CHANGING LAND USE PATTERN IN URBAN FRINGES IN DISTRICT KANGRA (HP): A STUDY OF A VILLAGE

THESIS

By

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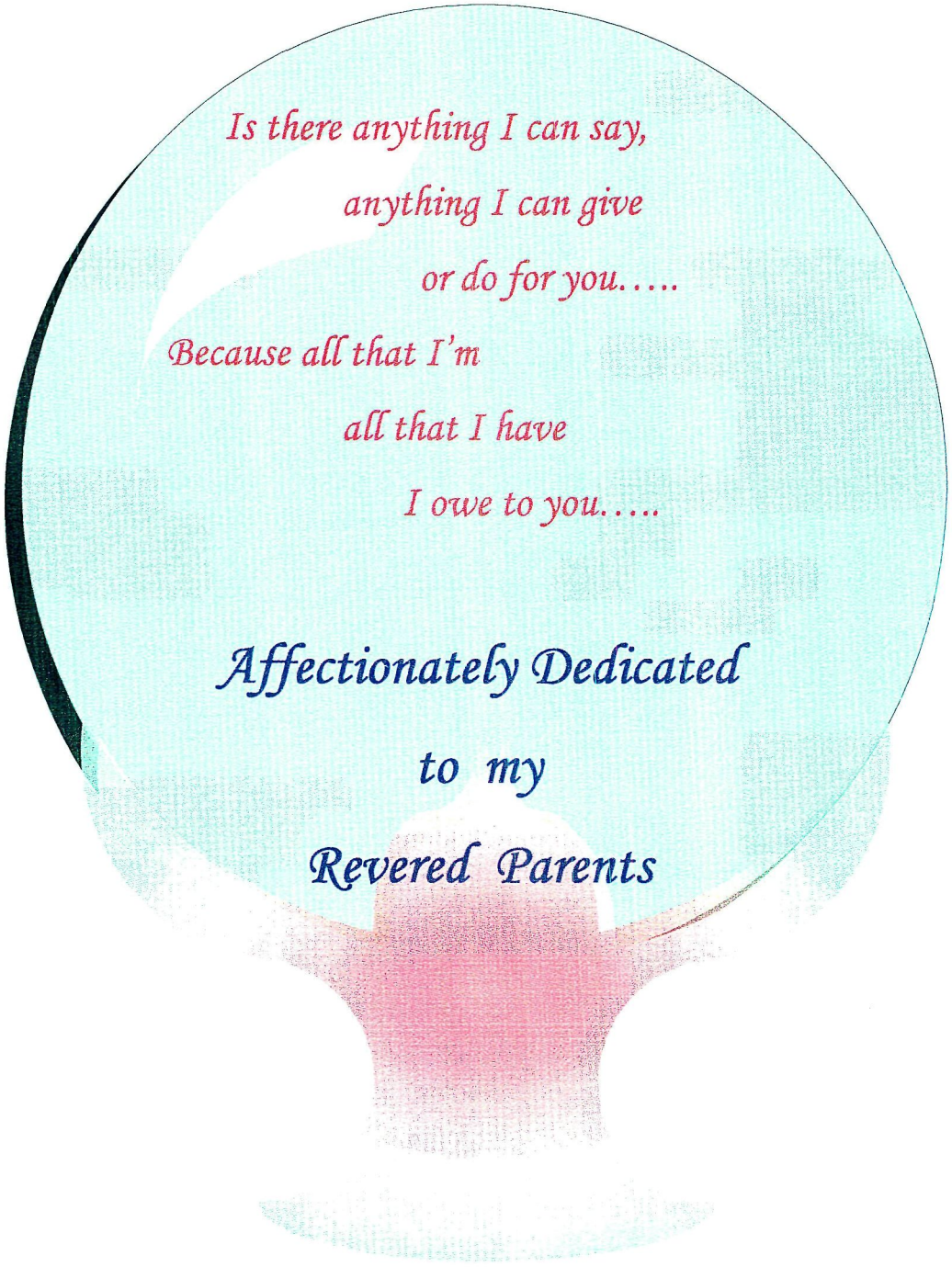
Is there anything I can say,
anything I can give
or do for you.....
Because all that I'm
all that I have
I owe to you.....
Affectionately Dedicated
to my
Revered Parents

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CERTIFICATE I

This is to certify that the thesis entitled **"Changing Land Use Pattern in Urban Fringes in District Kangra (HP): A Study of a Village"** submitted in partial fulfilment of the requirements for the award of the degree of **Master of Science (Agriculture)** in the subject of **Agricultural Economics** of Chaudhary Sarwan Kumar Himachal Pradesh Krishi Vishvavidyalaya, Palampur, is a bonafide research work carried out by **Ms. Shilpa Bhandari (Admission No. A-2005-30-15)** daughter of **Sh. S.K. Bhandari** under my supervision and that no part of this thesis has been submitted for any other degree or diploma.

The assistance and help received during the course of this investigation have been fully acknowledged.

(Dr. Virender Kumar) 19.7.07
Chairman
Advisory Committee

Place: Palampur
Dated: 19th July, 2007

CERTIFICATE II

This is to certify that the thesis entitled **"Changing Land Use Pattern in Urban Fringes in District Kangra (HP): A Study of a Village"** submitted by **Ms. Shilpa Bhandari (Admission No. A-2005-30-15)** daughter of **Sh. S.K. Bhandari** to the Chaudhary Sarwan Kumar Himachal Pradesh Krishi Vishvavidyalaya, Palampur, in partial fulfilment of the requirements for the degree of **Master of Science (Agriculture)** in the subject of **Agricultural Economics**, has been approved by the Advisory Committee after an oral examination of the student in collaboration with an External Examiner.

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A wave of elation sweeps me off my feet, joy exuberates my heart and a sense of achievement pervades my mind as I take another step forward my academic pursuit with the completion of this work and acknowledge all those who helped me. My foremost thanks with limitless humility, to God who blessed me with his blessings to accomplish this investigation.

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Needless to say, all errors and omissions are mine.

Place: Palampur
Dated: the 19th July, 2007

Bhandari

(Shilpa Bhandari)

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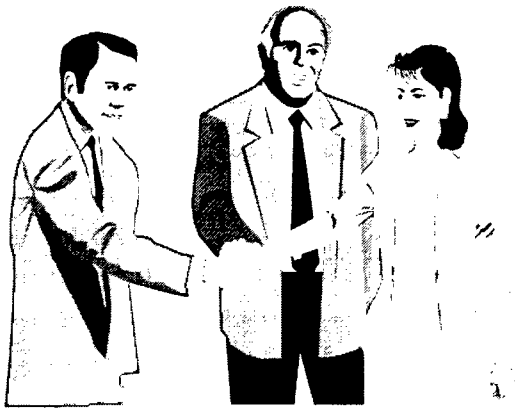


Introduction

Chapter I

INTRODUCTION

Land is an important factor of production in any economic activity. It gains additional significance when such activity is related to agriculture. Here, it becomes crucial and most constraining factor of production. And since about two-thirds of population in India derive its sustenance from agriculture, both the quantitative and qualitative aspects of land as a resource, have far reaching implications for this vast majority. These crucial aspects are under serious threat due to intensive and extensive use of land both for agricultural and non agricultural purposes. The stagnation of land under plough in India has become an acknowledged fact. The problem of access to land has become more severe due to unrelenting demographic pressure and because of increasing diversion of land from agricultural to non-agricultural uses. Unprecedented rise in human and livestock population has resulted in a vastly changed land use pattern. Last few decades have witnessed tremendous pressure on land and it has been realized that the scope for extensive use of land for cultivation is limited. The competition between agricultural and non agricultural sectors for land is intensifying due to increasing pressure on land for food production, housing and industrial expansion. All possible expansion in the area under cultivation has mostly been accomplished. In fact, areas that are not fit for cultivation, such as degraded forestland, grazing land and other wastelands are being brought under the plough. Cultivable land is under a different type of pressure. The productivity per

unit of this land has to be increased to meet the requirements of the growing population. This is being greatly manifested in the form of high input usage leading to a paradigm of unsustainable land use. This concern has been expressed both at the national and international level from time to time.

The world has experienced unprecedented urban growth in recent decades. There are four major forces determining the pace of urbanization throughout the world-economic growth and development, technological change, a rapid growth in the world population and a large scale movement of people from rural areas to the cities. In 2000, about 47.0 percent of the world's population lived in urban areas and there were 411 cities with over 1.0 million inhabitants. It is expected that 60.0 percent of world population will be urban by 2030, and more urban growth will occur in less developed countries. Migrants move to relatively inexpensive fringe areas of city, where they have access to all urban amenities at lesser cost, thus resulting in cluster slums. The process of urbanization in India is also gaining momentum. High urban growth has led to a variety of changes in the existing land use systems. Be it the squeeze on agricultural land available for cultivation or the altered cropping pattern, there are several factors like varying topography, population pressure, level of urbanization, industrialization, etc. that are responsible for these changes in the land use. And such changes are more discernible in the urban fringes where the land use pattern witnesses more pressure than the hinterlands. The urban fringe includes land along the boundaries of a city/town, in the suburbs. It is the area where land is in transition from agricultural to urban use and majority of the

workers are engaged in non agricultural operations. The conversion of prime agricultural land into non-agricultural uses has received attention in the past few years. The concern has many dimensions. A dwindling land base for agriculture means that fewer acres must produce more food each year, and urbanization brings with it increasing demands for preservation of open spaces. This is bound to have strong implications for agricultural production and productivity in these fringe areas, thus impinging upon food security concerns at large.

During the past few decades, there has been increasing pressure on the urban fringes wherein the land use is undergoing massive transformation. Land used for urbanization, industrialization and related economic activities contributes for a major share in land put to non-agricultural uses. Urbanization places severe stress on land, labour and water resources, thereby affecting agricultural growth. However, the continuation of this process, requires more and more land including areas which are environmentally valuable, to be converted into industrial/housing sites. Aspects like land use changes in favour of urban type of land use, location of urban related activities in or near the village, better access for village to urban areas and vice-versa, and expansion of urban type of amenities and infrastructure are directly or indirectly caused by urbanization. All these, have far reaching consequences for the livelihood of village population, as they lead to diversification of employment and put their agricultural land to different uses. Farmers in urban fringes start to produce, as per the interest of urban population. They shift from cereals to high value cash crops, thus leading to changes in cropping pattern.

In this backdrop, the present investigation seeks to answer such queries as: Firstly, what are the changes in land use that are taking place in the urban fringes of small towns? Secondly, what are the factors that fuel such changes in these fringes? And finally, what are the policy implications of such a change? Therefore, this study proposed to examine these issues with the following specific objectives:

OBJECTIVES OF THE STUDY

i) To examine the changing land use pattern in urban fringes in Kangra district.

ii) To determine the factors responsible for changes in land use.

iii) To examine the implications of the changed land use pattern and suggest policy measures to remedy the situation.

Review of Literature

Chapter II

REVIEW OF LITERATURE

The scientific enquiries are regarded as the body of knowledge gains through systematic thinking, factual observations and past experience. In order to have a clear and in depth understanding of the research project at hand and to choose the suitable analytical techniques, relevant work done by the various scholars in this field in India and abroad has been reviewed. In accordance with the objectives of the study, the literature pertaining to the present investigation is reviewed in this section under the following headings:

1. Urbanization
2. Increase in Population.
3. Land Transactions.
4. Changes in Cropping Pattern.

2.1 Urbanization

Easley (1978) reported that the urbanization of US land is occurring at a rapid rate. Although urban uses accounted for a small percentage of the total land area (2.7%), the expansion of these uses has generally resulted in a loss of prime agricultural land. Planners must be aware of the long range implications of the loss of land required to meet the food and fibre needs of the people. Even where the land is not converted directly into urban uses, it often becomes idle in anticipation of urbanization. The urban areas are better able to compete in the land market for this prime agricultural land.

Chicoine (1981) examined the factors that affect the price of farmland in an urban fringe market, near Chicago, Illinois. The market for farmland at the urban fringe is characterized by the interaction of agricultural and urbanizing factors. Measures of neighborhood effects, agricultural soil productivity and market participant characteristics were introduced. He revealed that farmland was exchanged at lower price when both market participants were individuals, and corporations, partnership and land trusts are associated with higher prices, as they may have entered the market closer to the time of conversion to urban use.

Hembd and Infanger (1981) employed Trend Surface Analysis (TSA) to estimate the land value surfaces over a six year period in rural-urban fringe case study of Lexington, Kentucky. They identified all the land sales with in the rural areas of the country for the period of 1973-78. The land falls under the speculative shadow at values based upon the expected time of conversion to urban use. It is important to note that once land takes on the potential for conversion to an urban use, its present value increases. TSA is viewed as a viable analytical technique to explore land value gradients and their spatial or geographic characteristics.

Bhadra and Brandao (1993) surveyed the literature concerning the interactions between urban development and agricultural development, and the implications for the conversion of land from rural to urban uses in developing countries. This is a large body of research, which concentrates on urban development, with agriculture playing a minor role in the process.

Kayser (1994) reported that areas on the urban perimeter are attracting migrants from towns and are becoming increasingly urbanized rather than carrying out agriculture. The agricultural population is on the decline mainly due to decreasing income and land value. He further reported that how non-agricultural activities have developed in rural areas.

Rukmani (1994) identified the pattern of urbanization in Tamil Nadu over the period 1901-91 and studied the underlying factors. She attempted to identify the different stages or phases through which the process of urbanization has evolved. She revealed that the better spatial spread of towns in the state seems to have resulted in rural-urban linkage. The urban-rural growth differential indicated a pattern almost identical to rate of growth of urban population - it was very high in the 1940s and 1960s i.e. during the decades of rapid urban growth. This suggests that migration from the rural areas has been a major factor during these decades. The continuous economic growth in state has led to the declining role of agricultural sector in the state economy.

