude income from the sale of seed crops, gold ornaments and clothing in computing average capital holdings. The Gurungs of Thak are considered one of the most prosperous groups in South Asia (see Macfarlane 1976). Compared to Macfarlane's data, Pipalbote is relatively a prosperous community.

4.4 HUMAN LABOR AS A HOUSEHOLD ASSET

Skilled human labor as "capital" also needs detailed consideration to develop a standard unit of measurement paralleling the consumption unit and the production unit so that household budgeting and time labor analysis can be made.

It has been suggested for a South Indian village, that the labor of boys aged 10-15 is worth half that of an adult male, and that, in terms of wages paid and roughly in terms of work performed one male labor day equals two female labor days (Epstein 1962:49, 78). However, in Pipalbote there are no marked differences in wages between an adult male and female, except for certain kinds of work. For example, plowing and house construction are exclusively male occupations. Boys and girls by age 15 or even earlier become full paid wage earners in Pipalbote.

The division of labor in Pipalbote Cluster is given in Table IV-22. The age groups are categorized as children 5-10 years, an

TABLE IV-22

Division of Labor in Pipalbote by Sex, 1981

Work	Men	Women	Children (5-10 years old)
Plowing	100	0	0
Sowing	100	100	0
Transplanting	75	100	0
Levelling the field	100	100	0
Manuring	100	100	0
Weeding	100	100	0
Irrigation	100	50	0
Reaping	100	100	0
Herding cattle and goats	100	100	75
Herding buffaloes	100	100	50
Collecting fodder	100	100	50
Cutting wood	100	0	0
Collecting firewood	75	100	25
Carrying water	50	100	25
Cooking tea	50	100	50
Cooking food	25	100	0
Marketing (purchasing domestic goods)	50	100	0
Marketing (selling domestic goods)	50	100	0
Stone work	100	0	0
Wood work (making plow, etc.)	100	0	0
Grinding and pounding	25	100	0
Weaving mats	0	100	0
Harvesting crops	100	100	0
Looking after young children	25	100	75
Thatching roofs	100	0	0
Washing clothes	50	100	25
Milking animals	100	100	0
Family religious activities	100	100	0

intermediate status 11-14 while age 15 and above are grouped with adults. Boys and girls of the age group 11-14 share almost all activities of work done by adult males and females and their contributions to work vary so greatly by individual that I have omitted this group in the table.

To express the cultural expectations of relative participation in common tasks differentiated by sex and age, I have given a numerical weight of work units; 100 stands for full participation and 0 represents no work performed. The figures are approximations.

Table IV-23 shows that there is division of labor between the sexes in some fields. However, adults of both sexes share work in many ways. They level the clods, carry manure to the fields, weed the crops, and harvest them together. In agricultural work, for example, while transplanting millet or paddy seedlings, the men will dig up the ground while the women will follow transplanting the seedlings. The males cut the firewood and the females carry it home. In addition, adult females winnow grain and store it, grind the maize and millet and prepare the lunch and dinner. They will transport vegetables and grain to the local market, sell them, and purchase necessary goods.

Male adults plow fields, build fences and walls around the fields and houses, thatch roofs, repair and construct houses and cowsheds. In the active agricultural season, men, women, and children all take part in weeding crops, harvesting and threshing. The senior adult male in the family, however, always leads. He makes decisions in economic matters and supervises family affairs.

Appendix 5 gives the details of work conducted by members of two households: 1) an extended Brahmin family with 15 members in the household (nine members above 10 years) with more than 10.2 hectares of land, and 2) a nuclear blacksmith family with nine members in the household (four people above 10 years) with no landholdings at all.

The appendix shows that women contribute substantially in the household economy for firewood collection, agricultural productivity, food preparation, child care, and wage labor (agricultural and non-agricultural). The work input data show that women work more than men as a whole. However, the higher average input by women is due mainly to their relatively higher contribution to household maintenance cost. The data also show that there is no unemployment even in the poorest blacksmith family, though women may spend more time in non-agricultural activities in which the return per hour is low.

On the other hand, calculating the work load of an individual or household is a very complicated issue. The division of labor by age and sex must be taken into account. Women and children above age 10 make substantial contributions. There is also marked seasonality of work. The planting and harvesting demand a very high seasonal input of labor. In the so-called agricultural season, a great variety of tasks including agricultural work not directly involved in the growing of crops, occupies many man hours. Any calculation of labor expenditure and unused labor potential must take into account the complexity of the work schedule.

4.5 GENERAL CONCLUSION

This chapter describes the changes in agriculture stimulated and facilitated by population growth and to some degree by shifts in the ethnic composition of the community. The figures for rice land clearly indicate that there had been a considerable expansion of wet rice fields in both the kipat and raikar land since 1912. The development of irrigated fields requires intensive labor and was not possible until the population of the area grew. As the high caste groups slowly penetrated the area, more manpower was available for the development of agriculture. However, high caste groups preferred rice as a staple. There are some basic cultural reasons for this. In the high caste group rice offerings are obligatory during ancestor worship (shradha) which normally occurs two to three times in a year. On the other hand, it is a prestigious food. For this reason, the high caste ethnic group, if possible, always tries to hold some irrigated land and thus originally rice cultivation expanded in the lower region (bensi) and pushed up slowly into the higher regions. In the beginning the high caste groups were encouraged by the Limbus to cultivate their land in the area and finally, they became successful to hold much land in their own names. (see discussion in concluding chapter).

Considerable marginal lands have been converted to dry fields for maize and millet. However, there are no records kept of dry fields; the family case histories collected in the field suggest such conversion of dry fields for maize and millet. The land allocated for Barbote school (about 5.1 hectare let fallow till 1978) has been opened up for maize and millet cultivation. The field is sloping mountain land where

it is difficult to construct terraces and the cultivation of maize and millet was done by hoeing.

As a whole, this suggests that more land per household was made available by conversion of marginal land and possihly more labor investment per capita. However, the productivity of the new land was marginal and the landholdings could not support the growing population in the Pipalbote Cluster. As a result, the people of the Pipalbote Cluster in the last 20 years, started growing more than one staple crop in their fields. Today, the cultivation of wheat and potatoes have taken new dimensions in the Pipalbote Cluster and some marginal lands are utilized to grow cash crops like big cardamom (see Chapter VIII).

Though the local people feel pressure on forest resources to collect firewood and fodder, however, they still manage to raise some livestock for milk, meat, manure and power. Division of labor shows that women and children contribute a great deal in various economic activities. The capital holdings demonstrate that the Pipalbote Cluster is relatively a wealthy community compared to many other villages of Nepal, despite the population pressure.

CHAPTER V

RESOURCES (PART II): INCOME, CONSUMPTION AND EXPENDITURE

The main aim of this chapter is to provide a view of relative income from various sources and then to give the consumption and expenditure patterns.

5.1 INCOME

The cash incomes are generated by the sale of farm produce, trading, wage/salary, and labor. This is followed by a comparison of the total income from agricultural and non-agricultural sources. The data show that non-agricultural sources of income are substantial in the Pipalbote Cluster.

5.1.1 Sale of Farm Produce

Milk

According to local informants, the sale of milk in a household normally continues for about six months. In Pipalbote, 25 households were involved in selling milk, of them 20 (80 percent) belong to the high caste group and the rest from the Matwali (two Newar and three Limbu households). Untouchables cannot sell milk and its products as they are still considered polluting to other groups. However, milk is sold by those households located within 2-4 miles of Ilam bazaar.

In total, the people of Pipalbote sold 14,062.6 liters of milk in six months and earned 30,937.0 rupees (0.5682 liters of milk was sold at rupees 1.25 in Ilam bazaar).

Butter and Yogurt

Nine households sold butter in the Pipalbote Cluster. Of these six were from the high caste group and three from the Matwali. The sale

of butter lasts for three months only. A total of 120 kilograms of butter was sold. Rupees 2,520 was brought by selling butter (an average of 21 rupees per kilogram).

Only three households (all from the high caste group) sold yogurt and the total sale was rupees 504 per annum.

Vegetables

Most of the people of the Pipalbote Cluster sell vegetables at Ilam bazaar (the sale of potatoes is discussed separately).

Twenty households were involved in selling a variety of vegetables such as green mustard, radish, cauliflower, cabbage, tomatoes, squash, pumpkin, etc. Of the twenty households, ten were from the high caste group and ten from the Matwali. The total amount estimated from the sale of vegetables was rupees 7,100 per annum.

Tangerines

Though I observed 600-700 tangerine trees in Pipalbote, the sale of tangerines was limited. This is because: 1) most of the fruits either drop before ripening due to high wind or they are eaten by insects or bacteria; 2) in some years, the tree does not bear enough fruit. Only five households (two Brahmins, three Limbus and one Rai) were involved in selling tangerines and earned a total of 1,400 rupees.

Millet-beer (Jand) and Country-liquor (Rakshi)

Fourteen households from the Matwali group (31.8 percent of the total Matwali households) were involved in selling millet-beer and country-liquor. I estimate[15] that these households made a net profit of rupees 7,956 per annum from the sale of millet-beer and country-liquor

Puffed Rice (Chiura)

Four households (three Brahmins and one Newar) were involved in selling puffed rice. I observed that these households made a net profit[16] of rupees 6,240 per annum. This business runs throughout the year.

Livestock

There were 47 households in the Pipalbote Cluster which sold some of their livestock in 1980/81. The most commonly sold livestock was goats, chickens and pigs. The total sale was rupees 14,600 or the average sale per household was rupees 311 per annum.

Doughnut (Sel Roti) and Tea

There were two households (one Newar and one Limbu) who were involved in selling doughnuts, curry, and tea at the bi-weekly market.

The Newar woman was helped by her son and was making a net profit[17] of 3,398.40 per annum. This is a tremendous non-agricultural income for a family.

The other household was that of the Limbu couple, who were landless but had built a small house on the main road. Their livelihood, except for occasional wage labor was dependent on selling doughnuts, curry, and tea on the market days and also selling millet beer and country liquor on these days. The couple had little capital and the house was not large enough to entertain many customers. Because of these constraints, they make only about rupees 960 per year.

Fish

Fish are caught during 5-6 months a year (October to January). Excluding fish consumed at home, a total of 83 kilograms were sold in

the period for a total of rupees 1,494 (rupees 18 per kilogram) per annum.

5.1.2 Trading

Cloth Vending on Market Days

Two weekly market days are observed in Ilam. There were five people (three Brahmins, one Chhetry and one Newar) from the Pipalbote Cluster who used to run cloth shops on these market days. One cloth shop was started as early as in 1971 and another as recently as 1980. The biggest cloth dealer was a Brahmin who estimated his capital to be rupees 30,000 to 35,000.

A total of rupees 1,800 was estimated as the net profit per month by vending clothes at Ilam bazaar. In addition, two Brahmins make trips to vend clothes in Budhbare, the Wednesday weekly market. Each of them make a net profit of rupees 100 per month here. In sum, by vending clothes, about rupees 22,800 per annum was earned.

Permanent Grocery and Cloth Shops

There were a total of 15 shops of different kinds in Barbote Panchayat but only two shops selling groceries, cloth and tea exist in the Pipalbote Cluster. Both were run by Brahmin families. The grocery and cloth shop was started more than a decade ago. Originally this merchant sold tea leaves at Ilam bazaar and slowly accumulated enough cash to set up a shop in Pipalbote. Today, this is one of the biggest shops in the whole Barbote Panchayat area. In 1978, this merchant also started a wholesale business in big cardamom with the help of his educated young son. It is observed that this merchant family earns

15,000 to 20,000 rupees per annum. In 1980, this merchant family invested 25,000 rupees to purchase land in the Terai.

The other shop, started in 1980, was a small grocery and tea shop (capital hardly exceeds rupees 200). As the shop was not at the main crossroads, a total profit was only about rupees 500 per year. The shopkeeper told me that customers have yet to be acquainted with the shop.

In addition, there are a number of entrepreneurs or middlemen in Pipalbote who make good money during the market days. For example, a Brahmin sits at a crossroads 3-4 miles from the market early in the morning on market days, purchases butter, soybeans, goats, and potatoes at cheap prices and sells them again at Ilam bazaar claiming to make a profit of rupees 1,200 per annum.

Some middlemen are also able to buy butter cheaply by paying farmers 6-12 months in advance. A Brahmin of Pipalbote was involved in this business and he used to collect 60-80 kilograms of butter from farmers in every fortnight for six months. This butter was again sold to an Indian merchant who provided some 50 percent of the capital, the middleman earned about rupees 2,400 in total per annum.

A Sunuwar of Pipalbote was also involved in buying goats within the village panchayat area and used to sell them again at Ilam bazaar, making a profit of rupees 500-700 per annum. A Limbu used to slaughter a water buffalo every other Thursday in Ilam bazaar, earning about 1,000 to 1,200 per year. Another Limbu who also occasionally slaughtered water buffalo on the weekly market day make a profit of 600-700 rupees a year.

5.1.3 Wage/Salary/Labor

Army Service Abroad

Servicemen normally do not provide information as to how much money they bring home. Macfarlane (1976:157) thinkgs that a riflman in the British army would bring rupees 3,000-5,000 after three years tour of service. But in Pipalbote, a rifleman brought about 18,000 rupees (including both in cash and kind) when he came home on his regular leave after three years. This rifleman brought 25 percent in kind and the rest was in cash.

The money saved by a soldier, however, depends upon his personal habits. For the Limbus of the Indreni Cluster, only about 60 percent of a soldier's pay eventually reached home (see Caplan 1970:117). This is probably a reasonable figure for the Pipalbote Cluster also.

In the Barbote Panchayat area, there were 13 men currently in the British army (all Matwali) and 11 men in the Indian army (except for four Chhetries all were Matwalis). Most joined the British army between 1977-1981 while the Indian army recruited between 1961-1977. Two people from the British army and ten people from the Indian army were drawing pensions. All of them were Matwalis.

In Pipalbote, there were two men (both Matwali) who had joined the British army recently (1979-1980) and four men (all Matwali) were in the Indian army. The service in the Indian army started as early as in 1964. Nobody was drawing a pension from the British army but three servicemen were drawing pensions from the Indian army.

Men and Women Working in Nepal in the Army, the Police, and White Collar Jobs

There were five men in the army (except for one Chhetry all were Matwalis) and seven men in the police (except for two Chhetries and one Blacksmith, all were Matwalis) from Barbote Panchayat. Only one man was drawing pension (this man was a Brahmin who was working in the army as a health aid) from the Nepalese army.

There was no one from Pipalbote in the Nepalese army, but there was a single man currently employed in the police (a Matwali). One man was receiving a pension from the Nepalese army.

There were a total of 78 people from Barbote Panchayat (except for 13 Matwalis and of them 7 were Gurungs only, all of them were from the high caste groups) who were involved in white collar jobs. Some were working within the panchayat, in the district headquarters and others outside of these areas.

There were a total of 21 people (except for four Matwali people, all of them were high caste members) who were employed in the various white collar jobs. Five people worked outside the panchayat and the district headquarters, of which two worked in the cities of Kathmandu and Biratnagar.

The total amount of money received in Barbote Panchayat and the Pipalbote Cluster from various sources is given in Table V-1.

Compared to Barbote Panchayat, a lesser number of men were employed in the British army whereas a greater percentage of people were involved in a variety of white collar jobs in Nepal from the Pipalbote Cluster. Matwali, as can be seen, tend to serve in the army and police while few Chhetry and no Brahmins serve, rather these two groups choose

TABLE V-1

Money Received from Various Services in Barbote Panchayat and in Pipalbote Cluster, 1980/81

Service	Barbote Panchayat Salary Per Annum	Barbote Panchayat % Of Total	Pipalbote Cluster Salary Per Annum	Pipalbote Cluster % Of Total
British Army and pension	396,804	47.68	48,000	29.42
Indian army and pension	97,824	11.74	29,580	18.13
Nepalese army, police pension, and white collar jobs	337,536	40.57	85,560	52.45
TOTAL	832,164	100.00	163,140	100.00

white collar jobs. Except for one Blacksmith male, not a single person from the Untouchables was employed either in the army service or in the white collar jobs. These service patterns not only reflect the various socioeconomic structure of different ethnic groups, but also present variations in response to population pressure.

The Sale of Labor

The agricultural wage labor and the wage labor in construction and other works are other sources of income for the people of the Pipalbote Cluster.

1) The agricultural wage labor

Richer families have considerable labor deficits during the rainy season when the cultivation of wet rice and maize begins. The middle class people have just sufficient labor to handle their agriculture. Sometimes an exchange labor system is used to meet heavy labor demands

In Pipalbote, blacksmiths who were mostly landless, have the most surplus manpower available; tailors have little time to spare from their professional work and poor Brahmins and Chhetries, Newars, Magars, Gurungs, Limbus, Rais, and Sunuwars are available for agriculture, construction, and other work (see Table V-2).

In addition, some households earn money by supplying bullocks and a plowman during the agricultural season. Six households were involved (three Brahmins, two Limbus, and one Blacksmith), earning a total of 2,175 rupees per annum.

2) Wage Labor in Construction and Other Work

In 1980-1, the Ilam-Panchthar road (a distance of about 72 kilometers) was under construction. As this road passes through the Barbote Panchayat area, many people from the Pipalbote Cluster were employed during their slack periods. In addition, some people were employed to cut wood, thatch houses, and build fences on a wage basis.

The total man days utilized for labor work of all categories as mentioned above, by ethnicity is given in Table V-2.

Compared to other ethnic groups, Limbus, Rais, and Kamis have less land for cultivation and utilize their idle manpower for the wage labor. On the other hand, Damais have little land, but they make a good living as tailors. Both sexes are involved in wage labor. The wage labor is not restricted to the people 15 years and above. I observed a lot of boys and girls who were in 13-14 years of age but were engaged in wage labor like adults. If rupees five is counted as the minimum daily wage, the total money earned would be rupees 30,765 in a year.

TABLE V-2

Total Man-Days a Year in Wage Labor in the Pipalbote Cluster by Ethnicity, 1980/81

Ethnic Groups	Total Man-Days a year in Wage Labor	% of Total Wage Labor	% of the Population in the Age Group 15-19
Upadhaya Brahmin Jaisi Brahmin and Chhetry	406	6.63	52.70
Newar	270	4.40	5.41
Magar	300	4.90	1.41
Gurung	240	3.92	3.53
Limbu	1,512	24.70	16.95
Rai	1,445	23.60	10.83
Sunuwar	750	12.25	3.77
Kami	1,080	17.64	1.41
Sarki	120	1.96	2.35
Damai	0	0.0	1.64
TOTAL	6,123	100.00	100.00

Jajamani Service

Jajamani is a service rendered by a person to his client in cash and kind. The tie can be either temporary or permanent (see Berreman 1972: Gould 1964). Two types of jajamani service are prevalent in the Pipalbote Cluster.

1. Services provided by high caste Brahmin pirests to high caste and Matwali.

2. Services provided by the lowest castes (Untouchable) to upper castes including Matwali.

Services Provided by High Caste Brahmin Priests to High Caste and Matwali

In the Pipalbote Cluster, there were four Brahmins who performed priestly services for their clients. Normally rich Brahmins leave the performance of priestly services to poor Brahmins feeling that such service is demeaning. Of the four Brahmin priests I interviewed, three in detail, I found that the highest income from priestly services was rupees 1,200 and the lowest was 200 a year. Normally the cash value of a Brahmin's priest service depends upon his education and his reputation. The Brahmin priests of Pipalbote are not to be considered well educated.

In sum, a total of rupees 2,285 was earned in a year by Brahmins for priestly services in the Pipalbote Cluster.

Services Provided by the Lowest Castes to the Upper Castes

In the Pipalbote Cluster, though tailors', blacksmiths's and cobblers' services are available, only tailors' services are supplied in the context of an ongoing relationship between a client and a craftsman. (See Caplan 1970).

Only two tailors (who are full brothers) were involved in the traditional Jajmani (locally known as bali) as well as having cash customers. They had 15 clients between them and collected a total of about 854 kilograms of unhusked rice per annum.

Each craftsman also gets his traditional share when there is a festive occasion. He gets about half a kilogram of grain, some vegetable and some cooked items from each client. In addition, the craftsman gets 3.1 kilograms of maize during the maize harvest and 2.4 kilograms of unhusked rice before New Year begins. The New Year's grain is an advance payment to the craftsman. By receiving this payment, the craftsman gives

his final consent to work for a particular client. Thus the traditional client and craftsman relationship must be renewed. A new contract is made for the whole year on the basis of the estimated needs of a client.

Both also do tailoring for cash. The first claims he earns about rupees 300 a month except for the very busy agricultural months when he earns about rupees 100 per month, totalling about rupees 2,200 per annum excluding his bali payment. The second tailor's cash earnings were about rupees 2,000 per annum. In addition, he sold one pig for rupees 580 in 1980/81. This family had more working hands. His two sons had rented land in 1980 and they made a profit of 612 kilograms of maize. The father is also a shaman and earns some cash and grain by this occupation. Clearly, the idea that to be landless is necessarily to be hungry is a misapprehension.

Another tailor who is a nephew of these tailors, lives outside of the Pipalbote Cluster but makes clothing for local people primarily for cash and also in bali. He tailors clothing in the modern style and most of the young school boys and girls prefer him. This tailor earns 3,000 rupees cash a year and about 463.3 kilograms of unhusked rice.

Of the four Pipalbote households of the blacksmith caste, only one actually works iron. He makes new agricultural tools and repairs and sharpens the old ones. He works only for cash and the total earnings were rupees 1,200 in a year. He also has land from which he earns income.

There is a goldsmith in the Pipalbote Cluster. In fact, he designs only the simple copper, silver, and brass ornaments as nodoby asks him to make gold ornaments. He earns only about rupees 100-150 per

year. There is another blacksmith who lives outside of the Pipalbote Cluster who makes, repairs, and sharpens iron tools for the people of the Pipalbote Cluster. He had 30 clients in the bali system and collected about 682.8 kilograms of unhusked rice in 1980, in addition he earned rupees 1,000 in the year. This blacksmith also owns agricultural land. This is a substantial supplementary income.

5.1.4 Total Incomes: Agricultural and Non-Agricultural

Agricultural income includes both crops and livestock consumed by the household and those sold. Income generated from trading (items normally purchased from market and sold) and wage/salary are considered income from the non-agricultural sector. The approximate cash value in the agricultural sector is given in Table V-3 to show how much was actually produced and what was then sold. Table V-4 shows the income derived from non-agricultural sources.

These tables show that the total income expressed in cash values in the Pipalbote Cluster is 865,986 rupees, of which 598,050 is from the agricultural sector and rupees 267,936 is from the non-agricultural sector. Agriculture constitutes 69 percent of the total income, whereas the other sources account for 31 percent. If this income were evenly distributed in the Pipalbote Cluster, each household on average, would receive a sum of 8,659.9 rupees or a per capita income of rupees 1,117 ($93.9) excluding produce for which equivalent rupees cannot be calculated. This per capita income is lower than in Nepal as a whole in 1981 (Nepal: $130; see 1981 World Population Data Sheet), but Nepal's income is basically generated from the Terai, where most of the industries are located and from where more than 80 percent of the total grain is

TABLE V-3

Total Production, Equivalent Cash Value and Amount Sold of Agricultural Produce in the Pipalbote Cluster, 1980/81

Produce	Total Kilograms	Equivalent Cash Value of Unsold Produce (in Rupees)	Amount Sold in Rupees
Unhusked Rice	102,563.31	252,360.00	12,618.00
Maize	41,085.18	93,400.00	0.0
Millet	13,739.46	34,463.00	3,446.00
Wheat	18,526.61	45,262.'0	9,052.00
Mustard	1,639.76	11,568.00	0.0
Lentils	1,328.21	6,588.00	658.00
Potato	32,040.00	42,550.00	21,275.00
Sweet Potato	5,800.00	3,625.00	1,087.00
Big Cardamom	1,358.00	27,160.00	27,160.00
Milk	24,500.00	61,874.00	30,937.00
Butter	200.00	4,200.00	2,520.00
Yogurt	NA*	NA*	504.00
Vegetables	NA	NA	7,100.00
Tangerines	NA	NA	1,400.00
Livestock**	--	--	14,600.00
Fish	NA	NA	1,494.00
Manure	8,000.00	15,000.00	0.0
TOTAL		598,050.00	133,851.00

*No exact production figures available.

**That portion of livestock which is kept as breeding stock is listed separately under fixed capital.

TABLE V-4

Incomes from Non-agricultural Sources (Trading and Wage/Salary) in the Pipalbote Cluster, 1980/81

Source of Income	Approximate Earnings a Year
Trading	
Sale of clothes	22,800.00
Permanent shops	17,500.00
Millet beer and country liquor	7,716.00
Puffed rice	5,760.00
Doughnuts and tea	4,358.00
Others (middleman, etc.)	5,950.00
TOTAL	64,084.00
Wage/Salary	
British army	48,000.00
Indian and pensions	29,580.00
Pension and police service in Nepal	4,446.00
White collar jobs in Nepal	81,126.00
Brahmins' priestly services	2,285.00
Craftsmen services	7,650.00
Sale of labor	30,765.00
TOTAL	203,852.00
Grand Total from Non-Agricultural Sources	267,936.00

produced. There is no comparative data for the per capita income for the hills as a whole, but almost certainly that the per capita income of the Pipalbote Cluster is significantly higher than the average for the hills due to the following reasons:

1. Pipalbote Cluster is close to Ilam bazaar. Household products can be sold for a good price with low transportation costs.

2. Pipalbote is located close to the district headquarters; news of openings for new jobs is quickly transmitted; opportunities for employment are good. Further, good education and transportation facilities have helped to make people aware of day-to-day opportunities. In other words, idle manpower can always be utilized either in agriculture, government service, or wage labor within the village panchayat and beyond.

5.2 CONSUMPTION

5.2.1 The Consumption Unit

Bailey considered "all persons of fifteen years and over as full consumers, those from ten to fourteen as half consumers, and those from two to nine as quarter consumers" (1957:277). This estimate fits with the situation among the Limbus in East Nepal (Caplan 1970:77). To both Bailey and Caplan children under two years are insignificant and can be ignored. Macfarlane (1976:163) thinks that up to the age of 15, men and women consume equally. From the age group 20-60, males are full consumers whereas women are always significantly lower consumers than males in all age groups.

Regarding the Pipalbote Cluster, it is difficult to be precise in reckoning food consumption as patterns vary from one ethnic group to another. One factor is how much physical effort a person expends in work. A person who works in the field will consume more food than a

person who works at home or sits idly. It is observed that food consumption is lower among the high caste group than the Matwali and Untouchable even if a Brahmin works in the fields. I was told that a Brahmin hardly consumes 450 grams of grain at a time even if he works in the fields while members of other communities will easily consume 450 grams at a time when not working in the fields. A similar value applies to high caste women regarding food consumption.

The figures given below refer to the average consumption: putting the high caste in one category and the Matwali and Untouchable in another category. In addition, the food consumption of a Brahmin male and female will be reduced 40-50 percent after the age of 50 whereas this is 20-25 percent among the Matwali and Untouchable. The food consumption unit as supplied by different informants by ethnicity is given in Table V-5. Unit 1.00 is considered as the maximum consumption of a male in his lifetime.

I consider that there is always some consumption of grain even by young infants. It is customary in many ethnic groups in Nepal that the first food eating ceremony (anna prasanna) is held when an infant is 5-6 months old. In some cases the consumption of solid food (flour or cereals) starts even earlier than that. According to my informants, the full consumption of a male starts at the age of 20 and continues up to the age of 45. During this period, women consume almost the same as males since this is the reproductive period of a woman when she is expected to consume more.

TABLE V-5

Food Consumption in the Pipalbote Cluster by Ethnicity and Sex, 1981

	High Caste Group		Matwali and Untouchable	
	Male	Female	Male	Female
6 months to 1 year	0.05	0.05	0.05	0.05
1-3 year	0.10	0.10	0.10	0.10
4-6 year	0.15	0.10	0.15	0.15
7-10 year	0.25	0.20	0.30	0.25
11-14 year	0.50	0.35	0.60	0.45
15-19 year	0.90	0.80	0.90	0.90
20-44 year	1.00	0.90	1.00	0.95
45-54 year	0.80	0.60	0.90	0.80
55-59 year	0.50	0.40	0.70	0.50
60+	0.40	0.30	0.50	0.40

5.2.2 Diet and Nutrition

To try to watch what people eat is ridiculous in Nepal. Among the high caste group, outsiders (from whom water can be accepted) are permitted to enter into their kitchens only up to a clearly demarcated boundary. Untouchables have no right to enter into the kitchen of any other higher groups. Further, people do not eat the same type of food throughout the year. These customary regulations and different foods in different seasons of the year make it complicated to collect reliable food consumption data in the area. I begin here with foods which people consume in different seasons of the year, then later I will analyze their nutritional value.

The principle grains consumed in the Pipalbote Cluster are rice, maize, wheat, and millet. White and sweet potatoes are supplementary crops, and they are always substituted when there is a shortage of grain. According to the local people, grain consumption is usually a must for both meals (lunch and dinner) but during the food shortage periods (especially in May/June and October November), the evening meal in some households often includes sweet potatoes, white potatoes, taro, and popcorn. The consumption of cereals is considered necessary during lunchtime as people have to go to work during the day.

The types of grains consumed are almost similar to the quantity of different grains produced from the fields. The percentage of grains consumed by the people of the Pipalbote Cluster on the basis of production data is given in Table V-6.

Consumption patterns of grains differ slightly from what has been presented. The high caste groups usually sell millet and purchase rice if they have the rice deficit in that year. On the other hand, among the Untouchables the Damais (tailors) claim that they never consume millet as their full meal as they always have cash to purchase rice. Many Matwalis use millet to brew beer and country liquor. Though people eat wheat, they say that they still have to develop a taste for it and making bread (roti) out of wheat for many people takes more time than cooking rice or maize.

The proportion of grain consumed, even within a single ethnic group varies from one family to another. For example, the richer families among the Brahmins consume more rice than other grains. But even among them, it is observed that only the older people (especially

TABLE V-6

Percentages of Grains Consumed in the Pipalbote Cluster By Ethnicity, 1980/81

Ethnic Groups	Percentage of Grains Consumed in 1980/81				
	Rice	Maize	Wheat	Millet	Total
High caste groups	67.63	17.50	9.23	5.64	100
Matwali	61.93	22.33	7.82	7.92	100
Untouchable	41.09	29.90	8.65	20.36	100
Average Consumption	56.89	23.24	8.57	11.30	100

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the head of household and his wife and this is common in the extended family) consume rice, whereas the other members of the household consume rice and some maize, sometimes mixed rice and maize (misha).

Meat

Meat, a major source of protein, is consumed by many members of ethnic groups in the area. However, each ethnic group has different preferences for meat. For example, Rais do not consume goat while Newars do not eat pork. Upadhaya Brahmins consume less meat and seven Brahmin households were observed to be vegetarians.

A household of five to six members consume one kilogram of meat at a time and this rate of consumption increases proportionately when there are more family members at home. I estimated that meat is consumed about 16 times by the high caste groups and about 31 times by the Matwali and Untouchable a year. Further, the Matwali and Untouchable occasionally consume eggs. The Untouchable, particularly the cobblers (Sarkis) collect the leather of dead animals and also consume their meat. On

average, a household in a year consumes about 17 kilograms of meat in the high caste groups and about 33 kilograms by the Matwali and Untouchable.

Pulses, Legumes, and Vegetables

Another important protein source in the area is pulses, legumes, and soyabean. The Matwali and Untouchable grow and buy fewer pulses and legumes than the high caste group because they prefer meat.

Pulses, legumes, and soyabean are consumed mostly after harvest starting in December and this continues until March when the stock of most households is getting low. For the rest of the year, an Untouchable will consume pulses and legumes once or twice a month, a Matwali once a week and a high caste group about twice a week. In addition to this, all groups have pulse on feast days.

Vegetables are widely eaten. In the rainy season as well as during the winter, a variety of vegetables are available.

Milk

Milk, an important food, is most commonly consumed as yogurt (dahi), cultured butter milk (mohi), and butter (ghiu). Households near to Ilam bazaar mostly sell their morning milk while others store it for making butter and butter-milk. High caste groups consume more milk products than other groups. Many households make butter every few days. This commonly produces more butter-milk than the household needs. Since it is quick to sour and cannot be stored it is freely given to needy families. This way many families substitute to an extent to their protein and vitamin requirements.

Fruits

The most common fruits are bananas and tangerines. In the last 15-20 years, attempts have been made to grow tangerines but trees do not yield well in the area. In December-January, many people eat some tangerines but it is a valuable cash crop and so most is sold.

Most bananas consumed are home grown. Consumption is heaviest during the Dasai festival in October.

Nutritional Value of Food

There is dispute concerning calories and protein requirements per day, estimates varying from 1800 to 2200 calories and 35 to 68 grams of protein minimum. However, caloric requirements vary with weight, climate, workload, pregnancy, lactation, etc. As Nepalese generally consume large amounts of grain, they are well supplied with vegetable protein.

The Dooley Foundation Survey in Nepal (24-hour recall dietary survey) found a wide range of diets of 1923 to 3354 calories and 45.5 to 98.0 grams of protein per day. Dhital (1974:113) observed that in Nepal, the Terai people consume 2435 calories and hill people 1934 calories per day. The Nepal Health Survey found that the nutritional standard of the villages surveyed in Nepal was adequate (Worth and Shah 1969:107). But the results presented by the Nepal Nutrition Status Survey of 1975 showed a low level of nutrition of people of rural Nepal with prevalence of many kinds of diseases (1975:26-48). The different results may be due to the different locations of the study area and the focus of study.

Table V-7 gives tentative estimates of calories and proteins consumed by the people of Pipalbote Cluster. On average (counting all age groups), a person consumes a minimum of 500 grams of grains (rice,

maize, wheat, and millet) per day. The type of grain consumed mostly depends upon what grains are cultivated and when they are harvested. With this consumption a person in Pipalbote obtains the following amounts of calories and protein per day.[18]

TABLE V-7

Availability of Calories and Proteins from Grains Per Person/Day in the Pipalbote Cluster, 1981

Types of Grain	500 Grams of Grain Consumed Per Person Per Day			
	Calories	Proteins	Fat	Carbohydrates
Rice (home pounded)	1785	35.5	4.5	395
Maize	1745	45.5	21.0	358.5
Wheat	1645	52.5	10.0	360
Millet	1815	47.0	12.5	371
Average Consumption	1747.5	45.12	12.0	371.12

In fact, adults probably get more than 2,000 calories and 50 grams of protein per day from grains alone since about 40 percent of the population is under age 15 and their consumption is lower.

The average amount of meat consumed per household in the Pipalbote Cluster is about 25 kilograms per year or a per capita consumption of 8-9 grams per day. In addition, the consumption of pulses and legumes per person is usually double that of meat while 300-400 grams of vegetables per person per day are eaten. Each person will eat an average of 50 grams of potatoes per day throughout the year. In total, these foods may add a minimum of 400-500 calories and about 20-30 grams of protein per person per day.

I presented below the food consumption data of three families whose food consumption patterns have been observed at least four times in a year.

