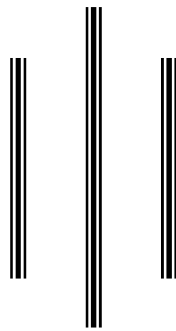
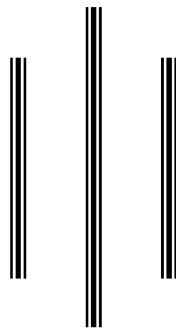


**KNOWLEDGE AND ATTITUDE ON  
AGRICULTURAL MODERNIZATION IN DARAI  
COMMUNITY OF VYAS MUNICIPALITY OF  
TANAHUN DISTRICT**



A Dissertation Submitted to the Department of Sociology/ Anthropology  
The faculty of Humanities and Social Sciences of T.U. in the Partial  
Fulfillment of the Requirements of the Degree of Master of Arts in  
Sociology



**BY**

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**2009**



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## RECOMMENDATION LETTER

This Thesis entitled *Knowledge and Attitude on Agricultural Modernization in Darai Community of Vyas Municipality of Tanahun District* is prepared by Krishna Raj Shrestha, for the partial fulfillment of the requirements of Master of Arts in Sociology, under my direct supervision. This is his own innovative work conducted under my supervision and I, therefore, recommend this report for the evaluation and acceptance.

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## APPROVAL LETTER

This is to certify that the Thesis submitted by Krishna Raj Shrestha entitled *Knowledge and Attitude on Agricultural Modernization in Darai Community of Vyas Municipality of Tanahun District* has been approved by the department in the prescribed format of the faculty of humanities and social sciences.

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Continuous support and encouragement from my friends has always played a catalytic role for me to conduct study in this topic. The role of my family members during the entire phase of the study since from the time of selection of topic to completion of this report cannot be forgotten.

*Krishna Raj Shrestha*

2009

## **ABSTRACT**

*This study was in essence related to the knowledge and attitude on agricultural modernization on indigenous community of mid-hill **Darai** who are socially and economically deprived and exploited. Being the agriculture based community, agriculture modernization or production of commercial goods for commercial purpose is becoming prerequisite for them to sustain in society. The objective of the research was to analyze the knowledge and attitude on agricultural modernization in Darai community of Ward no 3 and 5 of Vyas municipality, the cluster settlement of Darais. The study has adopted both exploratory as well as descriptive research design. The study was exploratory because it exposed the knowledge, attitude on agricultural modernization. The study was descriptive as it described different aspects of agricultural modernization. The research modus operandi was constructed via questionnaire, observation FGD etc where their knowledge, attitude, belief, educational, situations were depicted.*

*On the basis of random sampling, 100 households were chosen as the respondents and they were from different age group, different economic and educational background. Majority of the households were living in nuclear family structures and agriculture was the main occupation of almost all of the respondents. Wage labor, service and business were both first priority and second priority occupation. The educational status was found very poor in the study area where 52 percent of the respondents were still illiterate and 36 and 12 were respectively literate and educated. The literacy rate of female was found far less than that of male respondents. Traditional culture and low educational status were the main causes for the large family size of Darais. In average, around 8 was the family size of them. None of the respondents were landless but there exist disparity among land owners. Most of them didn't have more than 10 ropanis of land and among them only about ½ of the respondents have facility of partial irrigation. People are practicing double and triple cropping system, mainly, rice. Maize, wheat, millet, **mass** were the production of the study area where a few number of people produce cash crops like seasonal vegetables, milk and meat products for the commercial purpose. Although people were found working very hard, but their work in agriculture field would not support them for whole year. That means, the production and productivity of land is very low due to the practices of traditional way of farming system.*

*Most of the people use plough for cultivation even though, there is facility of tractor in the region, only few percent of the population use tractors but still they were not totally dependent on tractor. Most of the households practiced cereal cropping pattern whereas only negligible household practiced cash crop production but not totally in professional way. Modern agriculture equipments like improved seeds, chemical fertilizers and pesticides were familiar equipments for the most of people in the study area and more than 80 percent of the respondents used such equipments to some extent but lacked the intensive knowledge of using such equipments.*

*Metacide, urea is very familiar name for them. Neighbor, suggestions from shop and land owners as well as **Agua krishak** is also the major sources of information about modern agricultural equipments. Other sources like JT and JTA, radio/TV, development agents, and agricultural institutions play the role of information giver to the people but only around 10 percent of the respondents are aware through the trainings provided by different institutions. Although large number of people have knowledge but they do not use such equipments for producing goods for commercial purpose even though they are aware that they could earn more to sustain their life more easily if they applied commercial farming.*

*Low productivity of land, lack of irrigation facility, small land holding size, lack of proper knowledge about modern way of agriculture are the major causes for them being unable to produce sufficient foods whereas low level of knowledge, lack of resources viz cash money and lack of investment, low level of education, lack of unity in society, lack of trainings and lack of leading persons in the society, lack of awareness program to brainwash the already occupied mind are the vital causes for not adopting agricultural modernization. This study deduced that none of the respondents are landless. Lack of proper knowledge, low level of education, traditional way of farming system, large size of the family, lack of investments, lack of resources like irrigation, land etc. are major way of barriers for them to adopt modern way of agriculture system. Although most of the respondents have knowledge that by producing the goods for commercial purpose they can earn more to sustain their life. But in practical they still do not want to change their tradition and culture which is almost in the condition of displacement. It is proper encouragement and different factors that could motivate them to encompass the modern means of agriculture system since most of them have positive view or have positive attitude on agriculture modernization.*

*This study deduced that none of the respondents were found totally dependent upon commercial farming and they used to produce for only partial fulfillment of their necessary subsistence needs. Double and triple cropping system was practiced though double cropping pattern. Some of the respondents have access to partial irrigation facilities and some households were totally deprived from the irrigation facility. Since irrigation is one of the vital obsession for increasing the productivity and for commercial good production and maintaining quality of soil. Need of technical education, market availability, transport facility, irrigation facilities and access of micro finance activities seems vital for creating positive attitude and awareness about agriculture modernization in the Darai community in order to bring them into the mainstream of development and to make them self sustain from the present situation. Likewise, income generating activities ought to be launched to preserve the tradition, culture and their assets like land because without the source of incomes they are bound to sell their productive assets for the fulfillment of daily needs.*

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## ACRONYMS AND ABBREVIATIONS

ADB	Asian Development Bank
APP	Agriculture Perspective Plan
CBS	Central Bureau of Statistics
DDC	District Development Committee
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
HMG/N	His Majesty Government of Nepal
Ingo's	International Non Governmental Organizations
JT	Junior Technician
JTA	Junior Technician Assistant
MA	Master in Arts
NGOs	Non Governmental Organizations
NPC	National Planning Commission
NSCA	National Sample Census of Agriculture
Ph. D	Philosophy in Doctor
RUPP	Rural Urban Partnership Program
TV	Television
UNDP	United Nations Development Program
US	United States
VDC	Village Development Committee
www	World Wide Web

# CHAPTER - I

## INTRODUCTION

### 1.1 Background

Nepal is a multiethnic, multicultural, multi religious nation. Pluralism and diversity are its unique and notable features. Agriculture is the major sector in Nepalese economy which contributes about 39 percent of GDP. About 86 percent of Nepalese labor force depend on this sector with a large number of poor families having small land and over two third of rural households own less than a hectare of land (CBS, 2007).

With a per capita income of about \$ 250, Nepal is economically one of the poorest countries in the world where about 44 percent of rural population in rural area and 23 percent of urban population in urban areas live below the national poverty line (World Bank, 2003). High rate of population growth, low access to productive resources, traditional way of farming system and slow pace of the development of secondary sectors are the major barriers in economic development.

A country of different ethnic groups and an origin of different cultural backgrounds Nepal has been a cradle of different civilizations. It occupies the central section of the Himalayan and it has become the platform of Mongoloid and Caucasoid interface that is the reason for calling it as a land of different origins and of different cultural background. Among the minorities of Nepal, Darais are indigenous ethnic group with a distinct cultural and social identity.

Darais are mainly found in Damauli of Tanahun district and on the banks of Madi River. Their sparse settlement is also found in Chitwan district. Agriculture is the main occupation of Darais. They are economically

poor and with very low literacy rate. Traditionally they live in the river basins; fishing is profession and hobby for them. Because of being totally depended upon subsistence economy, seasonal unemployment is very serious within their community. Agricultural production would not support them to sustain whole year. More than half of the year they need to work outside for the fulfillment of their food requirement. Although they still have more or less land holding on their ownership but due to the lack of proper knowledge about modern ways of cultivation, poverty is rampant in their community. Illiteracy, large family size, low access of productive resources, traditional way of farming system and their own culture and tradition become the barriers for their socio economic upliftment.

Darais raises cows, buffalos, goats, chickens and pigs for the fulfillment of their own needs. Selling agricultural products are also their source of income. But it is not sufficient for them. Only few men have jobs in offices. The trend of going to India in search of job/employment especially in youth circle is very common otherwise; they don't have any sources of income except agriculture (Darai, 1996).

Employment is the foremost means of transforming economic development into an opportunity to alleviate poverty. Providing employment to poverty stricken mass can reduce poverty to make economy more sustainable. Due to the population pressure on land, low productivity and lack of proper development in secondary sector, unemployment problem is widely in existence among Darai community and other castes/ethnicities. Although since from the beginning of planed development period Nepalese government has been introducing various programs and policies related to agricultural development viz, Poverty alleviation with a high emphasis on increasing life standard of the deprived and poor groups, as a result some progress has been made in the various fields like infrastructure building, skill development, agricultural development but still poverty is rampant in rural

area. Poor communities generally exist among peasants with marginal landholding, occupational caste, dalits, tribes and matriarchal households.

With a share of 40 percent and 80 percent in GDP and labor force respectively, agriculture plays a key role in the overall economy and society. The importance of agriculture is borne out by fact that almost 90 percent of the population lives in rural areas and depends on agriculture for their livelihood. Most agricultural activities in Nepal are characterized by low productivity and low commercialization. As agriculture is the main source of income in rural areas, the link between poverty and low productivity of agriculture is very close. Agriculture growth over the past two decades has barely kept pace with the population growth. Coupled with a low input agriculture and the low adoption of modern technology, agriculture in Nepal is one of the poorest in the world, with a value added per agricultural worker in 2001 estimated at US\$ 137,” states Nepal Agriculture Sector Performance Review 2008. ([www.nepalnews.com21/08/2008](http://www.nepalnews.com21/08/2008)).

The main reason behind low economic growth in the agriculture sector is less than expected investment, dependency of unfavorable monsoon. Because of low growth in agriculture sector, Nepal is now facing challenge of how to increase the crop productivity because the current rate of agricultural growth has been unable to create enough rural employment to additional man power and is the cause of widespread damage to the environment. The cultivable land available in the country is limited and cannot be increased further; under such situation food requirement of the country has to be fulfilled through increasing productivity on the existing arable land. (Mal, 2001) .

Undoubtedly, the main cause of poverty and unemployment in Nepal is the lack of proper development in agriculture sector especially the knowledge related to agricultural modernization. The condition is very serious within the deprived and ethnic groups who are isolated from the



mainstream of development. As one of the poorest countries in the world today, Nepal's prosperity will depend largely on the efficient use of natural resources, modernization of its agricultural sector

With the aim of improving the condition of tenant and small farmer, land reform program was initiated by the enactment of Land Act in the year 1964. Main features of the program were ceiling of the land holdings guaranteeing tenancy right to the cultivators and mobilization of rural savings. In the same way Agricultural Perspective Plan (APP) has been formulated in 1995 with the aim of overall agricultural development. The APP is both a strategy and a plan for the formulation of agriculture development policy and infrastructure to increase agricultural productivity and transforming from subsistence to commercial via agricultural modernization. But it is not easy as the problem is embedded with attitude of awareness about agricultural modernization among the masses same as in the case of Darai community.

## **1.2 Statement of the Problem**

Darai being one of the largest ethnic groups in Vyas municipality, they need to change their traditional farming system for their overall upliftment. Low access to land holding, high population growth rate, illiteracy and their tradition and culture becomes the barriers for them. Rapid urbanization in the study area has influenced on their tradition and custom. They are depending on wage labor in agriculture sector for survival. But with transformation, communication and other infrastructures (development), local people are diverting to use modern equipments like tractors and modern way of agricultural practice like agro forestry, horticulture, and animal farming and so on. But Darais are totally depending upon the subsistence farming mostly as a tenant of landlords. Due to lack of proper education and awareness they

are still using those tools and techniques which were used by their ancestors and their traditional mode of production is also in vulnerable condition.

Consequently Darai people's traditional way of living pattern is almost in extinction. Because of being unable to change the pattern of lifestyle with the present modernization trend in agriculture, the condition of Darai community is very vulnerable, although they are honest and hard working people. Even in the off season they are busy in the household activities but these are unproductive. As a result existing problem of hand to mouth for more than half of the year is very common phenomenon among Darai community. Selling the asset viz. land, cattles and livestock's for the fulfillment of their daily need is common in that community. Based on all these problems this study is expected to address these issues:

- a. What are the causes behind not practicing the agriculture modernization?
- b. What are the views on the modernization of agriculture on them?

### **1.3 Objectives of the Study**

General objective of this study is to analyze the knowledge and attitude on agricultural modernization in Darai community. The specific objectives are given below:

- a) To identify the cropping patterns of Darai community.
- b) To asses the knowledge of agriculture modernization in Darai community.
- c) To asses the attitudes and problems of agriculture modernization in Darai community.

## **1.4 Limitations of the Study**

Every research has its own limitation and this research is also not an exception and hence incorporates the following limitations:

- ) The research was conducted only in two wards of Vyas Municipality (ward no 3 & 5) and hence the result of the research cannot be generalized for others.
- ) The respondents of the research were only from Darai community who fully depend on agriculture sector for their livelihood. Hence the result is applicable only for those households, which are totally dependent on agricultural productivity for their livelihood.

## **1.5 Operational Definition of Key Terms used in the Study**

### **1.5.1 *Agriculture***

Agriculture, if described in simple terms, is the human activity that transforms solar energy at the earth's surface into useful (edible) chemical energy by means of plants and animals. Ultimately, all terrestrial life depends for its food upon the natural resources of the earth, mostly the produce of land. No natural resource can be used for food production without direct and indirect impacts upon the environment. The manner the extent to which these resources are used or misused are subject to human decisions and activities, which, in turn, is the result of complex interactions among the level of economic well-being, knowledge about the resources and their usefulness and so on. But, in case of poor farmers, necessity directs the decision making.

### **1.5.2 *Modernization***

It is the act of modernizing, modernize, to make modern. The modernization of agriculture by using modern means and techniques viz seeds, tractors etc.

### **1.5.3 *Cropping***

A plant or plant product such as grain, peas, cereals, fruit or vegetables grown by a farmer. The toll amount gathered of a plant such as a grain, fruit or vegetable grown in large amounts by farmers.

### **1.5.4 *Awareness***

Public awareness of the problem viz. environmental awareness. Having knowledge or understanding, knowledge or consciousness of the stated type.

### **1.5.5 *Attitude***

A way of feeling or thinking about someone or something, esp. as this influences one's behavior. Feeling or opinion about something or someone, or a way of behaving that follows from this. It's often very difficult to change people's attitudes. The concept of attitude has provoked much consideration and investigation, both by psychologists and sociologists, as it incorporates individual and social aspects. Psychologists emphasize the condition under which an individual develops attitudes and integrates them as part of the personality.

### **1.5.6 *Community***

Society, association joint ownership, communion, fellowship. The term has descriptive and prescriptive connotations in both popular and academic usage. It may refer to social relationships which take place within geographically defined areas. Community is a group of people living together and /or united by shared interests, religion, nationality, etc.

### **1.5.7 Caste**

Number of the groups in the system by which Hindu society is divided up into different classes, according to the principles of Hinduism. It is a system of dividing Hindu society into classes, or any of these classes. It is a form of social stratification which involves a system of hierarchically ranked, closed, endogamous strata, the membership of which is ascribed, and between which contact is restricted and mobility theoretically impossible. Although it reflects economic inequalities, by virtue of the occupations typically followed by, or permitted to, members, caste stratification is ultimately rooted in none economic criteria. In its purest form in Hindu societies, the caste principle is religious; castes are ranked in accordance with the degree of ritual purity ascribed to members and to their activities.

### **1.5.8 Ethnicity**

A shared racial linguistic or national identity of a social group. Ethnicity is an imprecise term which has given rise to some degree of conceptual confusion. It is often conflated with other terms such as racial groups. Ethnicity can incorporate several forms of collective identity including cultural, forms a distinction may be drawn between cultural ethnicity and political ethnicity. The former refers to a belief in a shared language, religion or other such cultural values and practices. The latter refers to the political awareness or mobilization of a group on a (real or assumed) ethnic basis although ethnicity is often used in relation to a group assuming. Racial identity, strictly racial attributes are not necessarily or even usually, the defining feature of ethnic groups.

### **1.5.9 Indigenous Group**

Indigenous group is any ethnic group originating and remaining in an area subject to colonization. It is belonging to a particular place rather than coming to it from somewhere else. Indigenous people or things belong to the

country in which they are found rather than coming there or being brought there from another country.

#### **1.5.10 Culture of Poverty**

A term signifying backwardness in thinking. Also denotes poverty not only in economic terms but poor in socio-cultural terms. The way of life developed and reproduced by poor people, an explanation for the existence of POVERTY in terms of the cultural characteristics of the poor themselves. The terms was first used by Oscav Lewis (1961, 1968), who emphasized 'fatalism' as the particular aspect of UNDERCLASS sub-culture which ensured the in heritance of poverty.

### **1.6 Importance of the Study**

The study aims at exploring the attitude and awareness of agriculture modernization in Darai community. Agriculture is the main source of GDP, income and employment generation in Nepal. But most of the farmers engaged in this sector are small, marginal groups. Productivity of this sector is not satisfactory. Darai are unique ethnic group living with their own culture and tradition and traditional way of farming is their life style. This study is concerned about the effect of modernization on their traditional livelihood and way of changing pattern on their agricultural activities.