Tsai (1994) studied the changes in use of various types of rural land use in Taiwan. He reported that in the pace of urbanization and industrialization, labour has been moving rapidly from rural to urban areas.This change ultimately resulted in the more extensive use of cultivated land and also the expansion of industrial parks into rural areas that have led to industrial pollution in agricultural regions. There has also been inefficient use of agricultural land resources. He reported that hill land, formerly used for pastures or covered by forests or grasses, has recently been used for the construction of houses, roads, cemeteries, etc. It has been exploited for transport, recreational and sporting purposes resulting in soil erosion.

Vesterby *et al.* (1994) reported that rural land in the US is under pressure of urbanization. There was rapid increase in urbanization during the 1970s and due to this there is conversion of rural land uses. Urbanization of agricultural land does raise issue at the state and local levels in regard to protecting watersheds, preserving ruralites, preventing urban sprawl and *preserving local economies*.

Nishimura (1998) studied the problems and conflicts surrounding farmland use in urban fringe areas in Asia. He reported that, the impact of urbanization on agriculture and the environment has become a serious problem. In order to protect agriculture in urban fringe areas, it is important to have a clear idea and appropriate policy for tackling land use.

Chaleard (1999) observed the agricultural changes in the Ivory Coast, as the result of urbanization. He selected three different towns, which are on the edges and studied the specificities of peri-urban agriculture. Agriculture in these areas was influenced by urban market. The size of the town affects the extent of peri-urban area, the cropping systems practised and the social profile of peri-urban farmers.

Bentinck (2000) studied the land use changes in Delhi's rural-urban fringe. He selected Alipur Development block, comprising 59 villages. He concluded that the land use changes occurred very rapidly on the immediate urban fringe of Delhi. It was mainly agricultural and other rural land that was converting into permanently built-up areas and covered with infrastructure. The other aspect of study i.e. livelihood condition of villagers, was improving in terms

of civic amenities, housing conditions and infrastructure. But there were also evident negative consequences of urbanization for the conditions in which residents lived and worked.

Kundu (2000) observed that the very process of urbanization *per se* is not sustainable in the long run. In most parts of the developed states of the country the class I cities exhibit a higher growth rates than the small towns. In the large cities, business and industrial interests are usurping urban land. In medium and small towns, the inadequacy of basic amenities will be limiting factor on their labor absorptive capacity. It is difficult for private sector to bring about the desirable changes in urban land market, land use pattern, investment level in infrastructure etc. It is reasonable to argue that the process of urbanization cannot be sustained in long run since poverty induced expansion in informal sector in urban areas seems to be reaching an upper limit.

Ali (2002) examined the rural – urban relationship in Lahore. The phenomenon of peri-urban areas has gained in significance. Settlements peripheral to cities, capitalizing upon their proximity, transport links, employment opportunities and access to urban services, have grown substantially and even acquired some 'urban characteristics' though they do not have any institutional arrangement for providing basic civic services. Ribbons of development along the highways, between major urban centres and industrial satellite areas, have developed, largely due to accessibility to transport links, availability of skills and services as well as tax and tariff incentives. In Lahore-Sheikhupura and Lahore-Gujranwala roads such developments are quite common. Similar developments

can also be seen along the major cities through out the country. A review of occupational structures showed that people residing in the rural areas of these districts have a strong occupational interface with the urban areas.

Douglas Webster (2002) defined the development of urban fringe as peri-urbanization process. He referred it to a process in which rural areas located on the outskirts of established cities become more urban in character, in physical, economic and social terms, often in piecemeal fashion. Peri-urban development usually involves rapid social changes as small agricultural communities are forced to adjust to an urban or industrial way of life in a very short time. Peri-urbanization often occurs around one main core city.

Kundu *et al.* (2002) reported that as a result of rapid increase in urbanization, the pressure on land and water resources is rising at an alarming pace. The study further revealed that the recent trends in urbanization generate both centripetal and centrifugal actions. The centripetal action takes the form of pulling in of better quality land, water and human resources from rural to urban areas at a macro scale where as the centrifugal action occurs in the form of pushing out of urban poor and urban based and pollutants towards urban peripheries and rural areas located close to urban centres.

Balasubramanian (2003) revealed that the most conspicuous but often neglected tension in the modern development paradigm is probably the competition for land and water resources between rural and urban uses. The growing tension between the interests of vast majority of geographically widely distributed rural communities with very limited political power and the more concentrated urban elites with high degree of political and market power has the potential for snowballing into a major conflict between these two groups.

Zhang *et al.* (2004) from their study on industrialization, urbanization and land use in China reported that rapid industrial development and urbanization transfer more and more land away from agricultural production and affect the pattern of land use intensity and industrialization. The study highlighted the conflict between the two policy goals of industrialization and grain self-sufficiency in the end.

Kombe (2005) studied the recent trends in land use transformation, taking place in the peri-urban areas of Tanzania. The study demonstrates that urbanization is the key factor underpinning and catalyzing changes in land use, land transactions, increased rural-urban migration and overall transformation of land use in the peri-urban areas. Unregulated peri-urban land development has given rise to complex urban structures which are predominantly expanding horizontally. The emerging land use pattern, by and large indicates a mismatch with the widely cherished planning norms and standards and land value theories which, underpin urban land use planning instruments such as zoning and density distribution.

Ramasamy *et al.* (2005) studied the detailed impact of urbanization on agriculture in Tamil Nadu. The study captured both the temporal and spatial dimension of the growth in urbanization and industrialization and their impact on agricultural sector. The results of the analysis of cross section data at district revealed that both the irrigation intensity and literacy rates were found to have positive impact on share of land put to non-agricultural uses, while agricultural wage rate was found to have negative impact indicating that higher agricultural wages tends to discourage urbanization and/or industrialization. Further,

population density and literacy rate were found to have positive impact on urbanization. Both the share of land put to non-agricultural uses to total geographical area and urbanization were found to have strong negative impact on agricultural sector, by reducing the share of gross cropped area in the state and positive impact on the extent of fallow land in the state.

Hualou *et al.* (2007) analyzed the characteristics, major driving forces and alternative management measures of land use change in Kunshan, Jiangsu Province, China. They constructed two change matrices for detecting land use change from 1987 to 1994 and between 1994 and 2000. The outcomes indicated that paddy fields, dryland and forest land moderately decreased by 8.2 per cent, 29 per cent and 2.6 per cent from 1987 to 1994 and by 4.1 per cent, 7.6 per cent and 8 per cent from 1994 to 2000, respectively. In contrast, the urban settlements and construction land increased by 87.6 per cent and 511.8 per cent in 1987 to 1994; and 28.1 per cent and 47.1 per cent in 1994 to 2000, respectively. In addition, socio-economic data were used to analyze major driving forces triggering land use change through bivariate analysis. The results indicated that industrialization, urbanization, population growth and China's economic reform measures are four major driving forces contributing to land use change in Kunshan.

2.2 Increase in Population

Gengaje (1992) examined the growing concern for urban fringe land management and the procedure for land transfer in Maharashtra. Rapid increase in the population has led to the growth of cities. As the land around the city increases in importance, and as the public authorities in most of the growing

cities of the developing world have been unsuccessful in supplying land for housing for lower income group, the smaller lots outside the legal framework are gaining importance in the city land market.

Munton *et al.* (1993) studied the changing land use in Britain. The rural land in Britain is subject to numerous competing demands on its use due to increasing population density, rising standard of living and widespread personal mobility. They present a synoptic overview of the current style of regulation and its relationship to the social and economic forces affecting the British countryside.

Jarrige (2004) examined changes in Mediterranean agriculture in Montpellier, France, resulting from urban population growth. Generally, facing urban growth and the table wine crisis, vineyards are regressing at urban fringes and are now mainly replaced by other crops. Mainly professional growers, with only temporary land tenure agreements, cultivate annual crops. This is the case for cereals, which are grown all around urban centres. These changes in Mediterranean agriculture result from strategies developed by the growers. They take into account economics of agriculture (either market trends or political regulations) and local information of urban fringes. The main consequence of urban growth is pressure on the local land market, a much higher price is obtained from urbanization compared to what agricultural production can earn.

According to Hualou *et al.* (2007) population growth is also considered as a major factor leading to land use change. Rapid industrialization and urbanization are often correlated with the increase of population size. In the study area the population increased from 554,500 in 1989 to 595,000 in 2000. With the

increase of population, per capita residential areas also grew. As a result, large part of farmland was converted for construction settlements. The strong inverse relationship between population growth and agricultural land decline suggests that demographic factors may be important for land use change in Kunshan, Jiangsu Province China.

2.3 Land Transactions

Shergill (1986) studied the trends in land sale and land prices in Punjab. He surveyed 14 randomly selected villages of Sangrur district during the year 1978-80. Information on number of sales, area sold, price paid and many other related variables were collected for the years 1952-53 to 1978-79. The nature and magnitude of trends in land sales and land prices were probed by fitting linear trend equations. He concluded that the farmland sold annually rose fast up to 1965-66, but declined thereafter, land price grew slowly up to 1965-66 but at a high rate since then; increasing by nine times in 13 years (1966-67 to 1978-79).

Marothia *et al.* (1991) attempted to study trends in farmland sales and land prices and to determine the magnitude of land transactions in the Dharampura village, Madhya Pradesh. Information on number of sales, area sold, price paid, and detail of sellers and buyers who have transacted land was collected for the year 1981 to 1990. Their results indicated that more than 70% of farmland was sold to non villagers and the sale of cultivated land was slightly more than that of fallow land. The gap between price actually paid and the one registered in sale deeds also widened over time.

Murayama (1992) studied the land use in Saitama prefecture, Honshu Province Japan during the period 1985-89, showed decreases in area of land occupied by built up areas and an increase in the extent of rural areas, but there was a marked increase in the areas devoted to residential use with in the rural areas. The areas of public garden increased in both built up and rural areas but was little change in the amount of forest. These changes also extend over the longer period 1980-89 and over this period there was also a decrease in the proportion of land devoted to uses other than built up areas and rural uses.

Sarap (1996) analyzed the functioning of land market, which operates in the rural areas of Haryana. The study discussed the indicative nature of land sale market and the background of sellers and buyers and their motives for selling land. Also, variation in price per unit of land and factors affecting were also discussed. The analysis of the reasons for sale by different group of households revealed the amorphous nature of distress sale. The sale of land due to migration to urban area has been found; also sale of land to start non agricultural activity has emerged as another component. The regression analysis clearly revealed that the variance of land prices, stemmed from differences in the characteristics such as site, relative location and times of land sale.

Calderon (1998) studied the land market transactions in the outskirts of Lima, Peru with special reference to transformations occurring owing to urbanization of agricultural land. In the study only small landowners were taken, because they own the majority of agricultural land in the outskirts of city. The situation is with regard to agricultural land, property structure, market dynamics

and long and short term prospects. It is shown that paradox exists, with a need to increase urban areas to accommodate the increasing population on one hand and requirement for green areas, agricultural and tourism on the other.

Chadha *et al.* (2004) studied the relationship between land prices and agricultural land use in Maharashtra. They concluded that land prices tend to decline as we move away from urban centres. Also, as agricultural land near an urban centre would be under more intense competition vis-à-vis agricultural uses. As one comes closer to the urban centre, one may then expect lower proportion of land to be left fallow, and cultivated area to be devoted towards higher value products.

Yankson *et al.* (2002) studied the socio-economic consequences of the rapid and most often haphazard expansion of urban area into the surrounding rural areas primarily within the last decade. The extent of the urbanized areas of Accra is accused from satellite images for the year 2002 and compared to similar transformation for the years 1985 and 1991. The results showed that urbanization of the fringe areas is occurring at a pace that has increased from 10 square km per year for the period 1985-91 to 25 square km per year for 1991-2002. The rapid transformation and urbanization of the fringe areas has created a land market characterized by rapidly rising land prices and people purchasing land for various urban uses.

Chadha *et al.* (2004) studied the trend of land use categories at the all India level and at the state level, and gave useful insights in changing land use pattern. They categorized the three broad categories, area not available for

cultivation, total cultivable area, and area not under crop cultivation but under use. Among all the categories the highest overall growth (1.34%) has been registered by area under non-agricultural uses. However, there are fairly strong indications that this has not grown at the cost of cultivable area, at least till the eighties.

Saizen and Kobayashi (2004) studied the characteristics of land use distribution and farmland diversions in the urban fringes of Osaka prefecture, Japan during the periods of 1979-85, 1985-91 and 1991-96 and analyzed the land use pattern using digital maps. They concluded that farmland diversions tend to be influenced by changes in economic condition. In the 1980s land development and residential development were outstanding. Although this trend slowed down in the early 1990s, the disordered land use distribution pattern remained in the urban fringe.

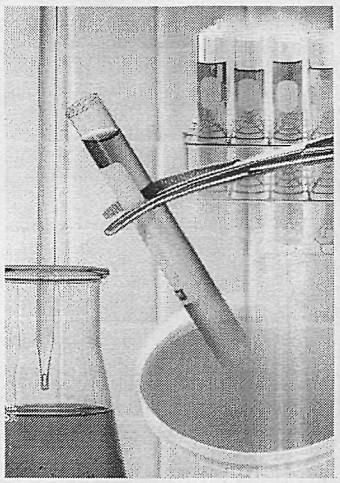
Pradhan & Subramanian (2005) attempted to study the impact of long term determinants such as the density of population, location of farmland from the nearest town and yield from the land on changes in farmland prices using state wise Indian data. The statistics for farmland prices were collected at the village level based on sample survey conducted for 1994-95 during 1996 under two categories-irrigated and unirrigated farmland. The study concluded that the density of population in the rural areas, food grain yield and the distance from the nearest town are the major determinants for irrigated farmland prices. Also, the demand for farmland from the urban residents in relatively developed states is important.