1. The months of plentiful food: November 15 to December 15 (Mangsir) and July 15 to August 15 (Srawan).

2. The months of marginal food: April 15 to May 1 (Baisakh), and October 15 to November 15 (Kartik).

Three families were chosen: one poor, a blacksmith from the Untouchable group; one middle class, a Limbu from the Matwali; and a rich Brahmin from the high caste groups.

The Blacksmith Family

This is a poor blacksmith family which maintains itself by share-cropping and hiring out as plowman with their own plow and bullocks. There are three members in the family: ego, age 69; his wife, age 67; and his granddaughter, age 13.

In November/December, the family consumed about 1,586 kilograms of rice and about one kilograms of vegetables (potatoes and others) equalling a total of about 2,087 calories and 48 grams of vegetable protein per person per day. In addition, the family consumed 1.5 kilograms of meat, one kilogram of pulses and three kilograms of tangerines (as this was the season for tangerines) during this month.

In July/August (maize harvest) the family consumed two kilograms of maize grain and about 1.5 kilograms of vegetables equalling a total of 2,200-2,400 calories and 65-70 grams of vegetable protein per person per day. In addition, the family consumed one kilogram of meat in the month.

During the months of marginal food, the quantity consumed on average, is about 1.25 kilograms per day of whichever grain is most easily

available. Sometimes the evening meal is supplemented with popcorn or sweet potatoes and taro. Further, about 500-800 grams of vegetables are eaten per day by the family. The average consumption is at minimum 1,700-1,750 calories and 40-45 grams of vegetable protein per person per day. In addition, the family consumed one kilogram of meat during the month.

The Limbu Family

This is one of the rich Limbu families with sufficient grain production to feed the family members. There are five members in the family: three adults and two younger members, one seven and one three years old.

Everday, the family consumes about 3.5 kilograms of grain (either rice or maize or both). During November/December (rice harvest), the consumption is basically rice whereas in July/August, it is more maize and little rice.

From rice, each person receives, on average, 2,400 calories and 50 grams of protein per day. Further, the family consumes vegetables equivalent to one kilogram of potatoes per day. In the month of November/December, the family consumed 2.5 kilograms of meat and 2.5 kilograms of pulses. In July/August, the average consumption of vegetables is about two kilograms per day and two kilograms of meat. Further, the consumption of millet beer, about one kilogram per adult, every alternate day, continues throughout the year. All of these food items give about 3,000 calories and 80 grams of protein per person per day during the months of plentiful food. Even in the months of marginal

food, there is no shortage of grain in this family. Only the amounts of vegetables and pulses consumed are slightly lower.

The Brahmin Family

This is a rich Brahmin family by village standards. There are 14 members in the household (three children below six years including of four months).

The family consumes about four kilograms of grain per meal or about eight kilograms per day. In November/December, the consumption is basically rice, whereas in July/August, it is half rice and half maize. If the rice is taken as the standard unit, each person receives a minimum of 2,040 calories and 41 grams of protein per day from cereals alone. In addition, pulse soup is prepared at least for one meal during November/December and about two kilograms of potatoes per day. If pulse is not served, two vegetables are obligatory. Furthermore, some milk products will be consumed everyday depending upon the status of members of the family; the head of the family and his wife will take some milk and butter whereas others may get yogurt or cultured butter-milk. In addition, to the two meals, this family takes some snacks (puffed rice, popcorn with soyabean or root vegetables, etc.) every afternoon. Even during the food shortage period, the consumption of cereals is constant while fewer vegetables are eaten. In other words, on average, a person per day receives 2,500-2,700 calories and 51-61 grams of protein during the months of plentiful food and 2,400-2,600 calories and 48-57 grams of protein on the months of marginal food.

It is observed that the caloric consumption is lower in the rich Brahmin family than in the middle class Limbu family. This is due to the

higher amount of cereals consumed in the Limbu family per meal than in the Brahmin family. Further, the consumption of millet beer addes to the caloric intake in the Limbu family.

My dietary survey reflects the fact that the people of Pipalbote Cluster have reasonably good diets with a minimum of about 1,750 calories and 50 grams of protein and a maximum of up to 3,000 calories and 80 grams of protein per person per day. The quantity and variety of cereals provided enough calories; protein came mostly from cereals, combined with pulses and legumes and various types of vegetables, and also with the consumption of meat and milk products.

In general, people look fit although in one of the poorest blacksmith families, the wife and four of the children were obviously not in good health. Two cases of tuberculosis were observed;[19] one in a Brahmin and another in a Rai family. There is no pre-harvest "hunger-gap" during the year because of mixed agriculture. An agricultural pattern which combines several main cereal crops helps to stabilize the diet. In addition, temporary jobs are available within the periphery of the panchayat area and at Ilam bazaar throughout the year which help people buy enough food for consumption even during the food shortage period.

5.3 EXPENDITURE

Table V-8 shows the total expenditures of the people in Pipalbote Cluster by ethnicity in 1980/81 for various items. The highest expenditure is for schools (29.26 percent). A household spent an average of rupees 294.93 for school. However, expenditure varies depending upon how many children go to a school from a household. In Nepal, school is free

TABLE V-8

Expenditure on Various Items in the Pipalbote Cluster by Ethnicity, 1980/81

Ethnic Groups	Total Household/ Population	Total Expenditures Incurred For: Repair and Thatch Houses	Purchase and Repair of Agricultural and Domestic Tools	Purchase Animals	School	Medicine	Land Tax
High caste	49/405	9,515	5,315	13,940	18,746	12,170	3,820.2
Average expenditure:							
per household		194.1	108.4	284.5	382.6	248.4	77.9
per person		23.5	13.2	34.4	46.3	30	9.4
Matwali	44/322	7,061	3,846	6,920	10,345	2,963	2,263.7
Average expenditure:							
per household		160.4	87.4	157.3	235.1	67.3	51.4
per person		21.9	11.9	21.5	32.1	9.2	7.0
Untouchables	7/48	800	572	1,200	402	830	99.5
Average Expenditure							
per household		114.3	81.7	171.4	57.4	118.6	14.2
per person		16.6	11.9	25.0	8.4	17.3	2.0
TOTAL EXPENDITURE		17,376	9,733	22,060	29,493	15, 963	6,183.4
% of the Total Expenditure		17.23	9.66	21.89	29.26	15.83	6.13

up to class three and after that a student must pay for his tuition, registration, books, and writing materials. The high amount of school expenditure is observed among the Matwali because a wealthy Gurung (Matwali) had sent his son to Kathmandu for higher education. The high amount of expenditure on medicine among the Untouchable is due to the prolonged sickness in a Kami household. The expenditure patterns clearly reflect the socioeconomic structures of different ethnic groups: the high caste groups making the highest expenditure in all of the above items, this is followed by the Matwali and Untouchables.

5.3.1 Family Budget

The above expenditures, however, do not include the other major items such as clothes, salt, kerosene, spices, cooking oils, soaps, and cigarettes. The detailed budgets of five households given below, with their total incomes and expenditures in one year, present a broad idea of budgets in the Pipalbote Cluster. These five households include: two Brahmins, one Limbu, one Sunuwar and one Damai. The socio-economic background of each family is briefly presented below.

Household-A (Brahmin)

This is a rich Brahmin family (this family has also been cited in nutritional section above) with 14 members. The family has 6.6 hectare of land with 2.4 hectare irrigated land, one milch cow, two milch water buffaloes, and a pair of bullocks. The family sells 1,200-1,300 kilograms of grain every year.

Household-B (Brahmin)

This is a lower middle class Brahmin family with eight members. The family has 2.4 hectare of land with 0.66 hectare irrigated land

and one milch water buffalo. The family has about 2.5 months grain deficit a year.

Household-C (Limbu)

This is a Matwali Limbu family (this family has also been cited in nutritional section above) with five members. The family has 3.1 hectare of land with 0.81 hectare irrigated land, a milch cow and a pair of bullocks. The family sold about 192 kilograms of grain in 1980.

Household-D (Sunuwar)

This is a Matwali Sunuwar family with eight members. The family has 3.97 hectare of land with only 0.10 hectare of irrigated land, no milch animals and bullocks. The family has a grain deficit for about seven months a year. An army pension brings in rupees 137.75 per month.

Household-E (Damai)

This is an Untouchable tailor family with eight members. The family has 0.91 hectare of land with no milch animals and bullocks. The family sews clothes in kind and cash. They have a grain deficit for two to three months in a year.

Tables V-9 and V-10 show that the household A has a net cash income of 4,510 rupees per year. The household B also has net cash of rupees 667.50 but the household has the grain deficit for about 2.5 months. The head of household spent rupees 1,000 to purchase rice in 1980 and was just able to cover expenses. Household C is considered rich among the Limbus and has enough grain to support itself. But the household also needs extra cash for a variety of items and unless family members sell millet beer and country liquor, it is likely that the household may face a deficit each year. The household D was the only one which ran a

TABLE V-9

Total Expenditures of Five Households in the Pipalbote Cluster, 1980/81

Items	Household A	Household B	Household C	Household D	Household E
Festivals	843	394	313	270	350
Average per person	60.21	49.25	62.60	33.75	43.75
Clothes	2,200	1,000	500	500	400
Average per person	157.14	125.00	100.00	62.50	50.00
Household purchases of Basic Items (kerosene, salt, spice, washing soap, cooking oil, tea leaves, cigarettes, shoes, baskets, etc.)	2,098	808	684	664	815
Average per person	149.28	101.00	136.80	83.00	101.87
Luxuries (sugar, bath soap, cigarettes, and meat)	850	304	392	434	528
Average per person	60.71	38.00	78.40	54.25	66.00
Production and Maintenance (for agriculture, repairing houses and tools and purchase of animals)	720	1,190	461	385	270
Average per person	51.42	148.75	92.20	48.12	33.75
School	190	240	20	00	130
Average per person	13.57	30.00	4	00	16.25
Medicine	300	60	100	100	00
Average per person	21.42	7.50	20.00	12.50	00
Revenue	149	48.50	62.25	60	13.50
Average per person	10.64	6.06	12.45	7.50	1.69
Grand total	7,350	4,044.50	2,532.25	2,413	2,506.50
Average per person	525.00	505.56	506.45	301.62	313.13

TABLE V-10

Total Sources of Income of Five Households in the Pipalbote Cluster, 1980/81

Items	Household A	Household B	Household C	Household D	Household E
Sale of grain	2,900	0	480	0	0
Sale of vegetables	400	0	250	0	0
Sale of potato	900	300	300	0	0
Sale of milk	2,700	0	0	0	0
Sale of butter	0	252	0	0	0
Sale of puffed rice	0	960	0	0	0
Sale of animals	400	200	500	60	580
Sale of big cardamom	0	0	0	1,200	0
Sale of millet beer and country liquor	0	0	1,500	0	0
White collar jobs	4,560	3,000	0	0	0
Military pension	0	0	0	1,653	0
Sewing clothes	0	0	0	0	2,200
TOTAL	11,860	4,712	3,030	2,913	2,780
Average income per person	847.14	589.00	606.00	364.12	347.50

deficit, their grain production lasted only five months. They have additional income from sales of big cardamom and an army pension. However, the family head claims to be partially supporting his first wife and their four children. They had a budget deficit of about 1,000 rupees a year and in 1979/80 and 1980/81 borrowed a total of 1,500 rupees locally. Though the household E has a grain deficit for about 2-3 months a year, the household compensates for the deficit through a Jajamani relationship and cash received from tailoring. He purchased about 600 rupees worth of rice in 1980.

Household B, the low middle class Brahmin family, had a high expenditure in 1980/81 because the family purchased a pair of bullocks. The cost of education seems to be low among these particular households because they happened to have few children for schooling.

Table V-9 shows that in terms of expenditure, there is not a sharp distinction between a rich Brahmin (Household A) and a low middle-class Brahmin (Household B) and that of a wealthier Matwali (Household C). Similarly, the poorer Matwali households spend slightly less than does the Untouchable household. Furthermore, the Untouchable household spends approximately three-fifths of the sum spent by the richest Brahmin household. Thus, the community does not divide sharply into rich and poor.

The data on sources of cash income show marked ethnic differences. Brahmins, because of their better education, have substantial income from white collar jobs, the large sum from the sale of milk and butter also reflects ethnicity. The Matwalis alone are allowed by their culture to sell millet beer. They are also the only group which serves in the army as indicated by the income from military pensions. The fact that Brahmins and Matwalis are more likely to own substantial amounts of land is reflected in the figure for sale of various crops. The cash income of the Untouchable household is, as one would expect, entirely from the practice of their traditional craft.

5.3.2 Expenditures: Marriages, Funerals and House Construction

Four marriages were observed while I was in the field: two Brahmins, one Newar, and one Gurung. In addition, I observed a Limbu mortuary rite and construction of a single storey house made of thatch and stones by a Brahmin family.

Expenditures on such items depends upon the wealth of a household. A rich Brahmin spent rupees 3,072 for the marriage of his second son and gave gold ornaments worth 8,400 rupees to the bride. A middle-class Brahmin spent rupees 3,204 and gave about 3,000 worth of gold ornaments for the marriage of his second daughter. Among the high caste group, the girl's party has to feed not only the villagers but also the groom's party. The married girl will receive from her parents almost all household items needed to set up a new household. A middle-class Newar spent 1,348 rupees (he did not provide any golden ornaments) for the marriage of his youngest daughter. A middle class Gurung spent 3,374 rupees for the marriage of his eldest son who stole a Gurung girl from another village without the consent of his parents. Gold is an inevitable item in marriage among the high caste groups whereas meat and liquor are the necessary food items among the Matwali (except Newars who offer wine only) and Untouchables.

A middle-class Limbu spent about 2,500 rupees for the mortuary rite of his mother, on top of the contributions from kin and neighbors. A middle-class Brahmin with a small family spent about 800 rupees for constructing a new one storey house made of stone and thatch.

These budgets can be compared with the budgets noted by other anthropologists who have worked in Nepal. Caplan writes that 64.4 percent of the Limbus of the Indreni Cluster (Eastern Nepal) produce less food than they require, but he does not indicate other income sources which might balance their budgets (1970:77). McDougall asserts that on average, in the Doti sample (Western Nepal) the cash expenditure exceeds the cash income by 84 rupees, and in Sallyan (Western Nepal) by

43 rupees, but he gives no information on deficits (1968:45-46). Macfarlane reports that the budget deficit is about 50 percent in Thak village. None of these authors give enough data to clarify the state of these household budgets.

In my study it was possible, with very detailed figures, to see how the households met their deficits. Of the five households in Pipalbote Cluster which I had studied intensively, three did not grow all of their grain. Of these two had other sources which allowed them to buy sufficient grain. The remaining households had some cash income but not enough to cover grain purchases. This household was able to borrow money on the security of future income from an army pension, and in this way cover their expenses.

5.4 GENERAL CONCLUSION

In general, the economy of the people of the Pipalbote Cluster is summarized in Figure V-1. The figure clearly shows a diverse resource allocation pattern in the Pipalbote Cluster. Agriculture has been intensified and diversified. The Pipalbote farmers have also moved to other sources of income such as trade, white collar jobs, army service and wage labor to maintain and to raise their standard of living. The cash flowing from these sources is considerable.

Though there is a grain deficit as a whole, there is no seasonal migration (see Chapter VII) to balance the food situation as in other parts of Nepal (see McDougall 1968; CEDA 1973; Dahal et al., 1977) as temporary jobs are available within the Barbote Panchayat area throughout the year. Only some families with significant grain deficit and insufficient outside income borrow money to overcome the food problem.

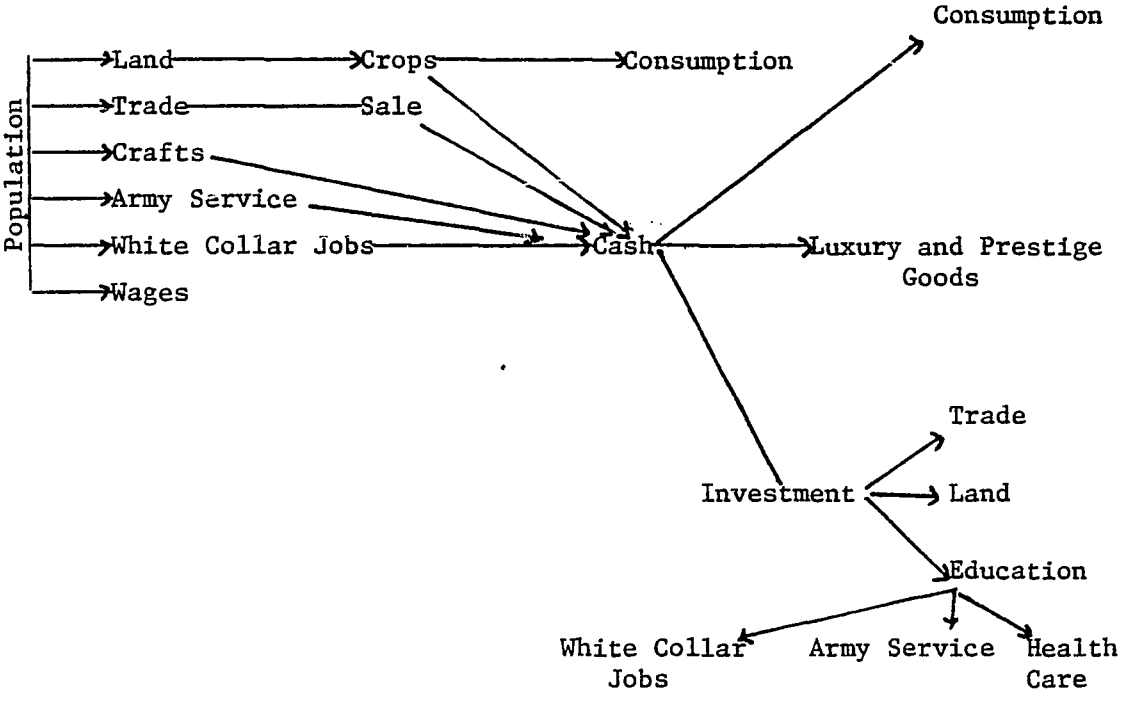

Figure V-1

Economy of the People of the Pipalbote Cluster, 1981

The food consumption data indicate the people have a good diet and nutrition. The expenditure figures indicate, in fact, that there were surplus above subsistence needs which could be used for luxury goods, prestige activities, education, and health care.

However, there are some problems in the future expansion of trade and army service as a means to increase income. The transportation system is still underdeveloped and so few can go beyond Ilam bazaar. This means that increased sales run the risk of glutting the local market, dropping prices, and endangering this source of income. Further, there is less recruitment of Nepalese every year in the British army which means a significant source of outside income is declining.

As a whole, though there is land pressure at the household level in the Pipalbote Cluster, people are adapting successfully by diversifying and intensifying the use of their available resources. These resources are not only those which exist within the territory of the village cluster, but also ones outside the community which have been tapped through such arrangements as army service, white collar jobs and cash crops.

CHAPTER VI

POPULATION

In this chapter, I describe the populations of Pipalbote and Barbote Panchayat and compare them with each other and also with the population of Ilam district and Nepal. Presenting data for both Barbote Panchayat and Pipalbote Cluster is to demonstrate a clear pattern of population growth over time and further to present relevant cross-sectional mortality and fertility data. Data on vital statistics, the age and sex composition of the population, and family size are presented. After this, the determinants of fertility in the area are discussed. Some of the general parameters of fertility such as the marital structure, age of women at first birth of child, general fertility rate, completed family size, spacing of children and age-specific fertility are examined. I then show how fertility is still high because of the maintenance of the traditional socio-cultural norms, whereas mortality has declined because of better medical facilities and improving health and hygienic conditions.

6.1 POPULATION STRUCTURE AND GROWTH IN BARBOTE PANCHAYAT

Since the inception of the Panchayat system in Nepal (1962), the area of Barbote Panchayat has changed slighly. Ghos gaun (today about 30 households), formerly a settlement of Barbote Panchayat, was annexed into Ilam Nagar Panchayat in 1963. Thus, the record of population growth in Barbote Panchayat presented here starts from 1964, the first year a record of population was made by the local panchayat office excluding Ghos gaun. Tables VI-1 and VI-2 show population size and growth rate data for the period 1964-1981.

TABLE VI-1

Population of Barbote Panchayat, By Sex, 1964-1981

Year[a]	Total Households	Male	Female	Total Population
1964[b]	504	1,483	1,373	2,856
1971[c]	519	1,527	1,442	2,969
1981[d]	591	1,820	1,761	3,581

[a]All these censuses were taken in June.

[b]Source: Barbote Panchayat Office, Ilam, 1965.

[c]Source: The Central Bureau of Statistics, Kathmandu, 1974.

[d]Investigator's own field survey, 1981.

TABLE VI-2

Population and Population Growth Rates in Barbote Panchayat, By Wards, 1964-1981

Ward	Population			Annual Growth Rates*		
	1964	1971	1981	1964-71	1971-81	1964-81
1	469	366	627	.0347	.0553	.0173
2	299	299	382	0	.0248	.0145
3	351	356	397	.0020	.0109	.0072
4	278	358	354	.0367	.0011	.0143
5	319	324	423	.0022	.0270	.0167
6	283	335	340	.0243	.0014	.0108
7	294	325	334	.0144	.0027	.0075
8	265	300	353	.0178	.0164	.0170
9	298	306	371	.0037	.0194	.0129
TOTAL	2,856	2,969	3,581	.0055	.0189	.0133

*Calculated according to the formula:

$P_t = P_o (1 + r)^t$

where P_t is the population of later census, P_o is the population of the earlier census, r is the growth rate and t is the interval between censuses.

The preceding data show that there was an increase of only 113 people in the seven years from 1964 to 1971 and the growth rate was only 0.55 percent per annum. But the growth rate from the 1971-1981 (ten year) period was more substantial. The population increase was 612 and the growth rate about 1.9 percent per annum. This growth rate is a little lower than that of Nepal as a whole, whereas it is higher than that of Ilam district (for population data on Nepal and Ilam district, see Appendix 6). In the seven year period, the population appears to have risen by less than 4 percent, while in the next ten years, the population increased nearly 21 percent. It is not easy to explain such different rates of growth, but the reasons may include:

1. Relative undercounting in the 1971 census period, which would deflate the first growth rate and inflate the second.

2. A substantial outmigration of people from the panchayat towards the south or Terai (Jhapa and Morang districts) after 1960, but no so much after 1971 (see below).

Undercounting was possible in the Nepal census of 1971 because, first, the educational level of enumerators was low; many had not passed the eighth standard and it was probably difficult for them to comprehend the long census questionnaire. Second, these enumerators were poorly paid and yet had to cover an extensive area in a short period of time. Especially in some hilly regions, it is difficult to walk from one ward to another in a single day. It is possible that enumerators did not take the trouble of going to every household for collecting the census figures or that sometimes they stayed in one household and tried to fill out all the census forms. Undercounting was very probable in the Barbote Panchayat area in the 1971 census.

The 1964 census was taken by the local panchayat and I maintain that this record was good. This is because the panchayat government had recently been introduced for the first time in Nepal and every newly elected or nominated panchayat member (even the panchayat secretary who worked in the office) was motivated to work efficiently. The 1981 census was taken by the present investigator himself. As I had a qualified (B.A. pass) local assistant and I was in the field area for an extended period of time, I maintain that my 1981 census data of the panchayat should be fairly accurate. In other words, undercounting was worse in 1971 compared to 1964 and 1981 censuses.

The other important factor was the heavy migration of hill people towards the Terai after 1960. Malaria was virtually eradicated in the Terai after 1964. The government of Nepal launched a resettlement program in Jhapa district (the southern border of Ilam district) in 1963 to settle those people who were in the real sense sukumbasi (landless). Further, some free lands were also given to the ex-military personnel who wanted to settle down in the Terai districts. Moreover, there were other attractions in the Terai: opening of the new roads and better facilities for schooling and health care. In this process some people migrated from Barbote Panchayat. Outmigration after 1971 was slow in the area (for reasons see Chapter VII).

Another interesting point to note here is the tremendous 1971-81 growth of population in ward number 1 (Toribari village) and ward number 5 (Sunuwar gaun and Damali gaun). Toribari is basically settled by Brahmin and Sunuwar and Damali gaun are settled by Sunuwars, Rais, and some Brahmins. Toribari shows an increase of 261 people or 71.31 percent

in the ten year period. This represents a 5.53 percent yearly growth rate and a doubling time of less than 14 years. The 1964-71 figures show a negative growth rate or -3.47 per annum. Yet the 1964-1981 figures for the same ward show an increase of only 158 or 1.73 percent of yearly increase. This growth rate seems to be reasonable when it is compared to the total growth rate of the panchayat. The outmigration rate as a whole was significant in the panchayat during 1964-1971 period (see Chapter VII). However, while noting the ward number 1 in particular, I found that 10 families had moved out permanently during the period whereas only three families came to settle in. At the same time there must have been some underrenumeration in 1971.

In ward number 5, the population increase was 99 people for a growth rate of 2.7 percent per annum in the 1971-1981 period. The population would double in about 26 years at this growth rate. However, it must be noted that while fixing the ward boundaries of number 4 and number 5 in 1977, some Brahmin and Chhetry households of ward number 4 were shifted over to ward number 5 and the number increased was 24 over time. If this population is subtracted, the 1971-81 population growth rate in ward 5 seems logical. However, this shift of population brought the negative growth rate for the 1971-81 period for ward number 4. Taken together, the two wards grew at 4.3 percent growth rate per annum during the 1971-1981 period.

In sum, there was a substantial increase of population in Barbote Panchayat in the 17 years before 1981.

6.1.1 Age and Sex Structure of the Population of Barbote Panchayat

Like Ilam district and Nepal (according to the 1971 census), the population pyramid of Barbote Panchayat (see Table VI-3 and Figure VI-1). has an extremely broad base and irregularly diminishing proportions through the different age groups. The highly youthful character of the population is evidenced by the fact that nearly 40 percent of the population is less than 15 years of age and a little more than 51 percent are less than 20 years of age. The 5.7 percent of the population consisting of old people (60+) is, however, a higher percentage than that of Ilam district as a whole.

Another way of looking at the youthfulness of the population is through the median age. The median age of the population of Barbote Panchayat is only 19.51. This figure is slightly lower than that of Nepal and a little higher to that of Ilam district (according to the 1971 census).

Appendix 7 shows the age and sex structure of the population based on detailed ethnic category. The age structure of the population by three age groups and by three broad ethnic categories is shown in Table VI-4.

The data show that there are differences in the overall age structure among the various ethnic groups. In Matwali, the economically active poulation is relatively small, whereas both the young and old populations are relatively larger than in the other groups. This means the Matwalis have a higher dependency ratio (the ratio of the people of dependent ages, 0-14 and 60+ to people of economically active ages, 15-59) than the other ethnic groups. The Untouchables, who are the

TABLE VI-3

Population of Barbote Panchayat by Age and Sex, 1981

Age	Male	% of Total	Female	% of Total	Total	% of Total	Sex Ratio*
0- 4	232	6.48	254	7.09	486	13.57	.913
5- 9	243	6.79	232	6.48	475	13.27	1.047
10-14	221	6.18	250	6.98	471	13.16	.884
15-19	205	5.73	192	5.36	397	11.09	1.068
20-24	193	5.39	197	5.50	390	10.89	.980
25-29	161	4.50	117	3.26	278	7.76	1.376
30-34	121	3.38	110	3.08	231	6.46	1.100
35-39	82	2.28	79	2.21	161	4.49	1.038
40-44	86	2.40	76	2.12	162	4.52	1.132
45-49	63	1.76	66	1.85	129	3.61	.955
50-54	56	1.57	52	1.45	108	3.02	1.077
55-59	49	1.36	42	1.17	91	2.53	1.167
60-64	44	1.22	38	1.06	82	2.28	1.158
65-69	32	0.89	23	0.65	55	1.54	1.391
70-74	19	0.53	15	0.41	34	0.94	1.267
75+	13	0.36	18	0.50	31	0.86	.722
TOTAL	1,820	50.82	1,761	49.18	3,581	100.00	103.4

*Males per 100 females.

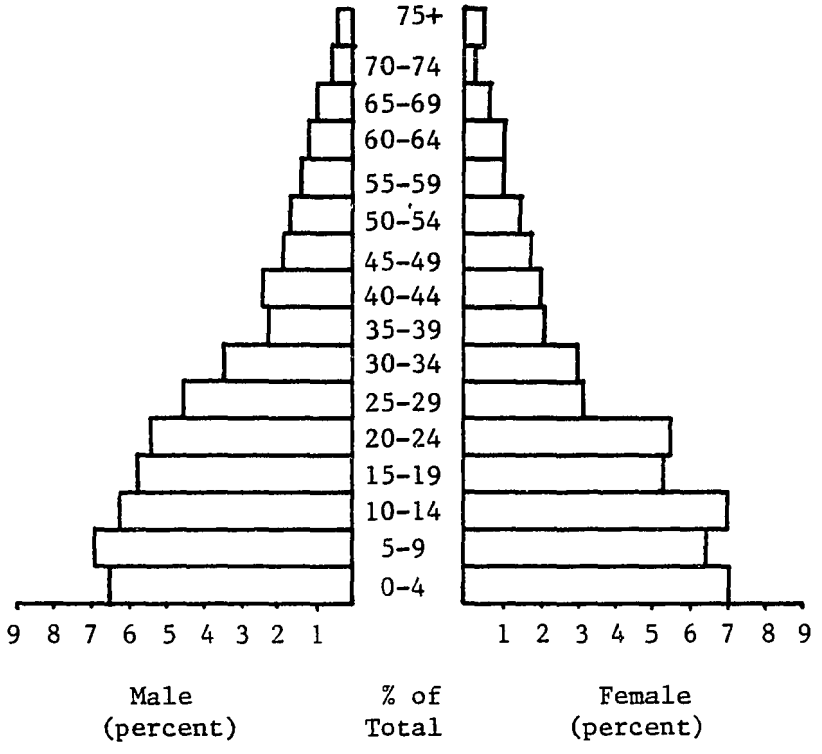

Figure VI-1

Population of Barbote Panchayat by Age and Sex, 1981

TABLE VI-4

Age Structure by Three Age Groups and By Three Ethnic Categories in Barbote Panchayat, 1981

Group	High Caste		Matwali		Untouchable	
	Population	%	Population	%	Population	%
0-14	741	39.40	584	40.95	107	39.05
15-59	1,037	55.13	751	52.67	159	58.02
60	103	5.47	91	6.38	8	2.93
Median Age	19.53		19.39		20.0	
TOTAL	1,881	100.00	1,426	100.00	274	100.00
% of the total population	52.52		39.82		7.66	

poorest and the least educated group in the village panchayat area, have the lowest percentage of young and old members. The overall age structure of the high caste ethnic groups falls in between the two groups. However, this age structure which includes a fair number of economically active population as well as old and young members, seem favorable in the local situation as the high caste people have not only enough manpower to agriculture and other economic pursuits but also to take care of domestic and other social sectors (see discussion in Chapters IV and V).

6.1.2 Sex Ratio

The sex ratio of Barbote Panchayat is typical of Ilam district and Nepal as a whole. The total number of males is always higher (i.e. since 1964) than the total number of females in all the recent censuses. However, for Nepal and Ilam district, this was true only beginning with the 1961 census and it is difficult to guess the possible sex ratio before 1964 in Barbote Panchayat.

The sex ratio in Barbote Panchayat in recent censuses is shown in Table VI-5.

TABLE VI-5

Sex Ratio in Barbote Panchayat (1964-1981)

Year	Sex Ratio (Males per Females)
1964	108.01
1971	105.89
1981	103.35

Though there is a distinct masculine character to the population in all three censuses, the sex ratio has been slowly declining over time. According to Weeks (1978:160), "It is a common assumption that there are the same number of males and females at each age--actually this is rarely the case." Leridon thinks that a sex ratio of 100-110 can be normal for small populations (leridon 1977:15). Though the age and sex structures in Barbote Panchayat show irregularities, the age and sex pyramid shows little "truncation" as a whole (see Figure 1).

6.1.3 Household Size

The average household size[20] in Barbote Panchayat over time is shown in Table VI-6. The average household size in Barbote Panchayat has increased moderately which suggests that population is growing in the area. This is because, today there is a tendency to breakdown the extended and the joint family systems. The actual nuclear family size is becoming bigger because there are more members in the family. The large household size has two major implications in the area: 1) There

is enough manpower in the household for agriculture and other economic pursuits; 2) the large household size also puts pressure on available resources in terms of consumption and distribution patterns (see discussion in Chapters IV and V).

TABLE VI-6

Average Household Size in Barbote Panchayat 1964-81

Year	Household Size
1964	5.67
1971	5.72
1981	6.06

6.2 VITAL STATISTICS IN BARBOTE PANCHAYAT

No records of vital statistics were available in Barbote Panchayat except those gathered by myself. I tried to record all births and deaths from the period of July 1, 1980 to June 30, 1981, a period of one year.

6.2.1 Crude Birth Rate (CBR) and General Fertility Rate

In 1980-81, there were 150 live births in Barbote Panchayat in a total de jure mid year population (December 31st) of 3,581. This gives a crude birth rate of 41.89, live births per thousand population. When compared to the CBR of Nepal, which was 42.9 in 1971 (Central Bureau of Statistics, 1975), this rate seems reasonable.

Appendix 8 shows the births of the one year period by ethnic category. The CBRs of the three broad ethnic categories is shown in Table VI-7.

TABLE VI-7

Crude Birth Rate in Barbote Panchayat by Three Ethnic Categories, 1981

	Total Mid-Year Population	Total Births	CBR
High caste ethnic group	1,881	74	39.34
Matwali	1,426	65	45.59
Untouchable	274	11	40.14
TOTAL	3,581	150	41.88

Of the three broad groups, the high caste group has the lowest CBR, whereas the Matwali has the highest. This ranking remains the same when we look at the General Fertility Rate (number of live births in a year divided by total women aged 15-49 x 1000). The GFRs of the three broad ethnic categories are as follows:

TABLE VI-8

General Fertility Rate in Barbote Panchayat by Three Ethnic Categories, 1981

	Total Women (15-49 Years)	Total Births	GFR
High caste ethnic group	446	74	165.91
Matwali	328	65	198.17
Untouchable	63	11	174.60
TOTAL	837	150	179.21

This suggests that the gertility is higher among the Matwali women than among the women from other ethnic groups. However, when the

individual ethnic groups are considered this is not always the case. For example, the GFR of the Jaisi Brahmin women (high caste) is 245.45, whereas this is 240.87 among the Limbu women (Matwali).

As a whole, female births are more numerous than male births (see Appendix 8). Male live births are 47.33 percent of the total, compared with 52.67 percent for the female live births. The high proportion of female births in Barbote Panchayat may simply be a function of random variation due to small sample size and a short time period, since the usual sex ratio at birth in human population is somewhere in the 102-108 range.

6.2.2 Crude Death Rate (CDR)

Of a total mid-year population of 3,581, 53 people died in 1980-1981. This gives a crude death rate of 14.80 per thousand, considerably lower than the national average, which is 22 (Central Bureau of Statistics, 1975). This is probably due to a number of reasons, such as better health and medical care, good drinking water, and a reasonably good diet compared to the nation as a whole. In addition, Barbote's younger age structure is more favorable to a low CDR than that of the nation as a whole.