Being an agriculture economy, agricultural sector is one and only source for the overall national development. So we need to transform the traditional way of subsistence farming to modern farming / cultivation system by using more and suitable cropping system, modern fertilizers, high yielding seeds, modern equipments, pesticides so as to uplift the traditional occupational caste and isolated groups. So I hope this study will be helpful for visualizing the reality and will certainly provide the adequate information to the concern sector.

Although, there are various studies carried out related to Darai community and their way of agriculture practices this study is different from

the previous research in nature as it focus on micro level in depth study for the identification of various problems related to agriculture. The finding of the study will certainly be useful for visualizing the reality about the attitude and awareness about agriculture modernization in Darai community. This study will stand as a blue print for the concerned sectors for the formulation of policies and programs concerning to Darai community. I hope, this study will play the role of catalyst for the further researches carried in related topics.

# **CHAPTER-II**

## **LITERATURE REVIEW**

No single research can be done without consulting the related literature. It is very important for building a sound background about the study. In order to trace and identify the problems in any research work it is indispensable at first to have a literary appraisal of the matter to be dealt with. It helps to avoid the possibility of duplication in research works and gives the work a literary authenticity. Without any regard to the past, it is irrational to pass away verdict on the present. Hence, the significance of the review of literature in any research work remains fundamental. So in this study researcher has reviewed books, dissertations, articles, seminar papers, browsed websites and other related materials to the study so far as available.

In this study, beyond others a theoretical review, concept review, review of selected literatures has been made. Side by side the conceptual framework and theoretical framework espoused in the study has been also choked out.

### **2.1 Theoretical Review**

#### **Theories Related to the Evolution of Agriculture:**

Goudie describes the development of agriculture as one of the most significant human impacts in the course of human history (Goudie, 1990). Redman (1978) concurs and suggests that "no development has had a greater effect than the introduction of agriculture" (Redman 1978). Additionally, the discussion of agricultural origins has important ramifications in many areas of study. Alexander von Humboldt (1807) has said: "The origin ... of the plants most useful to man and which have accompanied him from remotest



epochs, is a secret as impenetrable as the dwellings of our domestic animals. "Agriculture, in general, refers to "a reliance on domesticated plants or animals or both"... with the specific conditions.

Agriculture, in general, refers to "a reliance on domesticated plants or animals or both"... with the specific conditions and features:

- (1) *propagation* : the selective sowing of seeds or breeding of animals, what Goudie refers to as the genetic changes brought about through conscious or unconscious human selection.
- (2) *husbandry* : the care of plants and animals while they are growing
- (3) *harvesting* : collection of the food resources, and
- (4) *storage and maintenance* : of seeds and select animals to assure adequate reproductive success for the subsequent year (Redman 1978).

The period in which agriculture received its impetus is described by Childe as the Neolithic Revolution; the term revolution has been applied due to the relatively quick speed during which agriculture developed, and for its significant effect on human life.

Although the definition of agriculture is generally accepted, there has always been speculation about the origins of agriculture (Binford, 1983). The debate over the origins of agriculture is a recent one (Flannery, 1973), as "only since 1950 has the origin of agriculture become a field of inquiry of its own" (Redman, 1978). The variety of theories regarding this debate reflects both the changing epistemic climate within archaeology and its growing utility as a discipline capable of holistic explanation.

There are criteria necessary for agriculture to occur (Redman, 1978)--

- a. Natural Area: must provide abundant annual harvests and annual wild harvests

- b. Topography: must constrict population movement so people would be forced to stay in one place and develop agriculture (geographical isolation)
- c. Ecosystem: no forests or swamps
- d. Cultural Contact: people must have cultural contact with other people in the area. Why? Encouragement of the breakdown of old ideas and the acceptance of new ones (the idea of agriculture).

Since the 1950s a number of archaeologists have offered theories to explain how and why agriculture became all the rage with our early human ancestors. Like seeds themselves, the theories of agricultural origins have continued to propagate themselves. In the 19th century an idea circulated that offered one early yet simplistic explanation for the rise of agriculture. It suggested that one individual was a literal “seed genius,” he or she discovered seeds and eventually circulated the idea to others (Flannery, 1973).

Darwin was convinced that agriculture represented a better way of life. Likewise, anthropologist Gordon Childe’s belief is that the invention of agriculture resulted from a climatic crisis adversely affecting those communities in which the earliest farming was conducted. Childe's theory, lacking in archaeological evidence, is based on evidence from early agricultural theories, such as those of Pumpelly in 1908, and the understanding of paleoclimates (Redman, 1978). Before the retreat of the glaciers and the subsequent drying up which took place, Childe argued that much of the Near East had been "fertile and well-watered" (Redman 1978). As a result of the glacial movement and climatic shifts, the hunter-gatherers who had taken residence in the now drying areas had to take refuge in the few remaining well-watered areas, the river valleys of the Nile, Tigris, and Euphrates, or near oases that had not dried up.

Because of this climatic shift (from a cool-wet climate to a hot-dry one) in the Near East, people and animals were forced to "gravitate toward locations having permanent water" (Redman, 1978). Again due to the climatic conditions, plants only grew near these oases or sources of water; as a result, people, animals and plants existed in the same general proximity. In turn, people "had opportunities to observe the behavior and year-round life cycles of those [plants and animals] that were subsequently domesticated" (Redman, 1978).

According to Gordon Childe, plants were first domesticated in the Nile River Valley; later, early agriculturists dug channels to irrigate artificially sowed seeds, thus increasing "the density and distribution of the harvestable grain". After the hunter became a cultivator, it became easy for the cultivator to domesticate various animals - as the stubble from the harvested fields offered the herds food (Redman, 1978). Having been domesticated, animals were then protected from predators by the early farmers; as a result the animals soon became completely dependent on the farmers and unable to survive on their own; these domesticated animals in turn attracted other herd animals to the farming areas.

Although Childe's theory was influential on many of thinkers, including historian Arnold Toynbee, his hypothesis has been generally disproved in light of recent archaeological evidence (Redman, 1978). Childe's model offers insight into the effects of climatic fluctuation and environmental pressures, however, his model misrepresents the nature of Near Eastern climate; additionally, the propinquity model offers no explanation of cultural variables which may have effected the development of agriculture in the Near East. The theory also wrongly assumes that hunter-gatherers had no extensive knowledge of plants and animals after the Ice Age.

Agricultural modernization refers to the development from the traditional agriculture to the modern agriculture. Traditional agriculture is a mode of production typical of manual labor, the labor productivity of which is usually low. The modern agriculture is in contrast to the traditional agriculture. It depends on the wide application of the modern science and technology. To be more specific, agricultural modernization is the modernization of the comprehensive production capacity in agriculture. On certain production conditions, agricultural labor forces with the modern qualities are capable of utilizing the modern agricultural production methods and producing highqualified agricultural products to satisfy the social needs. Agricultural labor forces with the modern qualities are those who are good at the modern agricultural production methods, and the modern agricultural production methods are the agricultural production tools operated by the modern science and technology. It is not difficult to see that agricultural modernization is the modernization of these four elements: agricultural production methods, agricultural labor forces, agricultural production capacity, and agricultural production conditions. Among them, the modernization of agricultural production methods is the basis and symbol of the agricultural modernization, while the modernization of the agricultural labor forces is the prerequisite, the modernization of agricultural production capacity is the natural result, and the modernization of agricultural production conditions is the fundamental guaranty. The core of increasing the comprehensive production capacity is to modernize all the agricultural production methods (Statistical Research, 2004). Among the Darais of the study area also the tendency for comprehensive production capacity for modernization seems prerequisite; equally the earlier studies are definitely prone to guide this current study.

## **Modernization Theory:**

Modernization theory, sometimes called development doctrine, supplies the working concepts through which a least developed society, culture, agriculture etc moves from least level of development to high level of sophistications. Described as both an ideology and a discourse, modernization comprised a changeable set of ideas and strategies that guided policies toward betterment. Among its core precepts is the idea that the state of economic, political and agricultural advancement is prerequisite. Historians have traced modernization theory's intellectual lineage back to Aristotle, who first suggested that states followed a natural pattern of growth, like plants. But while linear progress is a recurrent theme in Western thought, it existed alongside Christian doubts about man's fallen state. Americans in the early Republic believed (as did Aristotle) that if societies grow naturally, they also decay (Lerner, 1958).

The philosophers Jean-Baptiste Say, John Stuart Mill, and Auguste Comte each contended that societies passed through successive stages from savagery through barbarism to finally reach a developed state Comte called the science of human evolution "sociology" and proposed that the highest stage would be a "positive" society governed by science and so as agricultural system. American scientists similarly concluded that their own society was advanced relative to the surrounding peoples, who might with help "catch up." Lewis H. Morgan, a founder of American anthropology, speculated in 1877 that "American Indian tribes represent, more or less nearly, the history and experience of our own remote ancestors (Lerner, 1958).

Modernization is a process by which individuals change from a traditional way of life to a more complex, technologically advanced and rapidly changing life style, Otim (1998). Modernization of agriculture is viewed as the most effective strategies for attaining the process involving a

high level of aspiration, literacy and education. Research contributes a lot to the modernization process. Through research, new technologies/ information can be generated; methods of adapting these technologies can be designed. Adaptation methods depend mainly on how research results are disseminated to the key stakeholders. The research process needs to be supported by an effective information system. Increased globalization coupled with the rapid advances of Information and Communication Technologies is a phenomenon not limited to any part of the world. The phenomenon has permeated itself into Africa and more so to Uganda in an unavoidable rate. We can not control what the latest technologies are doing and yet we have to control our destinies! (Rogers, 1995, Chatman, 1986, Chen and Crowston, 1996).

Development begins from a stable, uniform state of tradition. All societies follow a common, linear path to modernity, passing through recognizable stages along the way. Regardless of their point of origin, all cultures have the same trajectory. Nations with tragic histories could be assured they would not have a tragic destiny. The most difficult part of the transition is psychological. Once the comforts of custom and old patterns of thought are rejected progress would follow its natural course. Modernization and Development are thus not a process of accumulation but of release, the freeing of restrained energies and resources. In the 1950s and early 1960s, the Ford Foundation of USA sponsored a "package program" to improve conditions in fifteen rural districts of India on a broad front, including advances in education, health, farm equipment, irrigation, and crop diversification. Disappointed with the results, the foundation shifted in the mid-1960s to a strategy built around development and dissemination of dwarf wheat and rice varieties (the inducement mechanism). Since the new plant strains required chemical fertilizer, irrigation, and modern transport and distribution networks, other sectors would be pulled along by success, stimulating a *green revolution* (Cowen and Shenton, 1996). The concept of

Green Revolutions seems pertinent in Nepal as well as in the context of present study on Darais where Green Revolution is still a distant dream.

### **Socialization Theory of Agriculture:**

Two study theories exist in the social history of socialization in agriculture. One is a view that sees the mastering of skills by following another's example. This way is the prized method a traditional craftsperson uses to master technology. Moreover, it is the method of socialization valued in traditional communities. Another is a view that sees learning of technology mainly through language, arts, and sciences, being close to the concept of study as used in the field of educational science. This system studies the contents as they are equalized, in any way or any place. These two characteristic examples are found and investigated by scholars. Consequently, intuition based on valuing experience, for example tips, etc., are indifferent to pursuing the rational way of life as a man, or pursuing advanced agriculture practice, such as shortening working hours, and the practice of environmentally conscious agriculture (Kouji , 2001).

### **Ethno-cognitive, Indigenous knowledge, Cultural and Cognitive Approaches**

Cognitive anthropology also known as “ethno science,” “ethno semantics focuses on “the native’s point of view--- how people in particular cultures classifies the world including their natural resources (Colby Benjamin L, 1996). Originally, it is based heavily on how local people use expressions to codify reality in an emic idealist approach to culture. Here culture is defined as a body of knowledge in people’s heads --a mental model, map, or maze way. Thought is culturally shaped, not just psychological---people "learn" to think in certain ways in each culture and

each culture is determined by the Indigenous knowledge which is the traditional knowledge of the local people that has been continuing from centuries and which has been given little attention in development planning's by the adoption of western knowledge. The idea of giving priority to Indigenous knowledge in resource management practices especially in agriculture management led to the advent of ethno-science perspective in a new way. In fact, the word "*Ethno*" conveys a special sense as it refers to the system of knowledge and cognition typical of a given ethnic group or community. It signifies the local knowledge of the local people with a special focus on local people's concept of their community resources including the agriculture, used especially in applied anthropology. And where there is the special role of Indigenous knowledge in resource management activities and which prepares the anthropological perspectives in resource management (Sillitoe, 1989). Unless and until the indigenous culture and knowledge is recognized, and the project is identical with it, it is unlikely that resource management practices will be smooth (Upadhyay, 2007). The contention is that if two perspectives, both the indigenous perspective and the modern perspective are taken together, will produce a more rounded understanding of natural and cultural environments and sustainable resource management potentials (Quiroz, 1996). Modern ecological movement has drawn inspiration from Traditional Indigenous Knowledge (TIK) - the ecosystem approach and the concept of sustainable development being just two examples.

There appears to be agreement among most scholars, government meets, and indigenous peoples that integration of TIK and western science is desirable given the pluralistic nature of modern society' and the ecological interdependence among nations. Despite considerable discussion regarding the need to integrate the two systems and a few attempts to establish co-management institutions, the effective use of TIK for decision making has



yet to be fully tested Why are TIK and western science so difficult to integrate? There are several related problems that will be identified in response to this question which this present research study will look for.

The integration of TIK and western science remains a tough goal. Quite apart from the ethical imperative of preserving cultural diversity, TIK is a valuable resource for assessing the social and environmental impacts of development projects and environmental change. Its survival and ability to take its rightful place in future resource management depends upon the willingness of governments and the scientific community to develop an environmental management process which accepts western science as only one method of seeking and interpreting knowledge. Resource management programs that encourage the growth of both knowledge systems in new and innovative ways must be given the necessary financial and administrative support to allow them to flourish. Indigenous peoples must also be fully involved in their design and implementation and they must be recognized through their participation with equal authority and legal standing (Roy, Andrade, 1995).

Apart from the issue of indigenous people's indigenous knowledge in natural resources management, equity and equality reserves an important role in resource management but in the present very less priority has been given to it. Resources have been taken as an entity but crucial thing to be remembered is that resources are not only objects in physical terms where the users participate merely. It has a deep linkage with culture and society. There are inner sentiments, emotions of the local users related with resources management practices. In this regard, Berardi (2002) in his paper "Lenses of culture in natural resources management" has argued that hidden assumptions about culture are embedded in our cultural discourses and resource management institutions. Such assumptions are like lenses—they shape how we perceive social reality. As scholars and managers who are

trying to understand conflicts in resource use, it is important to make these lenses visible, that is, to look at a society's cultural lenses rather than through them, to acknowledge, understand, and question the assumptions we have about cultural milieu. Showing similitude to the proposition of Berardi, prominent feminist scholar Sandra Bem in her seminal work "the lenses of Gender"(1993) had already claimed that such lenses are relatively easy to see in relation to gender. Thus, one important point central to this issue is an understanding of the lenses of *Culturocentrism* that is, taking the dominant culture's experience as the norm, and other culture's experiences as deviations or "other". Also informative are ideas concerning culture polarization, that is, the insidious use of perceived differences in culture as an organizing principle for natural resources management and social life, a notion which seems realistic in the context of Darais of study area.

According to the International Labour Organization (ILO, 1989), indigenous confined communities consist of those people having a historical continuity of traditional culture and indigenous knowledge that developed on their territories or part of them. At present, they form non-dominant sectors of society and are determined to preserve, develop, and transmit to future generations their ancestral territories and ethnic identity as the basis of their continued existence as peoples and in accordance with their cultural patterns, social institutions and legal systems. Indigenous people and their communities and other local communities have a vital role in environmental management and development because of their knowledge and traditional practices.

Indigenous people and their communities have a historical relationship with their lands and are generally descendants of the original inhabitants of such lands. Indigenous people and their communities represent a significant percentage of the global population. They have developed over many generations a holistic traditional scientific knowledge of their lands, natural

resources and environment. Their ability to participate fully in sustainable development practices on their lands has tended to be limited by factors that are economic, social, cultural and historical in nature.

Indigenous knowledge system (IKS) is a pluralistic approach to conserving and managing natural resources. According to (Xu 2002), it is a subjective understanding of the social, political and the natural reconstruction process, which consists of cosmos, corpus, customs, beliefs, taboos, religion and institutions to guide human behavior by adaptive processes. IKS are dynamic - new knowledge is continuously added. Such systems innovate from within and will also internalize, use and adapt external knowledge to suit the local situation. (IDRC, 1998) However, it is erroneously assumed that indigenous knowledge is not confined to tribal groups or the original inhabitants of an area or to rural people. In deed, every community possesses indigenous knowledge, whether rural or urban, settled or nomadic, original inhabitants or migrants.

Although indigenous people or the native local people of any region of underdeveloped countries constitute one of the largest vulnerable segments in contemporary society, they and their knowledge systems have been marginalized mainly because of the craze for the use of western knowledge by government authorities, modernity and globalization. The distinct culture of indigenous people and their identity, their economic activities, religious beliefs, notions, and traditional ways of managing natural resources are often regarded as backward and superstition. They are considered to be absolutely incompatible with modern society and development.