Ramasamy *et al.* (2005) studied the land use changes in Ṫamil Nadu. The dynamics of land use pattern in the state over the last 40 years revealed that there was a significant decline in the area under cultivable waste, while there was a sharp increase in the land put to non agricultural uses. They further revealed that there has been a significant reduction in the area under common land because of these lands used for non agricultural purposes. This sharp decline is probably due to increasing pressure on land caused by increasing demand for land for non agricultural purposes. As a result of the increasing demand for land for industrial, housing and infrastructure developments, the land put to non-agricultural uses has shown a sharp increase.

2.4 Changes in Cropping Pattern

Rao *et al.* (2004) analysed the role of urbanization in the process of agricultural diversification. The study showed that the farmers shifted from cereals to high value commodities (HVCs) as the urbanization progresses ahead. Urbanization is emerging as a strong demand side driver promoting HVCs. Since urban population is growing at 3.0 percent per annum, demand for HVCs will further go up. The driving force of urbanization is less so for commercial crops. This is again due to perishable nature of HVCs and hence their production is closer to urban demand centres. Thus the results showed that the farmers close to cities would stand to gain more from production of HVCs than those farther away.

Shumon *et al.* (2005) carried out a study in Xiangyang village, located in the southwest of Nanjing city. Xiangyang village standing in the hill area is a typical farming section. They studied the changes in cropping pattern occurred during the last two decades. The results showed that although the major crop is paddy, but during the last twenty years from 1980 to 2004, the trend is that the proportion of paddy area has declined and vegetable area has increased.



Materials and Methods

Chapter III

MATERIALS AND METHODS

Science is a body of knowledge which consists of systematic observations, classification and interpretation of data. So a careful and accurate observation of facts and their classification is important to arrive at the conclusions which are closely related to real world situation. So the sound methodological procedure needs to be followed to conduct any study. This chapter provides detailed description of the procedure adopted for conducting the study in terms of selection of study area, sampling design, data collection and analytical framework.

3.1 The Study Area & Sampling Design

The present study was carried out in Lulehr village, district Kangra of Himachal Pradesh. Kangra District was purposively selected for carrying out the study. The triangular enclosure among the three towns of Kangra, Dharamshala and Nagrota Bagwan has witnessed huge diversions of land to non-agricultural uses. Therefore a list of villages falling within 5 Km radius of Kangra town was prepared. Using simple random sampling a village (Lulehr) was selected from the list. The village comprises of 185 households, all households form the sample of the study.

3.1.1 Categorization of Farmers

The total household number in the village was 185, out of which 27 families (14.59 per cent) were those who didn't have any land in that village; they were put in 'others' category. The remaining 158 (85.41 per cent) were arranged

in ascending order on the basis of their total land holdings. With the help of cumulative frequency method (Singh, Ravindra and Mangat, N.S. 1996) farmers were classified into three categories viz; small, medium and large categories (Table 3.1)

Table 3.1 Categorization of Farmers According to Size of Holding

Category	Size of holding (ha)	Per cent of farmers
Small	< 0.4	46.83
Medium	0.4-0.7	32.92
Large	>0.7	20.25

3.2 Data Collection

In order to accomplish the objectives of the study both primary and secondary data were collected. The primary data for the present study were collected through well designed, pre tested schedules using survey method. The following detailed information in respect of primary data was collected.

(i) Demographic information such as age, caste, family size, education, occupation, etc.

(ii) Information regarding land inventory, for two time period (1996 &2006) such as total land owned, total area cultivated, unculturable waste/ barren/wasteland, fallow land and fragmentation of land holding.

(iii) Information regarding cropping pattern for kharif and rabi season(2006-07).

(iv) Detailed information on sale of land.

Secondary data on land use pattern were collected from revenue records of the village, Statistical Outline (Various issues), Census of India, Various published & unpublished reports.

3.3 Analytical Framework

To meet out the objectives of the study tabular techniques and percentages were employed for analysis and interpretation of data. The primary data collected through survey method were tabulated to work out the family size, sex ratio, literacy rate, occupational pattern, caste distribution and other demographic features, cropping pattern, livestock and information regarding the land transactions. The sex ratio is defined as the number of females per 1000 males and is computed as

$$\text{Sex Ratio (Per 1000 males)} = \frac{\text{Total population of females}}{\text{Total population of males}} \times 1000$$

Literacy is defined as the ability to read and write with understanding in any language. Literacy rate is the ratio of the number of the literates in the total population excluding non-school going children aged below 5 years and is worked out as

$$\text{Literacy Rate (Per cent)} = \frac{\text{Total number of literate persons}}{\text{Total population excluding non-school going children}} \times 100$$

3.4 Land Use Classification

Land use classification is the systematic arrangements of various types of available land on the basis of certain defined characteristics, mainly to identify and understand their fundamental utility. The nine fold classification is given below-

I. Forests

All actually forested area on lands classed or administered as forests, covered by any legal enactment dealing with forests, whether State owned or private and whether wooded or maintained as potential forest land, comes under the category of "forests". If any portion of private forest land is not actually wooded but is put to some agricultural uses then that portion of land shall be included under the appropriate heading of cultivated or uncultivated land. However, this will not apply to State owned forests.

II. Barren and Unculturable Land

This category of land use classification includes all barren and unculturable lands like mountains, deserts etc., which cannot be brought under cultivation except at an exhorbitant cost. These lands can lie in isolated blocks or may lie within cultivable holding.

III. Land Put to Non-Agricultural Uses

As the name suggests, this category includes all lands which are put to uses other than agricultural viz., lands occupied by buildings, roads, railways, rivers and canals.

IV. Permanent Pastures and Other Grazing Lands

This includes all the grazing lands whether they are permanent pastures or not. The village common grazing lands are also included under this head.

V. Land under Miscellaneous Tree Crops and Groves not included in Net Area Sown

This includes all such lands which are not included in net area sown but it is put to some agricultural uses. It includes the land under miscellaneous trees etc. i.e. lands under casurina trees, thatching grasses, bamboo bushes and other groves for fodder/fuel purposes.

VI. Net Area Sown

This represents the net area sown under crops counting area sown more than once only once in the same year.

VII. Culturable Waste Lands

This comprises of all lands available for cultivation whether taken up for cultivation or abandoned after a few years for one reason or the other. Such lands may be either fallow or covered with shrubs or jungles, which are not put to any use. They may be assessed or unassessed and may lie in isolated blocks or within cultivate holdings. Land once cultivated but not cultivated for five years or more in succession shall be included under this head.

VIII. Other Fallow Lands

This includes all lands which are taken up for cultivation but are temporarily out of cultivation for a period of not less than one year or not more than five years. The reason for keeping such land fallow may be one of the following-

(i) Poverty

(ii) Inadequate supply of water

(iii) Unfavorable weather conditions

(iv) Silting of Canals and rivers

(v) Unremmunerative nature of farming

IX. Current Fallows

This represents cropped areas which are kept fallow during the current year. For example, if any seedling area is not cropped again in the same year, it may be treated as current fallows.

Results

Chapter IV

RESULTS

The results of the study obtained from the analysis of factual data pertaining to different aspects of land use pattern in Lulehr village of Kangra District (H.P) have been presented systematically in this chapter under the following broad sections.

4.1 Socio- Economic Profile of the District and Study Village

4.2 Cropping Pattern and Livestock Inventory

4.3 Changes in Land Use

4.4 Factors Affecting Land Use and Land Transactions

4.1 Socio-Economic Profile of the District and Study Village

This section provides insights into various demographic features, agricultural aspects, infrastructural network and other related features of the study village and the district which are important from the point of view of the issues being investigated and are crucial for formulating any developmental strategy for the region.

4.1.1 Administrative Set Up of the District

Nestled in the foothills of the North Western Himalayas, Kangra district lies between 31° 21' to 32 °59' N latitude and 75° 47' 55" to 77° 45' E longitude. The district accounts for 10.31 per cent of the total geographical area of the state and is inhabited by around 22.03 per cent of the population of the state. The altitude varies from 550 m above mean sea level (amsl) to 5500 amsl. The

district is bounded by Chamba in the north, Lahaul & Spiti in the Northeast, Kullu in the East, Mandi in the Southeast and Hamirpur and Una in the South. The District shares a border with the states of Punjab on the Southwest and Jammu & Kashmir on the Northwest. The Beas is the largest river of the district. Administratively, the district has divided into 8 subdivisions (Table 4.1). There are 14 tehsils and 5 subtehsils. For the purpose of development, the district has been divided into 14 development blocks of which two blocks, namely Fatehpur and Sulah have been carved out recently (2001). There are 760 gram panchayats. Besides, the district has 8 towns and 4 municipal committees. The district has 3,868 villages of which 249 are uninhabited.

Table 4.1 Administrative Set Up of District Kangra, 2006

Particulars	Number
Number of Subdivisions	8
Number of Tehsils	14
Number of Sub Tehsils	5
Number of Development Blocks	14
Number of Inhabited Villages	3,619
Uninhabited	249
Total Villages	3,868
Number of Gram Panchayats	760
Number of Assembly constituencies	16
Number of Towns	8
Number of Nagar Panchayats	3
Number of Municipal Committees	4
Number of Cantonments	1

Source: Statistical Outline of Himachal Pradesh, 2003-04

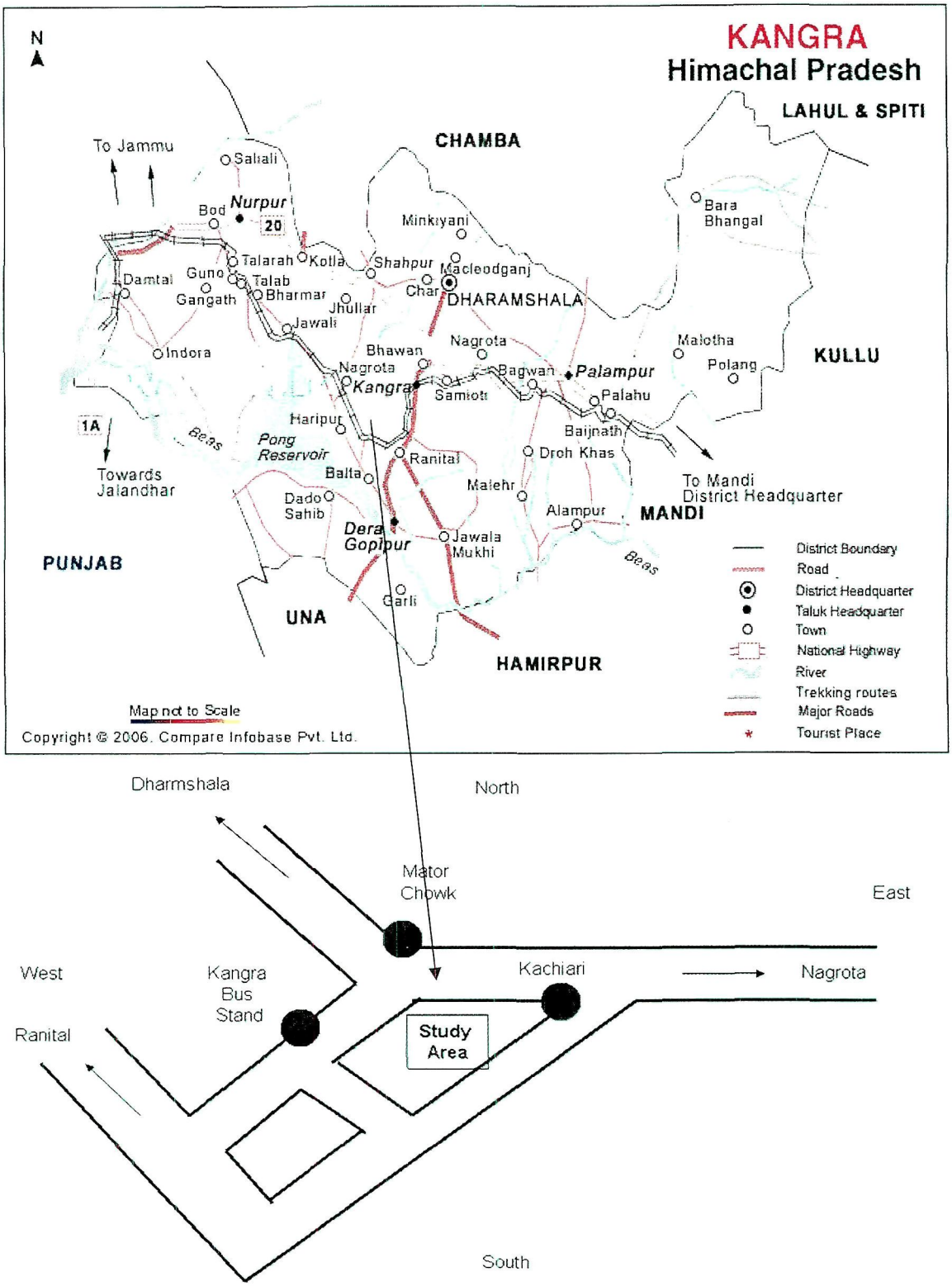


Plate I : Map of Kangra District, Himachal Pradesh

4.1.2 Demographic Profile of the District and Urbanization

The demographic profile of Kangra district is presented in Table 4.2. The total geographical area of Kangra district is 5,739 sq. km, which is 10.31 per cent of total area of the state. The total population of the district is 13.39 lakh, which accounts for 22.03 per cent of the total population of the state. About 94.6 per cent of the population of Kangra district lives in 3,619 villages. The district has high population density of 233 persons per sq km as compared to state's

Table 4.2 Demographic Profile of District Kangra

Sr. No	Particulars	Number
1	Geographical area (sq km)	5739 (10.31)*
2	Total population (Numbers)	1339030 (22.03)*
	▪ Males	661254
	▪ Females	677776
3	Rural population	1266745
4	Urban population	72285
5	SC population	279540
6	ST population	1597
7	Population density (Persons / Sq km)	233
8	Sex ratio (Females / 1000 Males)	1025
9	Literacy (overall) (per cent)	80.1
	▪ Male	87.5
	▪ Female	73.0
10	Average population per village (Number)	350

Source: Statistical Outline of Himachal Pradesh, 2003-04

*- represents the percentage of corresponding state level figures.

population density of 109 persons. The district is also doing well in case of literacy status. The overall literacy rate is 80.1 per cent, which is higher than the state literacy rate of 76.1 per cent. Average population per village is 350, which means the average household number in a village within the district is of 65-75 households whereas the study area (village) is almost three times larger than the average village in the district.