Appendix 9 shows the total deaths in one year period on the basis of ethnic category. It is to be mentioned here that although the population I analyze is smaller than that in the typical demographic analysis, I will nevertheless try to discover patterns. Breaking down the population into all the ethnic groups, however, may lead hopelessly small groups in some cases. For example, it is not surprising that Gurungs experienced no deaths in one year period since there are only

111 of them and only 10 above 50. Similarly Jogis and Tamangs had no deaths in the one year period. The high caste ethnic groups have only 39.63 percent of the total deaths though they comprise 52 percent of the total population. Though the Matwalis represent a lower percentage of total population than the the high caste group, they have 45.28 percent of the total deaths. This is at least partly because the high caste age structure is more favorable to low death rates than the Matwalis. For example, the high caste groups have only 5.4 percent population in age 60+ compared to 6.8 percent in the similar age groups among the Matwalis. The CDR of the individual ethnic groups shows that Sarkis, Magars and Sunuwars have the highest crude death rates. The Sarkis experienced the highest crude death rate in one period simply because their number is one of the lowest in the total population and a sudden death in that particular year inflated the total figure.

6.2.3 Infant Mortality Rate (IMR)

The total infant deaths (under age 1) in Barbote Panchayat were 20 in the 1980-81 period, whereas the total number of births was 150. Thus the IMR was 133.3 per thousand. This rate is lower than the national average which was 172 (Central Bureau of Statistics, 1975). The reasons for the better situation in Barbote Panchayat are the same as discussed in the CDR section.

Appendix 10 shows the number of infant deaths on the basis of ethnic category. The appendix shows that the high caste ethnic groups have a lower percentage of infant deaths than their total percentage of births. For example, the high caste group represents 49.34 percent, the Matwali 43.33 percent, and the Untouchable 7.33 percent of the total

births, compared to 35 percent, 45 percent and 20 percent of the total infant deaths, respectively. Among all the groups, the Limbus have the highest infant deaths, whereas the Magar, Gurung, Sunuwar, Jogi and Tamang have no infant deaths during the period. The reason is the small sample size and a short time observation.

6.3 POPULATION SIZE OF THE PIPALBOTE CLUSTER

As official figures for the periods 1964 and 1971 are not broken down by village cluster, only the population figures of 1981 are given for the Pipalbote Cluster. The total number of households and population size of the Pipalbote Cluster based on ethnic and sex category are given in Table 2 of Chapter III.

6.3.1 Age and Sex Structure

The age and sex structure of the population of the Pipalbote Cluster in the 1981 census is given in Table VI-9 and in Figure IV-2. As a whole, this age structure is quite similar to that of Barbote Panchayat and Nepal.

The youthfulness of the population of the Pipalbote Cluster is further observed by looking at median age. The median age of the Pipalbote Cluster is 18.90 which is slightly lower than in Barbote Panchayat. This could be a function of selecting larger households (see discussion below).

Appendix 11 shows the detailed age and sex structure of Pipalbote on the basis of ethnic category. Summarizing this data into three ethnic groups, the age structure is given in Table VI-10.

TABLE VI-9

Age and Sex Structure of Population of the Pipalbote Cluster, 1981

Age Group	Male	% of Total	Female	% of Total	Total	% of Total	Sex Ratio
0- 4	53	6.83	52	6.71	105	13.54	1.109
5- 9	50	6.45	51	6.58	101	13.03	0.980
10-14	52	6.71	50	6.45	102	13.16	1.040
15-19	50	6.45	52	6.71	102	13.16	0.962
20-24	44	5.68	37	4.78	81	10.46	1.189
25-29	26	3.35	26	3.36	52	6.71	1.000
30-34	25	3.23	19	2.45	44	5.68	1.316
35-39	22	2.84	20	2.58	42	5.42	1.100
40-44	16	2.07	17	2.19	33	4.26	0.941
45-49	19	2.45	9	1.16	28	3.61	2.111
50-54	11	1.41	13	1.68	24	3.09	0.846
55-59	11	1.41	8	1.04	19	2.45	1.375
60-64	11	1.41	8	1.04	19	2.45	1.375
65-69	7	0.90	3	0.39	10	1.29	2.333
70-74	2	0.26	4	0.52	6	0.78	0.500
75	4	0.52	3	0.39	7	0.91	1.333
TOTAL	403	51.97	372	48.03	775	100.00	1.083

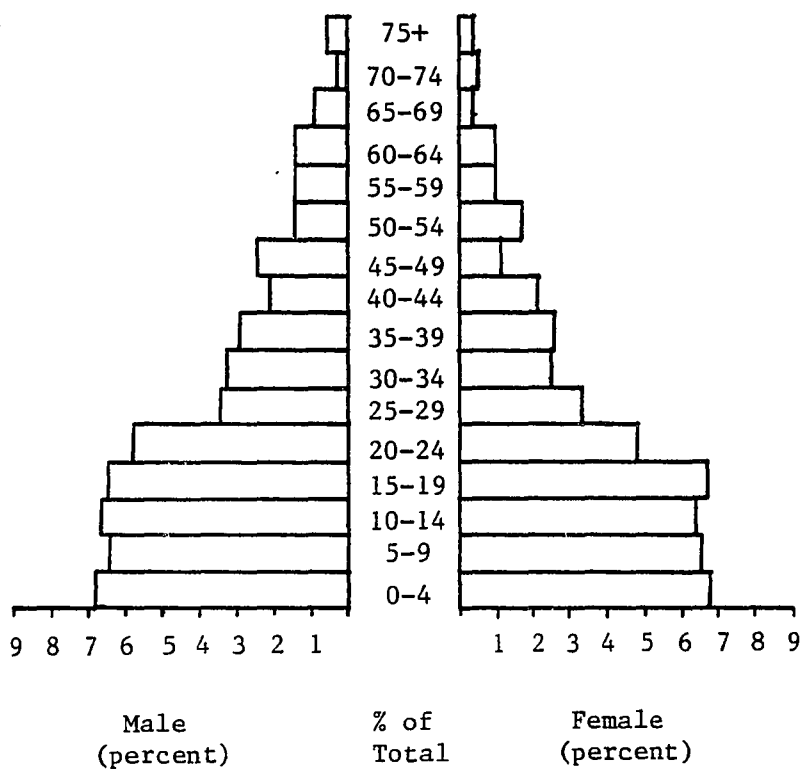

FIGURE VI-2

Population of Pipalbote Cluster by Age and Sex, 1981

TABLE VI-10

Age Structure by Three Age Groups and by Three Ethnic Categories, Pipalbote Cluster, 1981

Age Group	High Caste Total Number	High Caste %	Matwali Total Number	Matwali %	Untouchable Total Number	Untouchable %
0-14	158	39.01	127	39.44	23	47.91
15-59	224	55.31	178	55.28	23	47.92
60 and above	23	5.68	17	5.28	2	4.17
TOTAL	405	100.00	322	100.00	48	100.00
Median Age	20.0		18.8		16.2	
% of the total population	52.6		41.55		6.19	

This data presents interesting phenomena. The high caste group has the oldest age distribution, compared to other ethnic groups, with the lowest percentage in the 0-14 age group and the highest percentage in the economically active age group. The Matwali age distribution is slightly younger than that of high caste group and older than that of the Untouchables. Contrary to the age structure of the Untouchables in Barbote Panchayat, Untouchables in the Pipalbote Cluster have the youngest age distribution. This is probably due to the small sample size of the Untouchable group. In addition, I found relatively large family size among them, which is not a function of the joint household but of fertility. In other words, an Untouchable household consists of two parents and many children.

6.3.2 Sex Ratio and Household Size

Looking at Table 2 of Chapter III, the following pattern of sex ratio and household size can be seen in the Pipalbote Cluster.

TABLE VI-11

Sex Ratio and Household Size in the Pipalbote Cluster, 1981

Sex Ratio	108.3/100
Average Household Size	7.75

Comparing this data with that of Barbote Panchayat, we see that the sex ratio and the average household size are higher in the Pipalbote Cluster. The Pipalbote Cluster reflects a high male ratio, a pattern similar to that of Barbote Panchayat as a whole.

The relatively large household size in Pipalbote is due to the following factors; some a reflection of the real situation and some a reflection of my data gathering techniques: i) Some ethnic groups comprised few households in Barbote Panchayat and they had large family size. So the selection of the large household size became purposive in some ethnic groups; and ii) in some cases (about 8 percent of the total households) I selected large households specifically to measure the population pressure on resources.

6.4 VITAL STATISTICS IN THE PIPALBOTE CLUSTER

6.4.1 Age at Marriage

The population of Pipalbote Cluster by marital status, age, sex, and ethnicity is given in Table VI-12.

TABLE VI-12

Never Married Populations by Age, Sex, and Ethnicity in Pipalbote Cluster, 1981

Age Group	High Caste Group				Matwali				Untouchable			
	Population		Never Married		Population		Never Married		Population		Never Married	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
15-19	26	27	22	24	21	24	19	18	3	1	3	0
20-24	26	20	15	1	16	15	12	9	2	2	1	1
25-29	14	16	5	0	11	9	6	3	1	1	1	0
30-34	13	10	0	0	11	8	0	0	1	1	1	1
35-39	12	11	0	0	9	8	0	0	1	1	0	0
40-44	8	8	0	0	8	7	1	0	0	2	0	0
45-49	8	3	0	0	9	6	2	0	2	0	0	0
TOTAL	107	95	42	25	85	77	40	30	10	8	6	2
% of population never married in the total of each sex group			39.25	26.31			69.72	38.97			60	25

I calculated the Singulate Mean Age at Marriage (SMAM)* from the above data, which is given in Table VI-13.

TABLE VI-13

Singulate Mean Age at Marriage in the Pipalbote Cluster by Sex and Ethnic Groups, 1981

	Singulate Mean Age at Marriage	
	Male	Female
High caste groups	23.9	19.7
Matwali	27.7	23.4
Untouchable	32.5	22.5
Pipalbote Cluster	25.9	21.4
Nepal (Nepal Fertility Survey 1976)	20.8	17.2

The high SMAM among the males of Untouchable is probably a function of random variation due to small sample size. Compared to Nepal as a whole, the SMAM is quite high in the Pipalbote Cluster. This may be due to the rising age at marriage in the Pipalbote Cluster in the last 10-15 years (see discussion below).

*The SMAM is a hypothetical model approach to the calculation of average age at marriage in the absence of registration data. It assumes unchanging nuptiality patterns for the past few decades, which may not be the case here.

It is calculated by applying the following formula:

$$SMAM \frac{15 + \sum_{15}^{49} S_i - 50\, S_{50}}{1-S_{50}}$$

where S_i = proportion never married at age i and S = proportion never married at exact age 50.

Table VI-12 shows that in the age group 15-19, 88 percent males and 84.6 percent females were never married when all ethnic groups are combined. However, after this age group, the never married population (63.6 percent and 37.8 percent in the age group 20-24 for males and females, respectively) declines moderately. When the individual ethnic groups are considered, in the age group 20-24, 57 percent of the high caste males were never married compared to only 5 percent of the females. In the same age group (20-24), the percentage of never married was 75 percent in the males and 60 percent in the females among the Matwali and 50 percent for each sex among the Untouchable. Similarly, in the age group 25-29, 54 percent Matwali males had yet to be married compared to 39 percent of the high caste males. In the same age group, 33 percent Matwali girls were yet to be married compared to zero percent in other ethnic groups. Particularly, in Matwali, the Rai males and females were not married in large numbers. The reason is cultural as well as economic (see discussion below). In addition, two Sunuwar males in the Matwali group were never married at ages 45-49; one was poor (landless) and he was still looking for a girl to marry, whereas the other, though comparatively rich among the Sunuwars, had some physical and psychological problems.

I gathered retrospective information for age at first marriage for 301 marriages, 144 male and 157 female. Current ages and ages at first marriage are given in Appendix 12 and 13.

The data on age at first marriage presented covers a long period of time and includes those men and women who were married at the age of

seven and who are today more than 70 years old as well as those 15 years old today and married in the year of my field work (1981).

In the earlier days, child marriages were more prevalent among the high caste groups than among the Matwali and Untouchable groups. In a total of 16 marriages in the age group 7-9, all women were from the high caste groups, who were married 16-68 years before 1981. Similarly, among men all 4 marriages at the age of 7-9 were from the high caste group, but they were married 35-75 years before 1981. Some marriages were observed at the age of 10-14 in Matwali and Untouchable but such marriages are rather rare among them (see dsicussion below). The important factor determining for the low age at marriage among the high caste group is cultural.

A Brahmin girl in a "normal" situation must be married before her first menstruation (according to the local people, the menstrual age of a girl was 12-15 years in the Pipalbote Cluster) so that her parents will earn virtues. No such philosophy exists in Matwali and Untouchable groups. I observed a number of Matwali girls in Pipalbote who were not married up to the age of 29. The Matwali society is basically an open society where girls are free to choose their marriage partners. They even date their boyfriend in a number of social occasions for drinking, singing and dancing. On the other hand, there is strong sexual segregation between boys and girls among the high castes and girls are not allowed to mix socially with the boys when they are grown up, especially after their first menstruation. A high caste girls cannot behave like a Matwali girl, if she does she is considered morally low and the society disapproves of both her and her parents. Such girls find it

difficult to get married soon. It is customary among the high castes if a prospective mate for a girl is not available in time (within 14-19 years of age) or does not come to ask for her, parents or other elders of the family themselves search for a boy. Except for Newars, this sort of activity is shameful for the parents of a girl among the Matwali. Especially among the Limbus, Rais, Gurungs, and Sunuwars, the boy must come to ask for a girl. If a Matwali girl elopes with somebody within her group, not breaking the rules of clan exogamy and runs away from home, the parents of the girl will accept this fact lightly and sooner or later the parents will arrange a normal ritual marriage for them.

Recently some changes have taken place in the age at first marriage among groups. The Appendices (12 and 13) show that only one male married below age 15 in the past 15 years and no female married below age 15 in the past five years. These changes in the age at marriage place limitations on the number of younger women who are exposed to the risk of pregnancy.

6.4.2 Crude Birth Rate (CBR)

Of the mid-year (December 31) population of 775 in 1980-81, there were 30 live births in the Pipalbote Cluster. This gives a crude birth rate of 38.7 per thousand. Appendix 14 shows the births of the one-year period based on ethnic category. Table VI-14 shows the CBR of the three broad ethnic categories.

The high CBR among the Untouchables is actually the result of high fertility (see the GFR and the completed family size data below). The low CBR among the Matwali also correlates with the low GFR (see

TABLE VI-14

Crude Birth Rate in Pipalbote Cluster by Three Ethnic Categories, 1981

	Total Mid Year Population	Total Births	CBR
High caste ethnic group	405	17	41.98
Matwali	322	10	31.05
Untouchable	48	3	62.50
TOTAL	775	30	38.71

below). Looking at the socioeconomic background of the Matwali group, one would expect the CBR to be in between that of the high caste group and the Untouchable. This low CBR among the Matwali may be due to random variation of sample size and fluctuation of births in one-year period.

As a whole, the CBR of Pipalbote is lower than those of Barbote Panchayat and Nepal. The possible explanations are: i) My sample is small and is observed for one year period only, i.e. random variation; ii) Compared to Nepal, the age at first marriage and age of women at first birth of child are higher in Pipalbote; and iii) It may be the result of differences in the proportions of people at each age rather than due to lower levels of child bearing. In Pipalbote, the percentage of population in each age group (except in age group 15-19) is higher than Barbote up to the ages 30-34 and after that follows more or less the same pattern. In other words, the Pipalbote's younger population favors the low CBR.

6.4.3 General Fertility Rate (GFR)

This measure of fertility is more accurate than CBR because it accounts for only those women (and not the total population) who are exposed to the risk of having a baby. This measure corrects to some extent the effects of the crude birth rate due to the age and sex structure in the Pipalbote Cluster.

The GFR of the three broad ethnic categories is shown in Table VI-15.

TABLE VI-15

General Fertility Rate in the Pipalbote Cluster by Three Ethnic Categories, 1981

	Total Women (15-49 years)	Total Births	GFR
High caste ethnic groups	95	17	178.95
Matwali	77	10	129.87
Untouchable	8	3	375.00
TOTAL	180	30	166.66

The pattern of GFRs follows exactly the CBR pattern of the Pipalbote Cluster. However, it differs to that of Barbote. The GFR is highest among the Matwali in Barbote whereas this is just the opposite in the Pipalbote Cluster. Neither set of data shows that one might expect that the Matwalis would have intermediate fertility. The explanation for the difference between the CBRs and GFRs for the Matwali of Pipalbote Cluster is fairly straightforward. First, two Matwali groups with high fertility (Tamang-Sherpa and Jogi were not included in the

sample due to their small sample size while their fertility helps to inflate the birth statistics for the panchayat as a whole. Second, a large part of the variation in a population of this size can be attributed to random processes. For the panchayat as a whole, we are considering 328 Matwali women who had 65 births, while the number of Matwali women in the Pipalbote Cluster is only 77 who had 10 births and thus a small change in the number of births will have major effects on fertility statistics.

When the above data are compared with Thak village of 1969 (72.6), the rates noted in the Pipalbote Cluster and Barbote Panchayat are higher, and yet low compared to Nepal as a whole (Worth and Shah give GFR 219-257, 169:23).

6.4.4 Completed Family Size

There were 39 women aged 50 and above in the Pipalbote Cluster. Four had no babies (three from the high caste group and one from the Matwali) and 9 could not recollect the total number of children born by them. So I could observe only 30 women who provided me their restrospective birth history. The completed family size on the basis of the three broad ethnic groups is given in Table VI-16. It includes both the total survivors (see discussion in mortality in general) and the live births.

The Nepal Health Survey (1969) discovered that the sample of women aged 50 or more throughout Nepal reported a mean number of 6.0 live births. The mean number of live births in Pipalbote is 6.0, thus exactly similar to that of Nepal as a whole.

TABLE VI-16

Completed Family Size of Women Aged 50 and Above in 1981 in the Pipalbote Cluster

	Total Women	Total Live Births	Survivors Today	Mean Live Births
High caste ethnic group	17	92	73	5.41
Matwali	11	69	54	6.27
Untouchable	2	19	14	9.50
TOTAL	30	180	141	6.0

The above data reflect the fertility history of women of the past (i.e. 5-30 years earlier). The lowest mean completed size among the high caste women may be due to three Brahmin women who had no babies. The highest mean completed size among the Untouchables is also due to small family size. Even though this fertility data could be interpreted in terms of socioeconomic background of people. Up to some years ago, it was observed that members of the high caste groups were more educated and economically better off than other ethnic groups as a whole, i.e. education and the quality of life (economic standard) goverened fertility behavior strongly. However, today, this pattern of fertility has been changed to an extent in the Pipalbote Cluster. Some of the Matwali groups (particularly Gurungs and also Newars and Magars) are socio-economically better off (see Appendices 15 and 16 for the literacy data; also see land and other capital holdings by ethnic groups in Chapters IV and V) than many members of the high caste groups. This is one of the reasons why a small sample of the Pipalbote Cluster, the Matwalis, present the lowest CBR and GFR than other ethnic groups. The

Untouchables, however, were the least educated and the poorest in the past and this is so even today.

6.4.5 Age of Women at First Birth of Child

I recorded the retrospective history of the ages of first birth of 131 women of all ages who had given birth to at least one child (see Table VI-17. In other words, not all women above 15 years of age are included in the table.

TABLE VI-17

Women by Age at Birth of First Child by Ethnicity, Pipalbote Cluster, 1981

Ethnic Groups	Age 15-19	20-24	25-29	30-34	35-39	Total Women	Mean Age
High Caste	38	35	3	0	1	77	20.42
Matwali	11	23	10	2	1	47	23.13
Untouchable	0	4	2	1	0	7	25.36
TOTAL	49	62	15	3	2	131	21.67

This table shows that the mean age of mother at first birth was 21.67 (calculated from grouped data). This age at first birth is a little lower than that of Thak village (23, Macfarlane 1976:225) and higher than Nepal as a whole (where it is between 18 and 20; Worth and Shah 1969:19). This difference may be due to the number of women exposed to first birth at different age groups.

There is ethnic variation in the mean age at birth of first child. Of 77 high caste women, 94.80 percent had already given their first birth by the age 25 compared to only 72.34 percent of 47 women among the Matwali group. Similarly, of 7 women among the Untouchables,

only 57.14 percent had given their first birth by the age of 25. This shows that the high caste women gave birth earlier than other ethnic groups. The Appendix 17 (Current Age at First Birth of Women) clearly demonstrates this fact. This is because they get married sooner than other ethnic groups.

6.4.6 Age Specific Fertility Rate (ASFR)

The 30 women who were 50 years and older in 1981 reported having given birth to 180 children (excluding miscarriages), an average of 6.0 per woman. The women had one to twelve births over the course of their lives. The mother's age at each of these births has been estimated by subtracting her year of birth from the child's year of birth. Under these estimates, I tabulated the estimated age of the mother at the birth of each of her children to construct the age specific fertility rates (see Howell 1979:123-124).

Table VI-18 shows a retrospective history of 30 women (4 women had no babies at all) who gave birth to children in their total reproductive periods. The 30 women have been treated here as one cohort so the denominator is always 30 in the age classes of 15-19, 20-24, and so on.

The data in Table VI-18 show some interesting features. The very low rate at age 15-19 is probably accounted for by the custom whereby men and women do not cohabit during the first few years of their marriage in some groups (particularly high caste group) though marriage may take place quite early. The other reason is some forgetting of the number of births probably occurred. The ASFRs for the 15-19 year age group were at least 30 years ago. Furthermore, women by age at birth of first child (see Table VI-17) clearly show that 38.9 percent of the total women had

TABLE VI-18

Age Specific Fertility Rates of Women Aged 50 and Above in 1981 in the Pipalbote Cluster

Age Group	Total Births	At Risk*	Age Specific Fertility Rate**
15-19	5	150	0.033
20-24	30	150	0.200
25-29	36	150	0.240
30-34	42	150	0.280
35-39	40	150	0.266
40-44	24	150	0.160
45-49	3	150	0.020
TOTAL	180	1,050	1.199
TFR (Total Fertility Rate) = 5 X ASFRs			5.99

*The number of person years at risk of birth during each 5-year interval is 30 x 5 = 150.

**The age specific fertility rate is the number of children born to women of a given age divided by the total number of person years of risk at that age.

already given their first births at ages 15-19 and this data is more current than the ASFRs. Fertility seems to be quite high at ages between 30-34, perhaps because the Matwali girls marry late (Matwali women account for 36.66 percent of the total sample of women). At the same time, women continued bearing children in their forties at high rates, thus giving a high total births.

These age specific fertility rates be compared with the ASFRs of the Hill Region (TFR = 6.0) and Nepal as a whole (TFR = 6.1) (Bannister and Thapa 1981:57) (also see Figure VI-3). The peak fertility reported for

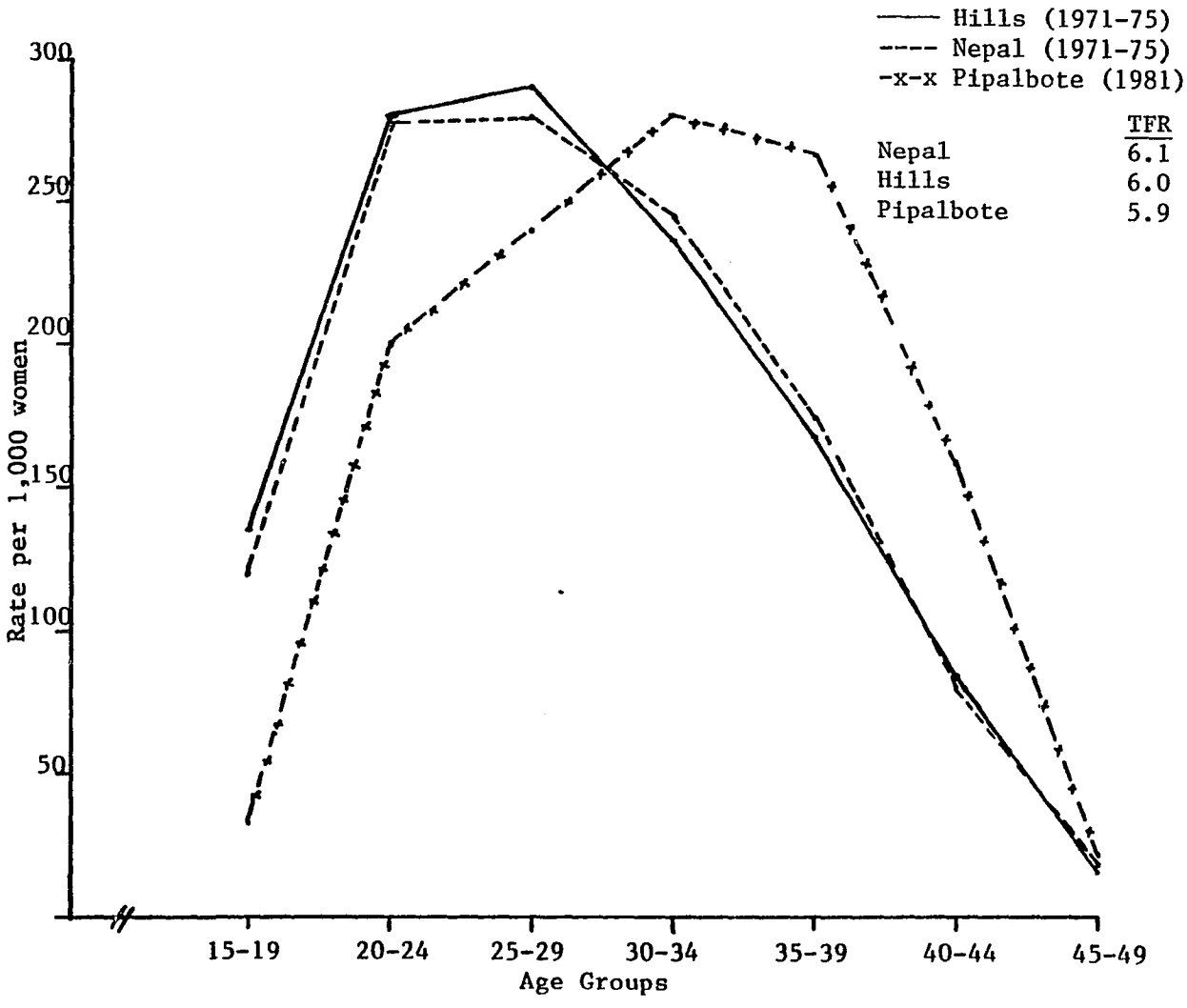

FIGURE VI-3

Age Specific Fertility Rates of Nepal (1971-75), Hills (1971-75) and Pipalbote Cluster (1981)*

*Pipalbote figures are from pregnancy histories of women aged 50 and above in 1981

the Hill Region was 20-24 and 25-29 age groups (ibid). Further, a comparison with data from a Tamang (Matwali) village in northern Dhading district (Nepal) is illuminating here. Fricke (n.d.) reports the highest marital fertility rates for the 20-24 age group with a regular decline consistent with natural fertility populations after that. The possible explanations of higher fertility in the latter age groups in Pipalbote are the following: 1) that my sample is small enough to be highly affected by random fluctuations; 2) that the reported ages at birth for these women over 50 years is highly affected by displacement, or age misreporting (cf. Goldman et al., 1979:12); and 3) it also refers to the past, some forgetting probably occurred.

6.5 A BRIEF NOTE ON VALUE OF CHILDREN

One of the important factors of high fertility in the Pipalbote area is due to socioeconomic value of children.

In Pipalbote, children do a great deal of work with their parents in the fields as well as in the household, not only when young but usually during adulthood as well (note Chapter IV and V). Davis is right when he says "children are asset on the farm" (1967:732) in the traditional societies. Moni Nag, et al., clearly demonstrate that in a Nepalese village, boys and girls spend as much as 9.5 and 11.3 hours per day respectively in all work activities (1978:294). My data (see Appendix 5) also show that even among the children attending school (school lasts for 225 days in a year), males aged 17 spent an average of 672 hours a year in various activities; a school girl aged 15 spent 595 hours a year, whereas a poor blacksmith girl aged 14 (she does not go to school) spent 1,740 hours a year in various work activities. In

a community where more than 99 percent of the people depend on agriculture directly or indirectly, the economic value of children is enormous. In the ago-based hill economy, many people are needed to work.

It has been the experience of the parents that if there are many sons, the future of the parents is more secure than it is for those who have no or fewer sons. It is considered the duty of sons to look after parents in their old age. Those sons who have joined the army, police, and other jobs for which they are paid money wages, bring cash and clothes for the parents. The situation is similar to that described by Mamdani (1972) in Manpur village in India. Mamdani clearly maintains that more members in a family means more working hands in the fields which eventually brings economic prosperity within the family.

On the other hand, parents spend money to school their children as an investment, hoping it will help them to get better jobs and bring money back to support the family. Parents clearly feel that their investment will definitely bring rewards when they become old or allow them to retire early in comfort. In terms of Caldwell's (1976) model of "intergenerational wealth flows," there is a flow of wealth from the parents to children and similarly from children to parents in Pipalbote Cluster. It is difficult to judge on which side the flow of wealth dominates, but both parties (children and parents) seem satisfied that the flow is balanced and so there is no immediate perceived need for the birth control programs (see below).

In addition, not only the economic reasons but also strong cultural mechanisms encourage high fertility. Sons are highly valued and are considered essential as they will continue the lineage and

inherit the property. It is a son who must perform all the funeral rites for the parents as well as the ritual "feeding" (Shradha) of the parents after death. As there is high infant mortality (see below), there is a concern for son survivorship, that is, one must have many sons to insure that some or at least one will survive. Further, children are also the source of great deal of amusement and entertainment. Children also bring status to the parents as well as to the larger clan or lineage of which they are a part.

6.6 CULTURAL ASPECTS OF FERTILITY

The basic means for regulating fertility are often analyzed with use of the "intermediate variables" framework by Davis and Blake (1956). The intermediate variables are (pp. 211-235):

I. Factors affecting exposure to intercourse ("intercourse variables").

   A. Those governing the formation and dissolution of unions in the reproductive period.

      1. Age of entry into sexual unions (legitimate and illegitimate.
      2. Permanent celibacy: porportion of women never entering sexual unions.
      3. Amount of reproductive period spent after or between unions.
         a. when unions are broken by divorce, separation or desertion.
         b. when unions are broken by death of husband.

   B. Those governing the exposure to intercourse within unions.

      4. Voluntary abstinence.
      5. Involuntary abstinence (from impotence, illness, unavoidable but temporary separations).
      6. Coital frequency (excluding periods of abstinence.

II. Factors affecting exposure to conception ("conception variables").

      7. Fecundity or infecundity, as affected by involuntary causes.

8. Use or nonuse of contraception
   a. By mechanical and chemical means
   b. By other means
9. Fecundity or infecundity, as affected by voluntary causes (sterilization, medical treatment, etc.)

III. Factors affecting gestation and successful parturition ("gestation variables").

10. Fetal mortality from involuntary causes.
11. Fetal mortality from voluntary causes.

How culture affects fertility in Pipalbote Cluster is discussed here utilizing these variables. In the Pipalbote area, culture has played a dominant role to encourage high fertility over the years. On the other hand, some traditional cultural norms have been operating successfully to keep fertility from being even higher.

6.6.1 Age at Entry into a Sexual Union

Age at entry into a sexual union in Pipalbote is normally possible only after marriage. There are no institutional arrangements, such as "rodhi ghar" (youth dormitory, see Hitchcock 1966 and Pigende 1966) in western Nepal, where young boys and girls can mix before marriage. The only social gathering where boys and girls participate together is the Limbu "dhan nach" (paddy dance), where young boys and girls assemble and dance during festivals, fairs, and market days. Many young boys and girls feel ashamed to go together up to some period of time even after marriage (see the data on age at first marriage in Appendices 11 and 12). Also after marriage, a separate room is not available for newly married couples and hence sexual relations do not always follow immediately. It is reported that a newly married girl sleeps towards a corner of the house where other women sleep and the boy towards the man's side. Over time, couples arrange their sleeping place according to their convenience.

Among the Matwali, it is observed that a newly married couple (especially Limbus, Rais, and Sunuwars) may take shelter in another small house where grain is stored or in the upper storey of the cowshed. It may take sometimes up to two years before the couple finds a permanent place to sleep together. Sometimes if there is an age gap between the newly married couple (as is commonly observed among the high caste group), a married girl may be too small (she may still be waiting for her first menstruation) to carry out the domestic chores of her husband's house and may move to her husband's house only after 2-5 years of marriage. In other words, the traditional social norm which inhibits a couple from sleeping together immediately after marriage has helped to reduce fertility to a certain extent in the Pipalbote Cluster.

Long-term labor migration, which is sex selective (always male) probably has helped to an extent to delay marriages, at least of men. But fertility was also affected less than one might expect from high male ages at marriage because men marry younger women (5-13 years younger). For example, a Rai at the age of 36 (he was in the army) married a woman of 23 years old six years ago; they already had two children and when I was in the field, the wife was expecting another baby. A Limbu man, now 60 who married at the age of 27 (he was also in the military), a girl of 21 had eight children. In these cases, fertility was affected little as the age at marriage for the females was not delayed.

However, my retrospective on age at first marriage (see Appendices 11 and 12) clearly show that the recent cohorts are marrying later and hence delaying fertility. In the last 10 years, most of the boys were married at the ages between 20-24 and the girls in the ages between 15-19

However, the total fertility effect of the late age at marriage has yet to be felt in the Pipalbote Cluster.

6.6.2 Permanent Celibacy: The Proportion of Women Never Entering into Sexual Union

In the Pipalbote area, I did not find a case where a woman over age 39 was never married. In the traditional Hindu norm, a woman must marry and should beget a male child. A woman who cannot conceive after marriage is considered "alachini: or a bad woman. Such a woman cannot look at a woman who has a child. In extreme cases, such barren women are not allowed to touch the young children of a fertile woman who thinks that she might cast an evil eye on them (see Stone 1982). In other words, the traditional Nepalese society does not encourage a women to remain in permanent celibacy.

6.6.3 Amount of Reproductive Period Spent after or Between Unions

There are two ways (which can be analyed here) in which the reproductive period of a women can be shortened: i) by the death of a spouse and ii) by divorce, separation, or desertion.

In Pipalbote, 28 marriages had been ended by death; there were 18 widows and 10 widowers. The number of women who became widows at various ages by ethnic categories is given in Table VI-19.

The table clearly shows that only one woman in Matwali lost some years of her reproductive period whereas this number is quite high in the high caste group. Among the high caste women, two women became widows at the ages of 7 and 9 and never remarried. The other two women who became widows at the ages of 23 (she had one child only) and 32 (she had two children) also did not remarry. The other six women also lost some years

TABLE VI-19

Number of Widows and their Ages at Widowhood by
by Ethnic Categories in Pipalbote Cluster, 1981

Age Group	High Caste	Matwali	Untouchable
9-14	2	0	0
15-29	1	0	0
30-34	1	0	0
35-44	3	1	0
45-49	3	0	0
50+	4	3	0
TOTAL	14	4	0

of their reproductive period. In all these cases there was no remarriage after the death of a husband.