The oral and rural nature of IKS in Nepal has made them largely invisible to the development community and global science. Indigenous knowledge has often been dismissed as unsystematic and incapable of meeting rapid economic growth needs of the modern world. Historically, modern societies have regarded indigenous people and traditions as less

progressive, and as a result many groups of indigenous peoples, especially their younger generations, are influenced to devalue their native cultures and to adopt new lifestyles and technologies (Upadhyay, 2007). Consequently, IKS have not been captured and stored in a systematic way and are therefore endangered with extinction. The lust for modernity and new technologies are threatening the loss of a great store of knowledge held by native people. A good number of indigenous groups in Nepal and elsewhere in the world have suffered from long-term discrimination, inequity and exclusion from the planning and execution of development programmes and projects. Despite the serious erosion of IKS over the decades in many communities in Asia and Africa, they are still most relevant appropriate for promoting resource management. Sociologists/Anthropologists have to remember that in resources management studies, the cognitive process of the local users reserves a special position. It refers to the local people's indigenous knowledge of their environment, surroundings and Culture. It also refers to the system of knowledge, technology and cognition typical of a given local community (Upadhyay, 2007). In general, in the present study cognition is a sign of the "*indigenous knowledge of indigenous people*". Hence, it is more closely related to Ethno-Science perspective. Throughout different ethnic groups, a cognitive consonance is a consistency among the beliefs, ideas, perceptions and other items and aspects of knowledge that form a cognitive system such that the system stands as an integrated and harmonious whole without internal contradictions. Identical with it is the tendency of individuals to include among his cognitions those items of knowledge that are in agreement with his beliefs, attitudes, values, and needs and to exclude those that are not. Selectivity occurs in perception, interpretation, and remembering. It is this knowledge, which can be better used for handling various sorts of environmental related natural disasters. In fact the effect of disasters depends on the spatial and temporal distribution of population.

Given the nature of planet, it is rather difficult to control hazards in terms of actual processes. The key to reducing disaster and their impacts is thus to focus on decreasing vulnerability and promoting prevention. The latter can be achieved to some extent by incorporating local knowledge and initiatives into the framework of public policy and decision- making (Ayala, 2004).

## **2.2 Concept Review of Darai as Indigenous Community**

The term relating to the concept of indigenous people as addressed by ADB policy include cultural minorities, indigenous cultural communities, scheduled tribal, natives and aboriginals. According to Plant (2002), indigenous people should be regarded as those with a social or cultural identity distinct from the dominant or mainstream society, which makes them valuable to being disadvantaged in the process of development.

Gill (1993) has distinguished 'Indigenous' from 'Traditional system'. According to Gill, indigenous refers to the point of origin, the source of initiative. Indigenous system may incorporate elements and processes from the outside world provided the initiative for the incorporation in local. Traditional system may not be of local origin, as their adoption may have been imposed from outside. Traditional system is often quite new and constantly evolving. Thus, although traditional system may be indigenous and vice versa, this is not necessarily the case.

Gurung (1994) in his book *Indigenous People: Mobilization and Changes* consists of two things. Firstly, rationale of the culture traits for the survival of ethnic identity of particular cultural group and secondly issues of indigenous people of Nepal and threat sustainable development. For this study only few indigenous groups such as Humli, Tamangs, Gurungs, Duras, Chepangs and the Rana Tharus with an objective to explore the functional

values of their cultural traits and secondly to find out the issues on indigenous people with special references to the Tharus have been undertaken. He has included almost all the indigenous groups of Nepal but misses the Darais.

Darais are of 12 thars (clans). Whatever the thar, their rites and rituals are the same. The oldest person in the family is designated as the head of the family. He is called *Mukhiya* and his duty is to make arrangements for a rice field or some other employment. Similarly, the wife of the Mukhiya should look after the household chores within the family. This is not only a joint family but also a joint home of several families. Their homes, like those of Tharus, are made by smearing with cow dung and mud. They sing *Chudke Geet* (a kind of folksong). They dance a kind of special dance called *Ghatunach*. They strictly refrain from working on the day of *Halsaro* (the first day on which land is worshipped before starting to plough), which falls in the month of Ashad (June-July). On the first day of the Nepalese new-year in Baisakh they produce fire by rubbing two pieces of hardwood. They are worshippers of nature. They respect and worship the family deity, *Bandevi*. They worship family god, ghosts and spirits. Like Tharus, others worship Hindu gods and goddesses. Bikram Baba is their favourite saint. Jand and spirit are required in every type of worship.

The main occupation of Darais is agriculture. Since they traditionally live in river basins, fishing is both a profession and a hobby for them. Because they are simple in nature, the trading class people exploit them very badly. They work in the lands that belong to others. They subsist on wages ([www.nefin.org.np](http://www.nefin.org.np)).

Darai (1998) concluded that Darais have distinct language and they have their own unique culture, rites rituals household composition, folk tale and folk songs. They do not get good opportunities such as good education, governmental job, the medical facilities etc it is easily imagined that how

poor they are living deprived of all modern facilities and depending only on the traditional system of farming. Only few countable numbers of people are enrolled in government office where females are poor condition to do government job.

Earl and Sharon Kotapish (1975) argued that Darai are in low lying valleys in the western hills area of Tanahun and Palpa and the flat plains of Chitwan and Indo Aryan language known as Darai, and 46.8% of Darai are located in Tanahun.

Anthropologists say Daraee or Darai are a sub tribe of Tharu itself. Physically Dari have flat nose, short and robust body and black complexion. Danuwar, Darai and Majhis are an indigenous people of inner Terai Valleys and Churia hills. They like to live in river basins. The area comprising north of Tharu areas and south of middle hills is considered the primitive settlement of Darais (Bista, 1967).

Culture and rituals of Darais are distinct. The newborn is named in 11 days if it is a boy and in eight days if it is a girl. It can be done in five days also if compelled by circumstances. It is a general practice among Darai to name the baby after the weekdays, months or dates of their birth. Their traditional names, though, are somewhat different like *Bikawa*, *Tikku*, *Lakhum*, etc. Likewise, female names are *Jananti*, *Buddhani*, *Dukhini*, etc. They do not have the ceremonial first haircut but they do have the cereal-feeding ceremony. Marriage practices are as follows: *Magi Bibaha* (marriage by arrangement), *Chori Bibaha* (marriage by force), *Bhagi Bibaha* (marriage by elopement) and *Gharjwain Bibaha* (marriage wherein the groom will live in the bride's home). In the *Magi Bibaha*, people from the boys' side go to visit the home of the parents of the girl with the matchmaker (Kalaiya). The boys' side should carry *jand* (local beer), spirit, pig and he-goat to the girls' side. Like the Tharus they have a practice of the boy staying in the home of

the bride for three years ploughing the field and looking after the cattle, etc. The death rites are duly performed.

## **2.3 Review of Selected Relevant Studies**

Given the available natural resources of Nepal, agriculture is the strong basis to alleviate poverty through sustainable economic development and strong rural economy. Unless there is departure from the low use of technology by its extensive use, agricultural development cannot be accelerated. Therefore, it has been felt necessary to increase the yield of the sources of the agricultural production by the integrated use of the inputs and services as envisaged in the Agricultural Perspective Plan for high and sustainable growth (in the production and productivity of the agricultural sector). Likewise, there is need of production and commercialization of high value crops and commodities based on domestic and external markets. In this context, it is necessary that the crop livestock and commodity specific pocket area has to be gradually expanded and transform them into commercial agricultural growth centre (NPC, 2002).

In 1992 the national sample census of agriculture (NSCA) estimated the area of land holding in Nepal at 2.6 million hectares and the number of holdings at 2.7 million, Nepal is not in a position to add more land for farming except for the expense of the remaining forest land. Access to land is higher in Terai region than in other two regions. Of the total 2.7 million farm households, for instance 40% located in Tarai regions cultivate around 53 percent of the operational land, while 60% located in mountain/hill regions cultivate 47% of the operational lands (CBS, 1994).

The average farm size in Nepal has decreased from 1.13 ha in 1981/82 to 0.95ha in 1991/92. The decrease in farm size is attributable to the family breakups under the existing laws of inheritance. The average farm size varies



across the region and descends as one ascends to the higher altitudes: 1.23ha in the Tarai region, 0.77ha in hill region and 0.68ha in the mountain region. Agro climatic conditions of the hill and mountain regions are favorable for the developments of horticulture cash crops, and off-season vegetables. Unfortunately this production potential has not yet been utilized because of the persistence problems of the accessibility to the market (ADB, 2001).

Due to the lack of proper implementation of plans and policies especially with the lack of proper development in the agriculture sector, the status of Nepal within past three decades has changed from food grain exporting to food grain deficit country. Food and agriculture organization (FAO) indicate that in last decade rate of growth in agricultural production was 2.6 percent per annum which is slightly above the current rate of population growth. As a result, the contribution of agricultural sector to the total Gross Domestic Production (GDP) has gradually decreasing in the recent years (FAO, 2001).

In the 1950s and 1960s, modernization theory provided a conceptual structure for the analysis and explanation of the way in which new and improved agro technologies would be adopted by particular farming population. Modernization theory did not much concern itself with the study of the generation of the new technologies, largely because of its stance toward technology. Modern technology was a technical not a social issue. It did not have the value dimension and the adoption of modern technology was usually assumed to be beneficial in terms of their impacts on production and level of living and the cumulative changes, which induced, in social attitudes and behavior. Modernization theory suggested that the main problems in modifying agricultural practices would not be in the research process, which was largely controlled by people with modern values. The great difficulties lay in the dissemination process, in which social and cultural obstacles to the adoption of new techniques and products could be

anticipated in rural population with traditional attitudes and conservative values (Hulme, 1990).

Banskota (1992) through his article published in Nepal Economic Policy for Sustainable Development has stated various agricultural issues for sustainable development in case of Nepal. With the fact of dependency on monsoon, little potential for cost effective irrigation development especially in hill and mountain, complementary nature of modern inputs such as irrigation, chemical fertilizer and modern various seeds has therefore given rise to a biochemical technology use dilemma in hill and mountain. Apart from these issues, heavy density of livestock with out steel feeding, lack of trained manpower since they are major constraint on productivity growth in agriculture sector. Inappropriate subsidies, micro credit to small clients, lack of research on particular sector for rural employment generation and lack of infrastructural development like irrigation, transportation, communication in rural sector, agriculture sector is unable to fulfill the need of the growing population. Last but not least, issue described by Banskota (1992) is unequal distribution of land. The majority of land is concentrated with landlords built those who are really hard worker have very little and fragmented land holding. So he has suggested for the effective implementation of land reform and tenancy system needs to be effectively abolished by establishing tenants' property rights. All these issues are certainly become the barrier for the modernization in the agricultural sector and for overall national economic growth.

Mal (2001) describes about the Indian unemployment situation in agricultural sector and describe about the necessity of improving the substantial sector for the overall economic growth in nation. Since the trend of agricultural growth rate in Indian agriculture at present is very little which require substantial improvement. He further suggests the necessity of raising the level of investment, resolving the problem of land tenure, easy

availability of micro credit to small client, appropriate pricing policies and developing new technology to increase productivity.

Silwal (1995) has stated various effects of population growth on agriculture sector. Through his study he finds out that a large proportion of the country's labor force is engaged in subsistence level of agriculture, rapid population growth associated with increased demand for food, limited land resource base of the country, stagnant position of agricultural modernization and a slow rate of economic growth have accentuated the problem of peasant base economy of Nepal. He further mentions the real scenario of Nepalese subsistence economy with giving the example of increased population pressure in the hill and mountain region, the cultivable land has already exhausted, farmers are forced to cultivate low quality steep land to meet the food requirement of a growing population.

UNDP (2001) on its publication Nepal Human Development Report stated the various causes of poverty and unemployment. Report explain a close look into the components of economic growth reveals that Nepal's overall growth has derived largely from the growth of non-agriculture sector which now contribute about 60 percent of GDP, compared to a mere 40 percent 15-20 years ago. This has transformed the economic structure. However the structure of employment has not changed accordingly. About 80 percent of Nepalese populations still work in agricultural sector. Consequently, income distribution has become far more uneven, with severe impact on those whose livelihood depends on the land, river and forests. Little wonder, then, that poverty is endemic in rural areas. This rises the question of how pro-poor the country's economic policy and growth have been.

Chhetry (2001) on his article understanding rural poverty in Nepal, he has given clear picture of Nepalese poverty. At first he believes that farm size and land entitlement are not the determining factors for dividing the

people into poor and non poor, this finding is a major departure from the conventional analysis of poverty so far done in Nepal. The most important factor that he has mentioned is the productivity of the land. The state of poverty of small and large-sized farm households is therefore transient in the sense that with the help of improved technologies, inputs and better market facilities, they could escape from the gripe of poverty. At last he concludes that agriculture modernization is only the effective tool for improving the condition the condition of poor.

Poudel (1986) has stated that traditional farming system with low capital; unskilled labor and lack of incentives towards the environment of Nepalese agriculture are some of the causes behind its slow pace modernization. To divert agricultural modernization, need of producing new productive plants and train manpower is essential. Besides, there are so many conditional factors that have to be adopted for modernization. These factors are physical as well as institutional infrastructure development expansion of agriculture, the use of science and technology, extension of program , experimental research in various areas and its proper implementation in particular area.

Feder et.al. (1985) has defined adoption at the individual farmer's level as the degree of use of new technology in long run equilibrium when the farmer has full information about the new technology and its potential. Aggregate adoption on the other hand, is measured by the aggregate level of use of a specific technology within a given geographic area as a given population.

Sociologist, economist, anthropologists, agronomists and geographers have spent much time and efforts in studying actors that influence the adoption of technologies. Anthropologists/Sociologists have identified many anthropological /sociological factors inhibiting adoption of new agricultural practices. These factors include the characteristics of rural countries; the

personal and situational characters of farmers and their families, such as farmer's age, educational background, the size and other characteristic of business; and psychological factors especially farmer's attitudes (Acharya, 1998).

The critical needs for increasing food production in developing countries could be met through modern technology. Modern technology, based on biological and mechanical inputs, can make a major contribution to acceleration food production. In this respect, given the extensive planning and investment requirement of these technologies, the state can play a key role in adopting such strategies. This gives rise to two requirements; first, appropriate strategies have to be devised to initiate and sustain the adoption of technology and second, the technologies have to be imported and manufactured and diffused into region and village and above all, among peasants who can increase farm productivity. The actions of the state have critical economic, social and political consequences (Roy, 1990).

In a study in eastern Tarai, Shakya (1983) has found that education was positively related to the adoption of modern rice varieties and fertilizer use. According to Mathema (1986) farmer's technical knowledge, external contacts and participants in organization are the primary personal factors, which influence technology adoption. It also appears that farmers' level of education is a potentially important determinant of technology adoption.

## **Agriculture Perspective Plan (APP)**

### *The major objectives of APP*

1. To accelerate the growth rate in agriculture through increased factor productivity

2. To alleviate poverty and achieve significance improvement in the standard of living through accelerated growth and expanded employment opportunities.
3. To transfer subsistence based agriculture into a commercial one through diversification and wide spread utilization of comparative advantage.
4. To expand opportunities for an overall economic transformation by fulfilling the precondition of agriculture development.

The plan aims achieving agricultural growth rate of 5 percent from the present level of 3 percent per annum, reducing poverty level to 14 percent from 49 percent and increasing food grain production per capita per annum to 426 kg from the level of 276 kg.

Fertilizer irrigation, technology and road and energy are four priority inputs selected by APP.

The rate of fertilizer application is the lowest in Asia (30kg per hectare). Fertilizer has been gradually subsidized in Nepal. However the government has never been able to set aside sufficient subsidiary budget. The APP aims to gradually withdraw the subsidies and increase the supply of fertilizers.

Only about 20 percent of arable lands are covered by year round irrigation facility at present. A well controlled irrigation facility is essential to increase the cropping intensity and also to make possible higher rate of fertilizer application. APP recommends that shallow tube wells and to some extent deep wells are more economical for Tarai. For the hill and mountains, however small to medium surface irrigation system managed by groups of farmer is more suitable.

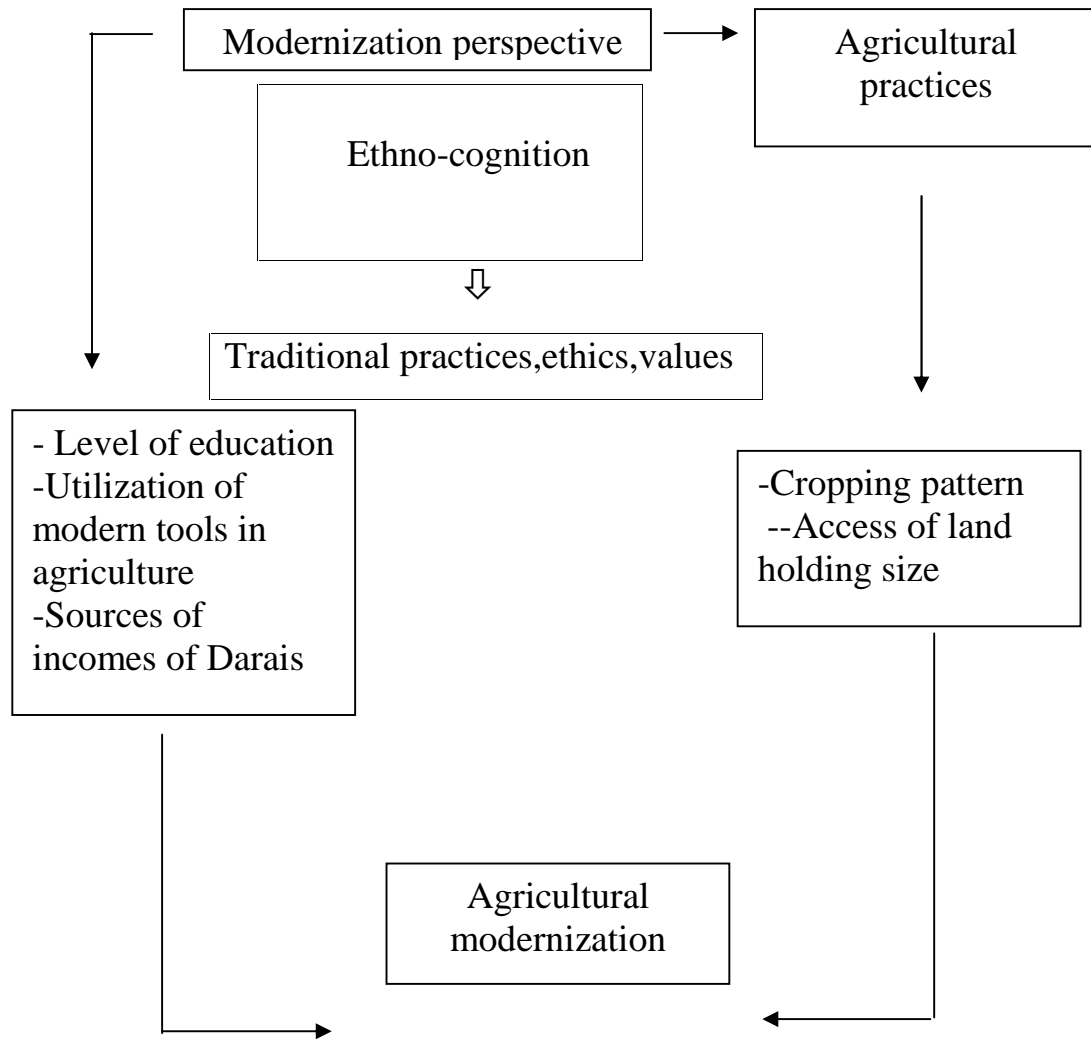
Technology is another key priority input. One of the reasons for the quantum leap in fertilizer applications in the world is that green revolution technology developed varieties were responsible to higher doses fertilizers.