4.1.2.1 Trends of Population Growth in District Kangra

Table 4.3 presents the trend of population in the Kangra District. The population has increased from 8 lakh to 13.39 lakh from 1971 to 2001. This has caused the population density to increase during the same period putting a lot of pressure on the land resources which are strictly limited in supply. The urban population has shown an increase of 1 per cent increase from 4.33 to 5.40, between 1971 and 2001.

Table 4.3 Population of District Kangra, 1971-2001

Year	Population m(Number)	Sex ratio (Female/1000 males)	Population density (Persons/sq km)	Urban population (%)
1971	8,00,863	1008	139	4.33
1981	9,90,758	1016	173	4.94
1991	11,74,072	1024	205	5.05
2001	13,39,030	1025	233	5.40

Source: Statistical Outline of Himachal Pradesh, Govt. of HP, Various Issues

4.1.2.2 Decadal Growth Rate of Population in Kangra & Himachal Pradesh

The decadal growth rate of population in Kangra District and Himachal Pradesh is presented in Table 4.4. It showed that for the last decade (1991-2001) the urban population grew by 21.80 per cent and rural population by 13.64 per cent in case of Kangra District. On the other hand, the rural as well as urban population exhibited higher growth rates i.e.32.59 per cent and 16.11 per cent respectively at the state level.

Table 4.4 Decadal Growth Rate of Population in Kangra & Himachal Pradesh 1971-2001 (%)

Decade	Kangra			Himachal Pradesh		
	Rural	Urban	Total	Rural	Urban	Total
1971-1981	22.92	41.27	23.71	22.88	34.76	23.71
1981-1991	18.36	21.27	18.50	19.39	37.80	20.79
1991-2001	13.64	21.80	14.05	16.11	32.59	17.54

Source: Social Statistics of Himachal Pradesh, 2002; DES, Govt. of HP

4.1.2.3 Urbanization in Himachal Pradesh

Himachal Pradesh is predominantly a hilly region. However with the development of network of various infrastructures the urban areas in the state are growing rapidly. The population of HP in 2001 was 60.77 lakh out of which 90.21 per cent were living in villages and remaining 9.79 were living in urban areas. (Table 4.5)

During the decade 1991- 2000, the urban population has grown at the rate of 2.86 per cent per annum which was higher than the growth rate of rural population at 1.50 per cent. Under these circumstances the upward trend in urbanization is likely to continue in future which will result into more pressure on the limited land resources.

Table 4.5 Trends of Urbanization in HP.

Census Year	Total Population (in lakhs)	Urban population (in lakhs)	Rural population (in lakhs)	Urban population (%)	Compound Annual Growth Rate (%)		No. of towns/ urban Agglomerations
					Rural	Urban	
1981	42.81	3.26	39.55	7.61	2.08	3.02	47
1991	51.71	4.49	47.22	8.69	1.79	3.25	58
2001	60.77	5.95	54.82	9.79	1.50	2.86	57
2011*	71.42	7.89	63.64	11.05	1.50	2.86	-
2021*	83.93	10.45	73.88	12.45	1.50	2.86	-

*Projections based on CAGR of 1991-2001 Decade

Source: HP Development Report, 2005

4.1.3 Location of the Study Village

Lulehr village is located on the eastern side of Kangra town. It is 18 km from the District Headquarter, Dharamshala and 4 km from Kangra town. It is located on the eastern side of Kangra town. It is 4 km away from Kangra town. The village area is well connected by road, air and rail. The nearest airport is at Gagal, which is 10 km from the village. The nearest railway station is Kangra Mandir, which is 2.5 km from the village.

4.1.4 Infrastructural Network in the Village

Infrastructure plays a very important role in the economic upliftment of the people. It has strong backward and forward linkages and thus acts a major driver of growth across the economy. The proper network of infrastructural facilities (such as roads, education and health institution, telecom facilities etc.) is pertinent to the overall development. Table 4.6 shows all the infrastructural facilities available in the village. It has been seen that village has almost all the

basic amenities that are required for the development. All the houses in the village have electricity and have access to safe drinking water. The fair price shop and cooperative society were also present. Due to urban fringe character of the village, it has all the facilities or has access to other facilities that are just 2-4 km far away from the urban town. The local market is just 2km away from the village. There was a government school and one private school.

Table 4.6: Infrastructural Facilities in the Village

Sr. No	Particulars	Distance(km)
1.	Road (metaled)	0
2.	Post office	2
3.	Bank	4
4.	Agricultural credit cooperative society	2
5.	Primary School	0
6.	Middle School	0
7.	Senior Secondary School	1.5
8.	Local market	2
9.	Wheat flour Mill/ Gharat	0
10.	Primary Health centre	2
11.	Veterinary Hospital	2
12.	Other Agro industries	10
13.	Revenue Office	1
14.	Fair price shop	0

Source: Field Survey, 2006-07

4.1.5 Lulehr Village at a Glance

According to the revenue records the total geographical area of the village was 102 ha of which 66.67 per cent (i.e. 68 ha) was under cultivation. The overall literacy in the village was 84.63 per cent which was higher than the district's literacy rate (Table 4.7). The population density of the village was found to be very high at 1044 persons per square km as against the district figure of 233 persons. The village had a slightly adverse sex ratio of 951 females per 1000 males. This was in contrast to the scenario at district level where sex ratio was favorable at 1025.

Table 4.7: Lulehr Village at a Glance

Particulars	Lulehr
Total Geographical area (ha)	102
Total Population	1065
▪ Male	546
▪ Female	519
Population density	1044
Sex Ratio	951
Literacy rate (overall)	84.63
▪ Male	88.58
▪ Female	80.48
Area under Cultivation (ha)	68

4.1.6 Age-Wise Distribution

The family size and its composition play an important role in farming. Since farming is a labor-intensive avocation, so the age-wise distribution is important to determine the number and age composition of the family members available for farming and thus the well being of farm households. The results showed that the age-wise distribution of family members is presented in Table 4.8. The table revealed that about 31 per cent of the total population was below 15 years of age group. The proportion of aged i.e. 60 years and above, population constituted 4.78 per cent of the total population. The working population in the age group of 15-60 years of age constituted about 63.0 per cent, 61.71 per cent, 65.8 per cent and 67.06 per cent on others, small, medium and large farm categories, respectively. The sex ratio in the village was 951, whereas across different categories others show the highest sex ratio i.e. 973. The average size of family in the study area was found to be 5.74 (Table 4.9). The average size of family comprised of 3-4 adult members and 2-3 children. The average size of family was more on large farm category.

4.1.7 Caste Structure

The caste structure of households showed the predominance (55.67 per cent) of Other Backward Classes (OBC's) in the village (Table 4.10). In case of medium and large farmers, share of OBCs was even higher at 69.24 per cent and 65.63 per cent respectively. The SC/ST families belonged to small farm and other categories only. In case of others, there was predominance of general category.

Table 4.8: Age-wise Distribution of Family Members on Different Categories of Farms (Per cent)

Age (yrs)	Small			Medium			Large			Others			Overall		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
0-5	13.30	13.72	13.50	12.10	11.34	11.72	11.81	12.30	12.05	12.17	13.90	13.02	12.45	12.72	12.60
5-15	18.62	18.29	18.45	17.84	18.66	18.24	18.11	17.22	17.68	20.27	18.05	19.18	18.50	18.11	18.30
15-40	27.12	26.85	27.00	27.39	26.66	27.03	29.92	33.60	31.72	31.08	31.95	31.50	28.40	29.09	28.74
40-60	34.58	34.85	34.71	37.58	40.00	38.77	36.22	34.43	35.34	33.78	29.16	31.50	35.71	35.45	35.58
60 and above	6.38	6.29	6.34	5.09	3.34	4.24	3.94	2.45	3.21	2.70	6.94	4.80	4.94	4.63	4.78
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Sex ratio		931			955			961			973			951	

Source: Field Survey, 2006-07

Table 4.9: Average Family Size of Different Categories of Farms

(Persons / farm)

Particulars	Small	Medium	Large	Others	Overall
Male					
Adult	1.73	2.11	2.78	1.85	2.03
Children	2.22	0.90	1.18	0.90	0.91
Subtotal	3.95	3.01	3.96	2.75	2.94
Female					
Adult	1.60	2.01	2.68	1.81	1.94
Children	0.75	0.86	1.12	0.85	0.86
Subtotal	2.35	2.87	3.80	2.66	2.80
Overall					
Adult	3.33	4.13	5.46	3.66	3.97
Children	1.56	1.76	2.31	1.74	1.77
Total	**4.89**	**5.89**	**7.77**	**5.40**	**5.74**

Source: Field Survey, 2006-07

Table 4.10: Caste-Wise Distribution of Households in the Village (Per cent)

Caste	Small	Medium	Large	Others	Overall
General	35.13	30.76	34.37	66.67	38.38
OBC	52.70	69.24	65.63	25.92	55.67
SC/ST	12.17	-	-	7.41	5.95
Total	100.00	100.00	100.00	100.00	100.00

Source: Field Survey, 2006-07

4.1.8 Distribution of Landholdings among Different Social Groups

Table 4.11 showed that most of the area was under large farmers (about 43 per cent of the total). SC/ST belongs to small farm category only. In general category most of them were small farmers, whereas in case of OBC, about 80 per cent comes under small and medium category.

Table 4.11: Distribution of Landholdings among Different Social Groups

(Per cent)

Category	General		OBC		SC/ST		Overall	
	Farmer No.	Area	Farmer No.	Area	Farmer No.	Area	Farmer No.	Area
Small	49.06	20.20	40.62	14.57	100.00	100.00	46.83	19.48
Medium	30.18	37.24	37.5	39.76	-	-	32.92	37.5
Large	20.76	42.56	21.88	45.67	-	-	20.25	43.02
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Field Survey, 2006-07

4.1.9 Literacy Status

Literacy level plays a very important role in the scientific management of farms. The literate farmer is more aware of new or upcoming technologies, appropriate farm practices and efficient marketing of farm produce. It was observed from the Table 4.12 that the overall literacy rate in the study area was around 84.63 per cent. There was not much disparity between male and female education. The overall male literacy rate was 88.58 per cent whereas overall female literacy rate was 80.48 per cent.

Table 4.12: Sex-wise Literacy Status of Family Members on Different Categories of Farms (Per cent)

Particulars	Small			Medium			Large			Others			Overall		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Non school going	5.32	6.85	6.06	5.09	4.00	4.56	5.52	4.92	5.22	5.41	4.16	4.80	5.32	5.20	5.25
Illiterate	11.70	20.00	15.70	10.19	16.67	13.35	11.02	19.67	15.27	9.45	16.67	13.01	10.80	18.50	14.55
Primary	15.95	10.30	13.23	14.01	13.34	13.68	7.87	9.83	8.84	6.75	8.34	7.53	12.27	10.80	11.54
Middle	23.93	29.71	26.73	24.20	20.66	22.48	17.32	14.75	16.06	16.22	15.27	15.76	21.42	21.57	21.50
Matric	29.80	24.00	27.00	22.30	24.00	23.12	30.70	32.80	31.72	16.22	19.45	17.80	26.00	25.44	25.72
10+2	11.70	9.14	10.46	17.19	20.00	18.56	18.90	13.93	16.47	21.62	16.67	19.18	16.30	14.45	15.40
Graduate	1.60	-	0.82	5.75	1.33	3.60	8.67	4.10	6.42	18.92	12.5	15.76	6.78	3.08	5.00
Post Graduate	-	-	-	1.27	-	0.65	-	-	-	5.41	6.94	6.16	1.10	0.96	1.04
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Literacy Rate (%)	87.64	78.52	83.28	89.26	82.63	86.00	88.33	79.31	83.89	90.00	82.60	86.33	88.58	80.48	84.63

Source: Field Survey, 2006-07

Among all the categories, others recorded the highest literacy rate of about 86.33 per cent. While around a fourth of the population in the village was matriculate, only 1 per cent was post graduates. Thus this table shows that the overall educational status in the village was above average. There was not much discrepancy among different categories of farms.

4.1.10 Occupational Pattern

The occupational pattern of working persons is presented in Table 4.13. The table revealed that around 70.65 per cent of the total working persons were engaged in agriculture, 16.30 per cent were doing their private work and 13.05 per cent were in service in the study area. In case of large farmers, 85 per cent of the total working population was doing agriculture. It has been seen that females were mostly engaged in agriculture and very less percentage, about 3 per cent were found in service and private works.