Among the high caste group, if the husband of a woman dies without having any children) or if the husband moves away and never returns, such a woman is supposed to remain the name of her husband and never remarry. Such women are considered moral and maintain a high social status. In other words, a woman is dignified only if she marries and maintains her morality even if her husband dies without her having had a baby. In such cases a woman is not considered infertile. Traditional law keeps such women from remarriage, giving them other social privileges and hence keeping the population pressure low. In the above 10 cases of high caste women, if they would have been allowed to remarry, some births

would have been added in the Pipalbote Cluster. But remarriage after the death of a husband is allowed in the Matwali and Untouchable communities.

Among the high caste group, divorce is rare. I did not find a single case where either a man or woman was divorced either by the cause of sterility or sexual incompatibility or other causes. However, there was a single case of desertion: a Brahmin girl was married at the age of ten but she was deserted by her husband immediately after marriage. She never remarried and when I was in the field, she was 60 and was living in her brother's house.

In Pipalbote, however, 8 women were remarried (7 Matwali and 1 Untouchable woman) but in all cases there was not a formal divorce. In four cases, their husbands had died, each woman, however, had 2-4 children; in other four cases, they left their former husbands for another voluntarily. In all these cases, the person who has stolen the wife, paid cash penalty (Jarikal) to the cuckhold or to the other members of the family. In these cases, there is a probability of losing some reproductive period while searching for a new husband, however, this gap was not long enough, it was in between 1-4 years.

6.6.4 Voluntary Abstinence

I observed both voluntary and involuntary abstinence in the Pipalbote Cluster. Four principal types of voluntary abstinence to control fertility are suggested by Davis and Blake; post-partum abstinence, abstinence during ritual occasions, abstinence during gestation period, and abstinence during the menstrual period.

a) My informants point out that in a normal situation sexual relations do not commence until 3-4 months after delivery; however, there

are exceptions. There is no taboo attached to sexual intercourse during breast-feeding period. The spacing of children is commonly observed to be 15-36 months, which indicates that sexual relations begin to take place four months after delivery. However, the lactating mother (lactation normally lasts 10-24 months in my field area) normally does not get pregnant as ovulation among women during the lactation period is low (see Nag 1962).

b) Abstinence during ritual occasions may postpone conception only if the ritual lasts 3-4 days and if this time coincides with the ovulation period of a woman. There are customary rules which total 8-10 days in a year when a man is not permitted to cohabit with his wife. In addition a man is not permitted to cohabit his wife for 3-13 days (until the purification ceremony is performed) when his father or mother dies. This time period is just twice in a man's life and nobody knows when it will be. In other words, it is hard to assess the total impact on fertility while abstaining during ritual occasions, but the effect cannot be very great.

c) There is no societal norm which binds people from refraining sexual intercourse during the gestation period. But the question is how this variable will help to reduce fertility is a moot point because a woman is already in her gestation period.

d) Sexual intercourse normally does not take place during three days of the menstrual period among the high caste group. During this period, a woman is not only prohibited from sleeping with her husband, but also from touching water and cooking food in the house. On the fourth day, a menstruating woman takes a bath and is considered

ritually pure like other women and can cook and cohabit with her husband. In some Matwali groups like the Newars and Magars, this rule is strictly followed, whereas in other groups this rule is flexible. However, abstaining during the menstrual period does not appreciably lower fertility as this period is usually "safe" for not conceiving a child.

6.6.5 Involuntary Abstinence

I could not find a single medically tested case of impotence (see also the item 7 below, fecundity, or infecundity) in the area. There was also not a single case of prolonged illness (more than a month) which forced a couple to reduce their fertility behavior. Nonetheless there were 8 married males who were working outside of the village for jobs. Except two (one Brahmin male and one Kami male who never returned to the village since they left), others came home regularly in every one to three years during their official leaves. These unavoidable but temporary separations have helped some couples to lengthen the spacing of children (in three cases there was a clear spacing of children in every three years) and may help to reduce the total fertility to some extent (as they had yet to complete their family size). At the same time, I also observed that those males who had been in military and whose family size had been completed in 1981, had more or less the same number of children as those couples who were never outside of the village for more than a month.

6.6.6 Coital Frequency

The data about coital frequency are vague as different informants had different opinions about it. Adults beyond age 40 did not respond to this question "properly" and thus my information was provided by

10 male informants aged 25-38. The important factors were age and the need for secrecy which probably inhibits frequent intercourse. The birth of a first child also lessens the frequency, which slowly declines as the number of children born increases. Informants point out that this is due to both factors: the number of children born and age. Of 10 informants, 6 informants pointed out that excluding menstrual period and some ritual occasions, the frequency was between 15-20 times in a month. These informants were below 30 and each had two to three children. The other two informants who were in between 30-38 years of age, had sex 2 to 3 times per week excluding the menstrual period and ritual occasions. The other two informants, who were 25 and 27 years old and who were married recently, had sex regularly every night avoiding the menstrual period and ritual occasions.

It is obvious that the more often a couple has intercourse, the more likely it is that the woman will get pregnant. (However, this is true only up to a point, then the sperm count gets too low). The data suggest that the coital frequency is high in the Pipalbote Cluster.

6.6.7 Fecundity or Infecundity, as Affected by Involuntary Causes

In Barbote Panchayat there were 11 couples who had no children but in Pipalbote Cluster there were only three such couples. Of the 11 couples, 8 were from Updhaya Brahmin and Jaisi Brahmin, two from Limbu and one from Gurung communities. The local people say that either sex may be sterile but since no medical tests have been conducted so far, it is difficult to say who is infecund. One might expect to find sterility

to be lowering fertility somewhat, but it is not easy to tell how important the role played by sterility is in involuntary birth control.

6.6.8 Use of Contraception and the Permanent Means of Birth Control

In Pipalbote, people were least familiar with the use of chemical methods of contraception, but almost everybody knew of other means of contraception. After the first district-level family planning office was set up in Ilam in 1967-68, there were four vasectomies from Barbote Panchayat in 1969-70. After that there were only 2 vasectomies and 20 laparoscopies in Barbote Panchayat up to 1980 (District Family Planning Office Record, Ilam, 1981).

In Pipalbote, of three males who had undergone the vasectomy operation (see Appendix 18 for detailed data on family planning service in Pipalbote) each had more than 7 surviving children. There were 12 cases of laparoscopy operations and the women had 3-8 surviving children. In both types of permanent methods of family planning, Brahmin males and females top the list as they are the people who are better educated and more economically conscious than other groups in the area.

Regarding the temporary use of family planning methods, I observed eight women who were taking pills, but pill taking was very irregular. Some took pills for a month or two and then discontinued because of side effects, such as weakness and giddiness. There was a single case of loop insertion by a Brahmin woman because pill taking was producing side effects for her.

The use of condoms was thought favorable by many males, but the use was minimal. There were three males, 26, 29, and 32 years old with more than three children each, who used condoms because they did not want

to be sterilized. Moreover, I observed that young boys were sarcastic about accepting condoms from the family planning worker in front of their seniors or felt ashamed when they were there.

When I raised questions to my informants regarding the use of family planning in the area, the reactions were both negative and positive. Some thought that the family planning service is essential after having four to five children, otherwise it becomes difficult to maintain the family. Others thought that it is bad to control fertility, as children are not only the "gift of god," but also a source of future socioeconomic security to the parents in their old age. Nonetheless, those people who were practising family planning were, however, showing a clear response to population pressure (see discussion below).

I noted a case of a Limbu woman who, after having five children, underwent a laparoscopy operation when her husband told her to do so. Though the woman was not satisfied after being operated on (psychologically she felt that she became weak after the operation, and could not do hard work), the couple felt that they had enough children to feed and take control of them later. When two Brahmin men of the Pipalbote Cluster went for vasectomy operations for the first time in 1967, the other Brahmin men of the area warned them that they would be just like castrated animals and threatened no longer to accept water and food from them. However, people slowly forgot such warnings and today nobody is opposed to the vasectomy operation in the area. Both men, more than a decade after their vasectomy operation, felt quite satisfied about their operation, commenting that otherwise more than four children would have been added to their families. In other words, some couples felt a real

need to limit their family size and saw family planning methods (particularly vasectomy and laparascopy operations) as a positive way to limit family size.

However, family planning means (both temporary and permanent) are not readily available to a large majority of the Pipalbote population. Especially, the permanent means of family planning are available to the people close to their area only when a special squad of doctors is sent by the government to Ilam district. Sometimes people are not informed quickly and such medical squads stay in a place not more than a week and only visit the area every 2-3 years.

Regarding temporary means of family planning such as pills and condoms, many villagers feel that family planning workers are "lazy," that they sit at one place (usually at home) and report to their offices that they have been working sincerely in their area. The villagers say that even if family planning workers supply condoms and pills, follow-up service is hardly done on a regular basis.

Even if family planning service is not regular, the young males who are educated are directly exposed to the family planning service. I noticed that a few young educated males who are married and have children go to Ilam bazaar to buy condoms when their stock of such items is finished or when the service of the family planning worker is not available in time.

In sum, the role of family planning as a means to control fertility has shown a minimum positive result. The local people are not sufficiently motivated to use the family planning service. In addition,

the traditional sociocultural values of having a large family size also negates the use of family planning services.

6.6.9 Fetal Mortality: Involuntary and Voluntary

In the absence of accurate records of miscarriages and stillbirths, it is not possible to be certain, but it seems likely that the people of Pipalbote suffer a great deal from unintentional (involuntary) fetal mortality. The local people call it garva tuheko or miscarriage.

I noticed that one Chhetry woman had miscarried five times and when the couple believed that they were not going to have a live birth, the husband married another women. One Brahmin woman miscarried three times. About 15 percent of the women in Pipalbote claimed that their first born child was either dead or miscarried.

It is well known that abortion is a more widespread method of controlling population than is contraception in many societies (see Nag 1962:136-137). Macfarlane mentions that Gurungs of Mohoriya practice abortion and infanticide (1976:245). However, except one abnormal case, where a married woman conceived a child of a man other than her husband and it is said that when the child was born he was killed immediately, voluntary abortion or infanticide (here used synonymously) was virtually unknown or was highly unlikely in the Pipalbote Cluster. In Pipalbote, people feel great repugnance towards voluntary abortion and such cases are highly criticized. In addition, abortion is illegal in Nepal.

6.6.10 Conclusion: Intermediate Variables

Davis and Blake (1956) noted three distinct phases if fertility is to take place: intercourse, conception, and gestation. Intercourse is required if conception is to occur; if conception occurs, successful

gestation is required if a baby is to be born alive. These three phases can be interrupted at any point if a live birth is to be avoided. An understanding of these variables is an important step to a good analysis of fertility trends and levels in a society.

How far are these variables effective in limiting fertility in the Pipalbote Cluster? There were only three women who had never engaged in sexual intercourse in the Pipalbote Cluster and their impact in reducing fertility was minimal. Though the mean age of women at first birth was 21.67, spacing of children born was minimal and by the time women completed their total reproductive span, they had 5-10 children each.

Some cases of informal divorce were observed among the Matwali and Untouchable groups, but remarriage was followed within a year to four years. Some marriages were terminated by the death of the husband, and among the high caste women where they are socially prohibited for re-marriage, this may have reduced fertility to some extent in the area.

Within marriage there is not much attempt to limit fertility. Variables such as age at marriage and periods after unions are broken, do seem to have some importance for lowering fertility.

The post-partum abstinence and abstinence during gestation variables play little or no role to control over fertility. Although sexual relations normally do not take place during the menstrual period, it is considered a "safe period" for conception. Involuntary abstinence caused by infecundity may limit fertility, but such cases were few in the Pipalbote Cluster. There are no short-term migrants in Pipalbote and the long-term migrants who were mostly unmarried males have little impact on fertility.

Sterilization for both males and females is considered the most effective means to control fertility. The impact of sterilization has yet to be felt, because all couples who had submitted to sterilization had five or more children. Contraception has yet to become popular.

Miscarriage is common but voluntary abortion is unknown. However, miscarriage probably did limit somewhat the number of total children born, but as couples wanted to have some surviving children, they continued to produce children until they had a good number of surviving offspring.

In sum, though the data on intermediate variables are sketchy, they however, present a picture showing that the voluntary fertility control mechanisms are not taken seriously by the people of the Pipalbote Cluster.

6.7 MORTALITY STATISTICS

6.7.1 Crude Death Rate (CDR)

Of a mid-year population (December 31) of 775 in 1980-81 in the Pipalbote Cluster, 12 persons died during the period. This gives a CDR of 15.49 per thousand, which is higher than the CDR of Barbote Panchayat as a whole. However, when I collected the 1979-80 deaths, i.e., those of the previous year, the total number of deaths was only 10. Appendix 19 shows the number of deaths on the basis of sex and ethnic category of 1980-81.

The appendix shows that the number of female deaths is 50 percent higher than the number of male deaths. The high number of female deaths may be due to a high number of deaths below five years of age and to delivery complications. One Brahmin woman, 27 years old, died due to delivery complications while giving birth to her fourth child. There was

a single case of death where a Limbu woman was bitten by a snake. On the other hand, though the Nepali society as a whole does not make much difference between male and female issues, the local people also say that males are taken better care of than females not only in their young ages but also during adulthood as well. Further, the high proportion of female deaths may also be due to fluctuation of deaths in a short-time observation.

Looking at the ethnic categories we see that four people died in the high caste group, seven people died in the Matwali, and one died in the Untouchable. Looking at the population size of each group, this suggests that the high caste group has better socioeconomic conditions than other groups. On the other hand, the low CDR among the high castes may be partly due to age structure differences.

6.7.2 Infant Mortality Rate (IMR)

The total deaths of infants (less than one year age) in 1980/81 in Pipalbote was 4, whereas the number of infants born during the period was 30. This gives an infant mortality rate of 133.3 per thousand. This rate is exactly the same as noted in Barbote Panchayat. I cannot claim that this statistic is significant, as infant deaths were observed only over a two-year period (1979-80 and 1980-81). The 1979-80 number of infant deaths was exactly the same as that observed in 1980-81. I feel that villagers report births accurately as the birth of a child is a matter of joy in the family. But children who die in their early age (less than one year period) are easily forgotten and many parents did not want to recall such deaths.

While looking at the number of deaths on the basis of sex and ethnic category (see Appendix 20), the proportion of infant deaths was equal in both sexes. The data show that there was not a single infant death for Untouchables, the poorest, and 33.3 percent of infant deaths took place in high caste groups. This is due to small sample in the Untouchable group which is affected by random fluctuations.

I maintain that the following factors may have played important roles to reduce infant mortality in the Pipalbote Cluster in the last 6-10 years.

1. There has been a considerable improvement in infant and child health during the last 5-10 years. It is probable that this is related to the installation of water pipes in the villages at least 6-8 years earlier, which may have reduced sudden deaths of children from dysentery and cholera.
2. The B.C.G. injection, smallpox vaccination and malaria eradication programs have been worked out successfully in the area in the last 6-12 years.
3. Hospital facilities and western medicines have been more readily available to the people after 1975 (because of improvement in transportation facilities).

6.7.3 Mortality in General

In Pipalbote, the people have little desire to die in the hospital. Naturally, when two-year retrospective questions were asked about causes of death, answers came in symptoms such as "my son died due to high fever," etc. It was, therefore, difficult to classify what diseases were at fault; however, the data provide certain broad categories of diseases.

There were 22 deaths in a two year period (July 1979 to June 1981). The major causes of death, according to the replies, were gastroenteritis (basically water-borne diseases) and respiratory. Maternal mortality had but a single case. Four children died immediately after birth and the causes are unknown. Three people died abote 77 and to villagers old age itself was the cause of death. About 62 percent of the infant and child deaths (children up to ten years of age) occurred between April to September, which is the summer and rainy seasons. This is the season when the weather is hot and the sources for drinking water become dirty.

It seems that mortality in general was quite high in the past (5-30 years earlier) in the Pipalbote Cluster. The 30 women who had completed their family size (50 and above) reported that only 141 children survived out of 180 total births (see Table VI-16). However, over the last 10-15 years, Pipalbote seems to have avoided any serious epidemics. There have been no deaths from accidents. Although it is said that people are bitten by rabid dogs, these days people go to the hospital for the rabies injection. When I was in the field, two people were bitten by a dog (they were not sure whether the dog was mad); both of them went to Darjeeling (India) for treatment. Moreover, water-borne diseases are likely to decline in the next few years, because except in one village, most of the people in Pipalbote now have access to pure water through pipes and there are plans to extend and improve such piped water facilities in all the areas. The government of Nepal is taking serious steps to give the B.C.G. injection against tuberculosis to every child. However, declining mortality without fertility means more population growth in the near future.

6.8 GENERAL CONCLUSIONS

Fertility is rather a complex process in human society as most people desire some children in their life. Since high fertility is considered a problem by the planners of Nepal, it is a matter of serious concern.

The data on fertility, value of children, and intermediate variables suggest that the population of the Barbote Panchayat area has been steadily growing over the years and that the present population growth rate of about two percent warrants significant attention.

Cultural and economic factors have played important roles for the continued high fertility. Furthermore, people feel great repugnance towards voluntary abortion and such cases are highly criticized. Abortion has been illegal in Nepal since the first Administrative Code was introduced in Nepal in 1854 and this is so even today. So unlike many traditional societies (see Nag 1962) and modern western societies (see Davis 1963), where voluntary abortion has been used as a means of controlling fertility, abortion has never been accepted as a normal fertility behavior in the area. Controlling population through family planning would be immensely difficult as there are so many cultural and economic values attached to having a big family.

Unlike fertility, I maintain that mortality is declining in Pipalbote because of better medical facilities and health hygienic conditions than before. For example, communicable diseases like smallpox have been eradicated in Nepal. Malaria has been controlled and the widespread B.C.G. campaign through Nepal is producing positive results

against tuberculosis. In addition, improvement in public health programs, such as good drinking water facility, are also helpful in reducing the death rates.

In sum, the population of the area is growing and, with today's age structure and prevailing cultural values, it is sure that population will grow in the near future.

CHAPTER VII

DEMOGRAPHIC RESPONSES TO POPULATION PRESSURE

Outmigration, fertility control through family planning and the late age at marriage are the major possible demographic responses to population pressure as shown by the people of the Pipalbote Cluster and Barbote Panchayat. But family planning and the late age at marriage as the means of lowering fertility are already discussed in Chapter VI. In this chapter, I discuss migration (outmigration and inmigration) and then show why the demographic response has been minimal in the area.

7.1 MIGRATION

Nepal is considered a population-exporting nation (Weiner 1971) and internal migration has become the most challenging issue for the planners of Nepal (National Planning Commission, 1975, 1980). In some of the hilly regions of Nepal, outmigration has served as a safety valve for population pressure for a long period of time. People move from their homesteads either to seek a job outside the country (military, police and a variety of labor posts) or to the Terai, for better socio-economic opportunities. Leaving Nepal for a job began in the middle of the nineteenth century, whereas the hill-to-Terai migration is a recent phenomenon.

The hill-to-Terai migration started in Nepal around 1960, with the inception of the Malaria Eradication Program (1958), the Land Reform Program (1964), the Resettlement Program (1965), and the Ex-Military Organization (1964). In addition, the construction of the East-West Highway was launched from the Terai in 1962. As malaria was eradicated and the Terai land was more fertile than the hill land, many hill farmers moved to good land in the Terai. In addition, the government

programs of distributing lands freely to sukumbasi (landless) and ex-military encouraged people to move to the Terai.

Many researchers have considered migration to the Terai as the economic safety valve for the hill people (Rana and Thapa 1975; Gurung 1973; Elder et al., 1974). Important questions are: Was it due to lack of resources (basically land or food) that people left their homesteads in the hills for jobs outside Nepal in the nineteenth and the early twentieth centures? Did the recent to Terai migration also start for the same reason? Was it only the landless poor who left the hills? In this section, I present migration data for Pipalbote Cluster and Barbote Panchayat to show that it was not only the poor who decided to move after 1960 or even before. I argue that while landholding per family may have declined over time, migration from hill to Terai (though it began after 1960) and abroad has also declined over time. In the nineteenth and the early twentieth centuries, many hill people emigrated not only due to lack of food but also because various sociopolitical factors were playing key roles to push them outside the region (see discussion below). Thus outmigration has had other causes besides population pressure. In addition, population pressure can be one of several different situations, with regard to land, as outlined below.

Population Pressure--- Land

1. Absolute scarcity (in no way could feed the population
2. Scarcity for some (unequal discribution, but land could feed the population
3. Scarcity for none (all have access to enough to subsist on; some more than others; relatively equal.)

Below I discuss how far these various situations prevailed in different periods of time in Barbote Panchayat and Pipalbote Cluster.

I observed two types of recent migration in my field area: 1) Long-term labor migration, and 2) permanent migration. There is no temporary or seasonal migration from the Pipalbote Cluster or Barbote Panchayat (see discussion below). Following the Dahal et al., study (1977), long-term labor migration and permanent migration are defined as follows:

Long-term Labor Migration

Long-term labor migration involves leaving the village for extended periods of time (normally two years and beyond). Such labor involves work in the army or police forces either in India, Britain, or Nepal, work as watchmen or private industrial guards, or work as lower grade civil servants in India. Although such migrants are removed from the village labor force for long periods of time, they are not completely removed from the economy of the village since many regularly send back cash and bring cloth and food when they return to their villages during leaves (Dahal et al., 1977:38).

Permanent Migration

In this category are those migrants who permanently break the ties of land and social interaction with the village of origin and do not return (ibid, p.40).

7.1.1 Emigration in 1859-1950: Was it Due to Lack of Resources?

Regarding the Eastern Hill region and particularly Ilam district Caplan writes

> Land in Ilam had no such exchange value because it was a free good. This meant that production was limited primarily by technological know-how and the supply of labor. Availability of land explains the readiness of the Limbus to make generous grants of holdings to the Hindu immigrants who entered the district following the pacification of Limbuwan (1970:197).

It is clear from above that the Limbus (the original settlers and the kipat owners of the area) had a shortage of manpower in relation to their land resources and welcomed other ethnic groups to settle there up until 1800-1850. However, after that Caplan observes land pressure in the Eastern Nepal hills:

> Pressure on land was recognized as the principle cause of emigration as early as 1890s (1970:16).

Caplan's own source for this argument was an earlier writer who never visited the area and in his book (1970) Caplan barely mentions any substantial emigration from Ilam or Indreni Cluster (the Barbote Panchayat area) again. When I visited the area nearly twenty years after Caplan's field work (1964-65), I noticed virtually no emigration today and that, even in the past, emigration may not have been for lack of land so much as for the sociopolitical factors in operation (see discussion below).

Although I lack data on how many people emigrated from Ilam district or from the Pipalbote Cluster from the middle of nineteenth century until 1950, some possible causes of emigration during the period can be deduced by looking at Nepal's land tenure system and the socio-political factors operating during the period:

1. The peasants of the nineteenth century were under obligation to pay a multitude of levies and taxes. Peasants had to pay taxes to the village headman during festivals and social occasions; landlords were entitled to collect customary gifts and presents from their tenants; and peasants also had to pay the serma (taxes based on the size of the homestead) and saunefagu (taxes on each roof) taxes. (See Regmi 1978:70.)

2. The local peasants had to bear the burden of feeding military troops stationed in their district by offering them a lower price than the local market price or by having the military take goods without pay by force (Regmi ibid). In Ilam, a battalion of military was stationed since the middle of the nineteenth century. Some of the peasants might have left to escape from these burdens.
3. The peasants of the nineteenth century (and even up to 1951 when finally the Rana government was thrown out) were under obligation to provide unpaid labor and services not only to their raja (king), birta owners (lands granted by the State to individuals on a tax-free basis), jagirdars (government employees) and landlords but also to the government (Regmi 1978:90). Two forms of unpaid labor were prevalent: Rakam and Jhara. Rakam services were for such regular administrative and defense needs as transportation of military and government supplies, mining or the management of checkposts (Regmi 1978:113). Jhara labor was utilized for the occasion of construction and repair of roads, bridges, irrigation channels and other public utilities (Regmi 1978:92).
4. The village moneylenders also played key roles in exploiting the tenants in the nineteenth century. Peasants had to borrow from moneylenders when crops failed or death, illness or some other misfortunes occurred in the household. In such a situation, the moneylender not only exploited unpaid labor from the peasant, the moneylender also appropriated a share of

> the peasant's harvests, sometimes even siezing a portion of the peasant's land (Regmi 1978:114). Also, slavery was common practice in nineteenth century and the early twentieth century Nepal (Regmi 1978; Sen 1973; slavery was officially abolished in Nepal only in 1925). When peasants could not pay their debts, in many cases, they became the slaves of their moneylenders. Those peasants who could not pay debt to the moneylenders, ran away from home to escape being slaves.

In sum, it was not absolute land shortage that drove people out. There was scarcity of land for some people but there was unequal distribution of land. The land could feed the population, but it was the bureaucratic landlordism which took virtually all land yields and kept peasants in debt, made them slaves and forced them to move. It is because of this that nineteenth century and early twentieth century Nepal (particularly the hill regions) witnessed a large scale emigration of people to Bengal, Assam, Burma, and elsewhere. I maintain that a similar situation was operating in Ilam district as well and in the Pipalbote Cluster area. There was military in Ilam since the middle of the nineteenth century, unpaid labor to the jagirdars and landlords was common up to 1950 (information supplied by many of the village elders of Ilam district) and moneylenders played key roles to evict many of the peasants from their lands (see Caplan 1970).

In sum, Caplan missed the vital sociopolitical structure operating throughout the hill regions of Nepal during 1850-1950. I maintain that any early emigration from Ilam or the Pipalbote Cluster

may not have been so much due to land pressure or lack of food, but rather to the oppression of common people during 1850-1950.

Below, I will not discuss migration phenomena for the period between 1950-1960. This was a period when Nepal was in a stage of transition; the despotic Rana government was thrown out and Nepal started experimenting with the democratic type of government. Rules and regulations were relaxed, but options to look for new economic opportunities were minimal. A similar type of situation was also prevailing in the Barbote Panchayat area. There was no attraction for people to move to the Terai as it was still a highly endemic malarial area. There was no oppression to the common peasants by landlords, government employees and others as before 1950. I maintain that this was also the transition period for migration and except the long-term labor migration (army and police), there was little or virtually no permanent migration from the Barbote Panchayat area during 1950-1960.

Below, I present the migration (long-term labor migration and permanent migration) data over the past 20 years (1960-1980) from the Barbote Panchayat area and from the Pipalbote Cluster. For migration data of Pipalbote, I included a migration questionnaire directly into my own census schedule whereas for Barbote Panchayat, I compared the population census records of two periods, 1964 and 1981. From these two censuses, it was easy to find out the people who had migrated out or died over time or came to settle in. I further cross-checked these data with the president of each ward of the panchayat and with some knowledgeable people of the area who not only verified the two records but also provided data who were in the army, police or in other kinds of jobs in

Nepal and abroad and also supplied migration information (in and out-migration) for the period between 1960-63.

7.2 MIGRATION FROM BARBOTE PANCHAYAT

7.2.1 Permanent Outmigration from Barbote Panchayat

The families which out out-migrated permanently over the past 20 years from Barbote Panchayat by ethnicity are given in Table VII-1.

The data show that the representation of the migrant populations is almost in proportion (except Newars) to their current ethnic representation in the panchayat. In other words, the high caste group, who are 52 percent of the population, represent about 56 percent of the total migrants and Limbus, who are 17 percent of the population, represent about 15 percent migrants over the past 20 years. The ethnic representation of the migrants clearly shows that there is no ethnic selectivity to outmigration.

Where did these migrants go? Migration from Barbote Panchayat can be categorized into three distinct flows: 1) Migration towards India; 2) Migration towards the Terai districts of Nepal; and 3) Migration within Ilam district. Table VII-2 shows the destinations of the migrant families by ethnicity.

The data in Table VII-2 shows that 21.3 percent of the families went to India, 62.7 percent of the families went to the Terai districts and 16.0 percent of the families remained within Ilam district but in panchayats other than Barbote Panchayat. Of those families who went to India, most (35 percent) went to Assam, followed by Darjeeling, Manipur and other places. Assam is a historical place for the Nepalese, who started moving into the area more than a century ago. Though no research

TABLE VII-1

Permanent Outmigration from Barbote Panchayat by Ethnicity, 1960-1980

Ethnic Group	1960-63	1964-67	1968-71	1972-75	1976-79	1980	Total Families	Total Numbers	% of the Total Families	% of the Total Persons
Upadhaya Brahmin Jaisi Brahmin and Chhetry	0	11	16	11	10	3	51	280	54.26	56.46
Newar	1	3	2	1	1	0	8	49	8.52	9.88
Magar	0	0	0	0	0	1	1	1	1.06	0.20
Gurung	0	0	1	0	0	0	1	7	1.06	1.41
Limbu	0	9	4	1	2	0	16	72	17.02	14.51
Rai	0	1	1	1	3	1	7	33	7.49	6.67
Sunuwar	0	0	0	0	0	0	0	0	0.00	0.00
Jogi	0	0	0	0	0	0	0	0	0.00	0.00
Tamang (Bhote)	0	0	0	1	1	0	2	14	2.13	2.82
Kami	0	1	0	0	2	0	3	17	3.19	3.42
Sarki	0	0	0	0	0	1	1	7	1.06	1.41
Damai	0	1	2	0	1	0	4	16	4.25	3.22
TOTAL	1	26	26	15	20	6	94	496	100.00	100.00

TABLE VII-2

Destination of Permanent Outmigrant Families From Barbote Panchayat, 1960-1980

	To India				To Terai Districts				
	Assam	Manipur	Darjeeling	Other Places	Jhapa	Morang	Other Places	To Ilam District	Total Families
Upadhaya Brahmin, Jaisi Brahmin and Chhetry	6	1	0	0	38	1	1	4	51
Newar	0	2	1	1	3	1	0	0	8
Magar	0	0	1	0	0	0	0	0	1
Gurung	0	0	0	0	1	0	0	0	1
Limbu	1	0	3	0	8	0	1	3	16
Rai	0	1	0	0	4	0	0	2	7
Tamang (Bhote)	0	0	0	0	0	0	0	2	2
Kami	0	0	0	2	0	0	0	1	3
Sarki	0	0	0	0	0	0	0	1	1
Damai	0	0	0	1	1	0	0	2	4
TOTAL	7	4	5	4	55	2	2	15	94

has been conducted on what the Nepalese migrant families do in Assam and other places of India, it is believed that most of them do agriculture.

In the Terai, the highest number of families (93.2 percent) went to Jhapa district. Jhapa district is of easy access for the people of Ilam because it borders Ilam; in addition, there is temptation to move to Jhapa district because it is agriculturally fertile and economically more prosperous than Ilam. In addition, malaria was virtually eradicated in Jhapa district by 1964 and there was no fear of death for the hill people to move and settle there. The distribution of land to the ex-military personnel in Jhapa district was also started about that time and the resettlement program for the landless was also launched there. Further, there were other socioeconomic changes in the district during 1964-1975, such as the opening of new roads and market areas, and there were better medical and school facilities. All of these factors "pull" Ilam migrants to move to Jhapa district.

It is difficult to judge the causes of family migration, as the migrant families had already left the village and are living elsewhere. However, I asked the causes of migration directly to either the father, grandfather, brother or other close relatives of the migrant families who provided me the possible causes of migration of their sons and brothers who left the village. The causes of migration as supplied by the informants are given in Table VII-3.

The data in Table VII-3 show that only 6.4 percent of the families were completely landless and can be considered poor; 56.4 percent of the families had some lands in their homesteads but they thought that they could make a better living if they move to other areas,

TABLE VII-3

Responses of Migrant Families for the Causes of Migration from Barbote Panchayat

	Causes of Migration (Number of Migrant Families)						
	Some land in Barbote but not enough to support family	Some land in Barbote but also got land in Terai as ex-military	Enough to eat in Barbote but moved to earn more	Completely landless	Other reasons	Total families	Total Persons Migrated
Upadhaya Brahmin Jaisi Brahmin and Chhetry	27	2	18	3	1	51	280
Newar	4	3	1	0	0	8	49
Magar	0	0	0	0	1	1	1
Gurung	1	0	0	0	0	1	7
Limbu	8	6	1	1	0	16	72
Rai	6	0	0	1	0	7	33
Tamang (Bhote)	0	0	2	0	0	2	14
Kami	3	0	0	0	0	3	17
Sarki	1	0	0	0	0	1	7
Damai	3	0	0	1	0	4	16
TOTAL	53	11	22	6	2	94	496
% of the total	56.39	11.70	23.40	6.39	2.12		

11.70 percent of the families who moved to the Terai as ex-military, 5.85 percent had not enough land to support themselves and the rest of the families (31.4 percent) had enough land to support themselves, and their families, but went to other places to make a better living. However, there were two women (one-person families), one Brahmin and one Magar, who left the village for other reasons. The Brahmin woman became a saint (sadhuni) and did not stay permanently in Barbote, and the Magar woman went to Darjeeling as there was nobody in Barbote to look after her. A total of 11.70 percent of the families moved to Jhapa district as ex-military personnel; of them 54.54 percent were Limbus. In sum, it was not always the poor who migrated; 31.4 percent of the families who moved permanently were rich in the village standard; 56.4 percent of the families had some land but the land could not feed them and only 6.4 percent of the families had absolute scarcity of land.

7.2.2 Immigration to Barbote Panchayat

There was not only outmigration from Barbote but also inmigration to Barbote Panchayat over the past 20 years. The total number of families who came to settle in Barbote Panchayat over the past 20 years by ethnicity is given in Table VII-4.

Gurungs and Kamis have mostly migrated from Panchthar district, a more impoverished district than Ilam. Most of the Upadhaya Brahmin, Jaisi Brahmin, and Chhetry families have migrated from Mayapokhari and Sumbek panchayats, panchayats bordering Barbote Panchayat. Life is considered harder in these panchayats than Barbote as they lie at higher altitudes than Barbote and it is difficult to plant the staple crops

TABLE VII-4

Inmigration to Barbote Panchayat by Ethnicity, 1960-1980

	Origin						Total Families	Total Persons
	Ilam District		Panchthar District		Other Places			
	Family	Persons	Family	Persons	Family	Persons		
Upadhaya Brahmin Jaisi Brahmin and Chhetry	12	75	1	14	2	8	15	97
Newar	1	4	0	0	0	0	1	4
Magar	1	4	1	1	0	0	1	4
Gurung	1	6	4	39	0	0	5	45
Limbu	4	20	0	0	0	0	4	20
Rai	7	50	0	0	0	0	7	50
Tamang (Bhote)	2	8	0	0	0	0	2	8
Kami	1	6	4	11	0	0	5	17
Sarki	1	3	0	0	0	0	1	3
Damai	1	4	0	0	0	0	1	4
TOTAL	31	180	10	65	2	8	42	252
% of the total	72.09	71.14	23.25	25.70	4.66	3.16	100	100

like rice in the area. In addition, crops take a longer time to harvest in these panchayats than in Barbote.

These migrant families consider that life is easier in Barbote than in their original village panchayats simply because they can make a living by selling some of the domestic products and because manual jobs are usually available at the Barbote Panchayat area throughout the year.