Increasing application of fertilizer in traditional varieties will not increase yield.

The final priority input is agricultural roads and rural electrification. Agricultural roads connects agricultural production area to agricultural market and consumption centers which facilitate inter regional trade of agricultural products and encourage specialization of agricultural production on the basis of comparative advantage of the region (Lekhak and Lekhak, 2003)

In short, from the available resources various authors conclude that Nepalese agriculture is natured with traditional because of low capital, unskilled labor and lack of incentives towards the agriculture field. Due to the practices of traditional way of farming system, indigenous ethnic communities/groups are still unable to change their lifestyle rather they are bound to face various problems for their subsistence. Certainly social and cultural factors are some difficulties for the adoption of new techniques and products could be anticipated in rural population with traditional attitudes and conservative values.

## 2.4 Theoretical framework espoused in the study



This framework denoting modernization in agriculture signifies the development from the traditional agriculture to the modern agriculture. The modern agriculture is in contrast to the traditional agriculture. It depends on the wide application of the modern science and technology. To be more specific, agricultural modernization is the modernization of the comprehensive production capacity in agriculture. Related with modernization is Level of education.

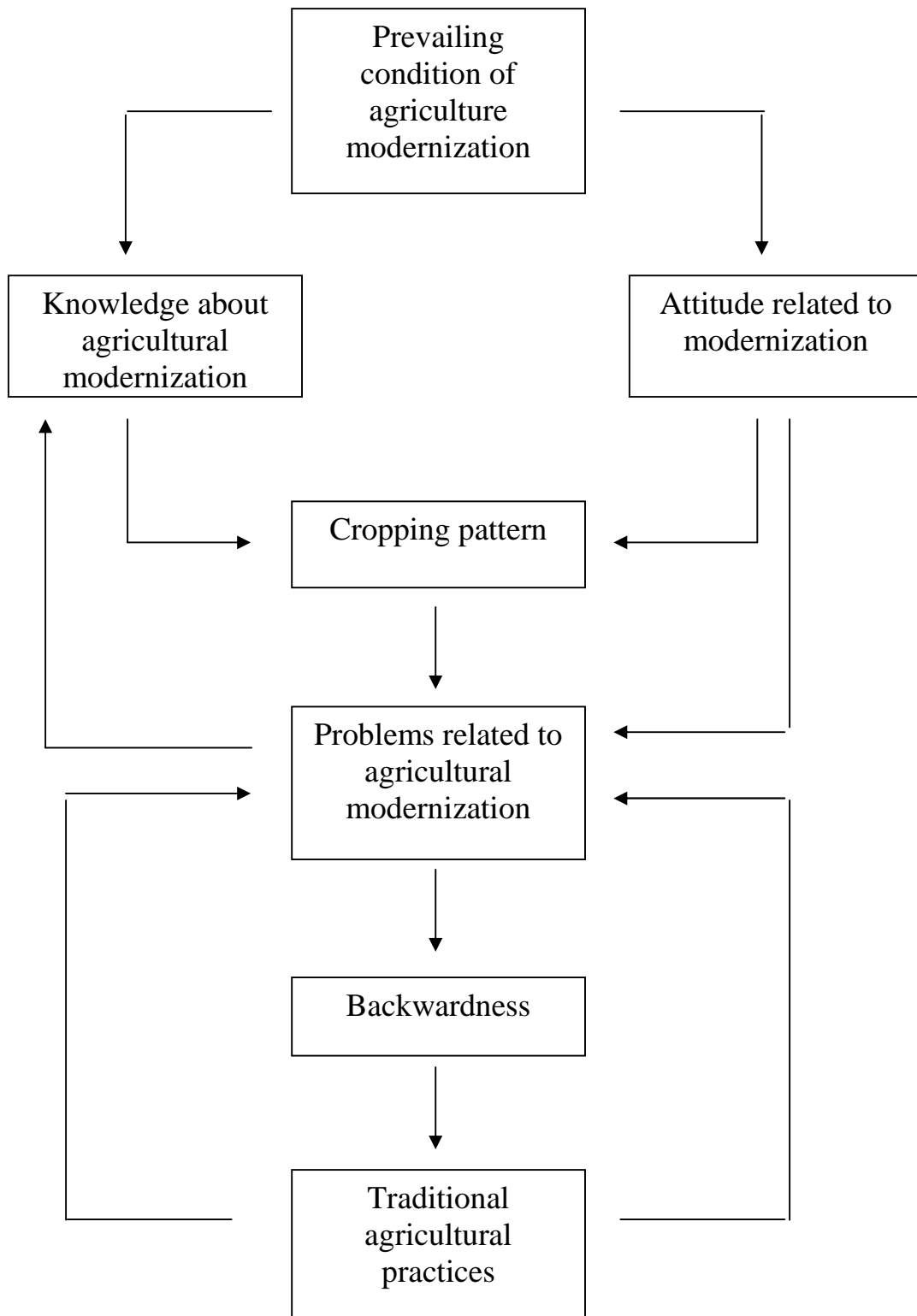
- ) Utilization of modern tools in agriculture.
- ) Sources of incomes of farmers.



Likewise, another relevant theory guiding this research is ethno cognitive theory, focusing on the native's point of view how people in particular cultures classifies the world including their natural resources. Based heavily on how local people use expressions to codify reality in anemic idealist approach to culture. Special issue is the system of knowledge and cognition typical of a given ethnic group or community. Local knowledge of the local people with a special focus on local people's concept of their community resources including the agriculture, used especially in applied anthropology. Also vital are the traditional practices, ethics, values etc that are influential in guiding people's behavior related to agriculture modernization.

So as in the given figure at the present time Darai people are using the traditional way of farming system due to the fact of there low level of knowledge, low level of education as well as low income level. On the other hand low access of land holding size and traditional cropping pattern leads them for their traditional activities especially in the agriculture activities. Likewise their traditional norms and values also restrict them for agricultural modernization.

## 2.5 Conceptual framework adopted in study



The conceptual framework focuses on the prevailing condition of agricultural modernization among the Darais with focus on knowledge and

attitude on agricultural modernization in their community. The cropping pattern of Darai community is also vital. The framework also focuses on the knowledge of agriculture modernization in Darai community with focus on the attitudes and problems of agriculture modernization in Darai community. The objective of this study,

- a) To identify the cropping pattern of Darai community.
- b) To asses the knowledge of agriculture modernization in Darai community.
- c) To asses the attitudes and problems of agriculture modernization in Darai community.

Generally darai people are very traditional as a result their economic condition as well as educational level is so poor. So for knowledge of agricultural activities is concerned they uses traditional tools and technology likewise if they are awared about modern agricultural activities due to the low economic status and lack of intensive knowledge they are unable to practice all the knowledge in practical life.

# **CHAPTER - III**

## **RESEARCH METHODOLOGY**

### **3.1 Location of Study Area and Rationale for the Selection of the Study Area**

The study site is located in Darai community located in Vyas Municipality which is situated between 27°57'4" to 28° 02'31" North latitude and 84°13'05" to 80°22'10" East longitude. It is situated about 150 kilometers away from Kathmandu. Basically Vyas Municipality is the cluster settlement of Darai community in comparison to other local administrative unit of Tanahun district. The population of Darai in Vyas municipality is 2939, which covers 10.33 percent of the total population of Vyas municipality (CBS, 2002). Out of the 11 wards only two wards 3 and 5 were selected as the study area of this study.

The area was selected on the following rationality:

- i) Cluster settlement of Darais.
- ii) Darai community still practices the traditional way of agriculture system even though they are nearer to the district headquarter.
- iii) The researcher himself is the residence and familiar to the study area.

### **3.2 Research Design**

A Research Design is a plan of the proposed research work. It is a planned sequence of the process involved in carrying out a research study. A research model or design represents a compromise dictated by mainly Practical Considerations. Research design is a research plan providing guidelines to researcher to get answers of the research questions and help to

control experimental, extraneous and error variances of a particular research problem.

Analytical as well as descriptive research design was used in this study. This study describes the idea or attitude and awareness on agriculture modernization in Darai community and presented in analytical way. In the current study the exploratory research design has been used to understand various aspects of the problems or issues related to agricultural modernization study while the descriptive research design has been used to describe the social, cultural, demographic and other details of Darai community. Here descriptive design has helped in discovering new precision in the field of agricultural practices. Descriptive design prepared basis for clarifying and describing concepts, establishing priorities for carrying out research in specific descriptive real-life setting.

The collected data were qualitative and quantitative both in nature.

### **3.3 Sampling Procedure**

The universe for the study is ward no. 3 and 5 of Vyas municipality where Darais are highly concentrated. The sample size was selected randomly in each ward. The quota was given to each ward for the sample size and the respondents were selected randomly. 40 households in ward no. 3 and 60 households in ward no. 5 (hence making a total of 100 households) were selected for the study which was selected using random sampling technique.

### **3.4 Nature and Sources of Data**

As per the need of the study, more primary and some secondary data have been collected but priorities have been given to the selection of primary

data which are both qualitative as well as quantitative. Primary data have been collected by employing various techniques. Primary data or the first hand data were collected via the field study adopting various participatory means. Both primary and secondary data were used in this study to make the study more qualitative rather than quantitative. Primary data were collected from direct field survey with the help of structured and semi structured questionnaire. Similarly, the necessary secondary data were collected from published and unpublished written documents of Vyas municipality, District Development Committee Tanahun, websites and from other related organizations.

### **3.5 Units of Analysis**

The agricultural practices and the trends of modernization were identified and analyzed at two levels -- the group and individual member level. By group we mean households level and individual level means person level.

### **3.6 Instruments and Techniques of Primary Data Collection**

The methods adopted in the study to generate relevant data were guided by research objectives, questions and the type of data required for the study. In general following techniques were adopted to collect primary data.

#### **3.6.1 *Household Survey***

In order to form the sampling frame, all total 100 households were enlisted. In the first phase of the study, household enumeration was conducted and the social, cultural, religious and economic status of each

household was choked out. The economic status was determined on the basis of income, income sources, landholding related with farming, employment or job etc.

100 households were surveyed with the help of questionnaire prepared. Both structured and unstructured questionnaire were used during field survey.

### **3.6.2 Interview**

Interview method was espoused for collecting first hand data. Interview schedule was prepared based on the objectives of the research study containing both closed as well as open-ended questions. Both structured and unstructured interviews were conducted. Individual and group interviews were conducted for interviewing sampled households. Group interviews were conducted by drawing household heads, including females also, VDC officials and other influential persons of the village into free discussion on topics such as agricultural resources management, use of agricultural techniques, benefit derived etc.

Unstructured/ Informal interviews were conducted with Village Leaders and key informants for tracing their attitude towards land use pattern, agricultural modernization etc. It has been helpful in collecting other unofficial information too. Socially active and educated Darai people and some other socially active and educated people in the study area were also taken as key informant and were interviewed to find out different agricultural pattern in the study area. The respondents of such interview were especially renowned persons of the study area like local leaders, teachers and other educated persons from Darai community.

### **3.6.3 Observations**

Observation has three components, namely, sensation, attention, and perception and it is one of the important methods of data collection. For this

study, direct **participant** observations overt method was used to collect relevant data. Participant Observation included, establishing rapport with the people, and direct collection of primary data's from the field. Personal Observation is crucial for the immediate study of the events. For this study, direct participant observations overt method was used to collect relevant data. Participant Observation included, establishing rapport with the people, and direct collection of primary data from the field. Personal Observation is crucial for the immediate study of the events. Different agricultural pattern of the Darai community of the study area was directly observed after building good rapport with the people in that community. Different modes of agricultural pattern were straightforwardly observed during the field survey. Prior to the visit of the field a checklist was prepared not to be confused during field study for what to be observed.

#### **3.6.4 Focus Group Discussions (FGD)**

Focus Group Discussions (FGD) was conducted to discuss the research issue and to interact among respondents. 25% of the total sampled households' heads were involved in FGD with the incorporation of male, females etc. Focus group discussions were conducted in workshop style using PRA tools.

Altogether 5 FGD's were conducted with the involvement of 5 participants in each FGD. It enabled to collect data required for exposition of authenticities related to agricultural modernization. Help of local facilitators (who were also the Darai farmers) was taken for the conduction of FGD.

The discussions were made as per the situation of the selected sites (with male and female group or only female group or wealthy/medium/poor/very poor people) at very initial stage to get opportunity to familiarize with field situation, experiencing and knowing the existing agricultural conditions, exploring the general socio-economic situation of the sample community.



### ***3.6.5 Structured Questionnaire***

All the necessary information is collected through a structured questionnaire. The structured questionnaire was prepared to generate the realistic and accurate data from Darai people of the study area. The respondents were requested to fill up the questionnaire. In case the respondents were unable to read and write, the questions were asked to them and answers were filled up to collect relevant data. (The structured questionnaire is given in Appendix.)

## **3.7 Data Analysis and Presentation**

After the completion of data collection both primary and secondary data were processed manually. Quantitative data were analyzed and interpreted on the basis of statistical tools. Simple statistical tools were used to analyze the data. Mainly tables, charts were used as required. Qualitative data were analyzed descriptively.

# CHAPTER - IV

## INTRODUCTION OF THE STUDY AREA

Nepal is a country with a Shangri-La image bounded by lofty hills and unique culture with its preserved glory of being an independent and sovereign kingdom throughout history. Bound by the giant communist China to the north and democratic India to the east, west and south, Nepal possess its own separate political identity and status. Nepal is mainly an agricultural country with 77.5 % of population dependent on agriculture and the main land use pattern is; forested 39% pastures 15%, agricultural-cultivated 17%, other 29% (CBS, 2001).

Nepal's national economy is dominated by the agricultural sector. It has a 54 percent share of GDP and accounts for 75 percent of the total exports. Over 77.5 percent of the total population depends on this sector for subsistence living (CBS, 2001). Nepalese rural life is supported by agricultural way of living for the fulfillment of people's day to day basic needs.

Although in Nepal, there has been an increase in agricultural production, there is a declining trend in crop yields per unit area due to lack of successful agricultural modernizations viz. shortage of chemical fertilizers, and lack of irrigation facilities attempts, deforestation, loss of top soil, and other inputs. There is high potential for its expansion through the management of land and water resources, and the formulation of a rational agricultural land use plan. With a view to develop these sectors in a planned way, the Horticulture Master Plan has been completed and the Livestock Master Plan has been prepared (CBS, 2001).

Among the 75 districts of Nepal Tanahun district is located in western Nepal. Vyas municipality also known as Damauli is the headquarters of this district. In fact, Damauli is the district headquarters of Tanahun which is located in Vyas municipality. Vyas Municipality is located between 27°57'4"to 28° 02'31" North attitude and 84°13'05" to 80°22'10" East longitude. It is situated about 150 kilometers away from Kathmandu. The municipality comprises eleven different administrative wards and 110 toles. It covers 60.519 Sq.Km areas. The highest point is situated in Manungkot village which has an altitude of 1080m located in ward no 7 and the lowest altitude of 320m recorded in the bank of Madi river.

The detail map of Tanahun district and Vyas municipally follows-

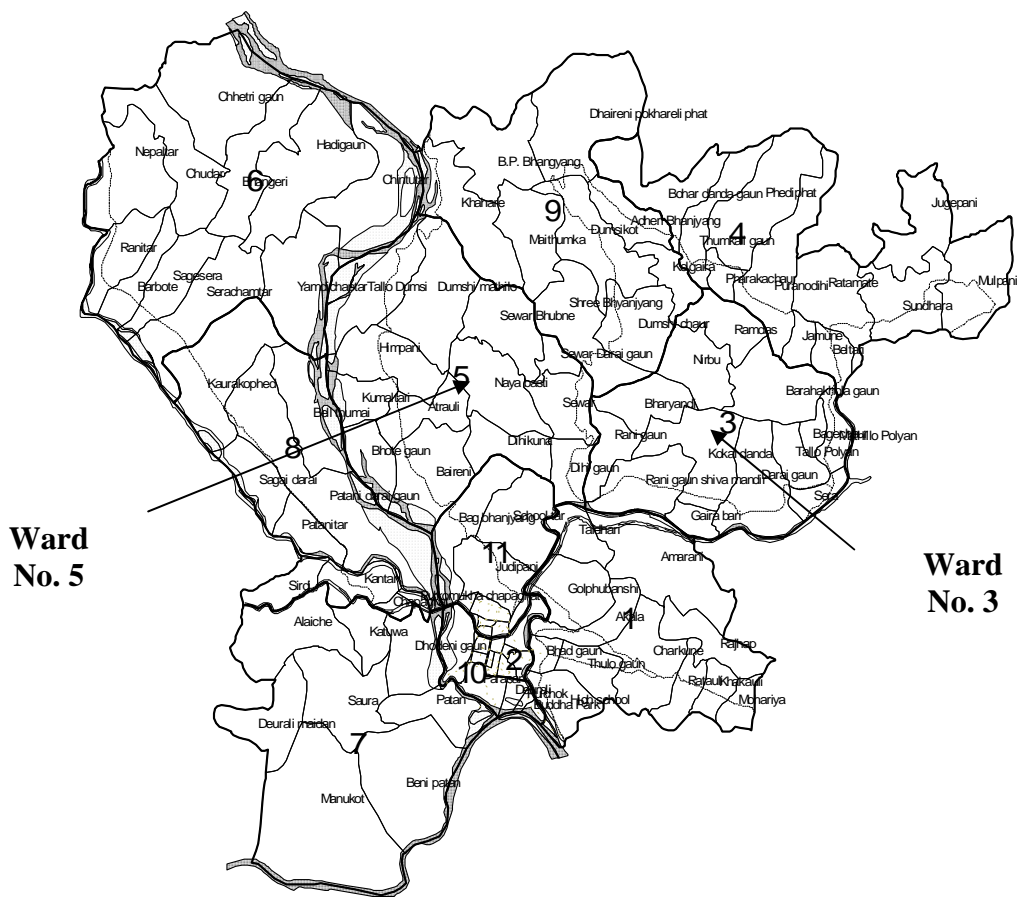
**Figure 4.1**  
**Map of Tanahun District**



Tanahun district one of the districts of western Nepal, has its own demographic, socio-cultural, educational and economic features. This district is the birth place of many national heroes of Nepal including the renowned literary figure Bhanubhakta Acharya.