4.1.11 Fragmentation of Land Holdings

Since fragmentation of land holdings has implications for land use pattern, it was deemed fit to examine this issue in the study village. The Table 4.14 revealed that on an average there were 5 fragments of a farmer. The large farmers have more number of fragments, whereas small farmers have 50 per cent less number respectively. The average size found to be 0.42 hectares and average distance from fragment to fragment was 173.65 meters. The minimum distance of fragment from house was found to be 165.25 meters and maximum distance was found to be 685.50 meters.

Table 4.13: Occupational Pattern of Working Persons on Different Categories of Farms (Per cent)

Occupation	Small			Medium			Large			Others			Overall		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Agriculture	41.52	99.11	69.70	53.00	100.00	77.07	70.12	100.00	85.33	-	-	-	46.57	96.76	70.65
Private (Shops)	39.83	0.89	20.78	41.00	-	20.00	10.38	-	5.03	15.00	22.22	16.32	30.45	0.97	16.30
Service	18.65	-	9.52	6.00	-	2.93	19.50	-	9.44	85.00	77.78	83.68	22.98	2.27	13.05
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Field Survey, 2006-07

Table 4.14: Average Fragmentation of Land Holding on Different Categories of Farms

Particulars	Small	Medium	Large	Overall
Number of Fragments	3	5	6	5
Size of Fragments (ha)	0.24	0.52	0.74	0.42
Distance from house				
Minimum (m)	145.61	179.50	190.0	165.25
Maximum (m)	550.27	715.69	850.75	685.50
Distance from fragment to fragment (m)	120.21	150.75	210.27	173.65

Source: Field Survey, 2006-07

4.2 Cropping Pattern & Livestock Inventory

The cropping pattern shows the spatial distribution of different crops with respect to area and determines the type of agriculture of a region. An enquiry into the cropping pattern of the village revealed that paddy in kharif season and wheat in rabi season were the most dominant crops grown by the farmers of different categories. On overall basis paddy and wheat accounted for around 72 per cent and 91 per cent of total cropped area, respectively (Table 4.15). Besides paddy and wheat, maize had also substantial share, about 22 per cent of total cropped area in the village. Only medium and large farmers grew seasonal vegetables. The overall area under seasonal vegetables was about 2 per cent both in Kharif and rabi seasons. While tomato, brinjal and lady finger were the main vegetable crops grown in the village in kharif season; onions and beans in the rabi season.

Table 4.15: Cropping Pattern on Different Categories of Farms (Per cent)

Crops	Small	Medium	Large	Overall
Kharif				
Maize	22.64	27.45	17.09	22.05
Paddy	75.47	66.67	75.21	72.05
Cheri/Bajra	1.89	3.92	4.28	3.68
Tomato	-	-	1.70	0.74
Brinjal	-	0.98	0.86	0.74
Lady's Finger	-	0.98	0.86	0.74
Subtotal	100.00	100.00	100.00	100.00
Rabi				
Wheat	96.22	92.00	88.70	91.41
Berseem	3.78	6.00	8.70	6.72
Beans	-	2.00	0.87	1.12
Onion	-	-	1.73	0.75
Subtotal	100.00	100.00	100.00	100.00

Source: Field Survey, 2006-07

4.2.1 Livestock Inventory

The livestock inventory is presented in Table 4.16. The table revealed that overall buffalo comprised the highest percentage i.e. 27.78 per cent. Crossbred cows were also present but constitute a very little amount only 2.63 per cent. Only medium and large farmers kept them. In case of small farmers most of them have local cow, which constitute 31.31 per cent of their total livestock. Medium farmers have buffaloes in large number, which comprised of

29.36 per cent. Bullocks' population was also prevalent in the study area and most of the large farmers have kept them, comprised of 35.46 per cent of the total.

Table 4.16: Livestock Inventory on Different Categories of Farms (Per cent)

Particulars	Others	Small	Medium	Large	Overall
Local Cow					
In Milk	71.43	28.28	9.52	7.27	15.50
Dry	-	3.03	3.96	0.90	2.64
Subtotal	71.43	31.31	13.48	8.17	18.14
CB Cow					
In Milk	-	-	3.96	3.64	2.63
Dry	-	-	-	-	-
Subtotal	-	-	3.96	3.64	2.63
Buffalo					
In Milk	28.57	25.25	25.40	24.55	25.14
Dry	-	-	3.96	3.64	2.64
Subtotal	28.57	25.25	29.36	28.19	27.78
Young Stock	-	5.06	9.52	13.64	9.35
Bullock	-	10.10	28.60	35.46	24.85
Sheep/Goat	-	28.28	15.08	10.90	17.25
Total	100.00	100.00	100.00	100.00	100.00

Source: Field Survey, 2006-07

4.3 Changes in Land Use

In this section trends in land use pattern have been discussed. Land use classification is the systematic arrangement of land on the basis of certain well-defined characteristics to identify and understand its potential use. The land resources have been undergone perceptible changes both in terms of quantity and quality. During the past few years there was shifting out of land from one category to other. So this part will take care of all those aspects that how much swapping has taken place from one category to other. In order to know about these changes, this issue was examined at the state and district levels along with changes in land use in the study village. A description of these changes has been given in the following subsections.

4.3.1 Changes in Land Utilization Pattern in Himachal Pradesh

During the past few years, substantial land use changes have occurred in Himachal Pradesh. To know about the extent of these changes per cent change was calculated at two points of time, 1990-01& 2003-04. Table 4.17 revealed that forest area in the state declined by 6.66 per cent points; barren area has increased by 9.34 per cent points whereas area under non-agricultural uses has increased by 4.24 per cent points. In case of other unculturable land there is less than1.0 per cent change. And net area sown has been decreased by 5.4 per cent points.

4.3.2 Changes in Land Use Pattern of Kangra District

To know about the land use changes that occurred during the last decade or so in the Kangra district, per cent change was calculated at two points of time, 1990-91 and 2003-04 (Table 4.18). The table revealed that forest area has been almost same, barren area has been decreased by 3.4 per cent points.

Table 4.17 Changes in Land Use Pattern in Himachal Pradesh (1991 & 2004)

(Per cent)

Sr. No	Particulars	1990-91	2003-04	Change (Per cent points)
1	Total Geographical Area (Sq km) (By village papers)	3367.6 (100.00)	4543.1 (100.00)	
2	Not available for cultivation			
	Forest	30.85	24.19	-6.66
	Barren	5.46	14.80	9.34
	Non-agricultural uses	5.74	9.98	4.24
3	Other unculturable land, excluding current fallows			
	Culturable waste	3.72	2.82	-0.9
	Permanent pasture	33.72	33.34	-0.38
	Miscellaneous tree crops	1.43	1.37	-0.06
4	Fallow land			
	Current fallow	1.32	1.23	-0.09
	Other fallow	0.46	0.37	-0.09
5	Net area sown	17.30	11.90	-5.4

Source: Statistical Outline of Himachal Pradesh, Various Issues

The culturable waste has decreased by 4.15 per cent points and area under permanent pastures has increased by 7.07 per cent points. Rest of the categories shows less then 1 per cent change.

Table 4.18 Changes in Land Use Pattern of Kangra District (1991 & 2004)

(Per cent)

Sr. No	Particulars	1990-91	2003-04	Change (Per cent points)
1	Total Geographical area (Sq km) (By village papers)	577.8 (100.00)	578 (100.00)	
2	Not available for cultivation			
	Forest	40.07	40.06	-0.01
	Barren	6.37	2.97	-3.4
	Non-agricultural uses	13.59	13.40	-0.19
3	Other unculturable land, excluding current fallows			
	Culturable waste	8.80	4.65	-4.15
	Permanent pasture	8.13	15.20	7.07
	Miscellaneous tree crops	0.8	1.60	0.8
4	Fallow land			
	Current fallow	1.38	1.80	0.42
	Other fallow	0.07	0.14	0.07
5	Net area sown	20.79	20.18	-0.61

Source: Statistical Outline of Himachal Pradesh, Various Issues

4.3.3 Changes in Land Use Pattern in the Village

The total geographical area of the village, as per village paper was 102 ha. To analyze the change, the land use data was taken at two point of time i.e. 1996 and 2006 and the results are given in table 4.19. The table revealed that there was decrease in cultivated area by 1.35 per cent points. The decrease in culturable waste and fallow land was also seen. The area under grassland/

pastures and miscellaneous tree crops showed no change, whereas area under non-agricultural uses registered a 2.5 per cent rise. So this rise shows that there is a diversion of land from agricultural to non-agricultural purposes.

Table 4.19: Changes in Land Use Pattern in the Village, 1996 & 2006 (per cent)

Sr. No	Particulars	1996	2006	Change (Per cent points)
1	Total Geographical Area (ha)	102 (100.00)	102 (100.00)	-
2	Total Cultivable Area	74.00	71.5	-2.5
	Cultivated area	68.40	67.05	-1.35
	Fallows	0.90	0.83	-0.07
	Culturable waste	4.70	3.62	-1.08
3	Area not available for cultivation	14.00	16.5	2.5
	Forest	-	-	-
	Area under non-agricultural uses	14.00	16.5	2.5
4	Area under use with in village economy	12.00	12.00	-
	Miscellaneous tree crops	8.03	8.03	-
	Grassland/ pasture	3.97	3.97	-

Source: Revenue Office, Jogipur

4.4 Factors Affecting Land Use and Land Transactions

As explained in the preceding section, there have been some diversions of land from agricultural to non-agricultural uses. At the macro-level, there are numerous factors like population pressure, level of urbanization, economic growth, industrialization etc. that are responsible for land use change.

In the study area (village), population is one of the main factors responsible for changes in land use. In 1991 the population of the village was 865 whereas in 2001 it was abut 960. So the per capita availability of land has decreased from 0.11 to 0.10. The increasing population size led to various uses; there is more demand for houses and other infrastructural requirements. There is pressure on agricultural land to accommodate more and more people, thus leading to construction on farmlands. Farmers were shifting out their land for constructions (houses, shops). Lulehr village is located on Kangra by-pass road and is just 4 km away from Kangra town. Being well connected to Kangra town the village has potential to attract many outsiders and make it their permanent place of residence. Thus to track these diversions an attempt was made to know about extent of construction and land sales which occurred in the village during the past one decade.

4.4.1 Land Sale

It was noticed in the study area that land was sold by different categories of farmers. Out of the total sale, small and medium farm categories had equal share, 31.25 per cent each whereas larger farmer had 37.5 per cent. The overall total area sold by different farm categories was 1.3 hectares and share of area sold by small, medium and large farmers was 0.26 ha, 0.36 ha and 0.68 ha (Table 4.20). Large farmers had more than 50 per cent share in the sold out land. Although the number of small and medium farmers were same, but in case of area, medium farmers had more contribution than the small farm category.

Table 4.20 Total Land Sold in the Village

Particulars	Value
Total land Sold (ha)	1.3
Share of Small Farmers (ha)	0.26
Share of Medium Farmers (ha)	0.36
Share of Large Farmers (ha)	0.68
Number of Farmers who sold out land	16

Source: Field Survey, 2006-07

4.4.1.1 Location of Sold Out Land

It was seen that land sales have occurred on three types of locations: (i) Main road head (ii) Link road and (iii) Others Locations (Table 4.21). The overall area sold at other locations by different farm categories was 0.3 ha, which accounted for 23.07 per cent of the total sale. Most of the sale occurred on the main road head, the total area sold was 0.6 ha and which accounted for 46.16 per cent and remaining 0.4 ha which accounts for 30.77 per cent was on the link road.

Table 4.21 Per cent Distribution of Different Categories of Households who Sold Land and Amount of Land Sold by Locations

Location	Small		Medium		Large		Overall	
	Framer No.	Area	Framer No.	Area	Framer No.	Area	Framer No.	Area
Main Road head location	20.00	15.39	60.00	55.56	50.00	52.95	43.75	46.16
Link road location	40.00	34.61	40.00	44.44	33.33	22.05	37.50	30.77
Others location	40.00	50.00	-	-	16.67	25.00	18.75	23.07
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Field Survey, 2006-07

Also after seeing the overall number of sales, maximum number of sales took place on the main road head and 43.75 per cent of the total farmers sold out 46.16 per cent of the total area. Among the small farms category, 50 per cent area was sold at other locations. In case of medium farmers 60 per cent of them sold land on the main road head, contributing 55.56 per cent of area. Among the large farmers 50 per cent of them sold land on the main road head and contributed 52.95 per cent of area. Thus the overall position showed that most of the land sales occurred on the main road head, and this was so because the farmers get better prices on these locations and also can be due to buyer's demand. On the main road head location, maximum area (about 93.33 per cent) was contributed by medium and large farmers, (Table 4.22). At link road 40 per cent area was contributed by medium farmers and in case of others locations about half of the area contributed by small farmers.

Table 4.22 Category wise Per cent Distribution of Households who Sold Land and the Amount of Land Sold at Different Locations

Location	Small		Medium		Large		Overall	
	Framer No.	Area	Framer No.	Area	Framer No.	Area	Framer No.	Area
Main Road head location	14.28	6.67	42.86	33.33	42.86	60.00	100.00	100.00
Link road Location	33.34	22.50	33.33	40.00	33.33	37.50	100.00	100.00
Others location	66.66	43.34	-	-	33.34	56.66	100.00	100.00
Total	31.25	20.00	31.25	27.69	37.50	52.31	100.00	100.00

Source: Field Survey, 2006-07

4.4.1.2 Type of Land Sold

The type of land sold in the village has been presented in Table 4.23. The table revealed that there were three different type of land that were sold; (i) Barren/wasteland, (ii) Cultivated land and (iii) Fallow. In the overall category 62.5 per cent farmers sold cultivated land, contributing 55.38 per cent of total area.