In sum, the above data show that inmigration has taken place from the higher altitudes to lower altitudes or from a less fertile to a more fertile area or to an area where life is considered easier for livelihood for the migrants than their own original villages.

The years of inmigration to Barbote Panchayat by ethnicity are given in Table VII-5.

The table shows that the highest number of inmigrant families (67.67 percent) were observed between 1976-80. It is difficult to give the exact reasons for the sudden upsurge in inmigration during the period, but some reasons may include:

1. During this period, crops were partially destroyed both in Ilam and Panchthar districts by a shortage of rain, and in some parts of these districts potatoes were also partially destroyed by hail. Crop failures in the home areas of the migrants may have motivated them to come to the Barbote Panchayat area, where the crop situation was better than their own homesteads.
2. The other thing which the migrant families consider important is the "pull" factor or the "facilities" available living close to the Ilam bazaar area. Ilam has a college which

TABLE VII-5

Years of Inmigration to Barbote Panchayat
By Ethnicity, 1960-1980

Ethnic group	Years of Inmigration 1960-70	1975-75	1976-80	Total Families
Upadhaya Brahmin, Jaisi Brahmin, and Chhetry	2	2	11	15
Newar	0	1	0	1
Magar	1	0	0	1
Gurung	0	0	5	5
Limbu	1	1	2	4
Rai	2	1	4	7
Tamang (Bhote)	0	0	2	2
Kami	3	0	2	5
Sarki	0	0	1	1
Damai	0	0	1	1
TOTAL FAMILIES	9	5	28	42

Started providing B.A.-level education since 1974-75. In addition, Ilam bazaar provides good transportation facilities; the regular bus service from Ilam bazaar to Jhapa district started in 1977 and from Jhapa one can travel by bus throughout Nepal and India. The migrant families feel that living close to Ilam bazaar will make their life easier than staying in such places where no facilities are available.

One of the inmigrant families were completely landless, they had some land in their village of origin which they sold and invested the cash for buying land in Barbote Panchayat.

During the past 20 years, 94 families comprising a total of 496 persons migrated from Barbote Panchayat. On the other hand, only 42 families or 252 persons inmigrated to Barbote Panchayat. In other words, the net decrease of population through migration was 244 persons over the past 20 years. Certainly, migration has helped to relieve the populaton pressure to a certain extent in Barbote Panchayat as a whole.

7.3 MIGRATION FROM THE PIPALBOTE CLUSTER

7.3.1 Permanent Outmigration from the Pipalbote Cluster

The number families that have migrated out permanently over the past twenty years from the Pipalbote Cluster is given in Table VII-6.

TABLE VII-6

Permanent Outmigration from the Pipalbote Cluster by Ethnicity, 1960-1980

Ethnic Group	Number of Families by Period						Total Families	Total Persons
	1960-1963	1964-1967	1968-1971	1972-1975	1976-1979	1980		
Upadhaya Brahmin	0	3	0	1	1	1	6	32
Newar	0	0	1	0	1	0	2	13
Limbu	0	1	5	1	0	0	7	37
Rai	0	1	0	0	0	0	1	6
TOTAL	0	5	6	2	2	1	16	88

There were no permanent migrants from the ethnic groups of Jaisi Brahmin, Chhetry, Magar, Gurung, Sunuwar, and Untouchables in the past twenty years. The sex composition of the migrant was 46 males and and 42 females.

Of the six Upadhaya Brahmin families, three moved to Jhapa district (Terai), two went to India (Darjeeling and Manipur) and a Brahmin woman with her daughter moved to Sumbek Panchayat, a panchayat bordering Barbote Panchayat. Two of the three Brahmin families who went to Jhapa district had sufficient land in Pipalbote to maintain their families but went to Jhapa to become rich. The other Brahmin family who went to Jhapa because the family had little land to support the family in Pipalbote. These three Brahmin families sold all their landholdings in Pipalbote to their own brothers and relatives (the sale was, however, not "automatic" and some migrants were still collecting money for their land when I was in the field). A single Brahmin man went to Manipur, India in 1975 to do agriculture and business and took all his family members in 1977. Though this Brahmin's family maintains land in his name in Pipalbote, he has already taken money for his share of land from his brothers and uncles. The other Brahmin family moved to Darjeeling, India, as a woman of the household eloped with a low-caste man who later took all her family members there. This family still maintains a lot of land in Pipalbote and comes to collect the income from their land every year, but villagers consider them permanent migrants and their name is not recorded in the name-keeping register of the panchayat. The single Brahmin woman who moved with her daughter in Sumbek Panchayat had strained relations with her husband at Pipalbote, who is one of the rich Brahmin men in the area. Though she is not formally divorced, she got a good amount of land in Sumbek Panchayat from her husband and is living comfortably in the new area.

Both Newar families moved to Jhapa, as they got land in Jhapa as ex-military personnel. The seven Limbu families also moved to Jhapa district as all of them also got land in the district as ex-military personnel. A single Rai family moved to Ilam Nagar Panchayat to run a small business there.

The above data, though the sample is small, present interesting phenomena. Of the 16 permanently migrated families, 12 (75 percent) went to Jhapa district, a more economically prosperous district than Ilam. Of these, nine families (75 percent) were ex-military personnel who got land in Jhapa district through government programs. More than 85 percent of the sample families (five Brahmin, Two Newar, and seven Limbu) moved to other areas not primarily because of "push" factors, i.e. lack of resources, but because of "pull" factors which played dominant roles to pull the people outside of the area. The migration was highest in 1964-71, as this was the period when the government of Nepal launched various socio-economic programs in the Terai, as mentioned above. However, since 1971, outmigration has slcakened in the Pipalbote Cluster; some of the possible reasons are as follows:

1. Most of the Terai districts of Nepal are densely populated today. Especially Jhapa district, which borders Ilam district, has grown in population more than 400 percent from 1962 to 1981. The life is more competitive in Jhapa district today than before and the hill people, with little cash in hand, find it hard to live there. In addition, the government of Nepal is not distributing land as generously as

before to the ex-military personnel and to the sukumbasi (landless), and there is a tighter screening today for selecting a family who can hold land in the Terai in such programs.

2. After 1960, the people of Pipalbote slowly started introducing cash crops like big cardamom in the marginal land (see Chapter VIII) and also introduced potato and wheat as other staples in their diet. The income from big cardamom is substantial in Pipalbote. In addition, getting temporary jobs in the government construction works in the area over the last 5-10 years provided extra cash sources of income. All of these new economic opportunities may have helped to reduce the number of people moving to the Terai.

7.3.2 Inmigration to the Pipalbote Cluster

There were also some inmigrants who came to settle within the Pipalbote Cluster. A total of thirteen families with 82 persons came to settle in the Pipalbote Cluster over the past 20 years (see Table VII-7 and VII-8).

These tables show that six families came from Panchthar district, a more impoverished area than Ilam. Other inmigrant families came from within Ilam district, but usually a higher altitude area than Barbote Panchayat. These inmigrant families consider that there is more economic hardship in higher altitude areas than in Barbote Panchayat. Like in Barbote Panchayat, the highest percentage of inmigrant families (61.53 percent) were between 1976-80, the reasons may be the same as discussed in Barbote Panchayat.

TABLE VII-7

Inmigration to the Pipalbote Cluster by Ethnicity, 1960-1980

Ethnic Group	Origin: Ilam District Family	Ilam District Persons	Panchthar District Family	Panchthar District Persons	Total Families	Total Persons
Upadhaya Brahmin Jaisi Brahmin and Chhetry	3	11	1	8	4	19
Gurung	0	0	2	26	2	26
Limbu	1	5	2	8	3	13
Rai	3	21	0	0	3	21
Kami	0	0	1	3	1	3
TOTAL	7	37	6	45	13	82
% of the total	53.84	45.12	46.16	54.88	100.00	100.00

TABLE VII-8

Years of Inmigration to the Pipalbote Cluster, by Ethnicity 1960-80

Ethnic Group	Years of Inmigration 1960-70	1970-76	1976-80	Total Families
Upadhaya Brahmin Jaisi Brahmin and Chhetry	1	0	3	4
Gurung	0	0	2	2
Limbu	0	2	1	3
Rai	0	1	2	3
Kami	1	0	0	1
TOTAL	2	3	8	13

Thus, over the past 20 years, a total of 16 families with 88 persons migrated out, whereas 13 families with 82 persons came to settle in the Pipalbote Cluster. In other words, the Pipalbote area could not have been relieved from any population pressure from net migration since almost a similar number of people came to settle in the areas as left. It is difficult to give exact reasons for such different patterns of migration, but some reasons may include:

1. Land pressure per household in Barbote Panchayat is higher than in the Pipalbote Cluster. A household in Pipalbote, on average, holds 3.13 hectare of land compared to only 2.44 hectare in Barbote Panchayat. So land pressure must have forced more families to move from Barbote Panchayat than the Pipalbote Cluster as a whole.
2. The Pipalbote Cluster is closer to Ilam bazaar than the Barbote Panchayat area as a whole. This proximity has helped the people of Pipalbote not only to do small business but also to get white collar and temporary labor jobs throughout the year. These factors may have played some role in reducing outmigration phenomena within the Pipalbote Cluster.

7.4 LONG-TERM LABOR MIGRATION

In the discussion which follows, I will not be able to go into great detail on long-term labor migration for the whole Barbote Panchayat; the scope of my own research precluded administering questionnaires to the large number of individuals such migration has involved. In addition, informants were unclear about exact dates and kinds of

employment engaged in from year to year in a setting where the decision to seek wage labor in a particular place can be surprisingly unplanned. I refer the reader to my discussion of long-term labor migration in the Pipalbote Cluster below for an idea of the processes involved.

7.4.1 Long-term Labor Migration from Pipalbote

There were a total of 18 people who moved outside of the Pipalbote Cluster as long-term labor migrants: three Upadhaya Brahmins, two Gurungs, six Limbus, two Rais, three Sunuwars, one Kami, and one Sarki. All these persons were males.

The three Brahmin males who left the village as long-term labor migrants went to India (Shillong,. Brindaban and Manipur). The person who went to Brindaban in 1965 was the son of a rich Brahmin family. He had a wife and a son back at home. It is said that he works in a Hindu temple in Brindaban but does not send money home. Since he left the village in 1965, he has not returned home. This is considered a long time gap for the villagers. The Brahmin who went to Shillong in 1964 was poor and unmarried when he left the village. When I was in the field, he came back to Pipalbote and was looking for land to purchase. The Brahmin male who went to Manipur in 1973 was unmarried but was the son of a middle-class Brahmin family. This man went to Manipur simply to try his luck as a person outside of his homestead. In other words, two of the three Brahmin males were affluent by village standards.

Of the two Gurungs (both unmarried), one joined the British army in 1979 and the other has worked as an agriculture officer in Kathmandu from 1978. They come home during their official leaves. Of the six Limbus, two joined the British army (unmarried), two were in Assam

Rifles (unmarried), India, and two (unmarried) went to Gangtok (Sikkim) to work as road laborers. The army service in Limbu started since 1966. They come home every two to three years with a lot of cash and "kind." The two Limbu males who worked as road laborers, left in 1963 and in 1973. They have not returned home since they left. This is considered a long time gap. Two Rai males went to Assam to look for jobs in 1965 (unmarried), but their parents do not know what they are doing there. They have not come back since they left the village. Maybe they have become permanent migrants. Of the three Sunuwars (all married), one went to Calcutta (India) in 1967 and is working as a watchman there and the other two have been working in the Indian army since 1965 and 1967, respectively. One Kami male went to Shillong (India) in 1968 and his parents back home do not know what he is doing there. This Kami male had his wife back at home but she left her husband's house in 1970 and was living in her natal home in Panchthar. The parents of this Kami male said to me that their son left home simply to try his luck outside home. Another Sarki male (unmarried), left the village in 1966, and so far there is no information about him regarding his place of destination and work.

The long-term labor migration has both economic and demographic implications in the Pipalbote Cluster. Especially those people who have joined the army, police, and white collar jobs bring money home. This money is utilized not only for subsistence but also for buying land and for prestige and luxury goods. On the other hand, there were 18 males 15-34 years of age who have left as long-term labor migrants (12.4 percent of the 1981 population of these ages), and their leaving must

have created an effect on the total fertility behavior of the community.

7.5 MIGRATION: GENERAL CONCLUSION

In this section, I have discussed migration from the aspect of in- and out-migration within the area of Barbote Panchayat and Pipalbote Cluster.

Most reports in Nepal stress that migration is caused by the hardships brought about by either a lack of sufficient land or insufficent production to meet the demands of a household (see CEDA 1973; Gurung et al., 1973; Elder et al., 1974; Dahal et al., 1977). Undoubtedly, this is sometimes true, but these are not the only causes of migration. The data on recent migration from Barbote Panchayat and Pipalbote Cluster show that outmigration has occurred not only due to lack of sufficient land or insufficient production to meet a demand of a household, but also because: 1) Some families got free land in Jhapa; 2) Some went to Jhapa and other places to earn more than what they had in the hills; and 3) Many migrated because they consider that the life is easier there or in other Terai districts due to readily available communication and transportation facilities and better schools and health care than in the hills.

Long-term labor migration was the interest only of individuals, particularly those individuals who joined the army service abroad. Some individuals went to India to try their luck outside of their homestead. Decisions to leave the village or homestead were made at the level of family or by the individuals (particularly, the head of family always made decisions in consultation with other family members) rather

than in consideration of the aggregate requirement of the total community. The family-level migration has taken place on the basis of a strong desire to become rich or to make life easier than before.

Permanent migration in Barbote Panchayat was not sex-selective, because not only individuals, but whole families moved, resulting in no effect in the fertility behavior in the village of origin. However, migration was sex-selective for the long-term labor migrants, as only males moved out.

The migration data also show that migration is a phenomenon both for the rich and the poor. Some of the wealthy with enough capital left the village permanently either to invest their capital for buying land, or for business in the Terai. The poor left the village permanently with liffle or no capital. Both groups had similar intentions; to explore better socioeconomic opportunities outside of their homesteads.

There is no temporary or seasonal migration except to meet relatives or to attend marriage ceremonies of their relatives and friends. As temporary jobs are available within the village area or within the surrounding Ilam bazaar, the people of Barbote Panchayat and the Pipalbote Cluster do not go away for longer distance for seasonal jobs. In other words, since there are increased opportunities for wage labor in and around the village or at Ilam bazaar, people do not migrate from "my" village area as seasonal migrants for earning cash for temporary needs.

Another interesting note is that not all migration is hill-to-Terai migration; there are many cases of migration from one area of the hills to another area within the hills. This sort of migration usually

involves movement from a higher altitude area to a lower altitude area, from an infertile area to fertile area, and also to the place of close relatives who can support the incoming migrant to establish himself.

In sum, it is not always economic and demographic factors that dictate migration; other socio-political factors are equally important to be taken into consideration as to why a family and an individual decides to move. The migration phenomena between 1850-1950 in the area provides this evidence. Further, the outmigration after 1960 from the area also shows that "pull" factors have taken the leading roles for migration rather than the commonly assumed "push" factors.

7.6 WHY DEMOGRAPHIC RESPONSE HAS BEEN MINIMAL

My data on the Pipalbote Cluster suggest that the demographic response to population pressure in the area as a whole has been minimal. But why? It has been mentioned above that that socioeconomic value of children in the hill farming communities is still high (see Chapter VI). In addition, emigration to India from my area has not been solely the result of economic hardships. The recent hill-to-Terai migration started because some people were drawn by the promise of free land in the Terai and moved because they hoped to become rich. That there is no seasonal migration of any kind clearly suggests that either the area is agriculturally self-sufficient or that skilled or unskilled jobs and other alternatives are available within the village area. Some families who are marginally supported by their land and have reached the point of insufficiency can supplement their income with cash and therefore continue to remain in the area. Even the farmers whose landholdings are

too small to support them comfortably could improve their lot by introducing cash crops such as big cardamom (see Chapter VIII).

An increase in the age at marriage places limitations on the number of women who are exposed to the risk of pregnancy. Though age at marriage in the Pipalbote Cluster is slowly rising since the last decade, its effect for lowering fertility has yet to be felt and in the high caste groups, cultural factors still play important parts for early marriage within them.

The family planning programs are not readily adopted by the people of Pipalbote Cluster to reduce fertility. There are many reasons for this. For example, using condoms by males in the rural settings like in the Pipalbote Cluster has practical difficulties. The main difficulty lies in the storing of condoms (the sleeping place is normally an open room and bedding is wrapped loosely) and disposal of condoms after use (there are no private bathrooms and disposal of condoms must be done outside home with care). In addition, even for those condom acceptors, condoms are not regularly available in time.

Pills, though convenient to use, are sometimes forgotten on some days. To some women, they create side effects which discourage their use among them. In Pipalbote, individuals are sterilized only when they have a minimum of four to five children with one or two sons. Infant mortality is still high in the area. So it makes no sense to force a couple into sterilization without their being assured that the children will not meet an untimely death. In other words, the local people felt it inconvenient to change their fertility behavior.

On the other hand, a lot of people have not shown their desire to control their family size. This is not only because of the high socio-economic values attached to having a large family, but also the chances of survival of children born. Though better medical facilities are available in Ilam district today than before, there are still minimal health services in the district. Up to 1981, only two certified doctors and 15 hospital beds were available for 177,000 people. The local people do not want to incur the risk of practising birth control; there is no guarantee that after having five children at least two will survive. Further, their negative desire was also due to the availability of other suitable alternatives to cope with population pressure in the local context than by controlling fertility either by direct or indirect measures (see socioeconomic responses to population pressure in Chapter VIII).

In sum, though there is a growing awareness of the need to limit the size of one's family, there is still no hurry for population control mechanisms.

CHAPTER VIII

NON-DEMOGRAPHIC RESPONSES TO POPULATION PRESSURE

This chapter describes the ways in which people cope with population pressure. The major ones are: agricultural intensification, introduction of cash crops and better use of marginal land. Exploiting commercial opportunities and various jobs were other responses. The local people also developed other socioeconomic strategies, for example, by changing caste behavior and introducing mutual help institutions to reduce expenditure and cutting expenses in marriage and death rituals. They have also started planting their own firewood and fodder trees in response to pressure to these resources. These socioeconomic responses fitted with the interest of the local people and they were readily adopted.

SOCIOECONOMIC RESPONSES (ADAPTATION)

8.1 AGRICULTURAL INTENSIFICATION

Population data exist for the past 20 years and land records for the past 70 years in Barbote Panchayat. I have attempted here to explain the change in the agricultural system following the model of Boserup (1965). She has suggested that when population grows, agricultural practices tend to be intensified. The general pattern of intensification includes: increasing amounts of land under cultivation; a shortening of fallow periods leading to multi-cropping; a shift from dry to irrigated agriculture; a change from natural grazing to produced fodder; and increasing inputs of time into agriculture (Boserup 1965, ff.)

It can be said that intensification of agriculture was limited in the earlier days in the Barbote Panchayat area due to lack of manpower

(Caplan 1970). Hilly areas, either irrigated or unirrigated, require manuring and care to develop their fertility. Unless there were a significant number of people in a family, cultivating large plots was not possible and even growing two crops in sequence was considered a heavy strain. Formerly, farmers kept labor inputs low leaving some lands fallow during at least some seasons of the year. This was especially important for rice and maize as these are labor intensive crops. Preparation of a field for either rice or maize cultivation, for example, terracing, repairing bunds, irrigation, plowing, etc., requires heavy labor. The necessity of terraces arises from the relief, climate, and the type of agriculture practised by the people. The embankments must be made of carefully laid stones and are capped with a mud bund rising six to eight inches above the field surface. Terrace maintenance is costly in time, labor, and money and its necessity acted as a deterrent to agriculture expansion.

Chapter IV has discussed the increasing amounts of land under cultivation in the Pipalbote Cluster and Barbote Panchayat. In 1912, there were only 68 hectares of irrigated land in Barbote Panchayat, which rose to 145 hectares (113.2 percent increase) and further rose to 493 hectares in 1971 (240 percent increase). This means that more and more of the available marginal land was put under cultivation and this, at least during the last 20 years was paralleled by population increase.

The above data show that there is also a shift from dry to irrigated agriculture. As rice is the most pretigious food item in the area, most of the farmers prefer to grow wet rice. Wet rice is a labor-intensive crop. The increase in the rice growing area was possible and

was needed for subsistence only when there were more people. This supports Boserup's assumption of agricultural intensification.

Another indication of the intensified use of land is the government document issued in 1931 stating that the people of Ilam should not leave their animals unattended during winter so that they will not damage winter grain and vegetables planted on the land.[21] The implication is that before this period there were no winter crops planted on fallow lands.

Further, multiple cropping can be observed through newly introduced crops like potato and wheat and also looking at the cropping sequences in the area.

Potatoes and wheat are recently introduced crops. The variety of locally grown was started as early as 1965-66, whereas the improved varieties of wheat, such as L-52, were introduced after 1974.

The introduction of the potato in Pipalbote presents an interesting story. Before 1965, the people of Pipalbote used to buy potatoes either from Ilam bazaar or from farmers of higher altitudes. These potato sellers used to exchange potatoes for grain. When there were more people to feed, the people of Pipalbote were less willing to exchange potatoes for grain. As a result they were induced to introduce potatoes close to their homesteads on a trial basis. The experiment was successful and today almost all farmers grow at least some potatoes. Further, one of the major successes of the agricultural development program in the area had been the fairly widespread acceptance of a new strain of wheat (L-52) after 1974, when the people realized that the winter season crops like wheat has become essential to feed the growing

population and to maintain the standard of living. A schematic presentation of the cropping sequences in the Pipalbote Cluster in 1981 is given in Figure VIII-1.

The sequences show that in the lower altitude bari (unirrigated) land (2,000' to 4,500') farmers usually plant two crops a year depending upon the quality of land. In some fields up to three crops are planted: maize, then millet, followed by either potato, mustard, or buckwheat. In the bari land of higher altitudes (4,500' to 6,000'), two staple grain crops are planted in good quality land, otherwise the second crop is either potato, sweet potato, buckwheat or vegetables.

In the khet (irrigable) land (2,000' to 4,000'), the sequence of crops a year is either wet rice- wheat- and wet rice; wet rice-wet rice or wet rice-potato or mustard. In some fields, the sequence is wet rice, wheat then maize. However, this depends upon the availability of water and the quality of land. In the khet land of higher altitudes (4,000' to 5,500') two staple crops (wet rice and wheat or wet rice and potato) are planted only if the quality of land is good.

In addition to the above major staple and other food crops, a variety of green vegetables are grown in both irrigated and unirrigated fields in different seasons of the year. In some dry fields close to the households, pumpkins, cucumber and beans are broadcasted along with maize. In winter and especially after October, some dry fields are kept for leaf-mustard, radish, tomato, and coriander. After the harvest of wet rice some plots of irrigated lands close to the households are kept dry for planting cauliflower, cabbage, and sometimes cowpea in higher

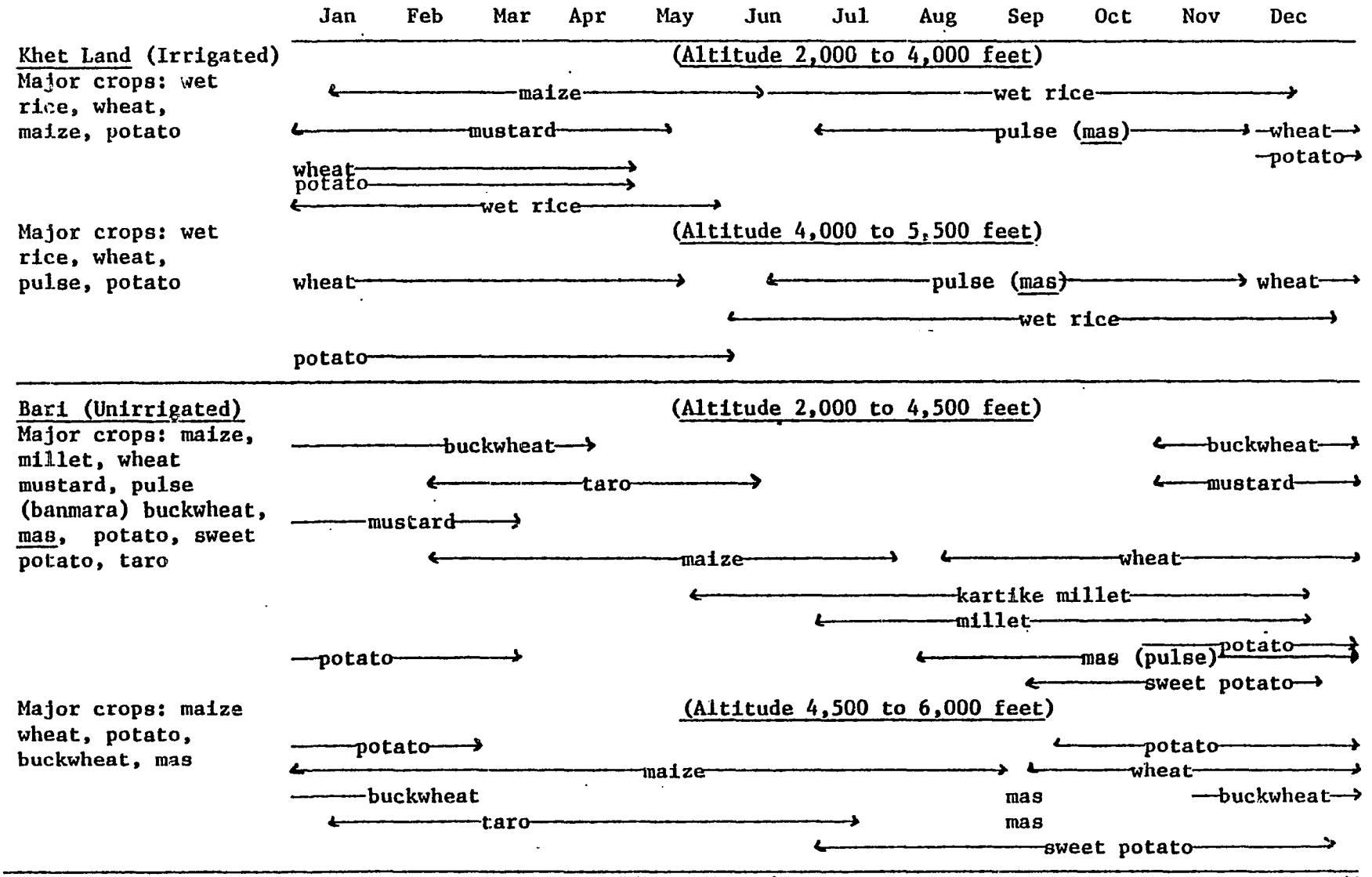

Figure VIII-1
Schematic Presentation of the Cropping Sequences in the Pipalbote Cluster, 1981

altitudes. According to the local people, cauliflower, cabbage, and coriander were introduced in the area 6-8 years ago.

On the other hand, the planting strategy is not always designed to maximize production. Crops such as buckwheat yield little but need minimal care and are planted when the strategy is to reduce labor and other inputs such as manure. A crop may be chosen for minimum expense and effort.

In sum, today, the fallow varies from one month to one year in many cultivable lands, depending on the distance from the cultivator's main living and working locality, whether or not manure is available and how much time and labor a farmer can afford to spend for that particular plot of land. Especially the fields which are located far from the residence and are located in higher altitudes are usually left fallow for a year unless some farmers living close by are ready to cultivate them. On the other hand, the fields lying on the river valleys are hardly left fallow.

In sum, the growing of rice, etc. required high inputs of labor, and thus was a factor in favor of large families. This pattern in part helps to explain the rapid population growth over the years in the Pipalbote Cluster.

8.1.1 Some Facts about the Cropping Sequences

Up to 6-8 years ago, it was customary to plant maize in the khet land, and after its harvest, wet rice was planted. Today, wheat is slowly occupying the position of maize in the irrigated fields. Wheat is harvested during winter when people need cash. In addition, less risk is involved in cultivating wheat than maize because the harvest of

maize must be protected from monkeys, foxes, and dogs during this period as maize is the only crop available for wild and domestic animals to consume. Even if farmers can grow three crops in some irrigated fields, many farmers do not do so as they feel that they have no such pressure on food. For example, after the harvest of wheat, a farmer can plant maize and after the harvest of maize, he can transplant wet rice. Some farmers of the Toribari village (within Pipalbote Cluster) follow this sequence, but they grow maize not for human consumption but as fodder for animals. The farmers claim that while making preparation for wet rice fields, they may have less time to collect fodder from a long distance for draught and milch animals which are usually stalled at home. In other words, though the area is densely populated, it is still possible for the people to reduce livestock and intensify further with staple crops.

8.2 INTRODUCTION OF CASH CROPS AND BETTER USE OF MARGINAL LAND

In Ilam district, three major cash crops are grown: tea, big cardamom, and potato. Tea growing in Ilam district started about 1880 (Amatya 1975), however, only in 1966 was it important enough to stimulate the establishment of government assisted business specifically to buy tea. Today, tea growing in Ilam is not an individual enterprise; it is run by the Corporation and caters to both the domestic and internal markets. Big cardamom farming in Ilam district also started as early as 1868-69 (Ojha 1980), but it was not an important crop until 1964. It is grown completely by individual farmers although it has an international market. Nodoby knows when potato farming started in Ilam district. Potatoes though grown primarily by the individual farmer, are farmed in

at least one place in Ilam district through government administration (Jaubari in Ilam, aided by Indian government and started in 1975). Potatoes are grown for both consumption and sale, though their market is local because of transportation "problems" both in terms of costs and availability.

In the Pipalbote Cluster area only two cash crops, potato and big cardamom, are grown. Potatoes are not grown in the marginal land but usually in the permanently cultivated fields, either irrigated or unirrigated. In this section, I will consider only one particular cash crop, i.e. big cardamom, which is grown exclusively on marginal land in the Pipalbote Cluster.

8.2.1 Big Cardamom (Amomum subulatum)

Big cardamom is used as a spice or as a flavoring agent for sweets, coffee, and tea. In many Muslim countries, it has a religious value. In Nepal, it is used more commonly as a traditional Ayurvedic medicine than as a spice. In the Pipalbote area, farmers produce big cardamom primarily for sale.

In the Pipalbote area, big cardamom is grown above 3,000 feet. Once planted, the bush can be harvested after three to five years and yields every year for up to 15-20 years if properly looked after.

8.2.2 Cultivation of Big Cardamom in the Pipalbote Cluster

Though some informants observed patches of big cardamom up to 5-6 decades ago, important cultivation started only sometime in 1965-70 and expanded rapidly in the area after 1975 when the price increased. Today, the local farmers are trying to grow big cardamom in those lands which are just marginally suitable for cultivation.

The official records of the total area cultivated in big cardamom is not available. In the Pipalbote area, nearly 4 hectares of land were utilized or about 1.28 of the total cultivated land area of the Pipalbote Cluster. Thirty-two farmers owned land suitable for growing big cardamom. Before the advent of big cardamom such land was waste or marginal where nothing except some firewood and fodder trees grew. Cardamom allows such land to yield income with little labor or capital input.

The production in these areas was approximately 1,358 kilograms in 1980, yielding an income of nearly 28,857 rupees or $2,425. If this amount is distributed over 32 households, each household will receive about 902 rupees per annum, good money as an outside income by Nepalese standards.

In comparison to other staple crops, this income is significantly higher per hectare. For example, 0.051 hectare of good quality dry land produces 140-160 rupees worth of maize when double cropped. Similarly, irrigated land produces 240-260 rupees worth of unhusked rice when double cropped. An equal area of marginal land produces an yearly income of about 400 rupees worth of big cardamom with little labor and capital inputs.

Knowing this we can ask: why have not local farmers introduced big cardamom into their fields before? Why are they not now utilizing their wet rice and maize fields for cadamom? There are a number of reasons for this.

I. Economic Characteristics of Cardamom Production

1. Farmers can produce enough to take care of their staples without growing cardamom.
2. Because cardamom demands little labor, it does not compete with subsistence production and be used as a supplementary source of cash.
3. Marketing fluctuation: the price of cardamom fluctuates according to international supply and demand. In 1964, the price of cardamom was rupees 60 per 40 kilograms; it rose to 800 in 1970 and 1,400 in 1978. After this, however, the price slowly declined until it was rupees 850 in the last week of December 1980.
4. Once the trees are established, they produce seed up to 20 years if looked after but need not be exploited in those few years when prices drop. This makes it possible to reduce labor input when returns would be low.
5. Where cardamom is grown on marginal land, it does not compete with other crops. If it were grown on relatively good land displacing staples, the farmers' subsistence would be threatened by its price fluctuation.
6. Since staple crops bring not only stable subsistence but also "satisfaction" (see Ortiz 1967, 1973) and "prestige," the shifting of cardamom to good land would lead to a absolute loss in terms of the traditional value system. The farmers know that food is more important for survival than cash for luxuries. Cash has use only when

it is transferred for the purchase of staple foods. In the local context, a farmer is more respected when he has more wet rice and maize fields than marginal land where cardamom is grown. Moreover, unlike the market for cardamom, other staple and domestic products can be sold easily in the local market without any delay.

In other words, it is still far from acceptable for farmers to utilize their permanently cultivated fields to grow cardamom and land is not scarce as to force farmers into use of their land which would bring the highest cash return.

II. Population Pressure

I maintain that population growth has a primary variable leading to serious cultivation of cardamom on marginal lands with increasing expenditure in standard of living. As mentioned above, the population of the Barbote Panchayat area has grown about two percent per annum. As the population increases, the demand for resources also increases and some newer adaptive strategy has to be adopted if the available resources are limited. Though cardamom growing began at least 50 years ago, because there was not much pressure on land the cultivation was not undertaken seriously. But the process of population growth has meant that the limits of expansion of land under cultivation for subsistence have been reached. Slowly, the cultivation of cardamom increased until after 1970 when it became a serious crop. This process was enhanced as more and more people have expanded the demand for cash for meeting the costs of schools and college, modern medicines, transportation, and

better clothes and other consumer goods. In other words, the increasing demands of the growing population brought pressure on land which could be met only by cash crops. As the staple crops always have a top priority in the permanently cultivated fields, marginal land was the only available alternative for growing cash crops, such as big cardamoms.

As Boserup (1965) has suggested, the first response to pressure on resources is to intensify in the area demanding least labor. As I have shown, cardamom with its low labor demands per hectare of cultivated land (unlike wet rice, maize, and wheat) is such a crop and when grown on marginal land does not threaten subsistence. It is the risk factor which dictated the use of marginal land, even though planting in permanent fields would have meant even lower labor demands. Should pressure on resources increase and no alternative crops of greater productivity or cash value or other income generating opportunity be available, I predict that farmers will be forced to displace staple crops with cardamom in their better fields. This replacement should be seen in just those areas which grow the low prestige crops such as millet and maize. Rice production should be the most resistant to change. The resistance to the encroachment on staple crops in this case comes not from the increased labor demands, since cardamom is in fact not labor intensive, but from the gradual increase in risk (because of price fluctuations) and the loss in traditional prestige. Moreover, with the world economy becoming increasingly unstable, the risks of shifting from subsistence to cash crops becomes greater. Boserup's model must therefore be modified to take into account not only social

production and market as pointed out by Brookfield (1972), but also risk minimizing strategies (Ortiz 1973).