Vyas municipality is the district headquarters of Tanahun Municipality. The detail map of this Municipality is as follows:

**Figure 4.2**  
**Map of Vyas Municipality**



Altogether there are 11 wards in Vyas municipality. Nowadays owing to urbanization and high level of migration, this municipality is becoming a crowded place to place.

This study deals with agricultural modernization hence it is vital to ponder at the climatic and other conditions of the sample area the Vyas municipality.

## 4.1 Climate

The climate of Vyas municipality is tropical, so it is moderate hot in summer and cold during winter season. The temperature and rainfalls recorded by the meteorological station are shown below in the table.

**Table 4.1**  
**Temperature And Rainfall Record Of Damauli**

<b>S.N.</b>	<b>Description</b>	<b>Temperature/precipitation</b>
<b>1</b>	<b>Maximum temperature</b>	<b>34°C</b>
<b>2</b>	<b>Minimum temperature</b>	<b>8.4°C</b>
<b>3</b>	<b>Mean annual rainfall</b>	<b>1960.6mm</b>

*Source: Vyas Municipality, 2009*

According to the record of Vyas Municipality the maximum temperature of the study area is 34°C and Minimum temperature is 8.4°C. And Mean annual rainfall is 1960.6mm.

## 4.2 Population

The total population of Vyas municipality is 28,443 (CBS, 2001). Among them 13,546 are male and 14,897 are female. With a total of 5,039 households, the population density of is 400 per Sq.Km.

### **4.3 Education and Literacy Rate**

There are 29 education institutions within the municipality among them 26 are schools and 3 are colleges. Each of the wards does have at least 2 schools. The literacy rate of Vyas municipality above 8 years child is 78.93 percent. Of the total population of the municipality, among the total literate, 54.60 and 46.40 percent are male and female respectively.( Source: Vyas Municipality, 2008.

### **4.4 Occupation**

Around 90 percent people still depend on the agriculture sector and around 5 percent are involved in the business and some on small employment (CBS, 2001). Especially, in the town are people involve in business and trade in the village level small agro industry has been established but it is in negligible number and most of the farmer still depend or practice the traditional agriculture.

### **4.5 Health**

As regard to the position of health service one hospital, four health posts and some private clinics are available but still the capacity of health service is very low. So the people incase of emergency have to rush either to Kathmandu or Pokhara. Need of increased capacity of hospital and more health centers in every ward are urgent in this municipality.

### **4.6 Land Use**

The dominant land use classes have different types of agricultural land (sloping and lever terraces, mostly cultivated). This shows the significance

of agriculture as main source of livelihood. Forest is the second predominant element of land use; major forest land seen consists of natural vegetation, dense and scattered forest area.

#### **4.7 Infrastructure**

The road networks are largely developed in this municipality. The Prithivi Highway passes through the municipality and other well managed or black topped road around 7 Km had been developed in the town area. Most of the settlements are linked with the motor able road. Around 5Km road had been constructed but overall road network is not planned and the condition is not satisfactory to be classified as urban road.

Most part of the municipality does have electricity network. The telephone facility is available in core town as well as other parts of municipality and water supply and waste management facilities are also well managed.

#### **4.8 Social-Cultural Structure & Caste and Ethnicity**

Social and cultural structure of the society is important themes in sociological/anthropological studies. They are very closely related to the issues of growth and management of natural resources including the agricultural resources management. Unless and until the cultural and social structures are not comprehended it is not easy to solve any kind of problem may be that of any kind of development allied issues. The society is a social web of social relationship, human behaviors and their consequences. Generally society is a system where people from different ethnic background live with their culture in a fixed geographical environment, along with a fixed social structure, social barriers and well defined social relationships. The conception of culture is undeniably influential in shaping concepts and

practices related to physical environment. These phenomena's have differing roles to play in this complex process and therefore must be researched separately. Human ideology may influence, say, conceptions of the conservations of natural resources for the benefits of posterity; resource user's desires may exert pressure in the opposite direction. Different components of culture, in different conditions and circumstances and at different time influence the resource management pattern. Human behavior is multipotential, at any point in the life cycle of individuals the number of possible responses to a given situation is in fact constrained by previous learning, standardized responses, and conventional values. Still, it is never possible to rule out the role and value of cultural and social structure in influencing resource management behavior of users (Upadhyay, 2007).

Thus, given the vitality of social and cultural structure it is important to scrutinize the social and cultural structure of the studied community along with different caste and ethnic group living in this municipality such as Brahmin, Chhetri, Gururng, Magar, Darai etc. The following table shows the status and composition of all these castes and ethnic groups.



**Table 4. 2**  
**Caste/Ethnic Group Distribution Of Vyas Municipality**

<b>Caste</b>	<b>Population</b>	<b>Percent</b>	<b>Caste</b>	<b>Population</b>	<b>percent</b>
<b>Brahman</b>	<b>5894</b>	<b>20.72</b>	<b>Damai/Dhobi</b>	<b>740</b>	<b>2.60</b>
<b>Magar</b>	<b>3896</b>	<b>13.70</b>	<b>Kumal</b>	<b>619</b>	<b>2.18</b>
<b>Chhetri</b>	<b>3523</b>	<b>12.39</b>	<b>Bote</b>	<b>572</b>	<b>2.01</b>
<b>Darai</b>	<b>2939</b>	<b>10.33</b>	<b>Sarki</b>	<b>508</b>	<b>1.79</b>
<b>Newar</b>	<b>2716</b>	<b>9.55</b>	<b>Thakuri</b>	<b>470</b>	<b>1.65</b>
<b>Gurung</b>	<b>2081</b>	<b>7.32</b>	<b>Others</b>	<b>3005</b>	<b>10.56</b>
<b>Kami</b>	<b>1480</b>	<b>5.20</b>	<b>Total</b>	<b>28443</b>	<b>100.00</b>

*Source: CBS, 2002.*

The caste/ethnic distribution is assorted and diverse in Vyas Municipality. Here the total population of Brahmin is 5894, Magar 3896, Chhetri 3523, Darai 2939, Newar 2716, Gurung 2081 and Kami 1480.

A cultural cradle of Western Region Vyas municipality is the land of festivals with rich cultural heritage of the people of Indo-Aryan as well as Mongoloid stocks. Major cultural ceremonies and activities have religious origin. Dashain, Tihar, Buddhajayanti, Nag Panchami, Janai Purnima, Teej, Sri-Panchami, Shivaratri, Chaite Dashain etc are totally religious. In Vyas Municipality, majority of the village dwellers are found to be following Hinduism beyond Buddhism the second major religion. The major festivals of this region is Dashain, Tihar (also called Deepawali), Maghe Sankranti (a popular Hindu festival celebrated in the month of January), Basanta Panchami (also known as Saraswati Pooja), Fagu Purnima (Holi), Chaite Dashain (Mini Dashain or Durga Pooja observed in the month of March-April), Saune Sakranti (a popular Hindu festival observed in the month of July), Janai Purnima (also known as Rishi Panchami), Teej (women's festival) etc. It was reported during the field observation that some to nineteen to

twenty years back, *Balan nach* (Child dance) based on *Krishna Lila* (after the popular Hindu god) was organized in this village which is not in practice nowadays. Likewise even to these days *lakhe nach* (a kind of dance performed mainly in Newari (ethnic group) dominated areas of Nepal) used to be performed in Teej. Similarly Bhajans (religious songs in praise of god) are organized during Shivaratri festival (a festival celebrated as the birth day of Hindu god lord Shiva).

During the celebration of Lakhe Nach, Gai Jatra, Bairab Jatra (celebrated by Newar Community), Lohsar (Celebrated by Gurung community) the cultural activities such as dancing and singing, reciting lores and legends are performed Ceremonial rites, rituals and so on are quite fascinating phenomena. In respect of cultural heritage, Vyas municipality is one of the richest cultural bowls in the country. Here the trend of urbanization is high and it has been a meeting point of several tribes, races, ethnos, caste and creeds. Now it has been converted into the home of several caste, creeds, tribes, races and cultural groups. Therefore, the different lifestyle of these people in aggregate reflects the cultural significance of the municipality.

Majority of ethnic group members' viz. Gurung are by nature jolly and enjoy themselves by singing and dancing. But socio-cultural changes are occurring here too due to Hinduism, westernization and modernization. But lack of infrastructure of development, influence of Hinduism, old agricultural pattern, low literacy rate and poor economy are influencing the structure of these ethnic groups. Bista (1999, 2000) writes ethnographic details of various nationalities and caste groups of Nepal and their general social promotion moves towards the single national mainstream.

As human values are very intimately related to religion and ritual practices it is indispensable to take note of the religions and ritual practices. Analyzing various faiths and values of human society, two types of views

seems genuine. These are *Materialistic views vs. Spiritualism*. Materialistic views depend on what is seen from naked eyes whereas spiritualism believes in after death world. Of these two world views, various beliefs and faiths have born and Hindu religion and culture based on Orientalism is no exception of it. As Hinduism is predominant, beyond believing in medical science, the people of this municipality also believe in Dhami (witchcraft), Boksi (witchcraft), Bhut-pret (Spirits and ghost) and other supernatural forces. Being Hindu priests, Brahmins of this part were found to be highly ritualistic. Some of the so called low caste groups like Kami (Blacksmith) have priest of their own, especially the role of priest to be performed by *Bhanja* (nephew). In the study area all the caste groups were found to be strongly following their caste based traditions. The upper caste Brahmins and Chettries are found worshipping their own deities. They were found performing *Kulayan Puja* (worshipping family deity) at every four years interval when all members of same clan holding patrilineal blood relationship and their relatives gather at a site where *Kul Devta* (family deity) is kept. Some Brahmin clans used to sacrifice *Boka* (male goat) during *Kulayan puja* whereas in some Brahmin and Chettry clan animal sacrifice during *kulayan puja* has been totally prohibited. Some Brahmin clans' used to cook fermentry and distribute it among their brothers.

Beyond Hinduism some Gurungs of this municipality are found to be practicing Buddhism along with Hinduism. They were found to be observing prominent Buddhist festivals like Buddha Purnima. At the same time style of observing Buddhist festivals were highly influenced by Hinduism. Many of the Gurungs were found observing both Buddhism and Hinduism at the same time as they observe Dashain and Buddha Purnima at a same time. Along with it they were found to be following Lohsar festival. Many of their cultures and traditions had a deep influence of upper caste Brahmins and Chettries. It may be because of Hinduization process which has been

occurring in the region for centuries. It also demonstrates the unique syncretism of Nepali society and culture.

## **4.9 Darais and their Distribution by Sex and Age Group**

Socially, economically, and politically, the Darai have not been mainstreamed in the development process. That the Darai do not have political representation, even in local administrative bodies, keeps them isolated in decision-making processes. The impact of Nepali development programs on the Darai is largely untracked, and they are categorized as *other* in conclusive statistical reports. This neglect leaves the status of their condition unknown.

Majority of Darais live on flat lands near rivers for easy access to fishing. Although most Darai own large amounts of land, they continually fight for it in the face of increasing modernization.

The Darai's unique social customs surround an animist belief system but they follow the Hindu religion. In addition to their own celebrations, which include ancestor worship, they celebrate most Hindu festivals. In the men's *Puja* (worship), young chickens are sacrificed. The Darai remember ancestors by placing banana leaves and a stone under a tree to represent the spirit. During meals, they also offer small amounts of rice near the ashes of the wood stove. Unlike most other ethnic groups in Nepal, the Darai do not require outside Brahmin priests.

Another unique aspect of Darai culture is found in *Rodi Ghar*, a custom in which teenagers and young adults sing, play music, and talk together in a small house. This practice is the primary source of secret engagements and runaway marriages—a cultural trend common among several indigenous groups but not in mainstream Nepali culture.

Amidst all these cultures features, the Darais living in Vyas municipality also reserves their own unique presence with an assorted population. Age group of the respondents (household heads) has been categorized into six categories viz. below 20 years, 20-30, 30-40, 40-50, 50-60 and 70-80. The following table distributes the respondents by age and sex groups.

**Table 4.3**

**Distribution Of Respondents (Household Heads) By Sex And Age Group**

Age	Sex		Total	Percent
	Male	Female		
<b>Below 20</b>	<b>8</b>	<b>6</b>	<b>14</b>	<b>14</b>
<b>20-30</b>	<b>12</b>	<b>6</b>	<b>18</b>	<b>18</b>
<b>30-40</b>	<b>14</b>	<b>12</b>	<b>26</b>	<b>26</b>
<b>40-50</b>	<b>10</b>	<b>12</b>	<b>22</b>	<b>22</b>
<b>50-60</b>	<b>8</b>	<b>6</b>	<b>14</b>	<b>14</b>
<b>70-80</b>	<b>4</b>	<b>2</b>	<b>6</b>	<b>6</b>
<b>Total</b>	<b>56</b>	<b>44</b>	<b>100</b>	<b>100</b>

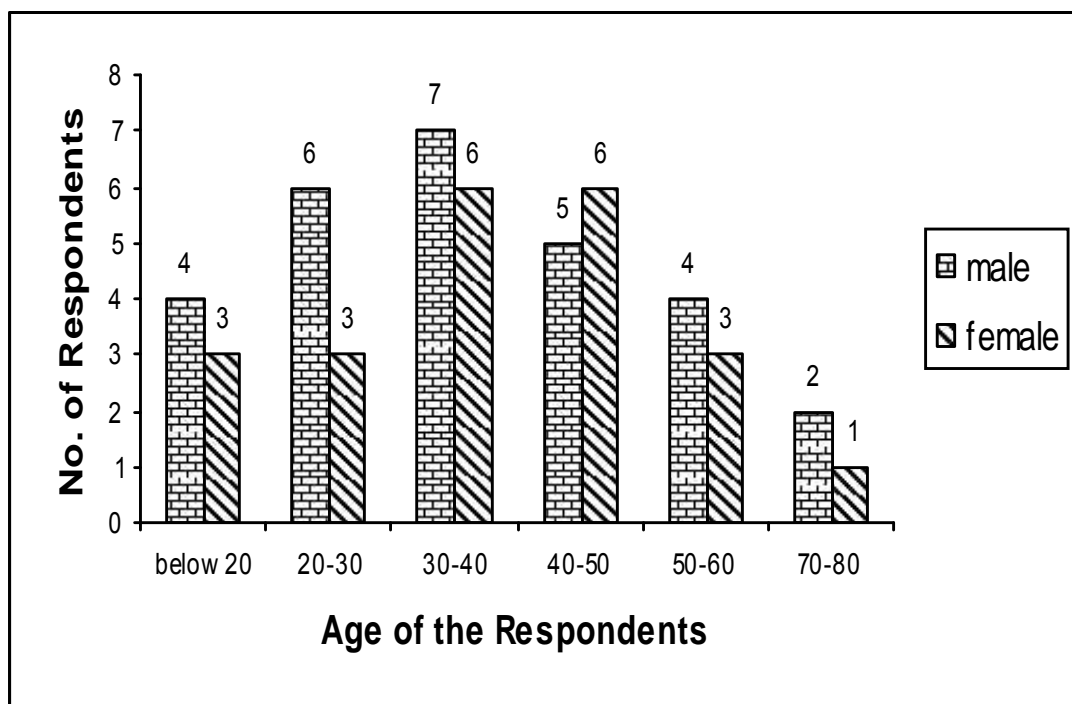
*Source: Field Survey, 2009.*

The highest numbers of the respondents were from the age groups of 30-40. Through the table we can say that the age group between 20-50 plays the dominant role in this study. Naturally people between the same age group are the active labor force either in household activities, cultivation or in labor market, whereas age below 20 and 50-60 are also active psychologically and mentally. But in regard to the present study, the youth age group 20-50 must have either more knowledge about agriculture if they are educated and if not educated, they may not have such knowledge. The respondents of old age group 70-80 are also presented here. So far the

distribution by sex in this study slightly dominance of male respondents can be easily realized whereas female respondents cover 44% of the total respondents.

The distribution of age of the respondents is also shown through the following bar diagram.

**Figure 4.3**  
**Distribution Of Respondents By Age Group**



#### **4.10 Educational Status of the Respondents**

Education selects and categories the difference between human and animal. The purpose of education may be to instill discipline and respect or to give everyone an equal chance to broaden their intellectual and emotional

life. Some people would say it provides a small minority with an intensive, high equality process of intellectual stimulation until they are adult, and gives the poorer majority a lower quality basic education until they are in their adolescence. Others believe education operates to reproduce the capitalist class system, gender roles and patriarchal relationship (Barnard and Kirby, 2004).