Among the small farms category, 80 per cent of them sold cultivated land and contributed around 62 per cent of the sold area. In the medium farms category, while 60 per cent of farmers sold cultivated land, the remaining 40 per cent sold out barren/ wasteland, contributing area around 61 per cent and 39 per cent, respectively. In case of large farmers 16.67 per cent sold fallow land, 33.33 per cent barren/wasteland and 50 per cent sold cultivated land and the respective areas were 8.83 per cent, 41.17 per cent and 50 per cent. Fallow land type was not observed in small and medium category. Only large farmers sold fallow land and this was so because due to their large holding size, perhaps they were unable to manage it.

Table 4.23 Per cent Distribution of Different Categories of Households who Sold Land and Amount of Land Sold by Land Types

Type of land	Small		Medium		Large		Overall	
	Farmer No.	Area	Farmer No.	Area	Farmer No.	Area	Farmer No.	Area
Barren/ Wasteland	20.00	38.46	40.00	38.88	33.33	41.17	31.25	40.00
Cultivated	80.00	61.54	60.00	61.12	50.00	50.00	62.5	55.38
Fallow	-	-	-	-	16.67	8.83	6.25	4.62
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Field Survey, 2006-07

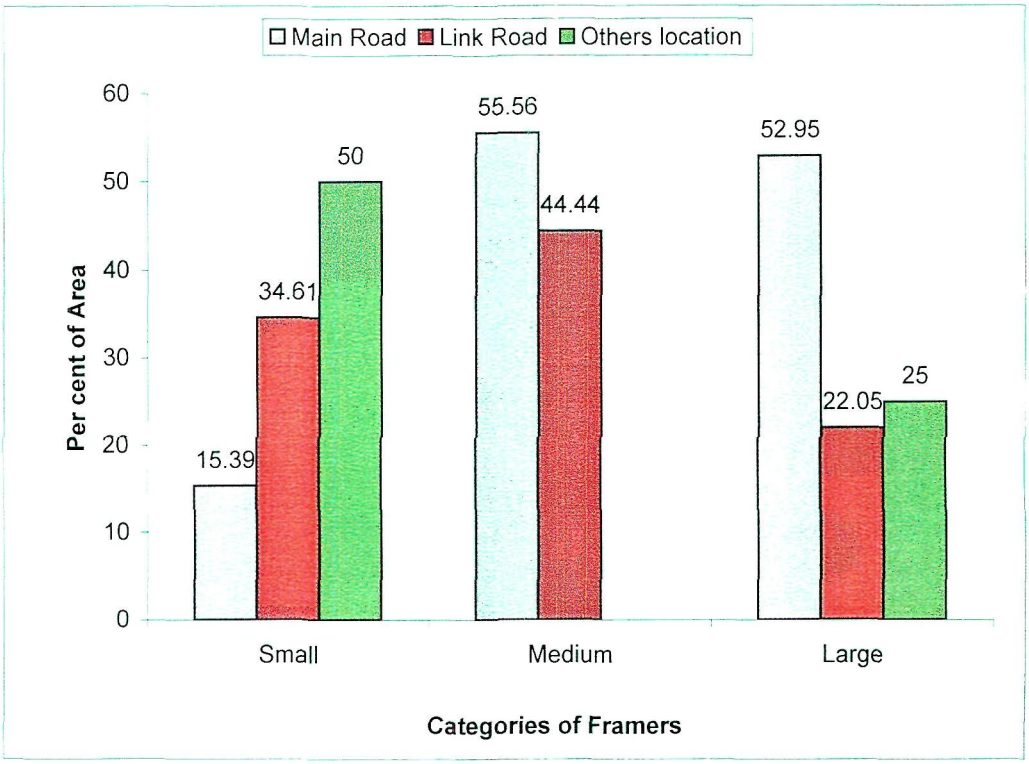


Fig. 4.1 Locational Aspect of Sold Land

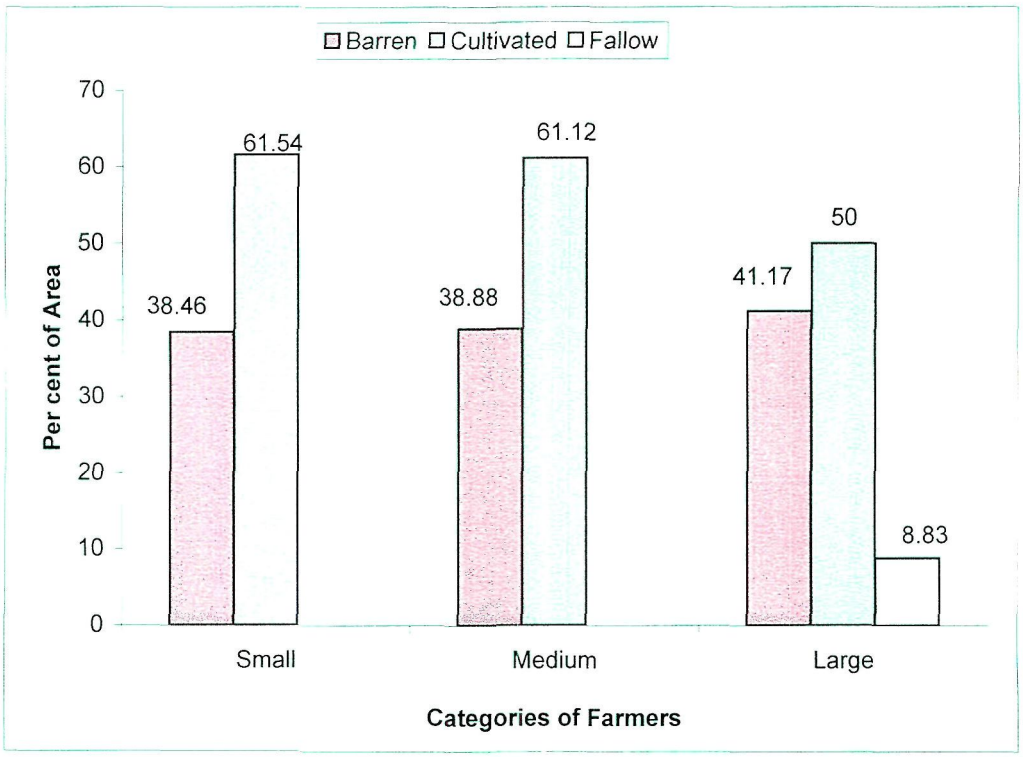


Fig. 4.2 Sale of Different Types of Land By Different Categories of Farmers

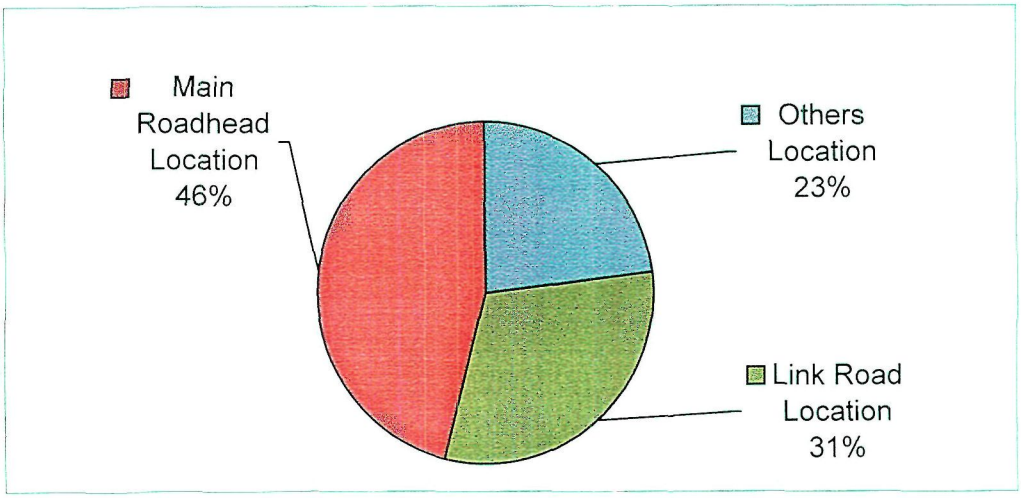


Fig. 4.3 Overall Sale of Land at Different Locations

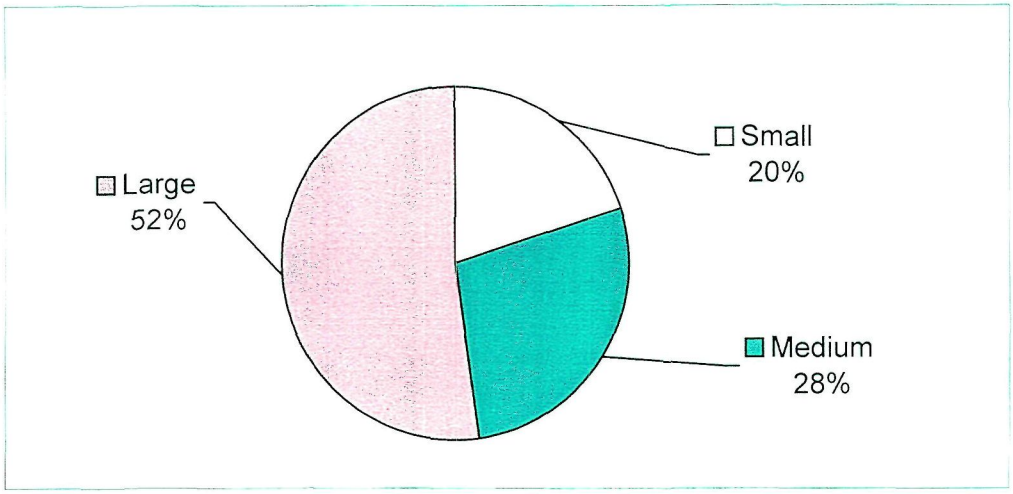


Fig. 4.4 Overall Sale by Different Categories of Farmers

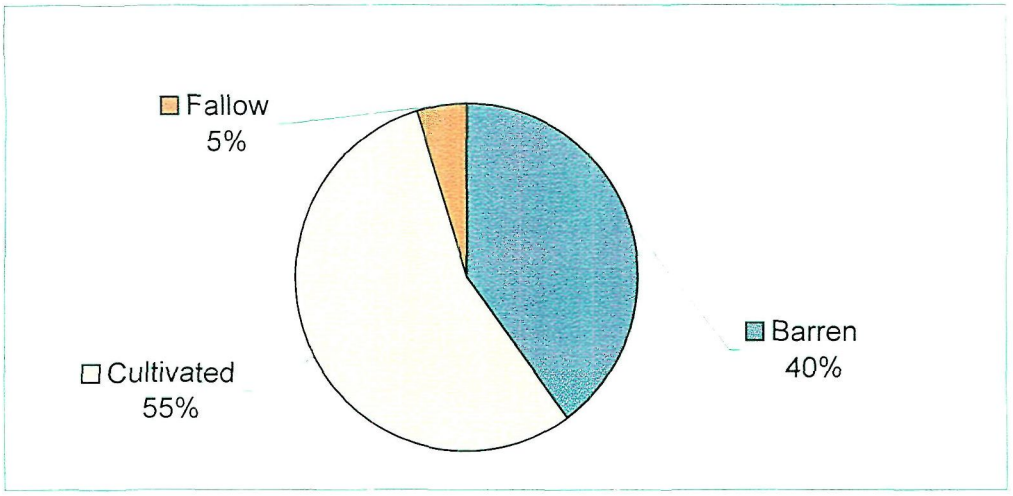


Fig. 4.5 Overall Sale on Different Land Types

Table 4.24 Category wise Per cent Distribution of Households who Sold Land and Amount of Land Sold at Different Land Types

Type of land	Small		Medium		Large		Overall	
	Farmer No.	Area	Farmer No.	Area	Farmer No.	Area	Farmer No.	Area
Barren/ Wasteland	20.00	19.23	40.00	26.92	40.00	53.85	100.00	100.00
Cultivated	40.00	22.22	30.00	30.55	30.00	47.23	100.00	100.00
Fallow	-	-	-	-	100.00	100.00	100.00	100.00
Total	31.25	20.00	31.25	27.69	37.5	52.31	100.00	100.00

Source: Field Survey, 2006-07

4.4.2 Shifting of Land for Construction

During the past few years, lot of construction took place in the village. Different categories of farmers shifted their land for house, shop and other such constructions. Table 4.25 shows the details of construction that took place in the study area. The table revealed that about 1.5 ha of land has been shifted for construction purposes.

4.4.2.1 Location of Construction

The construction in the village took place mainly at three types of locations; (i) Main road head (ii) Link road (iii) Others location. The overall figure tells that 38 per cent of total farmers shifted land for owned construction on the main road head contributing 40 per cent of total area. More than 50 per cent of medium and large farmers had done construction on the main road head, whereas 53 per cent of small farmers had done construction at the other locations (Table 4.25). This was so because medium and large farmers had shifted land for shops and other commercial uses on the main road head location.

Across different farm categories, out of the total farmers, small farmers had maximum share i.e. about 44 per cent, whereas maximum area about 53 per cent was shifted by medium farm category. Small farmers had largest share in the construction, at other locations and shifted 50 per cent of area, whereas medium farmers had largest share in link road and main road head construction shifting 70 per cent and 46.66 per cent of area, respectively.