The Boserup model is useful for discussing agricultural change in the Pipalbote Cluster. Her model, however, simplifies the picture of the complexity of agricultural intensification. The agricultural intensification in the Pipalbote Cluster is done basically by the farmers' own initiatives and there is little modern agricultural inputs. So there are problems in the Boserup model when we discuss the modern agricultural inputs in the traditional agriculture. Boserup's emphasis is on a linear relationship betwene population growth and agricultural development and does not consider the details of factors such as environment and social organization. These factors are problems with the new technology, water availability, implements, transportation, crops and pests, taste and quality of new crops and socioeconomic factors.

New Technology

New technology is essential for the increased output from the land. New technology includes not only better agricultural tools such as the iron plow, shears and big spade, but also chemical fertilizers, hybrid seeds, pesticides, etc. In a subsistence economy where there is a limited flow of cash, money is an important limiting factor determining who can buy the new technology. The people who can afford the expense and can bear the risks associated with experimentation are those farmers who are relatively rich. I noted that there were 17 farmers who got some amount of cash loans from the Cooperative Society of Barbote Panchayat for purposes such as buying wheat, improved rice, fruits and bullocks. Similarly, I found 4 farmers who were able to get some cash

loans from the Agricultural Development Bank in Ilam. But all of these were farmers who could pledge their lands as security for loans. Especially, the farmers who received loans from the Agricultural Development Bank were the rich farmers holding more than 4 hectares of land and they have other sources of income. But poor farmers who have limited amounts of land must face significant risks if they buy new technology. If farmers buy fertilizers to increase production and unfortunate weather results in a bad crop or the market price of agricultural produce that year is low, the capital is lost. In this type of situation where the rich are more benefitted, social inequality in access to resources and the problem of food cannot be solved as there are more poor than rich in the area (also note Marx 1971). In addition, there is no certainty that the new technology is available locally for purchase. Nepal is not the producer of chemical fertilizers, pesticides, and in some cases not even the improved variety of seeds. Farmers who are anxious to adopt this new technology to improve their agricultural situation do not know when these items will be available.

Only partial soil testing has been made in Ilam district as a whole (Nepal, Department of Agriculture, 1980), and there have been no soil tests at all in the Barbote Panchayat area. The p^H level of the soil must be known before introducing any chemical fertilizer since acid soil must be neutralized by adding calcium (Nepal, Department of Agriculture 1980). The various types of soils in the hills such as loamy, silt, clay and others demand different amounts of calcium. The Report of the Rockefeller Foundation (1977) notes that soils of the hills are generally low in nitrogen and organic matter and are commonly

acidic in the higher rainfall areas. Only when soil characteristics are known can one determine the appropriate chemical fertilizers for a particular area and a particular new crop. Similarly, the type and amount of pesticides and the timing of application vary for each crop. The Junior Technical Assistant who had been working in the Barbote Panchayat area since 1978 had no idea of the quality of the soil and so could not demonstrate to the farmers how a certain balance of chemical fertilizers are or are not useful for certain types of crops and often farmers had no idea of the quantity needed for certain crops. In sum, the new technology demands more education and money and when these problems are overcome will farmers be willing to bear the risks. In Pipalbote, 17 farmers were using the new technology on an experimental basis but current yields were not satisfactory due to the technical problems mentioned.

Water Availability

According to the farmers of Pipalbote, the availability of water for the expansion of irrigation has become the most vital consideration if further expansion of agriculture is to take place. In rain fed fields, the uncertainty of the monsoons combined with the risks inherent in the new technology produce a situation which the farmers feel they cannot tolerate. Unless there is an extension of irrigation, farmers will not be willing to further expand new cropping patterns. Whether the local technology will permit the development of irrigation or not remains an open question.

Implements

Further, the modern tools as iron plow, big shear, and spade are difficult to use in the small terraces of the hills. Since the hill soils are generally light and friable, a heavy plow is not needed and the plow must be light in weight for portability in rugged terraces and must be suited to small draft animals commonly reared in the hills.

Transportation

In addition, with topography imposing a severe limitation on transport of inputs into the area and transport of marketable surplus out, production has tended to saturate the local demands. This is particularly so in wheat and potato production in the Pipalbote Cluster. I observed that some farmers who could produce more wheat and potatoes were reluctant to produce surplus because Ilam bazaar is the only practical market place available to the people and only a limited amount of potatoes and wheat can be sold. The quantity sold is normally 30-50 kilograms per market day per farmer and any farmer who wanted to sell 400 kilograms of wheat would have to wait for about 10 market days or about 1.5 months. Transporting goods from the area to another place such as to the Terai, is costly. Especially with potatoes a farmer cannot wait long as there is a danger of spoilage. One farmer told me that when he had 100 maunds (4,000 kilograms) of potatoes and had been waiting for a favorable market, however, most of the potatoes were spoiled and he lost the total capital invested. Transportation and market constraints thus are seriously inhibiting the process of intensification in the area.

Crops and Pests

The farmers complained to me that where pesticides are used with great intensity, pests frequently increase. In addition, hybrid crops are more susceptible to insects and bacteria than the local ones. The farmers also said that the improved maize cob is longer than the local ones but the husk does not cover the kernels fully and such cobs have a high risk of being eaten by insects and bacteria.

Taste and the Quality of Grain

The other important thing is the taste of hybrid crops. Most farmers feel that hybrid maize and rice are not as tasty as the local ones. Moreover, the improved variety of rice is more broken in the hulling process. Similarly, hybrid wheat cannot be ground by an ordinary grinding stone. A person who has to grind such wheat has to walk an average of 2-4 miles to a water-mill.

This means technology itself cannot be introduced simply even though it may be available to the people. Boserup's model describes more traditional styles of agricultural development and so does not deal with the current problems which have appeared as programs of capital intensive high technology development have been implemented. In addition, sociocultural factors must be taken into account before introducing new technology in an area.

Socioeconomic Factors

Socioeconomic factors involved in agricultural development and change are often neglected. Tremendous differences appear between farmers who are more or less ready to improve their crops and such differences are clearly noticed in the Pipalbote Cluster where there are

different groups. For example, the high caste groups in my area are more motivated to improve their agriculture because of their relatively higher literacy and wealth than other groups. In other words, they can understand the problem and bear the risks of new technology. In many Matwali groups, where life is hand-to-mouth existence and people are not as well educated as in the high caste group, no one is willing to introduce new crops where there are more risks than with the local ones. They feel that the local crops will give reliable yields with minimal labor input, even with unpredictable conditions. Untouchables, who traditionally sell their skills and the products of their caste occupations, are least motivated to improve their agriculture. The Uncouthables started intensifying their traditional occupations and wage labor. In other words, it is not only the absolute scarcity which an individual or family faces, but also the position in the social system which determines how they respond to pressure and how they intensify their resource base. Thus, in general, a society will respond to scarcity by intensifying the use of resources, but the style of intensification is diverse and is socially, as well as economically, determined. Therefore for a given level of technology cropping productivity and intensify depends upon many factors, with social structure and environment playing important roles.

However, social and economic processes beyond those of local population pressure may exert considerable influence for agricultural change. For example, in the commercial economy of Pipalbote, better transportation to the market has led to increased production of a variety of vegetables. As there is high demand for locally produced goods at Ilam

bazaar, the urban demand is converted into rural demand and people are encouraged to produce more than before.

The effect of the increase of the non-agrarian urban population has been commonly ignored. Ilam bazaar has grown from 7,299 in 1971 to 9,354 in 1981 (Nepal, Central Bureau of Statistics 1975, 1981). Much of the food consumed at Ilam bazaar comes from the surrounding areas and the farmers of Pipalbote are the major suppliers of milk and milk products and vegetables. After 1960, a total of 27 new offices have been opened.* Of those employed in these offices, 220 were new urban residents who must purchase foods at Ilam bazaar for day to day consumption. There were approximately 250 policemen and military stationed at Ilam bazaar. This population must be figured into any examination of rural population pressure and the associated process of agricultural intensification.

The bazaar is a functional unit providing facilities for marketing the village produce. It also meets a number of other needs of the villager, such as credit and other cooperative facilities, agricultural extension work, etc. The market town, is, in addition, a health center, a political center, and an education center. In other words, Pipalbote's proximity to the town (Ilam bazaar) and the market, education, health, and other facilities there, has created rising aspirations for a higher standard of living which has also influenced agricultural intensification and other socioeconomic changes in the area. In sum, Brookfields idea of a market (1972) and other socioeconomic

*Investigator's own field survey, 1981.

changes should be given due consideration if one has to refine the population-based theory of agricultural intensification.

8.3 NEW COMMERCIAL OPPORTUNITIES AND DIVERSIFICATION OF JOBS

A common assumption about the hill economy is that it is based exclusively on subsistence agriculture. This is no longer the case in Pipalbote and this has been noted by some anthropologists (McDougall 1968; Caplan 1972) for other areas of Nepal. About 31 percent of the income (rupees 267,936, see Chapter V) in Pipalbote comes from non-agricultural sources and recently new cash crops have been introduced.

Two types of trade have been operating in Ilam bazaar for a long period of time: petty trade and large-scale trade. However, opportunities for petty trading have grown apace with commercial development of Ilam bazaar, which started primarily after 1960. The growing population of civil servants and other non-agriculturists in Ilam bazaar has created a good market for locally produced goods. Trade takes place on weekly market days where individuals sell goods produced at home (for details of petty trading, see Chapter V). This new niche has given the opportunity to earn cash year around. Further cloth vending in the market days started without much competition and even those not skilled in this trade were successful.

Permanent shops within the Barbote Panchayat area have also increased over time. Up to 1960, there were a total of three shops in the whole panchayat area, today there are 15.* Today, there are small hotels which not only provide food but also accommodations. The local people including the landless find this new niche less competitive

*Researcher's own field survey, 1981.

and therefore it is a suitable alternative to make a living as even with little experience it is possible to make a satisfactory profit.

The other niche to which the people of Pipalbote were attracted is seasonal employment in a variety of jobs available within their close surroundings or outside the village area. Jobs for the construction works for cash were scarce up to a decade ago. Looking for employment abroad in military and police occupations has been a common practice of many Matwali groups since the middle of the nineteenth century and this is so even today. Such employment not only provides a reasonable salary but also gives a long-term pension.

The other lucrative niche available to the people is the white collar jobs in private, semi-private, and government offices. Since 1960, 27 new government offices and corporations opened at Ilam bazaar which provides opportunities to hold certain kinds of jobs. The attraction is not so much the salary a person draws from a job but rather the authority and prestige which go with a job. In addition, even if the salary is low, an employee expects to earn extra cash through bribery. It is observed that for some employees, the total amount they accumulate in a month in bribes is more than their total monthly salary.

Recently, it has become more common for families in Pipalbote to have a diversity of occupations represented among the various members. The household thus calls on a greater variety of income. For example, an extended family of a Brahmin household consisted of 9 members (six adults and three children below five years of age). The family held little land and was considered poor up to 1975. The head of the family (a widower) used to sell tea leaves at Ilam bazaar to support his family

up to 1970 when finally he was able to establish a small grocery shop in Pipalbote. His eldest son with his family, left the home in 1977 and his two other sons were still studying in college up to 1977. His youngest daughter, a widow, had returned to her father's house along with her daughter. His second son, who completed his Bachelor's degree in 1978, was teaching in a high school in Ilam, with a salary of rupees 750 per month. The youngest son, who had dropped out of college, was helping his father run the shop. The widowed daughter was helping to run the household and the shop. The wife of the second son was engaged in cooking and was doing other domestic chores. The wife of the youngest son was teaching in a primary school and was earning about rupees 300 per month. The granddaughter (the daughter of the widowed daughter) was going to the Ilam college for higher education. The head of the family was supervising all agricultural activities as well as the shop. Since 1979, the youngest son had also started a wholesale business of big cardamom. In 1981, this family was considered one of the rich families in the Pipalbote Cluster.

The diversification is possible due to changes in the large economy. The tactic of diversifying and intensifying economy has enabled the people of Pipalbote Cluster to cope with population pressure on land.

8.4 A SLOW BREAKDOWN IN THE TRADITIONAL CASTE NORMS

Caste has played a dominant socio-cultural role among Nepalese ethnic groups. But caste per se has been little studied in Nepal either by anthropologists or sociologists and the meaning of caste in Nepal has always been understood in the Indian context. "Endogamy" has been

considered one of the fundamental features of caste in India (Berreman 1972; Srinivas 1952; Sinha 1967). To Dumont (1966) caste is always permeated by the notion of hierarchy. In addition, the other distinct features of caste noted in India (Srinivas 1952, 1973) agree with the caste concept in Nepal given below:

1. Castes are recognized as groups (i.e. they are usually named).
2. They are in some ways interdependent
3. There are barriers to free social intercourse between castes and cultural differences between castes.
4. In most cases, a caste has a degree of occupational specialization.
5. The concept of pollution governs relations between caste

My interest here is not to define the caste system in Nepal or its endogamous nature, rather to discuss how, in my field area, the notion of hierarchy and other distinct features of caste are slowly breaking down in terms of dining behavior, marriage structure and other social institutions. I argue that this is happening due to demographic and economic considerations.

In the Pipalbote Cluster, castes are still recognized as groups but barriers to free social intercourse between castes have become flexible. Many, particularly high caste people, would still refer to live in such a way as to maintain cultural homogeneity and avoid polluting contact with lower castes and devalued activities. However, even the traditionally minded senior generation realize that to make advantage of new economic opportunities the young people will have to adopt

more secular ways and mix with people of all castes as the best paying jobs always lie outside the village area. So young people are more secular minded and are not as bothered by polluting contact. I observed that many members of high castes consume food and drink cooked by the low caste members, particularly by the Matwali. Some years ago this sort of activity was publicly criticized or vehemently denied. Though some of the traditional caste members know that their sons are eating food cooked by the low caste people, no remarks are passed. Men are travelling more and when they do they are not sure whether they will meet their own caste members to feed them or even if they do they may have no extra food or reserve food grains. This also encourages flexibility of dining behavior. In addition, I found two Brahmin households which have raised chickens, normally considered degrading for them. I also observed that some Upadhaya Brahmins have used sewing machines in their households, although traditionally sewing clothes was considered a job for tailors who are untouchable. In sum, high caste families are being forced by economic necessity to break those pollution rules which hinder economic maximization. They are more constrained by economic necessity to be more opportunistic.

Another interesting caste feature in my area is that Upadhaya Brahmins have started plowing their fields. According to the traditional Hindu social code, a Brahmin (Upadhaya and Jaisi) should not plow the field, even though the main occupation of the majority of them was, and still, is agriculture. According to Caplan (1972:32), Brahmins in western Nepal do not plow fields and so must employ someone else to do the task. In the Pipalbote Cluster, economic and demographic pressure

is changing this. Hiring plowman has become too expensive. Some 100-125 years ago, three Ghimire Brahmin men came to this area and today 467 of their descendents remain in the Barbote Panchayat area. The land resources of these families have not increased significantly to feed the growing population. There is more competition for the priestly services and nobody pays respect to a Brahmin to the extent that was done some years ago. Today, a Brahmin cannot ask for unpaid labor from any member of the lower caste.

There is no document to substantiate when the Brahmins of the Pipalbote Cluster started plowing fields; informants claim that some poor Brahmins did so more than four decades ago. The local people still remember a case in 1948, where a son of Upadhaya Brahmin plowed the field and the father was so angry that he beat his son with the plow and the son ran away from home and still nobody knows where he has gone. In recent years, the reaction against plowing has become weaker. In other words, high caste people are overcoming their dislike in order to diversify their economic opportunities.

Marriage or sexual relations by a high caste man with a low caste woman was considered a serious crime in the traditional Nepalese Hindu caste society. In many cases, if a man of high caste had sexual intercourse or married a low caste woman, it would result in immediate censure or excommunication. Today, there is no such excommunication. In Pipalbote, I observed six cases of intercaste marriages mostly where the high caste men or women married a low caste woman or man. A Sarki

(Untouchable) married a Chhetry girl (high caste group); a Chhetry married a Rai (Matwali) girl a Upadhaya Brahmin married a Newar (Matwali) girl and three Brahmin males married Sunuwar girls (Matwali).

Except in the one case where a Chhetry girl married a cobbler boy, the marriages were accepted as normal by the people though some old people of high caste may not accept food cooked by them. Traditionally, the intention of marrying within the caste framework was to maintain the caste homogeneity and purity. But this is breaking down. Why? This sort of intercaste marriage has more practical implications beyond the simple breach of the traditional caste norms. Intercaste marriages involve no wedding rite, nor any custom of bride wealth and dowry (see Caplan 1974). On the other hand, a man still inherits his parental property. The traditional marriages are expensive (see Chapter V) and many people are not able to bear the cost. Moreover, marrying with members of other castes not only links persons within one's own caste framework but also extends his ties of kinship gaining wider support in labor crisis and economic hardships. This way intercaste marriages are not only leading to a process of social change but also maximizing the other local socioeconomic resources.

In sum, unlike Srinivas' concepts of "sanskritization," where only "a low Hindu caste or tribal or other group changes it customs, rituals and ideology, and way of life in the direction of a high and frequently twice-born caste," (1973:6) the process is in both directions in the Pipalbote Cluster. The high caste members here instead of sanskritizing, are eating food and share values with the low castes and particularly with the Matwali groups. On the other hand, some ethnic

groups like Gurungs, and Magars are following the Brahmanical customs in their rituals, however, this process is not as smooth and fast as observed in the high caste groups who are adopting the customs and behavior of the low caste people. This change in cultural practices, associated with caste and ethnic groups, like the changes in agricultural and non-agricultural activities, is oriented toward maximizing resources through diversification.

8.5 MUTUAL HELP INSTITUTIONS HAVE DEVELOPED

Anthropologists have noted the traditional mutual help institutions such as Dhikur (rotating credit associations, see Messerschmidt 1974) and the cost-cutting processes in rituals among the Thakalis (see Manzardo 1975) of western Nepal. In eastern Nepal, no such help institutions have been studied. In the Pipalbote Cluster, I observed three mutual help institutions which had recently started. In this section, I argue that these institutions were started primarily to cope with population pressure.

One of the first mutual help institutions was started by Brahmin and Magar households of the Malbase village area. Originally only six households were involved, today there are 15. It was set up primarily to help in marriage ceremonies and death rituals. The general agreement was that each household pay a sum of five rupees and 3.6 kilograms of rice per event.

The other institution was started exclusively by 8 Limbu households of the Mehalbote and Mandreni settlements in 1968, when their traditional kipat system of land tenure was abolished. For the Limbus, it was a sort of solidarity movement to cope with the loss of their land.

Later some Newar and Rai households of the neighboring communities joined them and today there were 30 member households. Donations were fixed for the marriage of a son (because Limbu marriage is expensive for the boy's party, as the bridegroom has not only to pay the bride price but also to cover some portion of marriage expenses at the bride's house) and death rituals. About 8 kilograms of grain (depending upon grains such as unhusked rice, millet or maize) and rupees five are collected from the member households per event. Grain is preferred but if a particular household cannot afford grain, 10 rupees is substituted.

The third mutual help institution was started in 1974 by the Brahmins and Newars of the Mandreni and Bhorleni settlements, to cover the expenses of marriage and death rituals. A household pays rupees 10 cash and 3.6 kilograms of rice per event; if rice payment is not possible, a sum of 25 rupees is substituted.

The genesis of these institutions clearly suggests that the people of the Pipalbote Cluster are feeling pressure to meet the cost of marriage and death rituals. They feel that if the present trend of inflation continues, it will become difficult to conduct these rituals even with the help of this institution.

Such organizations seem to be the natural outgrowth of "pressure." The local people do not normally have sufficient food and cash on hand to cover the feast, and the mutual help institution provides an immediate cash and grain support for the occasion [or a suitable alternative to cope with the situation]. In various other ways, all groups have already accepted the blurring of caste distinctions and have

started to cooperate with their neighboring groups in such important functions as death and marriage ceremonies.

On the other hand, I also noticed that though social prestige still forces people to spend money on death and marriage ceremonies, pressure on resources makes many households reluctant to spend lavishly. When I was in the field, I observed a marriage in a Brahmin household where the head of the household did not feed the bridgroom's party when the left. The reduction in expenditure indicates a shift in pattern of resource allocation away from prestige goals.

8.6 CONSERVATIONIST RESPONSE TO POPULATION PRESSURE

Due to pressure on land, the Pipalbote farmers have already started making terraces even on the steep or rocky land and virtually all marginal lands have been utilized for agriculture. Livestock, which is the key link to the ecosystem as the providers of milk and milk products, draught animals, and manure, are also decreasing in numbers. Wild and cultivated vegetation which provide firewood, forest products and fodder have been cut in large quantities over the years. Villagers have realized that the resulting deforestation is certain a problem, but they are taking steps to counter it.

According to the local informants, in the past, animals were left unattended to graze in the forest in the fallow fields before 1960 and there was little planting of trees. Since there has been greater surveillance by government to protect forests after 1960, the local people find it harder to collect fodder of firewood for their

day-to-day needs. When the winter season crops were also introduced after 1960, the local people were forced to stall their animals at home or to keep herdsman to watch animals. Those animals stalled at home demanded tremendous amount of fodder. To minimize this problem, the villagers introduced amliso grass (Thysanolaena maxima) for the first time in the Toribari village area around 1958 and this grass was slowly introduced in other village settlements of the Pipalbote Cluster. Today, this grass not only provides fodder for many households, but is also made into brooms and many households of Pipalbote sell a good quantity at Ilam bazaar.

Not only was fodder grass planted, but villagers also started planting trees for firewood as well as fodder. One Brahmin informant told me that when he purchased land in 1933, there were virtually no fodder trees in his fields, today he has already planted a good number of trees which supply most of the firewood and fodder requirements for his family.

I counted the number of firewood and fodder trees planted in 10 farms over the last decade. Those households were selected which have more than 2.5 hectare of land and some livestock so that the man-land relationship with livestock can be observed. I noted about 1,087 trees planted by these households or an average of 109 trees per household. Most of the trees planted were either for firewood (species such as Albizzia labbeck, Schima wallichii, Alnus nepalensis) and for the fodder purposes (such as Ficus lacorn, Ficus nerifolia). Those farmers who have lands and livestock clearly felt a need to plant trees to

adapt in the changing situation. Household plantation of bamboo also used for firewood and fodder, have been extended by most households wherever possible.

In addition, when the people of Pipalbote started introducing big cardamom in their farms after 1960, they also started planting Alnus nepalensis to provide shade and manure for the crop. It is mentioned above that big cardamom was planted in the marginal land or on the unirrigated field slopes. This means cardamom production not only provides a good cash income, but also protects the hill environment. Informants claim that Alnus nepalensis grows fast and it can be used as timber after 10-15 years. I think that Alnus nepalensis may serve as protector of the degrading hill environment if the cultivation of big cardamom increases significantly over the years.

The local people claim that up to a few years ago, everybody was allowed to go to anyone's farm to collect grass fodder. Today, everybody realizes the importance of such fodder and nobody allows such cutting. Caplan (1970:145) cites a beautiful example in which a Brahmin cut bamboo grass without the permission of the Limbu owner, which eventually led to a serious quarrel.

Recently, planting of trees has also been increased significantly due to the government nursery programs in the area. There are a total of 15 nursery programs in Ilam district, the first of which was started in 1959. In the Pipalbote area, the nursery program was started in 1971, but stopped in 1973 due to the lack of supervisory personnel and adequate funding. It was started again in Pipalbote in 1979/80 with World Bank funds.

In the Barbote Panchayat area, two people, one forester and one forest guard were assigned to look after the nursery program. The aim of this program was to produce 25,000 plants every year and each person of the area would get 25 plants free to plant in his farm. The nursery was also introducing grass fodder. By 1980, only 8,000 trees were produced; of which about 5,000 were planted by nursery people themselves and about 3,000 were distributed to the villagers. The real difficulty I observed in the program was that villagers wanted those trees which can be used for fodder as well as firewood. In fact, only a limited number of good quality fodder trees were available at the Barbote nursery. However, when their choice of plants was available in nursery, the local people were showing keen interest and some farmers put in orders. The impact of the program has yet to be felt because people are not sure of the quality of trees they have planted.

Cultural responses to the hill environment are also well expressed. Maize is deliberately seeded thickly by the farmers of Pipalbote to be thinned and fed to livestock when villagers start weeding maize after 1-2 months. Many kinds of crop residues, weeds, grasses (cut from bunds and terraces), excess foodstuff such as pumpkin and squash and their vines are being used as supplemental livestock feed. Hay, maize, millet, and wheat straws are always stored to feed the livestock during the fodder shortage period or when villagers have no time to collect fodder. In addition, farmers are reducing their livestock keeping only as many animals as they can reasonably handle.

The retention of traditional agricultural tools, the small plow which does not cut depth and is pulled by small light weight bullocks helps protect the hill terrace as far as possible.

The combination of various ecological conditions gives the farmers of Pipalbote a great deal of variety of crop strategies and a reasonable certainty of good crops. The local farmers emphasize the intercropping of many types of domesticated plants. I observed more than 10-14 species of secondary crops interplanted in some fields where maize are broadcasted. Even on the flooded rice field bunds, soybeans and pulses are grown.

In addition, I observed a notable change in the food consumption pattern in the Pipalbote Cluster. Except for some old people, there is no rigidity in the food consumption pattern, even among the high caste groups. I find that the Untouchable group is most suitable to exploit the ecological niche as they have no bar against consuming any food including dead animals. I observed that even the high caste members started hunting the wild animals like chicens, rabbit and porcupine. In other words, the local people are exploiting all resources while trying to minimize damage to the environment.

One cultural change is, however, having a negative impact, the shift to wet rice cultivation. This is increasingly causing the degradation of the hill environment in the Pipalbote Cluster. After 1800 Hindus began to introduce wet rice cultivation and wet rice is grown even in fields which are marginally suitable. Today, food habits are changing rapidly and the local people are switching over to irrigated rice from maize, millet, and root crops, and people who consume millet

potato, sweet potato and taro as their staples are considered poor. But crops like millet, sweet potato and taro are well suited in the marginal land. To maintain social status, people are trying to consume rice as far as possible. This new food preference is going to create a serious problem in the long run.

When I was in the field, an incident occurred which supports my idea. A group of people of Ilam Nagar Panchayat started constructing an irrigation channel so that their farms will not only produce maize and millet but also rice and vegetables. This case not only brought a problem of ecological deterioration, but also developed litigation problems.

A group of people from Ilam Nagar Panchayat started constructing an irrigation channel of 3-5 miles long, which passed through the area of the Pipalbote Cluster. As channel construction moved along, it cut the cultivated fields of many farmers: In one case, the total cultivated land of a poor farmer. The people of Ilam Nagar Panchayat thought this was "development" and nobody should oppose it. But the farmers of Pipalbote whose lands were cut severely protested as they were neither consulted before the construction of the channel nor they were given compensation for their land. After some half mile section of the channel had been constructed, a bitter dispute occurred between the two groups of people and the case was brought to District Court.

In this case, both parties were looking for their own economic benefit and neither party were concerned for the long-term degradation of the environment. In reality, when the channel has been constructed, it will not only cut the cultivated fields, but also the fragile

mountain slopes through which it passes. The people who were involved in constructing the channel did not have enough money for proper retaining walls and there has been seepages which in the long run will create soil erosion which will be directly felt by those people who have their fields below the irrigation channel. Furthermore, with permanent water available, people will be tempted to build terraces up the hill sides on steeper and steeper slopes. Heavy monsoon will probably damage terraces and cause landslides denuding the soil.

In sum, except for the shift to irrigated rice, the people of the Pipalbote Cluster are trying to adapt to population pressure by ecologically sound innovations.

8.7 GENERAL CONCLUSION

The people of Pipalbote had developed a number of socioeconomic strategies that adapted them to their changing situation. Among these changes are: intensification of traditional agriculture, adoption of cash crops and increased use of marginal land and the development of other sources of income (trade, army service, white collar jobs, and wage labor). Along with these earning sources, the people also maximized the local resources by changing their caste behavior, developing mutual help institutions and reducing expenses in marriage and rituals. Today, reforestation has been increasing at the individual household level to enhance security for firewood and fodder.

It is possible that the land use in the Pipalbote Cluster can be further intensified if water and other technological facilities are available. The cultivation of potatoes and big cardamom can profitably be expanded if proper storage and market facilities are available.

Wheat has been accepted as a staple and if permanent irrigation available, the farmer will expand its cultivation. However, the danger of agricultural intensification is always there if environmental considerations are not taken into account. Often also, new crops and techniques bring high risks. Increasing benefits from trade, white collar jobs and wage labor depend upon the future development of Ilam bazaar and better general socioeconomic infrastructure.

CHAPTER IX

CONCLUSION

9.1 GENERAL FINDINGS

This study has been concerned with understanding the socio-economic and demographic characteristics of a community in relation to its available resources. In particular, it has focused on the adaptive strategies of people in a general model of population pressure. This understanding has been reached through an analysis of population size and growth and the detailed observation of various resources available to the people in relation to their adaptive strategies. This study shows that in at least one area of the hill region of Nepal, the people are responding successfully to population pressure. They have been able to extend their resource base, primarily by expanding their use of existing ecological niches and developing new ones in such a way as to maintain and, in some cases, perhaps even improve their standard of living. This study demonstrates that population pressure on resources is a dynamic and not a static phenomenon.

The term "multiphasic" is borrowed here from Davis (1963) to show the various responses to population pressure. The people of Pipalbote maximized the available resources: increase the arable land, introduced multi-cropping and shortened the fallow periods, utilized marginal land to grow cash crops, planted trees, developed trade, and finally intensified the white collar jobs and wage labor. The result of these measures is positive at the economic level but could it be negative at the long-term ecological level if population continues to expand rapidly?

The possible demographic response of reduced fertility as a whole was minimal compared to socioeconomic responses which were readily

adopted to cope with population pressure. But why was the fertility response minimal? I maintain that socioeconomic value of children, wealth flows from the parents to children, and a distate for abortion were factors for the continued high fertility in the Pipalbote Cluster. On the other hand, though outmigration has helped to relieve population pressure to a certain extent in the Barbote Panchayat area as a whole, outmigration was not a necessity but a positive choice for many villagers.

If population growth was not slowed or stopped, the food deficit and rising aspirations for a higher standard of living could be met by intensifying agriculture and/or by the development of other resources. So over the years, the people of Pipalbote expanded and diversified their resource base as far as possible. The socioeconomic responses evolved in such a way that they fitted with interests and structures of peasant families in the developing economy.

After 1960, the education facilities were expanded greatly in the Pipalbote area (see Appendices 15 and 16 for literacy data) and the local people quickly took this opportunity to get many of their children a good education. These educated young boys and girls started taking interest in white collar jobs. Those people who were employed at government offices either in the village area or at Ilam bazaar made substantial financial contributions, because they were living at home and did not have to incur extra expenses for daily subsistence. Those who got jobs outside of Ilam bazaar took their families. The military and police service were continued either in Nepal or abroad for the long-term economic benefits and these jobs fitted with the interests of

the local people. Intensification of agriculture and introduction of new crops have been considered a part of the traditional agricultural system by the local people. In sum, socioeconomic responses were easy to make and were accepted as new economic opportunities.

9.2 RESPONSES TO PRESSURE: LIMBU VERSUS OTHER GROUPS

The successful economic adaptation of the people of Pipalbote is the most striking finding to come out of this research. There is, however, one major exception to this generalization and it provides an interesting test of my first hypothesis that people can develop effective responses to pressure on resources. The exception is the Limbus, who are the original inhabitants of the area and who therefore, at the beginning of this century, held most of the land. In Barbote Panchayat area, 42.5 percent of the irrigated land area was held by Limbus up to 1936, but they comprised only 17.9 percent of the total population of the panchayat in 1981.

For Limbus, there was a shortage of manpower to cultivate their extensive holdings of land. So, after 1800, they slowly encouraged Hindu and other groups to settle in their areas and practice agriculture. Regmi (1971:52-53) further notes that occupational castes such as those of tailors, blacksmiths, and cobblers, had not settled within the Limbu community and the lack of these specialists must have been another important factor in recruiting non-Limbus. With more land at the Limbu's disposal than they could use productively they had no motive to intensify their agriculture. Rather, they mortgaged much of their land to immigrant groups and lived in luxury on the income of land. Members of non-Limbu groups with money to invest in land could purchase only raikar

land which was in short supply. The only alternative open to them was to supply cash to the Limbus and to obtain kipatland on a mortgage basis because up to 1968, the Nepalese law protect Limbus from alienating their land to other, non-Limbu Groups.

Population was increasing and there was more pressure on land. The potential mortgagee was forced to offer a higher mortgage sum to the Limbu landowner than previously. Caplan writes, "Kipat is just like a goat, it goes to the highest bidder" (1970:76). This means the Limbu landowners had the right of bard(increment) and could raise the value of their land to every bidder. This situation created insecurity to the mortgagees regarding their holdings of land and Limbus developed the taste for extracting more money out ot their land without working in their fields.

To Caplan, bard represents an important source of credit to the Limbus who were alienated slowly from their land. My data indicate that Limbus did not use the cash as capital but rather started making their livelihood easier in this way instead of working in the fields and used cash for social prestige, celebrating their rites and festivals. Limbus were able to manipulate rights ofownership of land to obtain incremental loans from the mortgagees. Limbus always wanted to maintain their status quo with their land.

However, by 1964, 68.21 percent of the Limbus' kipat lands were already pledged on mortgage to other groups (particularly the high caste groups) in the Barbote Panchayat area (see Caplan 1970:92) and in 1968, when it became possible to alienate Limbus' traditional kipat land they had fallen into debt and lost large areas. In 1981, when I recorded the land ownership of the Limbus of the Pipalbote Cluster, Limbus

landholdings were less than the Brahmin-Chhetries, Gurungs, Rais and Sunuwars of the area. It is interesting that it was precisely that group which originally felt the least amount of pressure on land which was least energetic in exploiting new technologies and opportunities.

On the other hand, Brahmins, Jaisis, Chhetries, Gurungs, Magars, Newars, Rais, and Sunuwars were the new comers in the area and had to struggle to obtain some land for survival. So the high caste groups and particularly Brahmins invested their cash to buy raikar land or gave cash to the Limbus to obtain kipat land on a mortgage basis. One Magar informant told me that he worked as a cowherd in a Brahmin household for several years and only in this way could he buy land. In addition, Gurungs entered into the area with only few hundred rupees in their hands but now they own some of the largest landholdings and are among the richest in the area. The Gurungs invested their money to buy land and also loaned money at high interest rates which eventually improved their position even more. Also, the high caste groups were flexible in changing their traditional value system and broke down many of their caste ethnocentrisms to maximize their resource base. In sum, the migrant groups who had to struggle to get small parcels of land, were always motivated to use it to maximum advantage. This experience predisposed them to look for those strategies which were successful later as land became scarce in relation to the general population increase. In sum, the high caste ethnic groups and some Matwali groups are economically better off today than the Limbus. This suggests that economic development is possible when people feel that there is pressure on available resources.