Although education in the Nepalese context may be playing prime role in strengthening patriarchal relationship, there exists no doubt that education is an important attribute for the development of human personality and leadership skill so that to work in any kind of development or management works. The level of education is related to higher social and economic status in the Nepalese context, as is education itself. A positive attitude towards any kind of resource management practice by the educated people can make it successful and handy. Education is a variable which inhibits/motivates people in development programmes. In the study region the level of education is categorized into three categories viz. illiterate (the person totally unable to read and write), literate (the person who knows read and write in his necessity) and educated (the person who have passed SLC and above). The following table represents the educational status of the respondents.

**Table 4.4**  
**Educational Status Of The Respondents**

<b>Level of education</b>	<b>Male</b>	<b>Percent</b>	<b>Female</b>	<b>Percent</b>	<b>Total</b>	<b>Percent</b>
<b>Illiterate</b>	<b>22</b>	<b>39.28</b>	<b>30</b>	<b>68.18</b>	<b>52</b>	<b>52</b>
<b>Literate</b>	<b>22</b>	<b>39.28</b>	<b>14</b>	<b>27.72</b>	<b>36</b>	<b>36</b>
<b>Educated</b>	<b>12</b>	<b>21.42</b>	<b>0</b>	<b>0</b>	<b>12</b>	<b>12</b>
<b>Total</b>	<b>56</b>	<b>100</b>	<b>44</b>	<b>100</b>	<b>100</b>	<b>100</b>

*Source: Field Survey, 2009*

Majority of the respondents were illiterate in this study, where the female respondents were more illiterate in comparison to male. In the same way, the rate of literacy is also slightly less in female groups. Among all the respondents, only 12 percent are educated where none of them are from female group. So this table indicates that the educational status is not satisfactory in Darai community. Only a few, especially male, are found as educated people. In comparison to male, female are rarely found as higher level students.

#### **4.11 Family Structure of the Respondents**

The distribution of the respondents by their family structure is shown in the following table.

**Table 4.5**  
**Family Structure Of Respondents**

<b>Type of family</b>	<b>No of respondents</b>	<b>Percentage</b>
<b>Nuclear</b>	<b>66</b>	<b>66</b>
<b>Joint</b>	<b>34</b>	<b>34</b>
<b>Total</b>	<b>100</b>	<b>100</b>

*Source: Field Survey, 2009*



Data presented in the table indicates that 2/3<sup>rd</sup> of the respondents were living in the nuclear family. Still people are living in joint family even though there is large population size and are individually capable. The trend of living in joint family was especially seen in such family where none of them are engaged in official job. “Higher the working manpower, easier will be the works in the season”, feeling occupied in the mind of Darai people. Traditional agricultural practice was found as the main cause for talking in favor of joint family.

#### 4.12 Family Size of the Respondents

The family size of the respondents is categorized into four categorizes viz. below 5, 5-8, 8-10 and 10-15. The family size of the respondents is given in the following table.

**Table 4.6**  
**Size Of Family Of The Respondents**

<b>Family size</b>	<b>No of respondents</b>	<b>Percent</b>
<b>Below 5</b>	<b>12</b>	<b>12</b>
<b>5-8</b>	<b>56</b>	<b>56</b>
<b>8-10</b>	<b>16</b>	<b>16</b>
<b>10-15</b>	<b>16</b>	<b>16</b>
<b>Total</b>	<b>100</b>	<b>100</b>

*Source: Field Survey, 2009*

The table shows that most of the respondents were from the family size of group 5-8, where the family size between 8 and 15 is also in significant numbers. Isolation from the educated society and illiteracy are the

major causes for the large family size. In this study, some of the respondents were found to have small family size. Especially young and educated couples, employed people were aware about family planning and interested in small family size. Larger the family size, lower the educational level and lower the knowledge about agricultural modernization. And smaller the family size, higher the educational level and higher the knowledge of modern agricultural tools and techniques. The family size of the respondents is also shown in the pie chart.

### **4.13 Occupational Status of Respondents**

Environmental economists view (Horst, 1998) holds the notion that in the natural resource management perspective, economic development, economic status of people and environmental conservation are making pivotal role. There exists a trade-off between economic development and environmental conservation. The environment fulfills many functions for the economy. Nepal is predominantly an agricultural country where near about 77.5 % of the population depends on agricultural works for their existence.

This tendency exists in the studied population also too where major percentage of people are found to be involved in agricultural works (Field survey, 2009). In fact, subsistence agriculture is the main source of livelihood for the majority of the residents of the study area. While the rest combined agriculture with job and wage labors. Most of the respondents were not found to be fully dependent on a single occupation. For to fulfill their daily needs they had undertaken more than one means of income. The modes of income generation of the respondents are displayed in the following table.

**Table 4.7**

### Occupation Of The Respondent Households

<b>First priority occupation</b>	<b>No of respondents</b>	<b>Percent</b>	<b>Second priority Occupation</b>	<b>No of respondents</b>	<b>Percent</b>
<b>Agriculture</b>	<b>66</b>	<b>66</b>	<b>Agriculture</b>	<b>32</b>	<b>32</b>
<b>Service</b>	<b>16</b>	<b>16</b>	<b>Service</b>	<b>14</b>	<b>14</b>
<b>Labor</b>	<b>12</b>	<b>12</b>	<b>Labor</b>	<b>48</b>	<b>48</b>
<b>Business</b>	<b>4</b>	<b>4</b>	<b>Business</b>	<b>6</b>	<b>6</b>
<b>Small industry</b>	<b>2</b>	<b>2</b>			
<b>Total</b>	<b>100</b>	<b>100</b>	<b>Total</b>	<b>100</b>	<b>100</b>

*Source: Field Survey, 2009.*

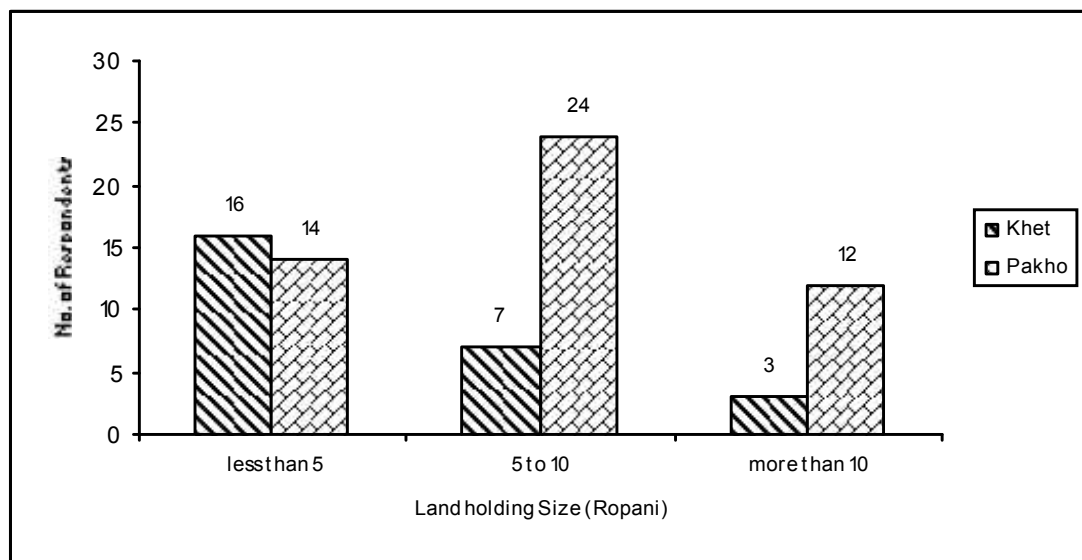
Almost all of the respondents' households were not found to be totally depending on single occupation or single source of income. Around 2/3<sup>rd</sup> of the respondents had taken agriculture as the first priority occupation whereas, service, labor, business, small industry were also first priority occupation of some households. Physical labor was the second priority occupation as the large number respondents. Apart from this, service, agriculture and labor were also second priority occupation or source of income for some households. Through the study, it was found that all of the respondents were involved in agriculture sector and in off seasons or other leisure period, family members involved in other occupations, but those respondents who have little land in ownerships, either they cultivate the land of land owner in tenancy or they chose other occupation as the first priority occupation like service, labor, business etc. and only one respondents household I found was running the small industry as first priority occupation

and comparatively they were economically sound and still agriculture is their second priority occupation.

#### 4.14 Distribution of Households by Land Holding Sizes

Land is a resource, a property and a sigh of prosperity. In a traditional semi-feudalistic society like that of Nepal the status of an individual is determined by landholdings. The land holding pattern of the respondents is shown through the following diagram.

**Figure 4.4**  
**Landholding Sizes Of The Respondents**



None of the respondents were found landless but only 54 respondents (54%) were found to have *khet* (land with irrigation facilities). Among them also only 32 percent have less than five ropanis of irrigated land in the same way 14 percent and 6 percent respondents have respectively 5 to 10 and more than 10 ropani of land (Khet). Similarly, all of the respondent have *pakho* land (land without irrigation facility). Among them, 28 percent, 48

percent and 12 percent of the respondents have respectively less than 5, 5 to 10 and more than 10 Ropani of land.

#### 4.15 Status of Irrigated Land

Developed Irrigation symbolizes a refined agricultural system. In the current study the landholdings of the respondents has been classified into three groups viz-

- a) All season irrigation facility land,
- b) Partially irrigation facility land and
- c) Non irrigation facility land.

The three groups have been presented in the following table.

**Table4. 8**  
**Status Of Irrigated Land**

<b>Status</b>	<b>Number of respondents</b>	<b>Percentage</b>
<b>All season irrigation facility</b>	<b>0</b>	<b>0</b>
<b>Partially irrigation facility</b>	<b>52</b>	<b>52</b>
<b>Non irrigation facility</b>	<b>48</b>	<b>48</b>
<b>Total</b>	<b>100</b>	<b>100</b>

*Source: Field Survey, 2009.*

None of the respondents under study owned all land with all season irrigation facility. Only 52 percent of respondents had partially irrigation facility whereas 48 percent respondents are really deprived from the irrigation facility, since irrigation is the major source for increasing the productivity of the land.

## **4.16 Forestry and Firewood Consumption Pattern**

There exists a deep relationship between farmers life and firewood consumption pattern. It is this relationship that determines the status of farming community who are dependent on firewood that is available from forest for cooking their food and fulfilling other fire related needs in their day to day life (Upadhyay, 2007). Forest in Nepal also provides about 95% of rural energy in the form of fuel wood for cooking and heating. In Nepal firewood alone accounts for 65 % of the total traditional sources of energy (Economic Survey, 2003). The requirements for firewood for domestic and industrial purposes was estimated to be 12.4 million tones in 1990-91, which is supposed to reach to 15.7 million tonnes from 2001 (APROSC). In Nepal's per capita annual energy consumption is less than 200 kilograms of oil equivalent and this is among the lowest in the world. Fuel wood is the main energy source and is likely to remain so far anticipated future. In Nepal household firewood consumption pattern varies seasonally and also with wealth, household size, labour resources and the accessibility of forest (Steven, 1993). Fox (1981) has also claimed that firewood utilization in small size households is significantly less than the large household. The same tendency exists in the studied community as it is traced that fuel wood is the one of the energy source and that the pattern of household use of fuel wood rise and fall according to the enormity of the family. Usually the hefty family's fire wood utilization is towering and the economic pressure is also high.

Generally three types of forest have been found in this region viz. Natural forest also known as government forest, private forest and Community Forest. The popularity of Community Forestry is widespread in this region. Many of the previously barren land has been converted into

Community Forest and handed over to the community and many of the forest areas are in the process of handing over to local communities. It is traced that fuel wood, leaf-litter, fodder were obtained from Community Forest and a certain percentage of forest related needs were fulfilled from private and government forest.

Firewood consumption in the studied community varies appreciably depending on the size of households, size of livestock holdings, social cultural, political status etc. It has been deduced from the study by Upadhyay (2007) that those people who are politically influential (especially the local leaders) firewood consumption is high in their households. The same tendency exists in the Darais studied community. The leaders and politically influential personalities are always surrounded by the party activists and other commoners who used to visit the leader with their problems and grievances. Owing to this reason the leaders and their family members are to prepare food and tea for the party activist and commoners. It is also done to please the commoners who are also the voters during the elections, accordingly resulting in the high consumption of firewood on the part of leader's households. For the common people also firewood is a need.

# CHAPTER-V

## Cropping Pattern of Darai Community

This chapter deals with the cropping pattern of the Darai people with focus on land tenancy status of the Darais, food sufficiency status of households, reasons for the Darais not able to produce sufficient foods, tools used in cultivation and crop production status.

Development of agriculture is one of the most significant human impacts in the course of human history. No development has had a greater effect than the introduction of agriculture. However, due to global dynamics, the management of agricultural research programmes has become more complex. The advent of modern technologies has posed both opportunities and challenges to all human endeavor. The utilization of modern systems to help man in solving his day-to-day tasks is new phenomenon. The challenge to farmers is to adapt new and modern technologies and produce attractive commodities using cost effective methods. Likewise, the pattern of cropping system also stood vital. In the studied community of Darais, the pattern, of cropping pattern is furthermore complex. Agricultural production is carried out on the basis of farming systems, which differ according to agro-ecological zones, soil types, and cropping systems.

### 5.1 Cropping System

Crops are plant or plants product such as grain, peas, fruit or vegetables grown by a farmer. In fact it is the toll amount gathered of a plant such as a grain, fruit or vegetable grown in large amounts by farmers.



Darais are the farmers having their scheme of agricultural management Their Cropping system is categorized into two major categories which are as follows:

- a) Double cropping system and
- b) Triple cropping system.

The following table represents the cropping system of the land of the respondents.

**Table 5.1**  
**Cropping System Of The Households**

<b>Cropping system</b>	<b>No of households</b>	<b>Percentage</b>
<b>Double cropping system</b>	<b>86</b>	<b>86</b>
<b>Triple cropping system</b>	<b>14</b>	<b>14</b>
<b>Total</b>	<b>100</b>	<b>100</b>

*Source: Field Survey, 2009.*

The table reveals that double and triple cropping system is in existence in the study area. Those households, who have irrigation facility in their land produce seasonal vegetables and other crops, cultivate their land three times a year. Those households who don't have irrigation facility practices double cropping system. It is notable here that, those households who were totally dependent on subsistence farming cultivate their land twice a year even though they have partial irrigation facilities. In short, double and triple cropping system is existence in the study area but double cropping system plays the dominant role in the farming system of the Darais.

## **5.2 Land Tenancy Status of the Respondents**

During the research, 56% of the household were found to cultivate their own available land themselves and rest 44 percent of

the household cultivate their available land along with others land in tenancy. But none of the household were totally dependent on the tenancy of the land owners. The land tenure status of the respondent is given in the following table.

**Table 5.2**  
**Land Tenure Status Of Respondent**

<b>Status of tenancy</b>	<b>No. of house hold</b>	<b>Percentage</b>
<b>Self-tenancy</b>	<b>56</b>	<b>56</b>
<b>Tenancy</b>	<b>0</b>	<b>0</b>
<b>Both</b>	<b>44</b>	<b>44</b>
<b>Total</b>	<b>100</b>	<b>100</b>

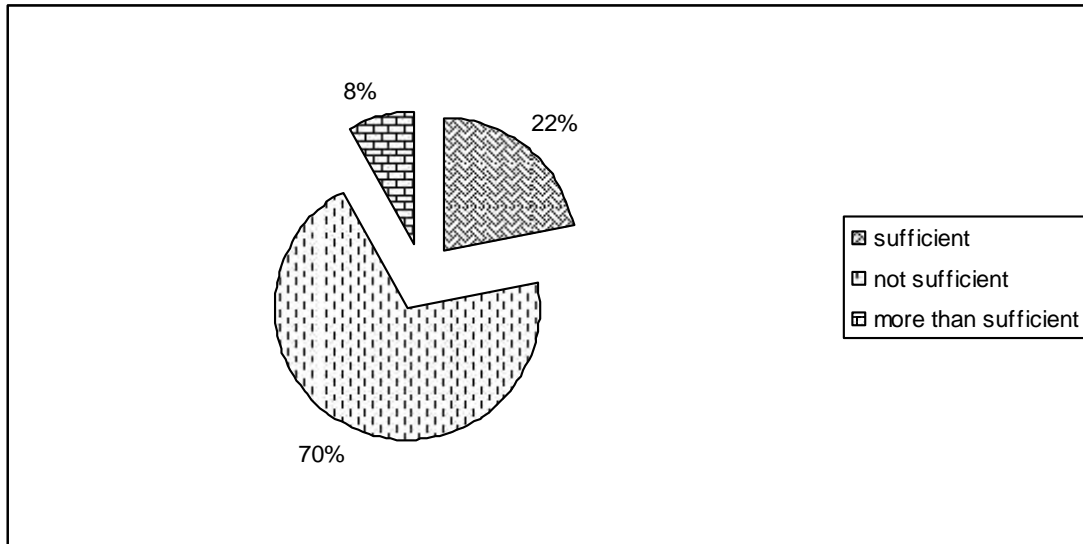
*Source: Field Survey, 2009.*

### **5.3 Food Sufficiency Status of Households**

Food is any substance that can be consumed, including liquid drinks. Food is the main source of energy and of nutrition for animals, and is usually of animal or plant origin. The study of food is called food science. In English, the term food is often used metaphorically or figuratively, as in food for thought. Food - Legal definition. Western food law defines four categories of object as food: any substance or product, whether processed, partially processed or unprocessed.

Food sufficiency denotes adequacy in food production and consumption. Food sufficiency status of the households under study is shown through the following pie chart.

**Figure 5.1**  
**Foods Sufficiency In Respondents' Households**



In the studied community most of the farmers are small -scale farmers. If they can make a profit with their farming, they can feed their families adequately throughout the year and reinvest in their farms by purchasing fertilizer, better-quality seed and basic equipment. But these farmers face many obstacles that are beyond their control: lack of credit, insecure land tenure, poor transport, low prices and poorly developed business relations with agribusinesses at the commercial end of the agricultural supply chain; then there are natural factors such as drought, flood, pests and disease. Farmers cannot invest their own capital in transport, processing and wholesaling and retailing, selling commodities such as rice and wheat, high-value crops like vegetables and niche products. If the supply chain works well with fair returns on investment for everyone, the first link – the farmer will earn money to feed his or her family and to re-invest . Hunger will decline and the quality of Darais rural life will improve.