Table 4.25 Per cent Distribution of Different Categories of Households who had done Construction and Amount of Construction by Locations

Location	Small		Medium		Large		Overall	
	Farmer No.	Area	Farmer No.	Area	Farmer No.	Area	Farmer No.	Area
Main Road head location	13.34	20.00	50.00	35.00	66.16	65.00	38.24	40.00
Link road Location	33.33	13.34	20.00	43.75	22.22	27.5	26.47	33.33
Other locations	53.33	66.66	30.00	21.25	11.12	7.50	35.29	26.67
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Field Survey, 2006-07

Table 4.26 Category wise Per cent Distribution of Households who done Construction and Amount of Construction done at Different Locations

Location	Small		Medium		Large		Overall	
	Farmer No.	Area	Farmer No.	Area	Farmer No.	Area	Farmer No.	Area
Main Road head location	15.38	10.00	38.46	46.66	46.16	43.34	100.00	100.00
Link road Location	55.56	8.00	22.22	70.00	22.22	20.00	100.00	100.00
Other location	66.67	50.00	25.00	42.5	8.33	7.50	100.00	100.00
Total	44.11	20.00	29.41	53.34	26.48	26.66	100.00	100.00

Source: Field Survey, 2006-07

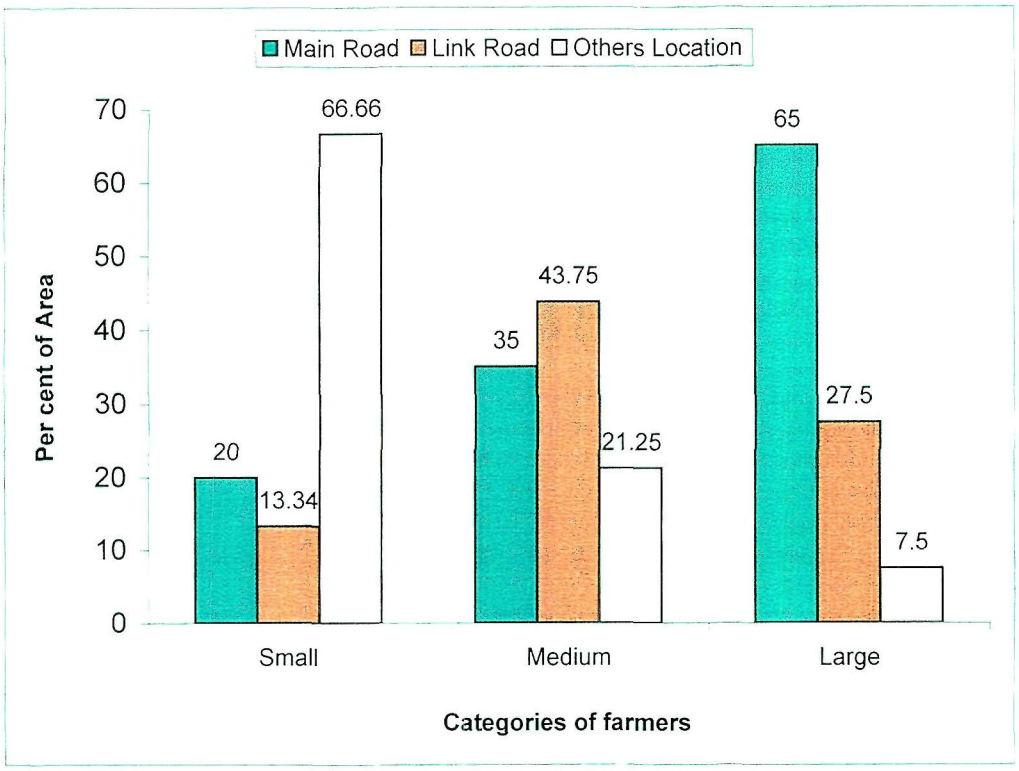


Fig. 4.6 Locational Aspect of Construction

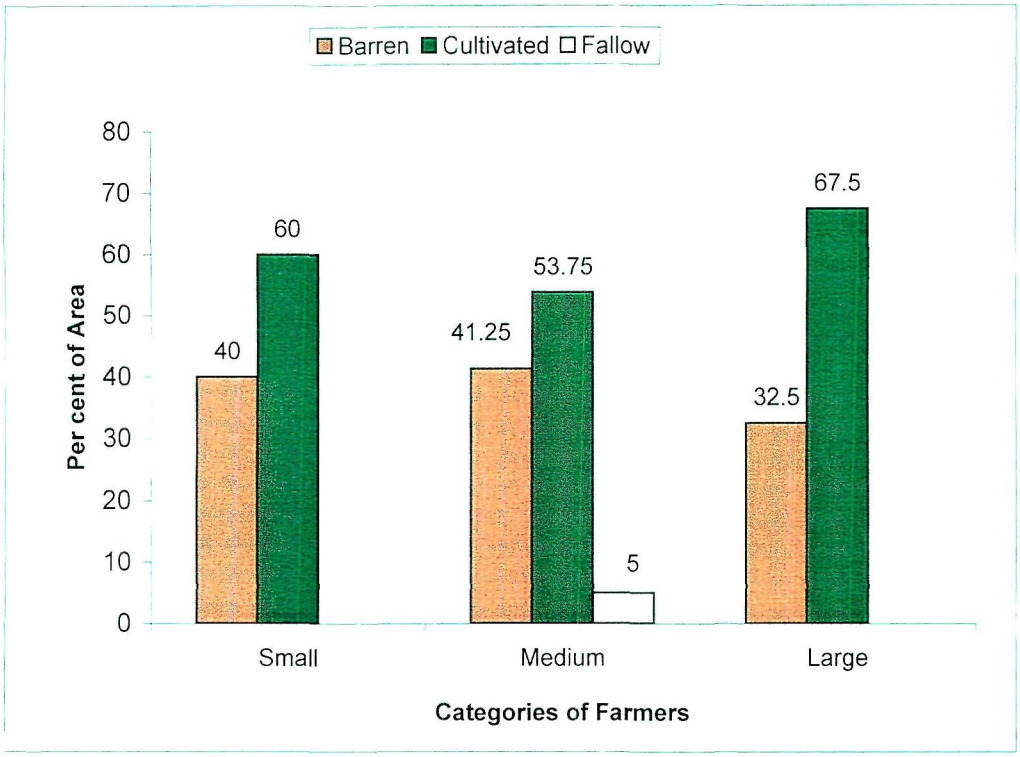


Fig. 4.7 Construction on Different Types of Land By Different Categories of Farmers

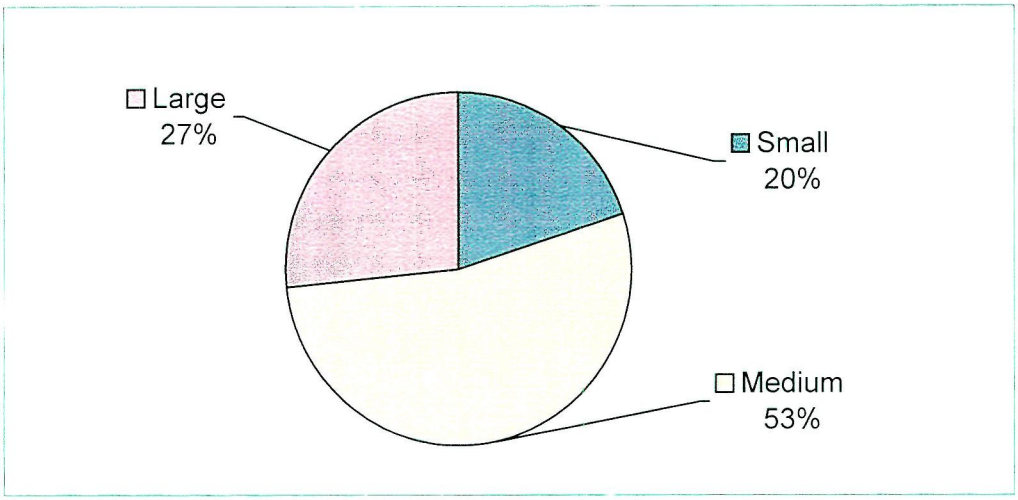


Fig. 4.8 Distribution of Land shifted towards Construction by Different Categories of Farmers

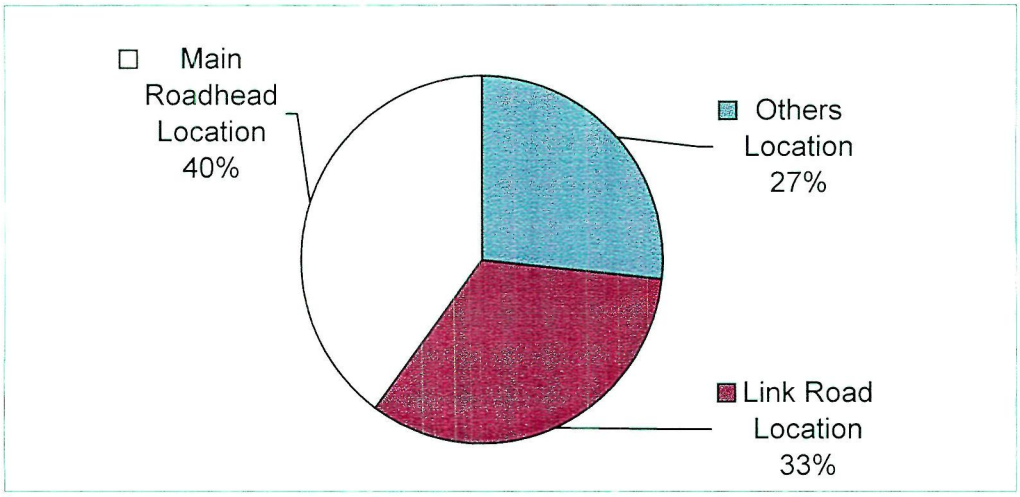


Fig. 4.9 Overall Construction at Different Locations

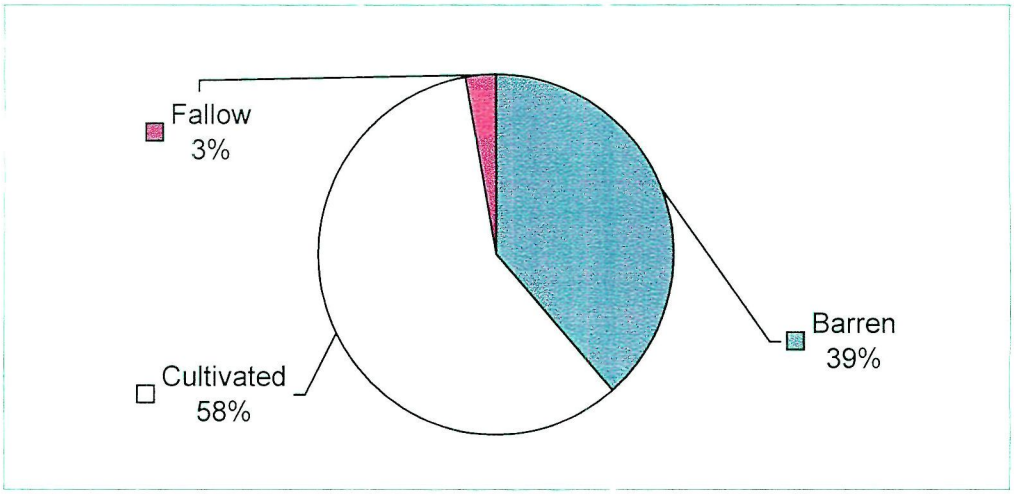


Fig. 4.10 Overall Construction on Different Land Types

Table 4.28 Category wise Per cent Distribution of Households who done Construction and Proportion of Construction done at Different Land Types

Type of land	Small		Medium		Large		Overall	
	Farmer No.	Area	Farmer No.	Area	Farmer No.	Area	Farmer No.	Area
Barren/ Wasteland	38.46	20.68	38.46	56.89	22.08	22.43	100.00	100.00
Cultivated	50.00	20.45	20.00	48.86	30.00	30.69	100.00	100.00
Fallow	-	-	100.00	100.00	-	-	100.00	100.00
Total	44.11	20.00	29.41	53.34	26.48	26.66	100.00	100.00

Source: Field Survey, 2006-07

4.4.3 Different Type of Constructions

It has been noticed that during the past few years' different type of land has been put for various commercial and non-commercial uses in the village. Different categories of farmers have done constructions for houses, shops, and business centre and cattlesheds. It can be visualized from the Table 4.29 that, overall 58.82 per cent of farmers shifted 40 per cent of land for construction of houses. About 23.52 per cent of farmers shifted 13.33 per cent of land for the construction of shops.

4.4.4 Land Prices

The land prices prevalent in the study area behaved differently over a long period of time. Land prices have risen sharply in the recent times and there was about 10-12 per cent rise in land prices. Prices of land varied from location to location. Presently main road head land was going at 4 lakh to 5 lakh (for 0.04 ha) whereas registered price was 1, 20,000 (for 0.04 ha). Thus there appeared huge underreporting of the actual market land prices for fears of high registration fees.

Table 4.29 Purpose-Wise Classification of Land Shifted

Purpose	Small		Medium		Large		Overall	
	Farmer No.	Area	Farmer No.	Area	Farmer No.	Area	Farmer No.	Area
Non-commercial Uses								
House construction	85.71	91.42	25.00	9.20	62.50	71.42	58.82	40.00
Cattleshed construction	14.29	8.58	25.00	8.04	-	-	14.70	6.67
Commercial uses								
Shop construction	-	-	41.66	13.80	37.50	28.58	23.52	13.33
Others	-	-	8.34	68.96	-	-	2.96	40.00
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Field Survey, 2006-07

4.4.5 Reasons/ Factors Responsible for Land Sale

Reasons for land sale varied from category to category. It was revealed from the Table 4.30, that 50 per cent of farmers sold land for the social ceremonies and construction purpose, contributing 25 per cent each. Eighty per cent of small farmers sold land for their household needs and the marriage of daughter. In case of medium farmers 60 per cent sold for construction purpose whereas 50 per cent of large farmers were unable to manage their land and about 33 per cent have labor scarcity problem. Thus it was clear that small farmers sold land for their day-to-day needs and large farmers sold due to their inability to mange it.