Further, my data suggest that the people are diversifying adaptive responses within their cultural framework. For example, the high caste groups, because of their cultural taste for rice always tried to expand irrigated land. This allowed them to introduce wheat which is grown in the drier season in the irrigated fields. Furthermore, high caste groups because of their better education diversified their labor into white collar jobs more than other ethnic groups. Also the sale of milk and milk products is done by the high caste groups because milk is important in their dietary needs. The Upadhaya Brahmins also practice their traditional occupation as priests. The Matwalis alone are allowed by their culture to sell millet beer and country liquor. They are also the groups which serve in the army and police. Untouchables as mentioned above, are still primarily economic specialists as their total income is derived entirely from the practice of their traditional craft. Because Untouchables are still considered polluting to the high caste groups and Matwali and it made no sense to intensify agriculture and animal husbandry, as their agricultural surplus as well as milk and milk products cannot be sold. It clearly demonstrates my hypothesis that culture plays vital roles in people's adaptive responses in the local setting.

9.3 RESPONSES TO PRESSURE: SPECIALISTS VERSUS GENERALISTS

Odum (1975) categorizes species in two ways based on the way in which they procure food in nature: Specialists and Generalists (p. 47). The former rely on one or a few particular food resources whereas the latter depend on a number of food resources. Odum suggests the Specialists are more efficient users of resources, especially when

resources are plentiful, but at the same time they are more vulnerable to changes. On the other hand, the availability of resources for the Generalists tends to be broader and they may be more adaptable to change, even though their resources are never so locally abundant. Odum's model is a useful starting point to discuss the resource allocation and adaptive patterns in the Pipalbote Cluster.

In Pipalbote, one can observe what one might term both Specialist and Generalist groups; however, Generalists are numerous and those who are today Specialists are also expanding their resource allocation patterns. Originally, Upadhaya Brahmins and Untouchables were Specialists whereas the other ethnic groups were Generalists. Today, the Upadhaya Brahmins have also become Generalists. Up to two generations ago, virtually all Upadhaya Brahmins depended on completely a successful grain crop for their survival with only a few practising priestly services as an additional source of income. With population growth, they utilized greater education as a way to exploit other economic enterprises. Today, along with their traditional occupation of farmer, scribe, and priest, they are engaged in white collar jobs, trade, and even wage labor.

The Untouchables were, and still are, primarily Specialists. Their major source of livelihood comes from the traditional jajamani system in which they get payment in cash and kind by selling their skills and crafts to the high caste groups and Matwali. The custom was for a particular Untouchable to be a permanent client of certain higher caste and Matwali families. This is beginning to break down but it still inhibits the Untouchables' search for diversification. Similarly,

as mentioned before, the higher castes as well as Matwali will not eat foods grown by Untouchables and this has blocked any move by the latter to shift away from subsistence agriculture. The only avenue for expansion of the resource base open to Untouchables has been the chance to do wage labor and a few have pursued this opportunity. For the most part, however, social constraints have restricted them and they remain economic Specialists.

The other ethnic groups such as the Newars, Magars, Gurungs, Limbus, Rais, and Sunuwars do not rely on one particular resource. Their niche is and probably has long been quite broad; they are agriculturalists, do wage labor, are employed in the army and the police and engage in other white collar jobs and petty trading.

In some cases, particular resources are available to a group because of their access to a particular habitat. For example, the Rais of the Pipalbote Cluster who live on the terraces close to the river, collect fish in certain months not only for consumption but also for sale. Sunuwars who live in high altitudes (above 5,000 feet) and where the land area is marshy and swampy, grow cash crops like big cardamom.

In general, both the Specialists and Generalists are adapting successfully. Pipalbote's Generalist families with more diverse resources not only adapted successfully along with population growth, in some cases actually prospered. The high caste's flexibility stemmed from their caste position, the fact that they were relatively educated, and that they held good amounts of both irrigated and unirrigated land. Similarly, Matwali groups in general have the generalized resource allocation patterns but are a less economically viable group in the

long-term adaptation process because they hold less good land and invested less in education compared to the high caste groups. Untouchables who are still Specialists may adapt successfully for some years without becoming Generalists, as their crafts (tailoring and blacksmithing) are still in high demand in the local setting. However, their adaptation is the most vulnerable and the introduction of factory-made clothing and tools would have serious economic consequences for them.

In sum, Pipalbote's socioeconomic and demographic systems exhibit flexible energy-efficient responses to changing situations. In Pipalbote the Generalists' approach of resource allocation patterns is more likely to be suitable in the long run than is the Specialists'.

9.4 THEORY AND DATA: A CASE OF THE PIPALBOTE CLUSTER

Let me evaluate the relevance of some of the theories which I presented in Chapter I in relation to my field material.

I have already mentioned that the Malthusian model assumes a static social organization and relatively inflexible resources in relation to population growth. My data demonstrate that the resource base in the Pipalbote Cluster is dynamic rather than static. The expansion of resources followed population growth. Records show that the arable land area increased along with population in Ilam district and in Barbote Panchayat. In the Pipalbote Cluster, I noted that 57 percent of the households were able to increase to some degree the holdings of land over and above those they received from their parents. Along with expanding the area of productive land, the people of Pipalbote

also started multi-cropping to produce more food, i.e., introduced more than one crop a year on the same plot of land.

It is difficult to predict the limits of resources, even in a small area like the Pipalbote Cluster. Before 1960, the people of Pipalbote had barely started producing wheat and potatoes but today they are grown throughout the area. Before 1964, very few farmers noticed that big cardamom could give them good man-day return and yet today, it is producing a relatively good amount of income compared to the staples for about 32 percent of the households of the Pipalbote Cluster. Simultaneously, the people of Pipalbote started various types of new businesses after 1960: selling doughnuts and tea, fish, vegetables and fruits and cloth vendings on the market days. In this way, people's resources have been extended beyond the village economy: they are linked to Ilam district and beyond, to Nepal as a whole and even to international markets. In other words, Malthus failed to incorporate the ingenuity of a people's capability to develop cultural responses to population pressure.

These responses were taking place at the national level as well in the form of government programs of land reform and economic development which brought services to rural areas. Tap water was made available in 1965-66; a cooperative society was started in 1970 and regular postal service and the family planning program at the panchayat-level were started in 1973 and 1974, respectively. Since 1978, the Barbote Panchayat area has been connected by all-weather motorable roads. On the other hand, the Nepal Land Reform Law introduced in 1964, prohibited

the eviction of any tenant from his land if he had cultivated at least one staple crop a year.

The neo-Malthusian view that economic development can only take place when population growth is controlled can be seen to be unsound at two levels. First, although some government programs were not as successful as they might have been planned (such as family planning and agricultural development through new technology), the government was able to carry out a variety of useful rural development programs as mentioned above. Second, as in many Asian societies, parents of Pipalbote are correct in recognizing the immediate economic value of children (Fawcett et al., 1974; White 1976; Nag et al., 1978) and their value as security for the future (Mamdani 1972). The parents claim that their childrens' expectations have risen so that they feel they should be better fed, clothed and educated than previous generations. In other words, there is "intergenerational wealth flows" between parents and children within the family (Caldwell 1976). Given the perception of a balanced wealth flow between parents and children, it is understandable that there is no immediate perceived need for a birth control program. As can be seen in Chapters IV and V living standards seem to have risen and figures in Appendices 14 and 15 show clearly that educational standards have risen markedly. Parents are happy to make this greater investment in the younger generation as they expect higher eventual returns from the enhanced earning capacity due to better job opportunities accompanying the better education. This means Pipalbote is still better off economically to make greater investment along with population growth.

The material presented here has also provided a test of Boserup's model which places population pressure as the prime mover in agricultural intensification. The general outlines of the model are shown to be valid if one takes into account the process of intensification in the traditional agriculture. On the other hand, there are problems in the Borserup model in the application of new technology in the traditional agriculture. Boserup did not deal with the current rapidly changing situation with its high technology, high capital input and thus her model concerns itself with the mounting difficulties in agriculture development which modern technology has brought. In addition, the other social factors and market as suggested by Brookfield are important as rising expectations in rural areas and the more strongly felt impact of demand from distant markets have been playing major roles in the agricultural development in Pipalbote Cluster.

9.5 CARRYING CAPACITY IN THE PIPALBOTE CLUSTER

In the past, several attempts have been made to measure carrying capacity and Chapter I has already discussed the problem of such measurements. Brush (1975:801) however, integrates the formulas of Carneiro and Allan and derives the following standard formula to measure population pressure on resources:

$$PS = \frac{DA}{C(A + B)}$$

Where PS = critical (optimum) population size
A = cultivating period in days
B = fallow period in days
C = land area needed per capita to provide subsistence
D = total amount of arable land available

I will use this formula to measure the population pressure on resources (here resources include only the cultivated land area).

My figures demonstrate how difficult it is to measure the carrying capacity for even an area as small as the Pipalbote Cluster, where only 775 people live.

Applying the above formula, the carrying capacity of the cultivated land area of the Pipalbote Cluster is as follows:

PS = to be ascertained
A = 270 days a year or 0.74 year
B = 95 days a year or 0.26 year
C = 0.357 hectare or 7 ropani per capita
D = 242 hectare or 4,757 ropani

Now $PS = \frac{242 \times .74}{.357(.74 + .26)} = 501.62$ or 502 people

However, this finding is very crude and does not actually show the carrying capacity of the area. This is because, except only for the variable D (the total cultivated land area), estimates had to be made for all other variables and precision was not possible. For example, let us take the Variable C, land area needed to provide subsistence. In Pipalbote, there are two categories of land: irrigated and unirrigated. In each of these types, there are sub-types of land such as abbal, doyam, seem and chahar. Productionvaries in each type of land. Further, in addition to the quality of land, productiondepends upon many other factors. One must take account of different skills and methods used in seed selection, ground preparation, planting, weeding, protection from pests, etc. Further the types of tools and the amount of fertilizer used affect the productivity of the area. Weather conditions and particularly the availability of water directly affect production. I have not been able to take any of these factors into account as this would make the task impossibly complex. My calculation of C is based on how much irrigated and unirrigated land per capita is available and the average yields on thses lands. Moreover, I have assumed here that at least

two staple crops are cultivated in the irrigated land and one staple in the unirrigated land. However, this is also an average and not every plot of irrigated land can produce two staple crops and in some cases more than one staple crop is cultivated on the unirrigated land. In some cases, only some sections of a plot of irrigated land are completely utilized for two crops and the rest is left fallow. All of these factors complicate the question of how much land area is needed per capita to provide subsistence.

Let me discuss two other variables, A and B, the cultivation periods and the fallow periods which go together. I observed that in some areas of fertile irrigated lands, land is cultivated for 10-11 months in a year. The cultivation period, however, declines as the quality of land declines. In some less fertile irrigated land, only one crop a year is cultivated. This means the cultivation period is 4-5 months only in such an area. A similar schedule applies to the unirrigated land. In addition, the decision whether to cultivate one, two or three crops in an area depends upon distance from the main residential area, household supply of manure and the manpower available. This means cultivation/fallow periods vary from plot to plot for a great many reasons. So the above cultivation and fallow periods are broad averages which actually do not measure the real productivity of the area.

It is clear then, that there are problems in estimating each of the components needed to calculate carrying capacity. When it is further realized these elements do not stand by themselves but are an interacting system, the variability multiplies so that the range between

maximum and minimum productivity makes averages completely unrealistic. Brush is right when he says,

> The specific relationship between these components (the measuring of variables of carrying capacity) is indefinite and ambiguous to the point that a meaningful predictive test may be impossible to conduct (1975:806).

The limiting factor in agricultural production may not be the land but the availability of inputs (see Boserup 1965; Kleinmann 1980:114). Further, the concept of carrying capacity is subject to change, depending upon changing lifestyles and the rising aspirations for a higher standard of living. So far the concept of carrying capacity has been applied in Nepal in a very broad sense without analyzing the dynamic aspect of resource allocation patterns and also without looking at the interrelationships of the variables discussed above. However, this area, like virtually all areas of the world, is undergoing technological change which continually modifies the relation of variables. Finally, this study has made it clear that the population of this area does not rely entirely on the land, rather it draws its subsistence from the broad national and even the international economic system.

9.6 CONCLUDING REMARKS

In the Pipalbote Cluster, multi-cropping is already in practice with the available local technology. There is no doubt that the wider use of fertilizers and improved seeds could have a significant effect to increase the yield. Even if a conservative estimate is made, the use of fertilizer and better seeds might double the present crop yields. A farmer whose farm includes both upland and lowland fields has

potential for considerable diversity, demands for labor and energy more evenly spread over the year. This means the setting of Pipalbote provides ample scope to expand the resource base and to increase food production.

Recently government and other development institutions have turned their interest to improving secondary crops and the use of marginal land. Marginal lands can provide good yields if properly taken care of (Plucknett et al., 1983:215-22)). Government-protected lands and marginal lands are still available in some places in the Barbote Panchayat area. A modest increase in crop yields in these areas would greatly alleviate food shortages.

On the other hand, it is unlikely that agricultural production can be raised through traditional methods of intensification. The problem arises not because the farmers are trying to cultivate two to three crops a year, but because they do so without proper manuring and irrigation facilities. Farmers complain that the productivity of crops is declining every year. It is natural that the productivity will decline in such a situation. In addition, as there are no proper retaining walls in terraces, rain washes away some of the top soil every year and thus the nutrients of the soils are simply lost. Though villagers started planting their own fodder and firewood trees, deforestation is more vigorous (as cutting is done in so many legal and illegal ways) and is slowly creating a problem of soil erosion. When forest areas are converted to other uses, there is an increase in both the evaporation of surface moisture and reflection of the sun's rays

which may decrease rainfall in future. On the other hand, there are problems when new technologies are used to intensify the traditional agriculture.

Finally, a note on poverty in Nepal. Nepal has always been considered a poor country (ARTEP 1974:1). The Organization for Economic Cooperation and Development (1972:105), on the basis of a number of economic and social indicators, identified Nepal as one of the least-developed countries in the world.[22] It is a mistake, however, to equate poverty and underdevelopment. The indices of development are largely irrelevant as measures of the well-being of a population whose subsistence lies entirely or primarily in the non-cash sector, which is routinely omitted or grossly underestimated in calculation of GNP. Moreover, the people of Pipalbote Cluster are undergoing fairly rapid economic development. This process tends to be additive rather than substitutive. That is to say, the old subsistence system is retained and improved and new alternatives are utilized. Only a portion of the increase in production ever reaches the cash market and thus economic studies only note a part of the total improvement.

Below I give my own assessment of the socioeconomic situation to show the extent of poverty or plenty in the Pipalbote Cluster.

1. If "poverty" means hunger, there is no poverty in Pipalbote. Though 54 percent of the households claim that they have a grain deficit during some parts of the year, they have sources of income to buy needed grain. Normally, the per capita cereal consumption per person per day is above

500 grams and a person in Pipalbote on average consumes 2,100-3,000 calories and 50-80 grams of protein a day.

2. Only seven households out of the hundred surveyed did not send some of their children to school. In 1981, the literacy rate of the Pipalbote Cluster was 38.50 percent. In Pipalbote, there are not only a number of high school graduates, but also Intermediate of Arts, B.A.s and one student was studying for an M.A. in Kathmandu.
3. An average household in Pipalbote has an annual (from agricultural and non-agricultural sources) income which is equivalent of 8,659.9 rupees. This compares favorably with an annual salary of an assistant professor of the university of Nepal. In addition, on average, a household has fixed capital assets (land, livestock and household goods excluding gold and silver) of 53,074 rupees or the average per capita holding is 6,848 rupees. This amount can be compared with Macfarlane's who estimated an average holding of 3,000-12,000 rupees of the Gurung families in Thak (1976:108-109). Further,Macfarlane notes that Gurungs of Thak are one of the most prosperous groups in South Asia.
4. The 1979/80 and 1980/81 records of the Crude Death Rate and the Infant Mortality Rate show better health conditions in the Pipalbote Cluster than many countries of Middle South Asia. The CDR was 14-16 per thousand population where the IMR was only 133.3. According to the World Population Data Sheet of 1981, the CDRs of Afghanistan, Bangladesh, India,

and Pakistan were 21, 20, 15 and 16, respectively. Similarly, the IMRs of these countries were 188, 139, 134, and 142, respectively.

5. Today, practically all land is cultivated by the owner cultivators themselves; there is little or no tenancy.

In sum, Pipalbote is, at least for the present, moving towards prosperity rather than poverty. The population of the Pipalbote Cluster is not, then, in any sense meaningful to them, poor in economic and as well as in nutrition and health terms. Like many areas of the developing world, emergency measures are not necessary. It is possible for development programs to proceed more slowly so that careful studies can be made, economic risks kept low and environmental damage avoided.

9.6 POLICY RECOMMENDATIONS FOR FUTURE DEVELOPMENT

Most of the generalizations regarding Nepal's degrading ecological situation and deteriorating economic conditions are based on macro-level data. Pipalbote Cluster in Ilam district provides an example which shows that such generalizations do not present the total reality of Nepal's existing conditions.

There has been substantial increase in local productivity through the initiative of the farmers using labor-intensive techniques. They have developed more land, introduced new crops, intensified cropping patterns and tapped resources outside the area more intensively. These practices have been more successful than the government-sponsored capital-intensive modern technology.

These indigenous intensification techniques have done little damage to the environment. The experts have consistently underestimated

the ecological sophistication of the farmers who have, for example, spontaneously undertaken reforestation projects. The damage to the forest comes commonly from government sanction cutting.

The use of labor-intensive techniques has produced labor shortages despite population increases. This, along with traditional family values, has produced resistence to family planning.

Further increases in productivity are possible but where they necessitate the introduction of new technology, serious problems may arise. Some of the new strains of crops demand more dependable water supplies, are more subject to damage by pests and these are dependent on herbicides and pesticides and may be judged inferior in taste. The new and heavier tools and plows are not suited to small steepy terraced fields. Furthermore, if farmers are to be encouraged to increase production, better storage and transportation facilities must be built. All of these developments are capital intensive and the cost often puts them beyond the reach of the poor farmers. These problems are exacerbated by the complex ethnic composition of rural Nepalese villages.

So far, population increase has provided a stimulus through indigenous ingenuity to economic development. Further population increases may, however, necessitate the use of more drastic measures. If the new technologies are to be utilized to the best advantage and the undesirable side effects minimized, careful study of the economic, ecological, and social conditions must be made.

APPENDIX 1

Field Census Schedule-1 (De Jure Census)

District Village panchayat Village

Head of Household Household Number

Age Sex Education Religion

Place of birth

Duration of stay in the village

If came from outside, Place of origin: when:

Occupation: Primary-i. Agriculture ii Trade iii Service iv Wage Labor v other

Secondary-i. Agriculture ii Trade iii. Service iv. Wage labor v other

Amount of land owned (in hectare)

Total irrigated land owned:

Total unirrigated land owned:

Amount of irrigated land cultivated by the owner:

Amount of unirrigated land cultivated by the owner:

Amount of land leased out:

Irrigated: Unirrigated:

Name of the tenant: Place of residence:

Land taken on rent, Yes No

If Yes, amount of land owned Owner of land

Movement of family members (only permanent and long-term labor migration)

In the past 40 years: Yes No

If yes, Permanent Long-term labor migration

If permanent, where when age during the period sex

If long-term labor migration where when sex

Field Census Schedule-1 (De Jure Census) (continued)

What you have at home (number only):

Radio watch chair table plough

sewing machine grinding stone loom gun cows

buffaloes fowls bullocks others

pigs goats

Name of Investigator:

Details about the family members of the household

Name	Age	Relationship to the Head of Household	Sex	Marital Status Un. M. W.	Age at Marriage	If remarried age at 2nd M. 3rd M.	Woman's Age at First Birth of Child	Occupation Primary	Occupation Secondary	Education	Remarks

A Production Schedule-2

Production analysis per hectare

(For selected crops only, here paddy, modified from Epstein, 1967)

Head of household: Ethnicity

Total hectare:

How many paddy fields:

Which variety of paddy crops: Improved Local

How many paddy crops per year

Input (Paddy

Paddy field (A) Total hectare:

Amount of seed used: Price:

Amount of fertilizer used: Price:

Operation	Labor Rate per Day	Bullock (Rate per yoke per day)	Plough (rate per one)
1st ploughing			
Manuring			
2nd ploughing			
Levelling			
Plant removal			
Transplanting			
Irrigation			
First weeding			
2nd weeding			
Watching for monkeys			
Bundling			
Threshing			
Transport			

Total output of paddy per hectare:

Quantity: Price:

APPENDIX 2

Common trees, shrubs and grass found and used in Pipalbote Cluster.

1. Trees commonly used as fodder for animals

Local Name	Botanical Name	English Equivalent
Bas	Dendrocalamus hamiltonni	Bamboo
Khari	Celtis tetranda	
Kabro	Ficus lacor	
Dudhilo	Ficus nerifolia	
Tanki	Bauhinia purporea	
Nivaro	Ficus roxburghii	
Bar	Ficus bengalensis	
Pipal	Ficus religiosa	
Gogan	Saurauia nepaulensis	
Badahar	Artocarpus integra	

Trees commonly used as firewood

Bas	Dendrocalamus hamiltonni	
Utis	Alnus nepalensis	
Chilaune	Schima wallichii	
Siris	Albizzia labbek	
Khirra	Celtis australis	
Jamun	Syzygium cumini	
Mauwa	Engelhardtia spicata	
Katus	Castanopsis sp.	
Okhar	Juglans regia	
Ritho	Sapindus mukorossi	Soap-nut
Saj	Terminalia tomentosa	
Gokul	Didymocarpus ablicalyx	
Painyu	Prunus cerasoides	

Trees commonly used for making houses

Local Name	Botanical Name	English Equivalent
Katus	Castanopsis sp.	
Chap	Michelia champara	
Simal	Bombax malabarium	Silk cotton tree
Phaledo	Erythrina arborescens	
Utis	Alnus nepalensis	
Chilaune	Schima wallichii	

Shrubs and grass commonly used as fodder

Amliso	Thysanolaena maxima	
Khar	Pogonatheurum panicum	
Siru Khar	Imperata cylindrica	
Babio	Ischaeum rugosum	
Dubo	Cynodon ductylis	

Some important plants used for spice, medicinal use and other purposes

Thulo Alainchii	Amomum subulatum	Big cardamom
Majito	Ribia manjith	
Jimbu	Allium wallichii	
Timbur	Znthoxylum oxyphylum	
Amala	Emblica officinalis	
Harro	Terminalia chebulica	
Bhakimala	Rhus javanica	
Tea	Cemellia sinesis	

APPENDIX 3

Conversions, Weights and Measures

Conversions

Monetary, Nepal, 1981

100 paisa	=	one rupee
11.60 rupee	=	$1.00 (currency)
11.90 rupee	=	$1.00 (traveller's check)

Since September 20, 1981, His Majesty's Government of Nepal has devalued its currency in relation to U.S. dollars and since then the conversion scale for rupees into dollars is:

12.75 rupee	=	$1.00 (currency)
13.10 rupee	=	$1.00 (traveller's check)

I have used the earlier conversion rate because I was in the field area up to the last of September, 1981.

Weights

1 lb.	=	0.4536 kilograms
1000 grams	=	1 kilo
1 kilo	=	2.2046 lbs.

Weights (volumes of grain)

1 mana rice	=	0.453 grams
1 mana maize	=	0.395 grams
1 mana wheat	=	0.395 grams
1 mana millet	=	0.454 grams
1 mana black lentil	=	0.444 grams
8 mana grain (any)	=	1 pathi

Weights (volumes of grain) (Continued)

20 pathi grain (any)	=	1 muri
20 pathi rice (or 1 muri)	=	72.490 kilograms
1 muri paddy	=	48.77 kilograms
1 muri maize	=	68.05 kilograms
1 muri millet	=	65.78 kilograms
1 muri wheat	=	68.05 kilograms
1 muri buckwheat	=	54.41 kilograms
1 muri mustard	=	56.70 kilograms

Volume (liquid)

Mana	Pathi	Gallon	Liter
1.0000	0.1250	0.1250	0.5682

Measures

Area

Matomuri	Ropani	Acre	Hectare
1.0000	0.2500	0.3140	0.1270

Area

4 dam	=	1 paisa
4 paisa	=	1 anna
1 anna	=	0.008125 acre
16 anna	=	1 ropani
1 ropani	=	0.13 acres
1 ropani	=	0.051 hectares

7.9547 ropani	=	1 acre
19.6564 ropani	=	1 hectare
1965.64 ropani	=	1 square kilometer
5091.014 ropani	=	1 square mile

Source: 1) Agricultural Statistics of Nepal, 1977

2) Handbook of Agricultural Statistics of Nepal, 1978 both published by His Majesty's Government, Ministry of Food and Agricultural Marketing Services, Agricultural Statistics Division, Kathmandu.

APPENDIX 4

Estimated Area Under Different Crops in the Pipalbote Cluster, by Ethnicity, 1981
(In ropani-hectare)

Ethnic Group	Wet Rice	Wheat	Maize	Millet	Buck-wheat	Mustard	Pulses, Legumes	Potato	Sweet Potato Taro	Green Vege-tables	Fruits	Big Cardamom
Upadhaya Brahmin Jaisi Brahmin and Chhetry	1,183	382	999	287	4	71	53	92	27	54	23	43
Newar	48	43	102	34	0	6	10	12	2	5	1	1
Magar	37	14	22	12	0	2	1	8	0	2	0	0
Gurung	57	22	84	16	0	7	1	9	3	2	1	4
Limbu	230	46	267	66	0	5	7	14	7	10	8	11
Rai	201	42	217	50	0	4	0	14	11	7	5	4
Sunuwar	57	17	141	31	0	2	0	31	9	7	0	15
Kami, Sarki and Dami	11	4	63	36	0	0	0	4	0	2	2	0
Total Estimated area under different crops (hectare)	1,824	570	1,895	532	4	97	72	184	59	89	40	78
% of Total Area under different crops	33.50	10.48	34.80	9.77	0.08	1.79	1.32	3.38	1.09	1.63	0.73	1.43

*Land areas are rounded in ropani (see the conversion of ropani to hectare in Appendix 3).

APPENDIX 5

Total Working Hours of Two Households in One Year in Pipalbote Cluster

The work performed by different members of the extended Brahmin family is given below

Tej Prasad Ghimire, Head of Household, 56

Work	Total Workings Hours in a Year
Prepare bunds in the field during the rainy season	36
Other agricultural work (weeds paddy, wheat and maize, harvests the crops, etc.)	264
Herds cattle	300
Threshes paddy	24
Makes ropes	30
Collects fodder	210
Marketing	90
TOTAL	954

Narbada Devi Ghimire (wife of Tej Prasad) 41

Cooks food (lunch, dinner, and other items) for six months (about four hours per day)	720
Washes clothes (two hours per week)	96
Herds cattle	120
Collects fodder (in June-July, about two hours per day)	60
Looks after the household (cleaning, fixing and caring for the young) two hours per day)	720
Grinds and pounds (about 260 hours in a year)	260
TOTAL	1,976

Knakendra Prasad (eldest son), 23

Work	Total Working Hours in a Year
Plows fields	504
Milks cows about 90 hours/year	90
Makes bunds in the fields, digs irrigation channels	54
Repairs terraces	30
Weeds maize and paddy fields	180
Harvests maize	18
Threshes paddy and carries unhusked rice	72
Cuts firewood	60
Collects fodder (about 50 hours/year)	50
Reaps thatch	30
Carries manure	24
Repairs and thatches houses	18
TOTAL	1,130

Gayatri Devi (wife of Knakendra), 23

Cooks food (four hours/day for 6 months)	720
Cleans house (four hours/month)	48
Collects fodder (about 162 hours/year)	162
Transplants rice	132
Repairs terraces	36
Weeds rice	42
Reaps rice	42
Carries hay and unhusked rice	42
Breaks lumps of soil in the field (wheat)	60
Weeds and harvests maize	48

Work	Total Working Hours in a Year
Threshes wheat	12
Carries firewood	42
Reaps thatch	30
Carries manure	24
Washes clothes (10 hours/month)	120
Grinds and pounds grain (one hour for 300 days)	300
TOTAL	1,860
Tara Kumar (second son), 20	
Plows fields	120
Collects fodder (three hours for three months during winter)	270
Collects fodder (two hours for three months during the rainy season)	180
Repairs bunds	66
Weeds rice	42
Irrigates the wet rice fields	24
Threshes paddy	42
Carried unhusked rice and hay	42
Weeds maize	42
Harvests maize	12
Threshes wheat	12
Milks cows (90 hours/year)	90
Cuts firewood	42
Cuts thatch	24
Carries manure	12

Work	Total Working Hours in a Year
Makes ropes (16 hours/year)	18
Fencing, etc.	18
TOTAL	1,056

Puspa Raj and Damaru Ballav (Third and fourth son of the same age), 17

Go to school every day (except Saturday and other holidays) for 225 days in a year	
Collect cowdung (300 hours/year)	300
Collect fodder (30 hours in the rainy season)	30
Repair terraces and help to prepare paddy fields	60
Herd cattle for one month during rainy season (school is out)	180
Reap thatch	30
Herd cattle during winter	42
Collect fodder (two hours daily for two weeks)	30
TOTAL	672

Both Damaru Ballav and Puspa Raj work for about 672 hours each excluding their school days.

Taradevi Ghimire (eldest daughter), 15

Goes to school for 225 days in a year	
Carries water from the fountain and cooks tea (two times), one hour/300 days	300
Collects fodder (40 hours in the rainy season)	40
Transplants paddy for two weeks	105
Helps the mother clean utensils for 30 minutes for about 300 days	150
TOTAL	595

Taradevi works about 595 hours excluding her school days).

Work	Total Working Hours in a Year
Hiranya Prasad (fifth son), 12	
Goes to school for 225 days in a year	
Collects cowdung (about 10 hours/month)	120
Collects fodder for one hour daily/one month	30
Herds cattle for one month	180
TOTAL	330

Hiranya works 330 hours excluding his school days

Children 6-10 years (total three)

Carry water

Sweeps the house

Looks after the young ones

Cleans some utensils

Go to school

(As their work is not regular, the total amount of work hours are not given).

Blacksmith Family

The work performed by the members of the blacksmith family is given below:

Khage Gajmer (head of household), 38

Work	Total Working Hours in a Year
Brings a bundle of firewood from the forest in the evening and sells it at Ilam bazaar in the next morning (7-8 hours per day and 22 days in a month)	1,980
Goes to his brother's house to work in an iron furnace where he makes some agricultural and domestic tools (7-8 hours per day for four days in a month)	360
TOTAL	2,340

Padam Maya (Wife), 36

Cooks food for eight months (two meals, 2.5 hours per day)	600
Looks after the young children, cares for home (two hours everyday)	720
Goes to labor work for three months	630
TOTAL	1,950

Devi Maya (first daughter), 14

Goes to wage labor work for six months	1,260
Cooks food for four months (2.5 hours per day)	300
Cleans house, washes clothes, etc.	180
TOTAL	1,740

Bal Bahadur (first son), 12

Work	Total Working Hours in a Year
Helps father to collect firewood in the forest (about two hours per day for three months)	180
Looks after the young brothers and sisters (two hours per day for four months)	240
TOTAL	420

APPENDIX 6

Population Growth in Nepal and in Ilam District

Population growth in Nepal

Nepal has conducted eight population censuses, the first in 1911. The population size and growth in different census periods in Nepal were as follows:

Year	Population in 000	Intercensal Growth Rate Per Annum (percent)
1911	5,639	-0.12
1920	5,574	-0.07
1930	5,533	1.17
1941	6,284	2.51
1952/54**	8,257*	1.47
1961	9,413*	2.07
1971	11,556*	2.07
1981	14,179	

*Excluding Nepalese residing abroad.

**The census of the Eastern Nepal area was taken in 1952 whereas the census of the rest of the country was taken in 1954.

The censuses up to 1941 were counts of total population only (see CBS Report 1977). The above data shows that Nepal's population started growing only after 1931. The 1971 results indicate that Nepalese population doubled within 41 years from 5,533,000 in 1930 to 11,555,983 in 1971. In 1981, Nepal conducted another census. However, when I was in the field in Nepal, only the analysis of the "family form" unchecked with the individual form results was available and that figure is given.

These are some of the characteristics of the Nepalese population over time.

TABLE 1

The Population Characteristics of Nepal in Various Censuses

	1952/54	1961	1971	1981
Age structure (% of total)				
0-14	36.27	39.86	40.45	NA
59+	4.9	5.19	5.61	NA
Sex ratio (males per 100 females	96.8/100	97.04/100	101.36/100	101.21/100
Household size			5.6	NA
Density of population per square kilometer	58.28	67.74	79.48	97.42
Dependency ratio*	70.15	82.04	85.40	NA

NA = Not available.

*The number of people of dependent ages (0-14 and 59+) to people of economically active ages (15-59).

The above data clearly show that like many developing countries Nepal has a young population and the proportion of young population has been increasing regularly. This is due to continuous high fertility and declining mortality over the years. The age structure indicates that more people are surviving to old age and this is due to better medical facilities and living conditions than before. Another interesting observation is the change from a greater number of females than males in the earlier two censuses to a majority of males after 1971.

Vital Data on Nepal

Until recently, Nepal had no system for the registration of vital events. In 1977, however, a national vital registration project was initiated with the aim of establishing complete registration in all 75 districts within a 10-year period. The 1974-75, 1976 and 1977-78 Demographic Sample Surveys, and the Nepal Fertility Survey (as part of the World Fertility Survey) are the basic sources for Nepal vital statistics. Other sources of vital data are Worth and Shah (1969), Krotki and Thakur (1971) and various Family Planning/Maternal and Child Health Projects. On the basis of different studies, the estimated vital rates of Nepal are as follows:

	Period	CBR Estimated	CDR Estimated	IMR Estimated
United Nations 1961	1952/54	45-50	22-27	--
Central Bureau of Statistics (CBS) 1968	1961	40	--	--
Krotki and Thakur 1971	1961	42	22-27	--
Gubhaju 1974	1961	42	22-27	--
Worth and Shah 1969	1965-66	55	27	130-208
Central Bureau of Statistics (CBS) 1975	1971	42.9	22	172
Gubhaju 1974	1971	42.4	--	193
World Fertility Survey 1976	1971-73	48.7	--	157
Banister and Thapa 1981	1971-73	45.6 to 48.9	--	--
Thapa and Retherford 1981	1970-74	--	--	156

The above vital rates, though they are crude, suggest that fertility is still very high and mortality is declining slowly. The National Planning Commission of Nepal, in its Sixth Plan has predicted that the CDR will be less than 18 and the IMR will be less than 130 by the year 1985. But no such dramatic decline in fertility is expected. In other words, the population of Nepal will continue to increase in the near future.

Population Growth in Ilam District

Population figures for Ilam district have been available since 1920 and are presented below:

Year	Total Population	Intercensal Growth Rate Per Annum (Percent)
1920	87,475	--
1930	Not Available	0.20
1941	91,362	2.11
1952	115,060	0.88
1961	124,525	1.14
1971	139,538	2.43
1981	177,442	

As mentioned earlier, the censuses up to 1941 were total counts only. Interesting features of the growth rate over time need to be discussed.

The population growth rate between 1920 to 1941 is relatively insignificant, but the growth rate between 1941 to 1952 was high. This is probably an artifact of gross undernumeration in earlier censuses.