During research all the respondents were asked whether the production of their land is sufficient for to fulfill their needs. 22 percent of the respondents reported that their food production is sufficient for their household and 70 percent of the respondents reported that the production is not sufficient for them. Only 8 percent of the respondents reported that the

production of their land is more than sufficient for them. Some of the households who have small family size, sufficient land holding with irrigation facilities were found to produce more than sufficient. They sell remaining production and use the income in other household activities.

## 5.4 Cropping Pattern

The objective of the study is to examine the effect of cropping pattern along with other yield increasing inputs upon agricultural production. The study first compares the cropping pattern index with fertilizer, irrigation and agricultural output per hectare. Although the visual inspection of data indicates that certain conflicting cases exist with respect to changes in yield and the cropping pattern effect, the regression analysis shows that higher the cropping pattern index, the higher will be yields *ceteris paribus*. This implies that marginal manipulations in the cropping pattern in a region can increase agricultural productivity significantly even if fertilizer and irrigation use remain unchanged.

There are two categories of the cropping pattern, *cash crop and cereal crop*. The distribution of household by the cropping pattern is presented in the following table.

**Table 5.3 Cropping Pattern**

<b>Cropping pattern</b>	<b>No of household</b>	<b>Percent</b>
<b>Cereal crop</b>	<b>92</b>	<b>92</b>
<b>Cash crop</b>	<b>8</b>	<b>8</b>
<b>Total</b>	<b>100</b>	<b>100</b>

*Source: Field Survey, 2009.*

The table reveals that almost the entire respondents' household practices cereal cropping pattern i.e. they produced various traditional food in traditional way like rice, maize, wheat, millet, pulse, whereas only a few percent of respondents produce cash crops like various types of vegetables, milk and meat products.

## 5.5 Reasons for not able to Produce Sufficient Food

Previous figure 5.1 shows that at around 70 percent of the respondent households were unable to produce sufficient food in their own land. Those respondents were asked about the causes for being unable to produce sufficient food. In this regard, they responded different and presented their view in multiple way. Those causes are presented in the following table.

**Table 5.4**

***Cause For Not Able To Produce Sufficient Food For Family***

<b>Causes</b>	<b>No of respondents</b>	<b>Percentage</b>
<b>Lack of labor</b>	<b>4</b>	<b>5.71</b>
<b>Lack of productivity of land</b>	<b>56</b>	<b>80</b>
<b>Small land holding size</b>	<b>42</b>	<b>60</b>
<b>Lack of irrigation</b>	<b>52</b>	<b>74.28</b>
<b>Large family size</b>	<b>18</b>	<b>25.71</b>
<b>Lack of modern knowledge</b>	<b>30</b>	<b>42.87</b>

*Source: Field Survey, 2009.*

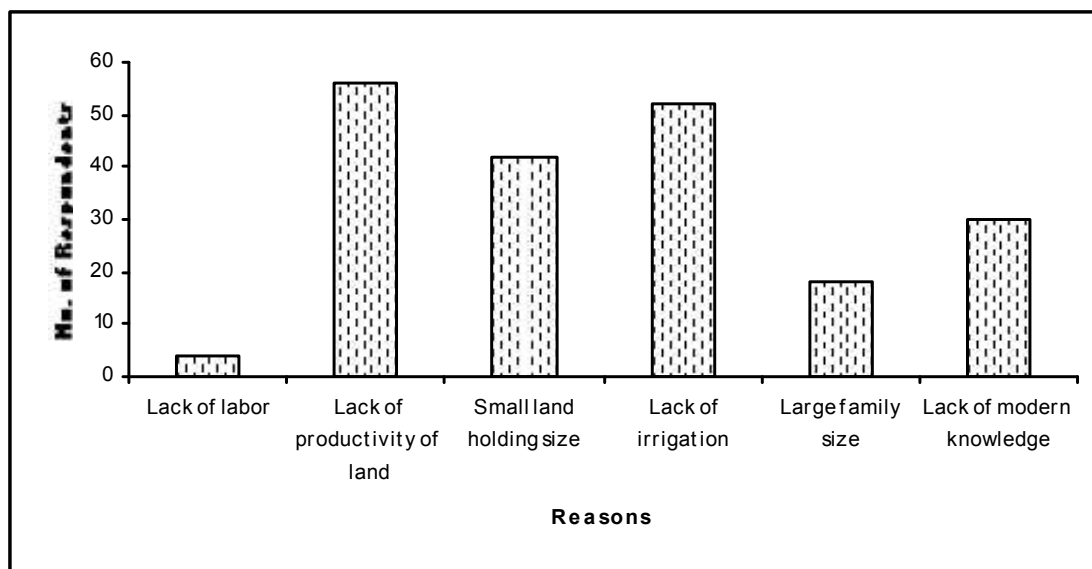
*Note: respondents gave more than one answer.*

Table shows that majority of respondents believe that low productivity of land, lack of irrigation, small land holding size are the major causes for being unable to produce sufficient food for family which contain 56, 52 and 42 percent response respectively. In the same way about 30 percent of the

respondents opine that due to lack of modern knowledge they are unable to produce sufficient land. Only 18 percent and 4 percent of the respondents believed that it happened due to large family size and lack of labor respectively. The response of the respondents is also shown through the following bar diagram.

**Figure 5.2**

**Causes For Not Able To Produce Sufficient Food**



**5.6 Tools Used in Cultivation of Land**

There are mainly two categories of tools that are used in cultivation in the study area viz. plough and tractor. The following table presents the tools used by respondents in cultivation of land.

*Table 5.4*

*Tools Used In Cultivation Of Land*

<b>Tools used</b>	<b>No of household</b>	<b>Percentage</b>
<b>Only Plough</b>	<b>72</b>	<b>72</b>
<b>Only Tractor</b>	<b>0</b>	<b>0</b>

<b>Both</b>	<b>28</b>	<b>28</b>
<b>Total</b>	<b>100</b>	<b>100</b>

*Source: Field Survey, 2009.*

In the study it was found that, two kinds of modern tools in ploughing were used in cultivation, plough and tractor. Large number of household used only plough even though there was facility of tractor and none of the respondents were found to use only tractor but the use of both tractor and plough is also in existence in significant number. Especially those household who are economically a bit sound used tractors and it is also found that those who used tractor used it only in pakho or non irrigated land whereas in irrigated land or Khet, all the people used only plough.

## **5.7 Crop Production Status of Sample Households**

There are mainly six categories of crops production per year in the land of the study area viz. rice, wheat, maize, mass, and cash crops. The following table represents the crop production status of sample households.

**Table5.5**  
**Crop Production Status**

<b>Crops</b>	<b>No of households</b>	<b>Percentage</b>
<b>Rice</b>	<b>74</b>	<b>74</b>
<b>Wheat</b>	<b>52</b>	<b>52</b>
<b>Maize</b>	<b>100</b>	<b>100</b>
<b>Mass</b>	<b>100</b>	<b>100</b>
<b>Millet</b>	<b>74</b>	<b>74</b>
<b>Cash Crops</b>	<b>8</b>	<b>8</b>

*Source: Field Survey, 2009.*

*Note: Respondents gave more than one answer*

The table shows people of the study area produce more than one crops in their land per year. Rice, wheat, maize, millet, mass and some other cash crops were different types of production produced in the study area. Especially, maize, millet and mass were some crops which are being produced only in non irrigated land whereas rice and wheat produced in khet or irrigated land. But some of the farmers also produced ghaiya (a type of rice that can be produced with monsoon water) in pakho land. People also produced some cash crops like vegetables and others in both pakho and khet.



# **CHAPTER-VI**

## **KNOWLEDGE ON AGRICULTURE**

### **MODERNIZATION.**

This chapter deals with the knowledge on modern agricultural equipments, Adoption of modern agricultural equipments, sources of information modern equipment, production of agriculture goods for the commercial purpose and attitude on commercial farming.

Since the formulation of the Fifth Five-Year Plan (1975-80), agriculture has been the highest priority in Nepal because economic growth was dependent on both increasing the productivity of existing crops and diversifying the agricultural base for use as industrial inputs. According to the World Bank report (2002), agriculture is the main source of food, income, and employment for the majority. In trying to increase agricultural production and diversify the agricultural base, the government focused on modernization of agriculture in the form of irrigation, the use of fertilizers and insecticides, the introduction of new implements and new seeds of high-yield varieties, and the provision of credit. However, in the lack of the knowledge related to agricultural modernization, distribution of these inputs, as well as problems in obtaining supplies, the agricultural progress has been obstructed. Although land reclamation and settlement were occurring, environmental degradation and ecological imbalance resulting from deforestation also prevented progress.

Although new agricultural technologies helped increase food production, there still remains room for further growth. Past experience indicated bottlenecks, however, in using modern technology to achieve a healthy growth remains a problem especially there remained a lacuna in the

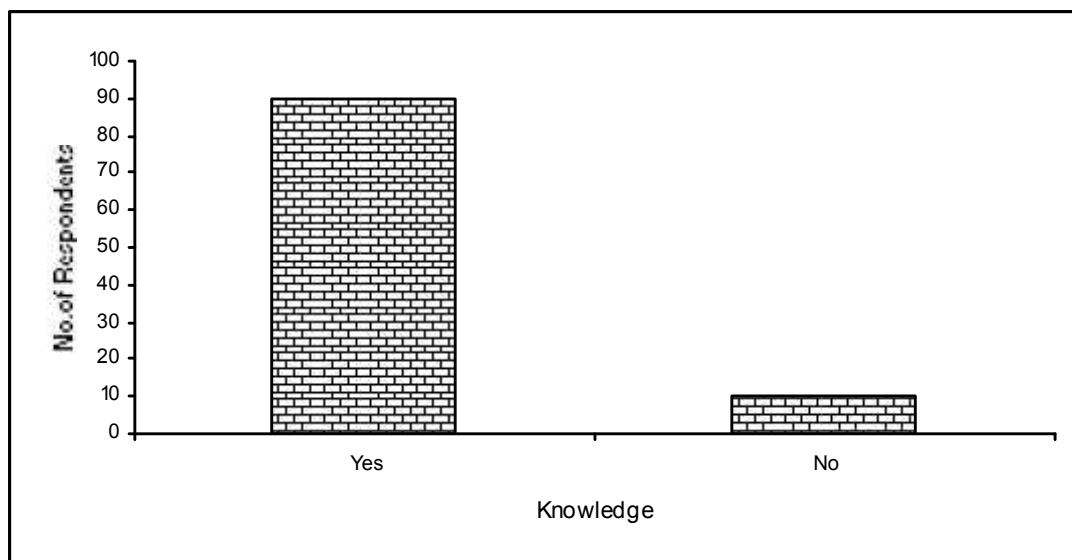
field of knowledge related to agricultural modernization. The conflicting goals of producing cash crops both for food and for industrial inputs also were problematic.

## 6.1 Knowledge on Modern Agricultural Equipments

During the field study the respondents were asked about the knowledge on the modern agricultural equipments. They responded either positively or negatively. The status of knowledge on the modern agricultural equipments can be presented in the following figure.

*Figure 6.1*

*Knowledge On Modern Agricultural Equipments*



The above figure reveals that most of the respondents that is, 90%, have knowledge about modern agriculture equipments like varieties of improved seeds, fertilizers, pesticides and only few respondents have responded negatively. Through the observations, it is found that even those respondents who responded negatively possess knowledge about the little varieties of fertilizers like urea and pesticides like metacides. In this sense,

almost cent percent respondents were aware on modern agricultural equipments but lacked sufficient knowledge on their varieties.

## 6.2 Adoption of Modern Agricultural Equipments

The rural environment, which is over 90% of the country, is the point of leverage for economic transformation. Transformation of the rural environment is expected to be achieved through agro-based industrialization (i.e. agricultural processing), effective decentralization, private sector development and a changing role of the state. Land reform is also seen as essential not only to rural transformation but for enhancing the production environment in general. However, the Government's agricultural modernization strategy hinges on increased land under irrigation, increased mechanization, and value addition to traditional crops, expanding cash crop production and strengthening support to the private sector.

In the current study after the analysis of respondent's knowledge on modern agricultural equipment queries were raised on the adoption of modern agricultural tools. During the research, from most of the respondents, I found using the modern agricultural equipments like improved seeds, chemical fertilizers, and pesticides. The following table presents the using patterns of such equipments.

**Table 6.1**

### **Use Of Modern Agricultural Equipments**

<b>Modern Agricultural equipments</b>	<b>No of respondents</b>	<b>Percentage</b>
<b>Chemical fertilizers</b>	<b>94</b>	<b>94</b>
<b>Pesticides</b>	<b>60</b>	<b>60</b>
<b>Improved Seeds</b>	<b>86</b>	<b>86</b>

*Source: Field Survey, 2009.*

The table shows that, most of the respondents used chemical fertilizers but through the field observations, majority of respondents were found using urea only especially in irrigated land and a few were found using potash, phosphorus, nitrogen with urea in their irrigated land and the trend of using such fertilizer even in pakho was found slightly increasing for the purpose of increasing productivity of land. Around 60 percent of the respondents are found using the pesticides. People only use metacide during vegetable farming and paddy cultivation time. So far, as use of improved seeds is concerned, majority of the people use such seeds of paddy, wheat, maize but the quantity is very limited for consuming purpose. A small number of respondents are only found using such varieties of seeds for both consuming and commercial purpose. It is found that they used such seeds without proper knowledge of how to use. They just copied what others do (both Darais and non Darais). In short, most of the respondents are aware on modern agriculture equipments to some extent but they didn't have intensive knowledge on it.

### **6.3 Sources of Information on Modern Agricultural Technology/Equipments**

There are many sources to introduce modern technology in rural agriculture. Among them, radio, trainings, JT/JTA and neighbor are more effective means to provide information on agricultural technology. There are multiple answers on sources of information on modern agricultural technology. The sources of information are presented in the following table.

**Table6.2****Sources Of Information On Modern Agriculture Equipments**

<b>Sources of Information</b>	<b>No of respondents</b>	<b>Percentages</b>
<b>JT/JTA</b>	<b>10</b>	<b>10</b>
<b>Radio/TV</b>	<b>14</b>	<b>14</b>
<b>Training</b>	<b>10</b>	<b>10</b>
<b>Development agents</b>	<b>6</b>	<b>6</b>
<b>Agricultural institution</b>	<b>4</b>	<b>4</b>
<b>Neighbor</b>	<b>74</b>	<b>74</b>
<b>Shop and landowner</b>	<b>28</b>	<b>28</b>
<b>Agua Krishak</b>	<b>20</b>	<b>20</b>

*Source: Field Survey, 2009.*

There are many sources from where people of rural areas get information. Although the study area was very near to district headquarter of Vyas municipality, researcher was very much surprised see only a few number of respondents getting training. Also, those respondents reporting their sources of information as JT/JTA, Radio/TV, development agents and agricultural institution are not satisfactory. In this modern world, where the information flows from one part of the flows to other within a few seconds, the number of informants whose sources of information is radio/TV is very few which indicates the less exposure of the Darai in modern world despite the fact that they are very close to district headquarter. The role of development agents; like social mobilizers, people involved in different NGOs/INGOs and Agua Krishak, those who get training from different sectors and apply such knowledge in practical and also plays dominant role in motivating others, is very worth mentioning in the motivation of rural people to adopt modern equipments in agriculture. But their role as the major source of informants for the Darais of Vyas municipality is found not

satisfactory. Besides, the role of neighbor as an informant is found abundant in the study area. Similarly, role of shopkeepers and land owner is also quite satisfactory compared to others.

## **6.4 Production of Agricultural Goods (products) for the Commercial Purpose**

For the development of family as well as the rural community it is vital to do production of agricultural goods for the commercial purpose. Nevertheless, the commercialization of agriculture or the production of agricultural goods (products) for the commercial purpose is a complex and difficult task. In the sampled population, the distribution of households by the production of goods for commercial purpose is given in the following table.

**Table 6.3  
Production Of Goods For Commercial Purpose**

<b>Goods production</b>	<b>No of respondent</b>	<b>Percentage</b>
<b>Commercial purpose</b>	<b>12</b>	<b>12</b>
<b>Non commercial purpose</b>	<b>88</b>	<b>88</b>
<b>Total</b>	<b>100</b>	<b>100</b>

*Source: Field Survey, 2009.*

The table shows that large number of people produce foods for consumption purpose because the respondents were very economically backward and the domination of traditional tools and techniques were found in the study area whereas only a few percentages of the people produce the goods for commercial purpose. Especially, milk, vegetables and meat production were the commercial goods which they produced. But they are

not totally depending on such production and only use as partial fulfillment of their necessary needs.

## 6.5 Attitude on Commercial Farming

The farming which is performed on large scale, with the help of machine like threshers, harvesters, tractors etc is called commercial farming.

I think when farming is done to sell the crops in the market then it is called commercial farming. If farm produce is used to feed the farmer, his/her family and farm animals then it are called subsistence farming.

Commercial arable farming is the extensive cultivation of usually a single crop (monoculture) for sale mainly to foreign markets or export.

In this category they were asked whether by producing the commercial goods they can learn more to sustain their life more easily or not. The following table shows their response.

**Table 6.4**

### *Attitude On Commercial Farming*

<b>Attitude of respondents</b>	<b>No of respondents</b>	<b>Percentage</b>
<b>Yes</b>	<b>86</b>	<b>86</b>
<b>No</b>	<b>0</b>	<b>0</b>
<b>Don't know</b>	<b>14</b>	<b>14</b>
<b>Total</b>	<b>100</b>	<b>100</b>

*Source: Field Survey, 2009.*

The table reveals that most of the respondents have positive attitude towards commercial farming. 86 percent of the respondents believed that they can earn more through producing the goods for commercial purpose and only 14 percent respondents say didn't know but none of them response totally negative. But in practical life few respondents are producing the goods for commercial purpose. It reveals that they are aware and have knowledge but not applying in practical life.