Table 4.30 Factors/Reasons for Land Sale by Different Categories of Farm

Reasons	Small	Medium	Large	Overall
Household needs	40.00	-	-	12.5
Social ceremonies	40.00	40.00	-	25.00
Health problem	20.00	-	-	6.25
Construction	-	60.00	16.67	25.00
Difficult to manage	-	-	50.00	18.75
Labor Scarcity	-	-	33.33	12.50
Total	100.00	100.00	100.00	100.00

Source: Field Survey, 2006-07

Discussion

Chapter V

DISCUSSION

This chapter has been devoted to describe the results emerged out of the present investigation in a logical and conclusive manner. The present study entitled "**Changing Land Use Pattern in Urban Fringes in District Kangra (HP): A Study of a Village**" was aimed to know the impact of urbanization on the hinterlands in terms of altered land use. The land use in the fringe areas shows varied degree of transformation, agricultural land is incessantly squeezing and shifting out for urban activities. The results emanated in consonance with the objectives have been discussed in light of documented scientific literature in this chapter under the following six sections.

5.1 Socio- Economic Profile & Cropping Pattern

5.2 Changes in Land Use

5.3 Factors Affecting Land Use and Land Transactions

5.1 Socio- Economic Profile & Cropping Pattern

5.1.1 Demographic Features of the Village

The demographic features of the region are of utmost importance to know the farming of that area. Geographically, the village is located on the eastern side of Kangra town. The total geographical area of the village is about 102 ha of which almost two-third was under cultivation. As far as location is concerned the village is easily approachable by road and rail. The district headquarter is 18 km from the village and 4 km from the Kangra town.

The study area has all the basic facilities like metaled road, school, local market, fair price shop and if something is lacking than that are accessible within 2-4 km. Similar results were reported by Bentinck (2000), that livelihood conditions of villagers in the urban fringes do improve in terms of civic amenities and infrastructure.

5.1.2 Agewise Distribution

Agewise Distribution played an important role in taking up farm enterprise, as farming is labor intensive avocation. About 31 per cent of total population was below 15 years and working population constitutes 64.12 of the total population.

5.1.3 Caste Structure

The caste structure showed the predominance of OBC's. It was in conformity with the general demography of the block wherein OBCs dominated the demographic scenario (Census, 2001).

5.1.4 Literacy Status

Literacy level plays an important role in the scientific management of farms. It was observed that there was not much disparity between male and female education. The overall literacy rate in the study area was 84.63 per cent which shows that on educational ground village is doing well and this can be due to its proximity to town. Ramasamy *et al.* (2005) also stated that literacy rate was found to have positive impact on urbanization.

5.1.5 Cropping Pattern

One of the major favorable impacts of urbanization in the urban fringes has been the changed cropping pattern in favour of cash crops such as vegetables and fruits to meet the requirements of the city/town population Rao *et*

al. (2006). However, in contrast, the cropping pattern in the study village was found to be conventional with paddy in kharif and wheat in rabi season as the main crops. Very few farmers grew cash crops such as vegetables and fruits in the village. When enquired about this contrasting behaviour, respondents revealed that though most of the land in the revenue records was categorized as irrigated, in reality the irrigation was almost nil especially during rabi season due to several factors including poor operationalisation of irrigation works, lack of sufficient perennial flows, etc.

5.2 Changes in Land Use

The land resources have undergone perceptible changes both in terms of quantity and quality. It was noted that during past few years there is a shifting of land from one category to other. Land use changes have been examined firstly at state level, then at district level and lastly in the study village. The dynamics of land use pattern in the state revealed that there was a decline in the area under net area sown category and non agricultural uses showed an increasing trend. Thus this shows that there is increasing demand of land for housing and other infrastructural developments. Similar results were reported by Chadha *et al.* (2004), according to them among all categories non agricultural uses have registered a robust growth. All these land changes have adverse implications for the food production, thus impinging upon the food security.

At district level, it was found out that there was decline in net sown area and an unusual thing emerged out that non agricultural uses have shown a small decrease. This could possibly be attributed to that fact that revenue records are not being updated regularly.

In the study village also there was an increase in area under non agricultural uses category and cultivated area has shown a decrease. This shows that construction has taken place in the area during the past decade. Similar results were reported by Ramasamy *et al.* (2005), according to which there was an increasing demand for land for non agricultural uses in the wake of urbanization.

5.3 Factors Affecting Land Use and Land Transactions

There is certainly an impact of urbanization on farmlands. These farmlands are diverting towards urban uses or often become idle in anticipation of urbanization. There is need to accommodate increasing population. Similar results were stated by Kombe (2005). According to him urbanization is the key factor underpinning and catalyzing changes in land use, land transactions and overall transformation of land use in the peri-urban areas. Population growth considered as a major factor leading to land use change. In the village the per capita availability of land has decreased from 0.11 to 0.10 from 1991 to 2001. With the increasing population size, there is more demand for residential areas. As a result, large part of farmland was converted for construction settlements. Similar results were stated by Hualou *et al.* (2007).

5.3.1 Location of Sold Land

In the study village land sale had taken place at three different locations i.e. main road head location, link road location and other locations. It was found that out of total sold land, most of it was on main road head location, thus due to its proximity to town; there is greater possibility of conversion of agricultural land to non-agricultural uses. Similar results were stated by Chadha *et al.* (2004).

5.3.2 Type of Land Sold

A scruting of the types of land parcels sold revealed that these came mainly from Cultivated, barren/wastelands, and Fallow. The overall status show that mostly cultivated type of land was sold out. Similar results were reported by Marothia *et al.* (1991). He attempted to study trends in farmland sale and land prices in the Dharampura village, MP, which showed that sale of cultivated land was more than other type of land. These findings are also in consonance with the cursory observation the most of cultivated lands on the roadsides are being converted into built up spaces either for housing purposes or for commercial purposes (shops, etc).

5.3.2 Location of Construction

Farmers shifted out their land for construction of houses, shops etc. Mainly construction took place at three different types of location i.e. main road head location, link road location and other locations. It was found that most of the area gone out for construction was on the main road head, which resulted in the expansion of, built up spaces on road sides. This resulted in loss of agricultural land. Similar results were reported by Easley (1978).

5.3.3 Land Prices

Land prices behaved differently over a long period of time. In the recent times there is about 10-12 per cent rise in land prices. Also price is influenced by locational aspect. People are buying land for various urban uses. So this created a land market characterized by rapidly rising land prices. Similar results were reported by Yankson *et al.* (2004).

5.3.4 Reasons/Factors for Land Sale

Land sales in the urban fringes are due to plethora of factors. Firstly, these include household needs such as social ceremonies/marriage, sickness. Secondly, it could be influenced by the desire to settle on the roadsides for better connectivity. Thirdly , the commercial interests such as to open up shops etc might also effect these land sales- thus shifting the land use in that area in favour of non-agricultural uses. Similar results were stated by Sarap (1996) in his study on land market transactions in rural Haryana.

Summary

Chapter VI

SUMMARY

Land use classification is the systematic arrangement of land on the basis of certain well defined characteristics to identify and understand its potential use. Land is a crucial natural resource for any economic activity and it has undergone perceptible changes both in terms of quantity and quality. As a basic input for agriculture, land occupies a pre-eminent position among all resources. The stagnation of land under plough in India has become an acknowledged fact. The problem of access to land has become more severe due to unrelenting demographic pressure and because of increasing diversion of land from agricultural to non-agricultural uses. The competition between agricultural and non agricultural sectors for land is intensifying due to increasing pressure on land for food production, housing and industrial expansion. The world has experienced unprecedented urban growth in recent decades. Rising urban growth has created a variety of burdensome problems like increasing contraction of agricultural land and changing cropping pattern, leading a variety of changes in the existing land use. And such changes are more discernible in the urban fringes where the land use pattern witnesses more pressure than the hinterlands.

Therefore, this study proposed to examine these issues with the following specific objectives.

Objectives

- To examine the changing land use pattern in urban fringes in Kangra district.

- To determine the factors responsible for changes in land use.
- To examine the implications of the changed land use pattern and suggest policy measures to remedy the situation.

Methodology

The present study was carried out in Lulehr village, district Kangra of Himachal Pradesh. Kangra was purposively selected for carrying out the study. A list of villages falling within 5 km radius of Kangra town was prepared. From the list, one village was selected randomly. The selected village, Lulehr, comprised of 185 households, all households formed the sample of the study. All the farmers were arranged in ascending order on the basis of their total land holdings. With the help of cube root cumulative frequency method, farmers were classified into three categories viz; small (<0.4 ha), medium (0.4-0.7) and large (>0.7) farmers.

Both primary and secondary data were collected to meet out the objectives of the study. Primary data were collected using specially designed schedule through survey method. The secondary data were taken from Census documents, state government publications such as statistical outline and revenue records of the village. Simple tabular analysis and percentages were used to fulfil the objectives of the study.

Main Findings

- The urban population in Kangra district increased from 4.33 per cent in 1971 to 5.40 per cent in 2001.
- It was found that village had all the basic amenities or had access to all other facilities within 2-4 km of distance.

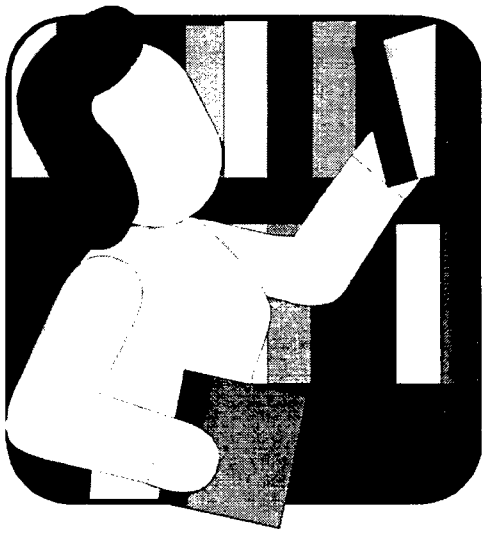
- The age-wise distribution showed that 31.0 per cent of the total population was below 15 years. The working population was 64.57 per cent of the total population. The sex ratio was 951 and average family size was 5.74.
- Caste structure showed the dominance of Other backward Classes (OBCs). In case of medium and large farmers, share of OBCs was 69.24 and 65.63 per cent, respectively. The SC/ST belonged to small farm category only.
- The overall literacy rate was 84.63 per cent and there was not much disparity between male and female education. Most of the population in the village was matriculate i.e. about 25.72 per cent.
- Occupational pattern revealed that 70.65 per cent of the total working persons were engaged in agriculture, 16.30 per cent were doing their private works and 13.05 per cent were in service.
- It was found that there was not prominent change in cropping pattern. Very few farmers were growing vegetables commercially. Mostly farmers were growing wheat, maize and paddy. Paddy was grown in 72.05 per cent of total kharif area, 22.05 per cent was under maize whereas in rabi season 91.41 per cent was under wheat.
- Change in land use was worked out at state level, district level and in the study area. In HP forest area declined by 6.66 per cent points, barren area increased by 9.34 per cent points, whereas area under non-agricultural uses registered an increase of 4.24 per cent points and net area sown decreased by 5.4 per cent points during 1990-91 -2003-04.

- In Kangra district there was decline in culturable waste land by 4.15 per cent points, pastures showed an increase by 7.07 per cent points and barren area decreased by 3.4 per cent points.
- Most of the area in the village was irrigated as per revenue records. However, actual irrigation in the village was almost nil especially during the rabi season.
- It has been found that cultivated area of village decreased by 1.35 per cent points and area under non-agricultural uses registered an increase of 2.5 per cent points during 1996-2006. In other words, area under non-agricultural uses increased by around 17.0 per cent.
- At different locations of sale, 46.0 per cent of sale was at main roadhead, 31.0 per cent at link road and 23.0 per cent was at other locations.
- Small farmers have done most of the sales within the village location whereas medium and large farmers have sold land at main road head or link road.
- Three different types of land viz; cultivated, barren/wasteland and fallow have been diverted for sale with their respective shares at 55, 40 and 5 per cent, respectively.
- It was found that most of the construction (about 40 per cent) was at main roadhead, 33 per cent at link road and 27 per cent was within village location. Medium farmers were the main contributors for this, accounting for 53.0 per cent of the total construction.
- Most of the construction was done on the cultivated land, i.e. 58 per cent of the total.

Policy Implications

The foregoing results of the investigation lead to the following policy suggestions so as to have a better land use policy.

- Since most of the cultivated land is being diverted to non-agricultural uses, especially construction, so there is a need to have a land use policy in place so that the concern of food security is not jeopardized.
- Appropriate documentation of current land use in the revenue records should be done immediately so that any changes in land use get reflected in the land use statistics, which hitherto is not being done promptly.
- Urban suburbs should be included in the officially defined urban area so that real picture of urbanization comes out from the land use statistics. Further, there is a need to define urban areas properly so that these areas have all the basic amenities. Again, this will help the genuine rural population to have the rightful benefits of living in rural areas.
- Land use policy should be location specific and should meet the aspirations of the local people and be framed by the local bodies such as Panchayats etc.
- Local economic infrastructure (such as irrigation channels) should be made functional so that the villagers are able to make use of such infrastructure in making their livelihoods better.



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