In the 1952 census, the counting of persons was done more systematically and scientifically. The growth rate again went down between the 1952 and 1961 censuses. Maybe the growth rate was never that high; it was just better enumeration between the 1941 to 1952 censuses. The population started increasing more rapidly by the 1971 census and from 1971-81 there was more than two percent growth rate in Ilam district.

These are some of the charadteristics of the population of Ilam district over time.

TABLE 2

The population Characteristics of Ilam District in Various Censuses

	1952	1961	1971	1981
Age structure (as % of the total)				
0-14	41.62	43.22	43.37	NA
59+	4.64	4.54	4.93	NA
Sex ratio	97.33/100	92.02/100	101.91/100	103.17/100
Household size	5.9		5.8	NA
Density of population per square kilometer	73.23	81.56	88.82	112.94
Dependency ratio	86.11	91.43	93.43	NA

NA = not available

The above data show that Ilam has a younger population than Nepal as a whole and that it has been growing younger. The proportion of old people is gradually increasing. Like Nepal as a whole, females outnumber males up to the 1961 census, with the reverse true thereafter.

Vital Data on Ilam District

District-level data on vital statistics is rather uncommon in Nepal except in those districts where some research has been conducted (see Tuladhar et al., 1977; Worth and Shah 1969; Nepal Fertility Survey 1976). However, Ilam was not in the sample areas of these studies. Looking at Ilam today it can be said that mortality level should be lower than many other hill districts of Nepal: the district people have been utilizing the medical facilities from nearby Darjeeling District, India for a long period of time. Even today, the people of Ilam district prefer to go to Darjeeling for treatment even though there are good medical facilities available within Nepal (for example Biratnagar) at a similar distance. This is probably due to good faith in the medical facilities of Darjeeling and most likely medical facilities in Darjeeling are superior than Biratnagar.

Fertility should be high in Ilam as there has traditionally been no means to control fertility except for the rare case of induced abortion. The national family planning program was started in Ilam in 1966 but the family planning program seems to be ineffective as more population growth was observed between 1971 to 1981 period than in the 1961-71 period.

APPENDIX 7

Population of Barbote Panchayat by Age, Sex, and Ethnicity, 1981

Age Groups	Upadhaya Brahmin		Jaisi Brahmin		Chhetry		Newar		Magar		Gurung		Limbu	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
0- 4	69	70	35	46	14	22	12	12	5	7	6	8	47	46
5- 9	75	73	35	28	15	16	15	11	6	9	8	7	33	41
10-14	72	75	30	31	21	14	23	14	3	3	6	6	30	43
15-19	74	64	23	31	12	16	12	8	6	4	9	5	31	17
20-24	71	54	20	30	20	19	16	12	3	4	2	6	28	35
25-29	47	32	22	16	13	10	7	4	3	1	8	5	19	17
30-34	38	38	12	13	13	7	6	5	3	2	3	4	25	16
35-39	25	25	13	11	5	8	4	5	1	2	4	3	11	15
40-44	20	31	13	6	7	2	6	6	3	3	4	2	18	15
45-49	16	20	7	8	3	5	2	3	1	1	3	2	11	12
50-54	19	23	4	9	1	5	4	2	1	0	1	3	9	4
55-59	19	17	9	2	4	5	2	2	1	0	0	0	6	9
60-64	11	11	2	6	5	2	3	4	0	0	1	1	12	10
65-69	8	6	5	5	3	1	2	0	1	1	0	1	7	5
70-74	10	5	3	0	2	2	1	1	0	1	1	1	1	2
75+	6	7	0	1	0	2	0	1	0	0	1	0	4	4
TOTAL	580	551	233	243	138	136	115	90	37	38	57	54	292	301

Population of Barbote Panchayat by Age Sex, and Ethnicity, 1981 (Continued

Age Groups	Rai		Sunuwar		Jogi		Tamang		Kami		Sarki		Damai	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
0- 4	16	18	10	5	1	0	2	2	7	13	2	3	6	2
5- 9	21	16	12	11	0	3	3	0	15	11	1	0	4	6
10-14	16	21	6	14	3	3	0	0	7	18	0	4	5	4
15-19	15	19	1	5	2	1	1	1	10	7	5	3	4	1
20-24	12	17	3	3	0	1	1	0	8	4	5	8	4	4
25-29	19	16	3	3	0	0	2	0	7	7	6	4	5	2
30-34	10	6	5	6	0	1	0	2	2	7	3	2	1	1
35-39	6	4	4	2	1	1	0	0	7	2	1	0	0	1
40-44	6	5	4	2	1	0	1	0	3	2	0	1	0	1
45-49	6	7	5	0	1	1	0	1	6	3	1	1	1	2
50-54	6	3	3	0	0	0	0	0	4	2	1	0	3	1
55-59	3	4	1	0	0	0	1	0	1	0	1	3	1	0
60-64	8	3	1	0	0	0	0	0	1	1	1	0	0	0
65-69	4	2	0	1	0	0	0	0	1	1	1	0	0	0
70-74	1	0	0	2	0	0	0	0	0	1	0	0	0	0
75+	1	1	1	1	0	0	0	0	0	1	0	0	0	0
TOTAL	149	142	59	55	9	11	11	6	78	80	28	29	34	25

Total Population of Barbote Panchayat by Age and Sex, 1981

Age Groups	Total M.	Total F.	Total (%) M.	Total (%) F.
0- 4	232	254	12.75	14.42
5- 9	243	232	13.36	13.18
10-14	221	250	12.15	14.20
15-19	205	192	11.27	10.90
20-24	193	197	10.60	11.19
25-29	161	117	8.85	6.65
30-34	121	110	6.64	6.24
35-39	82	79	4.50	4.48
40-44	86	76	4.72	4.31
45-49	63	66	3.47	3.74
50-54	56	52	3.08	2.96
55-59	49	42	2.70	2.39
60-64	44	38	2.41	2.16
65-69	32	23	1.76	1.30
70-74	19	15	1.02	0.86
75+	13	18	0.72	1.02
TOTAL	1,820	1,761	100.00	100.00

APPENDIX 8

Total Births in Barbote Panchayat by Sex and Ethnicity
(From 1st July 1980-30th June 1981)

Ethnic Groups	Male	Female	Total
High caste groups	33	41	74
Upadhaya Brahmin	18	20	38
Jaisi Brahmin	12	15	27
Chhetry	3	6	9
Matwalis	33	32	65
Newar	4	2	6
Magar	2	3	5
Gurung	2	2	4
Limbu	18	15	33
Rai	5	8	13
Sunuwar	1	1	2
Jogi	1	0	1
Tamang	0	1	1
Untouchables	5	6	11
Kami	3	4	7
Sarki	0	1	1
Damai	2	1	3
TOTAL	71	79	150

APPENDIX 9

Total Deaths and the Crude Death Rate in Barbote Panchayat by Sex and Ethnicity (1st July 1980-30th June 1981)

	Male	Female	Total	Population	D/P*
High caste groups	12	9	21	1,881	11.1
Upadhaya Brahmin	8	4	12	1,131	10.6
Jaisi Brahmin	4	2	6	476	12.6
Chhetry	0	3	3	274	10.9
Matwali	14	10	24	1,426	16.8
Newar	1	1	2	205	9.7
Magar	2	0	2	75	26.6
Gurung	0	0	0	111	0.0
Limbu	9	2	11	593	18.5
Rai	2	4	6	291	20.6
Sunuwar	0	3	3	114	26.3
Jogi	0	0	0	20	0.0
Tamang	0	0	0	17	0.0
Untouchables	3	5	8	274	29.1
Kami	2	2	4	158	25.3
Sarki	0	2	2	57	35.0
Damai	1	1	2	16	16.9
TOTAL	29	24	53	3,581	14.8

*The CDR has been calculated in terms of 1,000 population.

APPENDIX 10

Infant Deaths and Infant Mortality Rate in Barbote Panchayat by Sex and Ethnicity (From 1st July 1980-30th June 1981)

Ethnic Groups	Male	Female	Total	Births	D/B
High caste groups	3	4	7	74	.095
Upadhaya Brahmin	2	2	4	38	.105
Jaisi Brahmin	1	1	2	27	.074
Chhetry	0	1	1	9	.111
Matwalis	8	1	9	65	.138
Newar	1	0	1	6	.167
Magar	0	0	0	5	.000
Gurung	0	0	0	4	.000
Limbu	6	0	6	33	.182
Rai	1	1	2	13	.154
Sunuwar	0	0	0	2	.000
Jogi	0	0	0	1	.000
Tamang	0	0	0	1	.000
Untouchables	2	2	4	11	.364
Kami	1	1	2	7	.286
Sarki	0	1	1	1	1.000
Damai	1	0	1	3	.333
TOTAL	13	7	20	150	.133

APPENDIX 11

Population of the Pipalbote Cluster, by Age, Sex, and Ethnicity, 1981

Age Groups	Upadhaya Brahmin		Jaisi Brahmin		Chhetry		Newar		Magar		Gurung	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
0- 4	28	22	4	4	1	1	2	2	2	3	0	1
5- 9	24	17	4	5	0	1	1	3	1	3	2	3
10-14	21	16	2	4	3	1	4	3	1	0	3	1
15-19	21	22	3	4	2	1	3	2	0	1	3	2
20-24	19	14	4	4	3	2	5	2	0	1	2	1
25-29	12	14	2	2	0	0	1	0	0	0	1	1
30-34	12	10	0	0	1	0	0	1	3	1	0	0
35-39	11	9	0	1	1	1	0	1	0	0	1	0
40-44	5	7	2	1	1	0	2	1	0	0	0	0
45-49	6	2	1	1	1	0	0	1	0	0	2	1
50-54	3	9	1	0	0	0	1	1	0	0	0	1
55-59	5	3	1	0	0	0	1	1	0	0	0	0
60-64	2	5	0	1	0	0	1	0	0	0	0	0
65-69	4	1	0	2	1	0	0	0	0	0	0	0
70-74	2	1	0	0	0	0	1	0	0	0	1	0
75+	3	0	0	0	0	0	0	0	0	0	0	0
TOTAL	178	152	24	29	14	8	21	18	7	10	14	11

Population of the Pipalbote Cluster, by Age, Sex, and Ethnicity, 1981 (Continued

Age Group	Limbu		Rai		Sunuwar		Kami		Sarki		Damai	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
0- 4	9	10	2	3	2	3	2	3	0	0	1	0
5- 9	7	7	4	6	3	3	1	1	0	0	2	2
10-14	6	12	2	4	4	4	2	4	0	1	4	0
15-19	11	11	4	6	0	2	0	0	2	1	1	0
20-24	6	7	2	4	1	0	0	0	1	1	1	1
25-29	4	3	5	4	0	1	0	1	1	0	0	0
30-34	3	2	4	3	1	1	0	0	1	1	0	0
35-39	5	3	2	1	1	3	1	1	0	0	0	0
40-44	2	4	2	2	2	0	0	0	0	0	0	2
45-49	2	3	2	1	3	0	1	0	0	0	1	0
50-54	2	1	1	0	1	0	1	1	0	0	1	0
55-59	1	2	2	1	0	0	0	0	1	1	0	0
60-64	6	1	2	1	0	0	0	0	0	0	0	0
65-69	1	0	0	0	0	0	1	0	0	0	0	0
70-74	0	0	0	0	0	1	0	0	0	0	0	0
75+	0	1	1	0	0	1	0	1	0	0	0	0
TOTAL	65	67	35	36	19	19	9	12	6	5	11	5

Total Population of the Pipalbote Cluster
by Age and Sex 1981 (Continued)

Age Group	Total		Total (%)	
	M.	F.	M.	F.
0- 4	53	52	13.2	14.0
5- 9	50	51	12.4	13.7
10-14	52	50	12.9	13.4
15-19	50	52	12.4	14.0
20-24	44	37	10.9	9.9
25-29	26	26	6.5	7.0
30-34	25	19	6.2	5.1
35-39	22	20	5.5	5.4
40-44	16	17	4.0	4.6
45-49	19	9	4.7	2.4
50-54	11	13	2.7	3.5
55-59	11	8	2.7	2.2
60-64	11	8	2.7	2.2
65-69	7	3	1.7	0.8
70-74	2	4	0.5	1.0
75+	4	3	1.0	0.8
TOTAL	403	372	100.00	100.00

APPENDIX 12

Current Age and Age at First Marriage of Women in the Pipalbote Cluster by Ethnicity, 1981

Age at First Marriage	Current Age of Women											
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-59	60-69	70-79	80-89	Total
High caste												
7- 9	0	0	1	1	2	0	0	4	6	2	0	16
10-14	0	4	6	6	8	6	2	8	1	1	0	42
15-19	4	10	8	3	2	1	0	0	1	0	0	29
20-24	-	4	0	0	0	0	1	0	0	0	0	5
25-29	-	-	0	0	0	0	0	0	0	0	0	0
30-34	-	-	-	0	0	0	0	0	0	0	0	0
35-39	-	-	-	-	0	0	0	0	0	0	0	0
TOTAL	4	18	15	10	12	7	3	12	8	3	0	92
Matwali												
7- 9	0	0	0	0	0	0	0	0	0	0	0	0
10-14	0	1	0	0	1	3	0	1	0	1	0	7
15-19	5	1	3	3	6	1	3	0	2	0	0	24
20-24	0	5	1	2	2	2	2	4	0	2	0	20
25-29	0	0	2	0	1	1	0	1	0	0	0	5
30-34	-	-	-	0	0	0	0	0	0	0	0	0
35-39	-	-	-	-	0	1	0	0	0	0	0	1
TOTAL	5	7	6	5	10	8	5	6	2	3	0	57
Untouchable												
7- 9	0	0	0	0	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	1	0	0	0	1
15-19	0	1	1	0	1	1	0	0	0	0	0	4
20-24	-	0	0	0	0	1	0	0	0	0	0	1
25-29	-	-	0	0	0	0	0	1	0	0	0	1
30-34	-	-	-	0	0	0	0	0	0	0	1	1
35-39	-	-	-	-	0	0	0	0	0	0	0	0
TOTAL	0	1	1	0	1	2	0	2	0	0	1	8

APPENDIX 13

Current Age and Age at First Marriage of Men in the Pipalbote Cluster by Ethnicity, 1981

Age at First Marriage	Current Age of Men											
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-59	60-69	70-79	80-89	Total
High caste												
7- 9	0	0	0	0	0	1	0	2	0	0	1	4
10-14	0	1	0	2	2	4	2	3	3	2	0	19
15-19	0	5	4	2	3	2	5	6	3	1	0	31
20-24	-	5	3	6	3	0	0	0	1	1	0	19
25-29	-	-	2	3	2	0	0	0	0	0	0	7
30-34	-	-	-	0	0	0	1	0	0	0	0	1
35-39	-	-	-	-	0	0	0	0	0	0	0	0
TOTAL	0	11	9	13	10	7	8	11	7	4	1	81
Matwali												
7- 9	0	0	0	0	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	1	0	0	0	0	0	1
15-19	2	0	1	2	4	1	3	5	2	0	1	21
20-24	-	5	2	0	3	2	3	0	5	0	0	20
25-29	-	-	1	2	0	2	2	1	2	0	0	10
30-34	-	-	-	1	0	0	0	1	0	0	0	2
35-39	-	-	-	-	0	1	0	0	0	0	0	1
TOTAL	2	5	4	5	7	7	8	7	9	0	1	55
Untouchable												
7- 9	0	0	0	0	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0	0	0	0	0
15-19	0	1	0	0	0	0	1	1	1	0	0	4
20-24	-	0	0	0	1	0	0	1	0	0	0	2
25-29	-	-	0	0	0	0	1	0	0	0	0	1
30-34	-	-	-	0	0	0	0	1	0	0	0	1
35-39	-	-	-	-	0	0	0	0	0	0	0	0
TOTAL	0	1	0	0	1	0	2	0	3	1	0	8

APPENDIX 14

Total Births in the Pipalbote Cluster by
Sex and Ethnicity (1st July 1980-30th June 1981)

Ethnic Groups	Male	Female	Total
High caste groups	9	8	17
Upadhaya Brahmin	7	6	13
Jaisi Brahmin	2	1	3
Chhetry	0	1	1
Matwali	4	6	10
Newar	1	0	1
Magar	0	2	2
Gurung	0	1	1
Limbu	2	1	3
Rai	1	1	2
Sunuwar	0	1	1
Untouchables	1	2	3
Kami	1	2	3
Sarki	0	0	0
Damai	0	0	0
TOTAL	14	16	30

APPENDIX 15

Literacy* by Sex and Ethnicity in the Pipalbote Cluster, 1981

Ethnic Groups	Total Population (Excluding 0-4 Age Group) Male	Female	Literate (Total Numbers) Male	Female	% of Literate (Total Population) Total	% Literate (Male Population) Male	% Literate (Female Population) Female
Upadhaya Brahmin Jaisi Brahmin and Chhetry	183	162	135	57	55.65	77.77	35.18
Newar	19	16	8	3	31.42	42.10	18.75
Magar	5	7	2	1	25.00	40.00	14.28
Gurung	14	10	10	3	54.16	71.42	30.00
Limbu	56	57	12	0	10.62	21.42	00.00
Rai	33	33	9	3	18.19	27.27	9.09
Sunuwar	17	16	5	3	24.24	29.41	18.75
Kami, Sarki and Dami	23	19	5	2	16.67	21.73	10.52
TOTAL	350	320	186	72	38.50	53.14	22.50

*Literacy is defined here as a person who can read and write Nepali scripts. It is understood that a person who has passed class three or its equivalent can read and write Nepali scripts.

APPENDIX 16

Literacy in the Pipalbote Cluster by Ethnicity, 1981

	Up to Class 3		4-7		8-10		Up to I.A. (11-12)		Up to B.A. (13-14)		Up to M.A. (15-16)	
	M.*	F.**	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Upadhaya Brahmin Jaisi Brahmin and Chhetry	39	41	69	44	51	12	10	1	5	0	0	0
Newar	1	3	7	3	1	0	0	0	0	0	0	0
Magar	1	0	0	1	2	0	0	0	0	0	0	0
Gurung	0	1	6	1	2	2	0	0	1	0	1	0
Limbu	27	9	12	0	0	0	0	0	0	0	0	0
Rai	9	5	7	2	2	1	0	0	0	0	0	0
Sunuwar	6	4	4	3	1	0	0	0	0	0	0	0
Kami, Sarki and Dami	8	6	5	2	0	0	0	0	0	0	0	0
TOTAL	91	69	110	56	59	15	10	1	6	0	1	0

*Male

**Female

APPENDIX 17

Current Age and Age at First Birth of Women in the Pipalbote Cluster by Ethnicity, 1981

Age at First Birth	Current Age of Women											Total
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-59	60-69	70-79	80-89	
High caste												
15-19	0	8	8	5	8	3	1	3	2	0	0	38
20-24	-	6	5	4	4	2	2	8	3	1	0	35
25-29	-	-	1	0	0	1	0	1	0	0	0	3
30-34	-	-	-	0	0	0	0	0	0	0	0	0
35-39	-	-	-	-	0	0	0	0	1	0	0	1
TOTAL	0	14	14	9	12	6	3	12	6	1	0	77
Matwali												
15-19	0	2	1	2	2	3	0	1	0	0	0	11
20-24	-	2	4	3	5	3	4	0	2	0	0	23
25-29	-	-	0	1	2	1	1	4	0	1	0	10
30-34	-	-	-	0	0	0	0	1	0	1	0	2
35-39	-	-	-	-	0	1	0	0	0	0	0	1
TOTAL	0	4	5	6	9	8	5	6	2	2	0	47
Untouchable												
15-19	0	0	0	0	0	0	0	0	0	0	0	0
20-24	-	0	1	0	1	1	0	1	0	0	0	4
25-29	-	-	0	0	0	1	0	1	0	0	0	2
30-34	-	-	-	0	0	0	0	0	0	0	1	1
35-39	-	-	-	-	0	0	0	0	0	0	0	0
TOTAL	0	0	1	0	1	2	0	2	0	0	1	7

APPENDIX 18

Family Planning Service in Use in the Pipalbote Cluster by Ethnicity, 1981

	Permanent (Person Numbers)		Temporary (Person Numbers)			Person At Risk (Women 15-49 yrs.) of age	Total Women Used FP Service	% of Use	Person At Risk (Men* 15-59 yrs.) of Age	Total Men Used FP Service	% of Use
	Vasectomy	Laparoscopy	Pills	Condoms	Loops						
Upadhaya Brahmin	3	7	3	1	1	78	11	14.1	94	4	4.2
Jaisi Brahmin	0	0	0	1	0	13	0	0.0	14	1	7.1
Chhetry	0	0	0	0	0	4	0	0.0	9	0	0.0
TOTAL HIGH CASTE	3	7	3	2	1	97	11	11.3	117	5	4.3
Newar	0	2	0	0	0	8	2	25.0	13	0	0.0
Magar	0	0	0	0	0	3	0	0.0	3	0	0.0
Gurung	0	0	0	0	0	5	0	0.0	9	0	0.0
Limbu	0	2	3	1	0	33	5	15.1	36	1	2.7
Rai	0	0	0	0	0	21	0	0.0	24	0	0.0
Sunuwar	0	0	2	0	0	7	2	28.5	9	0	0.0
TOTAL MATWALI	0	4	5	1	0	77	9	11.7	94	1	1.06
Kami	0	0	0	0	0	2	0	0.0	3	0	0.0
Sarki	0	0	0	0	0	3	0	0.0	6	0	0.0
Damai	0	1	0	0	0	3	1	33.3	4	0	0.0
TOTAL UNTOUCHABLE	0	1	0	0	0	8	1	12.5	13	0	0.0
TOTAL	3	12	8	3	1	180	21	11.6	224	6	2.7

APPENDIX 18 (Continued)

NOTE:

* The persons at risk among males is difficult to calculate as males are considered fecund even in the late stage of their life by the local people. However, villagers also assert that when a man is 60 he is old and does not cohabit with his wife. So I calculated here males 15-59 years of age as persons at risk.

APPENDIX 19

Total Deaths and the Crude Death rate in the Pipalbote Cluster by Sex and Ethnicity (1st July 1980-30th June 1981)

Ethnic Groups	Male	Female	Total	Population	D/P*
High caste groups	1	3	4	405	9.8
Upadhaya Brahmin	1	2	3	330	9.1
Jaisi Brahmin	0	1	1	53	18.8
Chhetry	0	0	0	--	0.0
Matwali	3	4	7	322	21.7
Newar	0	0	0	39	0.0
Magar	0	0	0	17	0.0
Gurung	0	0	0	25	0.0
Limbu	1	2	3	132	22.7
Rai	2	0	2	71	28.1
Sunuwar	0	2	2	38	52.6
Untouchables	0	1	1	48	20.8
Kami	0	1	1	21	47.6
Sarki	0	0	0	11	0.0
Damai	0	0	0	16	0.0
TOTAL	4	8	12	775	15.4

*The CDR has been calculated in terms of 1,000 population.

APPENDIX 20

Infant Deaths and Infant Mortality Rate in the Pipalbote Cluster by Sex and Ethnicity (1st July 1980-30th June 1981)

Ethnic Groups	Male	Female	Total	Births	D/B
High caste groups	0	2	2	17	.117
Upadhaya Brahmin	0	1	1	13	.076
Jaisi Brahmin	0	1	1	3	.333
Chhetry	0	0	0	1	.000
Matwali	2	0	2	10	.200
Newar	0	0	0	1	.000
Magar	0	0	0	2	.000
Gurung	0	0	0	1	.000
Limbu	1	0	1	3	.333
Rai	1	0	1	2	.500
Sunuwar	0	0	0	1	.000
Untouchables	0	0	0	3	.000
Kami	0	0	0	3	.000
Sarki	0	0	0	0	.000
Damai	0	0	0	0	.000
TOTAL	2	2	4	30	.133

FOOTNOTES

1. A village panchayat is an administrative unit, divided into nine wards (in each ward there can be one or more hamlets or villages). It is a unit of taxation as one revenue unit, and the boundary of a panchayat is clearly fixed. In Nepal, the population of a village panchayat usually consists of more than 1,000 and fewer than 12,000 persons.

2. The second constitutional amendment of 1975 resulted in changes in the boundary of administrative districts throughout Nepal which also affected the changes in the boundary of Ilam district. In this amendment, two panchayats of Morang district (Sagphara Panchayat, population: 1,987 and Bajhgaun Panchayat, population: 11,423 according to the 1981 census) were included in Ilam district. So while comparing the population growth of Ilam district between the 1971-1981 census, one must subtract the population of these two panchayats for comparison.

3. Nepal is characterized by three distinct geographic regions: Mountain Hill, and Terai. According to the 1971 census, population, land area, and other characteristics of these three regions are given below:

	Mountain	Hill	Terai
Number of districts	16	39	20
Altitude	3,000 meters and above	900 to 3,000 meters	below 900 meters
Population	1.1 million	6.1 million	4.3 million
Population density per square kilometer	22	94	140

4. I use the concept of "caste" here as defined by Berreman (1972:198).

> Castes are ranked endogamous divisions of society in which membership is hereditary and permanent.

5. The Hilly regions of East Nepal were divided into Wallo Kirant (Near Kirant), Manjh Kirant (Middle Kirant) and Pallo Kirant (Far Kirant) before the conquest of King Prithiviniarayan Shah of these areas. How this three fold demarcation was made and who made it constitutes another problem. These regions (excluding Near Kirant) were vividly described by historians when King Prithivinarayan Shah was making military conquests in these areas (see Pant et al., 1152-1167, n.d.) Limbuwan fell into Pallo Kirant (Far Kirant).
6. See the Lalmohar (Royal Orders) issued in 1774 for the Limbu and Rai chiefs in Eastern Nepal.
7. Limbuwan or Pallo Kirant was divided into seventeen Thums (regions) to facilitate administration and to collect land revenue effectively. But historians like Bajracharya and Shrestha (1974:47-48) say that the term Thum was popular in the Medieval history of Nepal. According to them, to facilitate the administration in the Hilly regions of Nepal, a few villages (from 5-10 villages) were grouped into one revenue unit which was given the name Thum. After the Gorkha conquest in Nepal, the term Thum became more popular and they started appointing Subba (administrator and revenue collector) and Pagari (lower than Subba in rank but his function is to assist in collecting land revenue) in each Thum to administer the region.
8. This temperature record is observed from the 1976-1980 period (Source: Meteorological Service, Kathmandu, Nepal).
9. Source: Meteorological Service, Kathmandu, Nepal.
10. In 1981, the population of the Pipalbote Cluster was 775 persons. According to the local people, adults (age group 15-59), on average,

consume 750 grams of grain per person per day, whereas the populations under the age of 14 and above 59 years of age, on average, consume 500 grams per person per day. On the basis of this consumption schedule, 494, 75 kilograms of grain are needed to feed 775 persons per day. For details of consumption data, see Chapter V.

11. See the Lalmohars (Royal Orders) issued to the Limbus of Eastern Nepal in 1774 and onwards. The 1774, 1951, and 1961 Lalmohars are published in Regmi's (1965:151-153) Land Tenure and Taxation in Nepal (Vol. 3).

12. According to the information derived from the Cadastral Land Survey Office Ilam, abbal, doyam, seem, and chahar categories are applied in both irrigated and unirrigated land. The abbal denotes the excellent quality of land in terms of productivity. Two minimum staple crops are possible on such land a year. Doyam denotes a good quality land where two staple crops are expected a year. The seem is an average quality land where one staple crop is possible without problems. Chahar is poor quality land where a single staple crop is possible with hard labor.

13. Tuladhar et al (1977:10) have presented the following population density of cultivable area in Nepal by geographic regions:

Region	Average Number of Persons/Square Mile
Nepal	1,549
Mountain	3,222
Hill	2,727
Terai	883

14. The local people estimate that on average, the price of irrigated land per ropani is rupees 1,000 to 2,000 whereas rupees 500 to 1,000 for the unirrigated land. This price per ropani depends upon the categories of land (abbal, doyam, seem, and chahar) as mentioned above. There is no chahar category of land in the Pipalbote Cluster. I have put here the low average price of land, rupees 1,000 per ropani for the irrigated land and rupees 625 per ropani for the unirrigated land. So the total amount of cash involved from land alone is about rupees 4,603,000.

15. According to a Newar informant, costs for brewing millet beer and country-liquor are as follows:

    He purahsed eight kilograms of millet for 20 rupees. The price of firewood, yeast (for fermenting liquor), and labor (self employed), cost about another eight rupees, for a total cost of 28 rupees. From this millet, he brewed 11-13 bottles of country liquor (rupees three per bottle) and 12-14 kilograms of millet beer (rupees one per kilogram), a net cash of about rupees 20 in total.

16. According to local informants, 49 kilograms of unhusked rice cost rupees 120. It is boiled, then fried and pounded. It takes about 45 minutes to pound 2.45 kilograms of unhusked rice to make puffed rice or about 15 hours for pounding 49 kilograms of unhusked rice. One needs about 10 rupees worth of firewood for cooking and two full time laborers which cost rupees 10 excluding meals. A person normally makes 39.25 kilograms of puffed rice from 49 kilograms of unhusked rice or a net profit of rupees 52 (selling puffed rice is rupees 12 for 2.45 kilograms) from the above amount.

17. According to a female Newar informant, the quantity of items she purchased for the Thursday and Sunday markets and the profit by selling these items were as follows:

Items	Thursday (quantity purchased)	Cost	Sunday (quantity purchased)	Cost
Rice flour	8 kilograms	28.00	6 kilograms	21.00
Tea(leaves)	0.25 kilograms	6.25	0.25 kilograms	6.25
Cooking oil	1.25 kilograms	30.00	1.00 kilograms	24.00
Sugar	0.50 kilograms	5.60	0.50 kilograms	5.60
Potato	5.00 kilograms	7.50	4.00 kilograms	6.00
Firewood	20.00 kilograms	5.00	16.00 kilograms	4.00
TOTAL		88.35		66.85

The total sale on average, was rupees 115-125 on Thursday whereas it was rupees 95-105 on Sunday.

18. This calculation is based on Nepal Institute of Standards, Kathmandu (1981) and the Food Consumption Table for use in East Asia (U.S. Department of Health, 1972).

19. These tuberculosis cases were diagnosed at Ilam hospital.

20. A household includes not only the closely related members of the family living together but also an unrelated servant or distant kinsman living with the family.

21. "Istihar" (Announcement) issued by Ilam Land Development Office, 1931.

22. The detailed criteria for economic and demographic characteristics of least developed countries as illustrated by OECD are cited by Blaikie et al (1980:6-7).

GLOSSARY

Abbal:	The excellent quality of land in terms of productivity.
Amliso:	Thysanolaena maxima; a fodder (grass) for livestock, the flower stalk of this grass is also utilized as a broom.
Anna:	In the ropani system of land measurement, it is 1/16 of a ropani or covers an area of 342.5 square feet.
Bad:	An additional amount of money taken against security of land already pledged.
Bali:	An annual payment in grain by a person to a member of a service caste.
Barbote:	One of the panchayats of Ilam district, Eastern Nepal.
Bari:	A commonly terraced unirrigated or dry field.
Bensi:	A low-lying field close to the river-basin where water is plentiful for rice and wheat cultivation.
Bhakari:	A big bamboo basket used particularly for storing grains.
Bharuwa (gun):	A muzzle-loaded rifle used only with a gun powder; commonly used for chasing monkeys and other wild animals.
Bijaypur:	A kingdom east of Kathmandu ruled by different Sen rulers before the unification of Nepal.
Chahar:	Poor quality land in terms of productivity.
Chalno:	A sieve.
Chiura:	Puffed rice.
Dalo:	A small bamboo basket for storing grain, etc.
Dasain:	A Hindu festival celebrated in the full-moon period of Asoj (September/October) for about a week. The festival is connected with the worshipping of goddess Durga, the goddess of power. People wear new clothes and eat good food; for many people sacrifice of an animal (particularly goat, lamb and water buffalo) for worship and consumption is considered essential.
Doko:	A wicker basket used for carrying water, firewood and fodder, etc.
Doyam:	A good quality land in terms of productivity.
Gaun:	A village or hamlet

Gorkha: Historically the inhabitants of Gorkha, a small kingdom located west of Kathmandu. After unifying Nepal in 1774 by Prithivinarayan Shah, the King of Gorkha, the term "Gorkha" is synonymous with the people of Nepal.

Jagirdar: A government employee.

Jand: Locally made millet-beer.

Khet: Irrigated terraced land.

Khukuri: A long curved knife of varying sizes and shapes; also a national weapon of Nepal.

Kipat: A communal form of land tenure prevalent with many groups of Nepal such as Limbus, Rais, Yakhas, Majiyas and others up to 1968.

Kothebari: A kitchen-garden located closely to the main residential area.

Lalmohar: A special decree with a royal seal given to a person or group of persons which dictates certain power and privileges to whom and where it concerns.

Limbuwan: Traditional homeland of the Limbus; today Limbuwan covers six districts of Eastern Nepal: Terathum, Dhankuta, Sankhusabha, Ilam, Taplejung and Panchthar.

Mal A government treasury office located in every district headquarters of Nepal; keeps the records of land and land revenue, the registration of new land and sale and settles minor disputes concerning the landowing rights of a person.

Mana: A unit of measure (either liquid or solid); a mana of husked rice equals to 453 grams and one mana of liquid equals to 0.5682 liter.

Manjh Kirant: The traditional Rai settlements east of Kathmandu covering an area between the Dudh Kosi and Arun rivers.

Matwali: Members of the liquor consuming groups; hierarchically placed in between the high caste and untouchable groups.

Muri: A unit of measure: equals 20 pathis of grain; 20 pathis of husked rice and weighs about 72.4 kilograms.

Nanglo: A winnowing fan.

Pathi: A unit of measure (either liquid or solid); equal to 8 manas of grain. One pathi of husked rice equals 3.62 kilograms; in liquid volume it equals 4.5460 liters.

Paisa: In the ropani system of land measurement it is 1/4 of an anna or covers an area of about 85.5 square feet.

Pipal: Ficus religiosa, a deciduous tree.

Raikar: Form of land tenure owned directly by the State; available for purchase by Nepalese citizens in the normal legal procedure.

Raksi: Local liquor made of millet.

Ropani: A system of land measurement prevalent in Kathmandu valley and in many hill districts of Nepal. A ropani of land equals 5,476 square feet or approximately 0.051. hectare.

Seem: An average quality of land in terms of productivity.

Sel-roti: A special kind of doughnut made of rice flour; usually prepared on festive and ritual occasions; some people also sell sel-roti on market days.

Sukumbasi: A landless person.

Thum: A traditional subdivision of the hill districts in Nepal before 1962. To facilitate the administration of a region, a few villages were encircled into one admnistrative unit and was given the name Thum.

Thunse: A storage bamboo basket.

Tihar: A Hindu festival observed for 3 to 5 days during October/ November. The festival begins with the worship of a crow, a dog, a cow, bullock, and brothers. The worship of a cow is connected with the worship of goddess Laxmi, the goddess of prosperity.

Uttis: Alnus Nepalensis; a tree commonly used as firewood and for making houses; the tree grows fast and can be used as timber within 10-15 years of its plantation.

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