# CHAPTER-VII

## ATTITUDES AND PROBLEMS IN AGRICULTURE MODERNIZATION

This chapter converse on attitudes and problems in agricultural modernization. Causes for not adoption agricultural modernization and respondents attitude and views on agricultural modernization.

In agriculture the most crucial factor is the knowledge system that underpins agricultural management. This system has many components, but the most crucial one is the system that generates new knowledge concerning, for example, new methods of production, new technologies that farmers can adopt, and new information that makes pertinent institutional structures more effective and improves the policy environment for agriculture. Increased globalization coupled with the rapid advances of Information and Communication Technologies is a phenomenon not limited to any part of the world. The phenomenon has permeated itself into Nepal however this phenomenon is quite different in the case of Darais of Vyas municipality.

The Darai women's participation in agriculture is also very vital. Despite the fact there are growing concerns over empowering women and bringing them to main stream of development every where over the past decades, all decision making positions are held overwhelmingly by men. The chronic tendency of men and *patriarchal* social structure has not allowed women to share any power within family politics, economic or other activities. Men deliberately justify their unwholesome attitude toward women citing frequently a range of perceived deficiencies that make women unacceptable to participate in public life. This patriarchal notion is giving more opportunities to men in terms of time, capital, information, knowledge



etc which reinforce their capabilities whereas women are marginalized in this domain. Among the Darai also social context prevents women from taking leading roles, and liberating themselves from family and social shackles. Women have less or no opportunity and encouragement for better education. They are given excessive work load at homes a housewives and daughter. Though there is a gradual improvement in sending girls to better schools for education, the tendency of discouraging girls at home and in society is still widespread. All these have negatively influenced the performances of females. Owing to this they are more likely to be vulnerable within and outside their homes.

Given all these we can say that the situation of women in developing countries like Nepal is of much lower quality than in the developed one. The reasons for this are patriarchal attitudes especially of men towards women, conservatism, deep-rooted traditions, illiteracy, ignorance, poverty and superstitions. Women have been treated as second-class citizens and their participation in agriculture has been also underestimated and the consequent consequences are the problems related to agricultural modernization.

### **7.1 Causes for not Adopting Agricultural Modernization**

Nepal's identity in the world is as an agricultural country with a very primitive farming technology. A major bulk of Nepalese people depends on agriculture and the nation derives more than 60% of revenue from farm and farm related activities. The government has Ministry of Agriculture to manage agriculture and facilitate the farmers with fertilizers, tools and technical support. The Ministry of Land Administration is a separate but related Ministry to make and administer land related rules and settle issues. For the low productivity and subsistence agriculture some aspects are vital viz. --

Difficult geographical conditions and calamities like landslides, floods etc, poor capital base such as irrigation and rural road, limited access to inputs, output markets etc, low technology base, and insufficient governance of public institutions to give services to the poor farmers living in the villages.

Nepalese farming system is orthodox and the farm technology used is very traditional. Technologies used are ploughing with spade, use of ox or buffalo, use of bush fire (slash & burn) are the main techniques used. Agro-production is done only for subsistence. Very limited cash flow in agriculture has also hindered crop production. Also farming cash crops for export is also not in the agenda of Nepalese farmers. High dependency on monsoon rain for irrigation is also a major problem in the way of agricultural modernization (Upadhyay, 2007).

In the sampled population, in the way of adoption/practice of modern way of agriculture there are various obstacles. According to the respondents' low level of knowledge, lack of resources like land and irrigation, lack of awareness, low education level, lack of unity, lack of training, lack of investment etc. are some of the major obstacles. The respondents have multiple views which are presented in the following table.

**Table 7.1**  
**Obstacles To Adopt Agriculture Modernization**

<b>Obstacles</b>	<b>No of respondents</b>	<b>Percentage</b>
<b>Low level of knowledge</b>	<b>36</b>	<b>36</b>
<b>Lack of resources</b>	<b>46</b>	<b>46</b>
<b>Lack of awareness</b>	<b>10</b>	<b>10</b>
<b>Low level of education</b>	<b>28</b>	<b>28</b>
<b>Lack of unity in community</b>	<b>18</b>	<b>18</b>
<b>Lack of investment</b>	<b>68</b>	<b>68</b>

<b>Lack of training</b>	<b>46</b>	<b>46</b>
<b>Not want to change tradition</b>	<b>3</b>	<b>6</b>
<b>Lack of leading person</b>	<b>7</b>	<b>14</b>

*Source: Field Survey, 2009.*

*Note: Respondents gave more than one answer.*

Low level of knowledge means people are very poor and uneducated likewise traditional too, so they do not have more knowledge about modern tools and technology used in the agriculture activities. There are multiple opinions of the respondents regarding obstacle to adopt agriculture modernization. Though respondents were aware about modern agriculture equipment, have land on their ownership and possess idea that they could earn more to sustain their life more easily if they produce goods for commercial purpose. In such condition 2/3<sup>rd</sup> of the respondents responded lack of investment as the major cause for not adopting the agricultural modernization?

Lack of enough resources like land, irrigation and training are also causes for around 1/2 of the respondents not to adopt agriculture modernization. Low level of knowledge, low level of education is also some causes in this regard. Various respondents opined that the lack of awareness in the community, lack of leading persons were also significant causes.

## **7.2 Respondents Attitude and Views on Agriculture Modernization**

An attitude is a hypothetical construct that represents an individual's degree of like or dislike for an item. Attitudes are generally positive or negative views of a person, place, thing, or event-- this is often referred to as the attitude object. People can also be conflicted or ambivalent toward an object, meaning that they simultaneously possess both positive and negative attitudes toward the item in question.

Attitudes are judgments. They develop on the **ABC** model (affect, behavior, and cognition). The *affective* response is an emotional response that expresses an individual's degree of preference for an entity. The *behavioral* intention is a verbal indication or typical behavioral tendency of an individual. The *cognitive* response is a cognitive evaluation of the entity that constitutes an individual's beliefs about the object. Most attitudes are the result of either direct experience or observational learning from the environment

Regarding the question on the suggestion for adoption agriculture modernization process there are multiple opinions and attitudes of respondents. The following table presents the suggestions of respondents and key informants.

**Table 7.2**  
**Opinions To Improve Agriculture Modernization**

<b>View/suggestions of respondents</b>	<b>No of respondents</b>	<b>Percentage</b>
<b>Need to empower Darai community</b>	<b>46</b>	<b>46</b>
<b>Training related to skill development</b>	<b>62</b>	<b>62</b>
<b>Awareness in society</b>	<b>30</b>	<b>30</b>
<b>Micro finance program</b>	<b>44</b>	<b>44</b>
<b>Provision of technical education</b>	<b>14</b>	<b>14</b>
<b>Provision of irrigation facility</b>	<b>46</b>	<b>46</b>
<b>Market availability</b>	<b>10</b>	<b>10</b>
<b>Transportation facility</b>	<b>4</b>	<b>4</b>
<b>Need of encouraging agent</b>	<b>6</b>	<b>6</b>

*Source: Field Survey, 2009.*

*Note: Respondents gave more than one answer.*

Since Darais are isolated from various opportunities in the study area. Educational backwardness was found as the main reason and their own habit of inactiveness in social activities; in political participation are other secondary causes. These people are found aware and have knowledge about agriculture modernization but they don't practiced such knowledge in practical life yet. Majority of the respondents emphasized for the provision of training related to skill development since only a few respondents were trained. Around half of the respondent suggested that they need to be empowered through different program. Likewise provision of irrigation facilities, and another few masses of respondents believed that with the lack of investment they were unable to involve in agriculture field, likewise awareness in society, market availability, need of encouraging agents, transportation facilities, need of technical education were other suggestions provided by other well known people of the study area in order to bring Darai community into the main stream of development through agriculture modernization process.

At last while conducting research I found some difficulties. While collecting the data. To meet the respondent in the house I found most difficulties so to collect data it takes long time. As my respondents are very poor uneducated so in some cases they did not give proper answers. Likewise transportation, in some cases problems in language. While collecting secondary data too some time it takes long time to get the information and some time I was so confused how much I need to choose from the bundle of resources. And during the time of analysis the data too I found some technological barrel.

# **CHAPTER - VIII**

## **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

This chapter deals with the summary, conclusion and recommendation. Summary mainly focuses on the objectives, methods and findings of the overall study. Conclusions are drawn from the findings. Recommendation consists of suggestions based on the findings of the study.

### **8.1 Summary**

This study actually tries to deal with the attitude and awareness about agricultural modernization<sup>1</sup> on indigenous community of mid-hill "Darai" since socially and economically they are deprived and exploited.

This study is basically focused on the attitude of agriculture modernization and its practice on the community. The major problem of agriculture modernization is the slow pace of urbanization in study area and destruction of traditional culture and occupation of that community. Being the agriculture base community, agriculture modernization or production of commercial goods for commercial purpose is becoming prerequisite for them to sustain in society. The objective of the research has been to analyze the knowledge and attitude on agricultural modernization in Darai community of Ward no 3 and 5 of Vyas municipality, the cluster settlement of Darais. The specific objectives have been to:

- a) To identify the cropping pattern of Darai community.
- b) To asses the knowledge of agriculture modernization in Darai community.

- c) To assess the attitudes and problems of agriculture modernization in Darai community.

The study has adopted both exploratory as well as descriptive research design. The study was exploratory because it exposed the knowledge, attitude on agricultural modernization. The study was descriptive as it described different aspects of agricultural modernization. The research procedure was constructed via questionnaire, observation etc where their knowledge, attitude, belief, educational, occupational situations were reflected.

Ward no 3 and 5 of Vyas municipality, the cluster settlement of Darais was selected as the study area in this study. On the basis of random sampling, 100 households were chosen as the respondents and they were from different age group, different economic and educational background. Majority of the households were living in nuclear family structures and agriculture is the main occupation of almost all of the respondents. Wage labor, service and business were both first priority and second priority occupation. The educational status was found very poor in the study area where 52 percent of the respondents were still illiterate and 36 and 12 were respectively literate and educated. The literacy rate of female was found far less than that of male respondents. Traditional culture and low educational status were the main causes for the large family size of Darais. In average, around 8 was the family size of them. None of the respondents were landless but there exist disparity among land owners. Most of them didn't have more than 10 ropanis of land and among them only about ½ of the respondents have facility of partial irrigation. People are practicing double and triple cropping system, mainly, rice. Maize, wheat, millet, mass were the production of the study area where a few number of people produce cash crops like seasonal vegetables, milk and meat products for the commercial purpose. Although people were found very hard worker, but their work in

agriculture field would not support them for whole year. That means, the production and productivity of land is very low due to the practices of traditional way of farming system.

Most of the people use plough for cultivation even though, there is facility of tractor in their land, only few percent of the population use tractors but still they were not totally dependent on tractor. Most of the household practice cereal cropping pattern whereas only negligible household practiced cash crop production but not totally in professional way.

Modern agriculture equipments like improved seeds, chemical fertilizers and pesticides were familiar equipments for the most of people in the study area and more than 80 percent of the respondents used such equipments to some extent but lacked the intensive knowledge of using such equipments. Metacide, urea is very familiar name for them. Neighbor, suggestions from shop and land owners as well as *agua krishak* are also the major sources of information about modern agricultural equipments. Other sources like JT and JTA, radio/TV, development agents, and agricultural institutions play the role of information giver to the people but only around 10 percent of the respondents are aware through the trainings provided by different institutions. Although large number of people have knowledge but do not use such equipments for producing goods for commercial purpose even though they are awarded that they could earn more to sustain their life more easily if they applied commercial farming.

Low productivity of land, lack of irrigation facility, small land holding size, lack of proper knowledge about modern way of agriculture are the major causes for them being unable to produce sufficient foods whereas low level of knowledge, lack of resources, low level of education, lack of unity in society, lack of investment, lack of trainings and lack of leading persons in the society are causes found in the study for not adopting agricultural modernization.



So, to encourage Darai community to use modern agricultural equipments for commercial farming, according to respondents and key informants, empowerment of Darai community through various kind of training related to skill development, and generation of awareness among them about the importance and benefits of use of modern agriculture equipments is must. Likewise, provision of resources like irrigation, technical education, transportation facilities and market availability for production will play vital role in adoption of modern way of agriculture system.

This study shows that none of the respondents are landless. Lack of proper knowledge, low level of education, traditional way of farming system large size of the family, lack of investments, lack of resources like irrigation, land etc. are major way of barriers for them to adopt modern way of agriculture system. Although most of the respondents have knowledge that by producing the goods for commercial purpose they can earn more to sustain their life. But in practical they still do not want to change their tradition and culture which is almost in the condition of displacement. It is due to the lack of proper incentives for encouraging them and different factors that could motivate them to encompass the modern means of agriculture system. Since most of them have positive view or have positive attitude on agriculture modernization.

Although, modern tool, tractor, is very familiar to them, most of them use only plough for ploughing their land. Besides, use of modern agricultural equipments like chemical fertilizers, improved seeds, pesticides etc. is also minimum among them although most of them are familiar on such equipments. Most of them posses information about such equipments through neighbor, whereas little were aware through JT/JTA and from training and most of the respondent who use such equipments have experience that they can produce more by using such equipment.

Almost all the respondent are practicing the cereal pattern of cropping system maize, rice, wheat, mass for their subsistence but still such production is not enough to sustain the family for whole year. They need to work in other sector for the fulfillment of their daily need. Although some of the respondents produces different goods for the commercial purpose like milk product, meat product and varieties of seasonal vegetables. None of the respondents were found totally dependent upon commercial farming and they used to produce such production for only partial fulfillment of their necessary needs. Double and triple cropping system was practiced though double cropping pattern is dominant. Some of the respondents have access to partial irrigation facilities and some households were totally deprived from the irrigation facility. Since irrigation is one of the vital thing for increasing the productivity and necessary things for the commercial good production and maintaining quality of soil.

Due to low level of education and traditional way of their living style, they are isolated from the various opportunities. Apart from this insufficient level of resources like land and irrigation facilities, lack of training and skill development program are the major problems for them in regard of agriculture modernization. Lack of awareness, empowerment related program are also secondary causes or problem for them. Lack of unity in community, lack of leading person is also some aspects which creates further problem. Lack of investment, lack of awareness program to brainwash the already occupied mind are the vital problems which is accepted by the majority of the respondents and the well known key informants.

Regarding their suggestions to adopt modern way of farming and to practice commercial agriculture, there were multiple opinions of respondents. Almost all gave emphasis on the empowerment of Darai community through trainings, skill development program; awareness in society certainly plays the vital role in this regard. Need of technical

education, market availability, transport facility irrigation facilities and access of micro finance activities were valuable suggestions by the respondents for creating positive attitude and awareness about agriculture modernization in the Darai community in order to bring them into the mainstream of development and to make them self sustain from the present situation.

## **8.2 Conclusions**

This study examines the attitude and awareness about agriculture modernization in Darai community of Vyas municipality. On the basis of overall study it has been concluded that:

- ) Need of increasing the educational status in Darai community.
- ) Darais are socially and economically deprived due to their poor educational status.
- ) Agricultural development is only the alternative for them to sustain in society.
- ) Most of the respondents practice cereal cropping pattern.
- ) Most of the Darai farmers are small -scale farmers. If they can make a profit with their farming, they can feed their families adequately throughout the year and reinvest in their farms by purchasing fertilizer, better-quality seed and basic equipment. But these farmers face many obstacles that are beyond their control: lack of credit, insecure land tenure, poor transport, low prices and poorly developed business relations with agribusinesses at the commercial end of the agricultural supply chain; then there are natural factors such as drought, flood, pests and disease. Farmers cannot invest their own capital in transport, processing and wholesaling and retailing, selling commodities such as rice and wheat, high-value crops like vegetables

and niche products. If the supply chain works well with fair returns on investment for everyone, the first link – the farmer will earn money to feed his or her family and to re-invest. Hunger will decline and the quality of rural life will improve.

- ) Majority of the respondents have knowledge about modern agricultural equipment like chemical fertilizers, insecticides and improved seeds but they use only few varieties and don't have intensive knowledge on them.
- ) Lack of irrigation facilities, encouraging agent and lack of capital they are unable to change traditional way of farming system or subsistence economy.
- ) People are aware that they can earn more to sustain their family easily within the available resources.
- ) Skill development along with various incentives is necessary thing for them to adopt modern agriculture system.

### **8.3 Recommendations**

- ) Education, awareness and empowerment related program are the prerequisite for them to change their already occupied traditional mind.
- ) Gender related gaps needs to narrow down so that to ensure the total participation of women in agriculture related works.
- ) Income generating activities should be launched to preserve the tradition, culture and their assets like land because without the source of incomes they are bound to sell their productive assets for the fulfillment of daily needs.
- ) To adopt modern ways of agriculture, agricultural trainings and irrigation facilities are must.

- ) People should be trained about proper knowledge and proper utilization of modern agricultural equipments like improved seeds, chemical fertilizers and pesticides in order to prevent from unnecessary use and from degradation of soil quality.
- ) Provision of technical education, especially for youth.
- ) Mobilize the technical manpower like JT/JTA in the society.
- ) Provision of different incentives like seeds, fertilizers and other necessary equipments.
- ) Market availability for the product of the farmer.
- ) Need of special long term master plan for socio-economic upliftment of such indigenous community.

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**ANNEX I**  
**QUESTIONNAIRE FOR RESPONDENTS**

ANNEX II

KEY

RESPONDENTS

<b>S.NO.</b>	<b>Name</b>	<b>Age</b>	<b>Address</b>	<b>Description in detail</b>	<b>Remarks</b>
1.		36			
2.		24			
3.		20			
4.		23			
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ANNEX: III  
LIST OF THE RESPONDENTS

<b>S.N.</b>	<b>Name</b>	<b>Age</b>	<b>Address</b>
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**ANNEX : IV**  
**PHOTO GALLERY**