Chapter- One

INTRODUCTION

1.1. Background

The poverty situation in Nepal is very serious. Over 30 percent of the total population is below the absolute poverty line (CBS, 2000). Poverty in Nepal has a strong correlation with ecological conditions as well as socio-economic variables such as caste, occupation sector of employment, education level, composition of income and family size. The incidence of poverty is also dependent upon the nature of employment. Agricultural and production workers constitute the categories of the most poor. Administrative workers in contrast, are non-poor. Wageworkers in agricultures and the self-employed in agriculture are poorer compared to wage workers or self employed outside agriculture (SAAPE 2003: 131).

In fact, people involved in agricultural activities are more prone to poverty. Nepal is only able to generate and sustained a limited number of jobs, leading to large-scale unemployment and widespread poverty and migration of able-bodied young men in search of work. This leads to social imbalance and tensions. Therefore, the need is to create adequate job opportunities to alleviate the problems of unemployment and poverty. This can be achieved by converting the subsistence agricultural system into commercial farming system.

The agricultural land is extremely limited and unevenly distributed. Only 20 percent of the total land area is cultivable. Sixty-nine percent of the landholdings are less than one hectare in size, and 88 percent are below two hectares. The situation of land ownership is not similar. The bottom 40

percent of agricultural households own only 9 percent of the total agricultural land, while the top 6 percent occupies more than 33 percent (NESAC 1998:117-8). Worst of all, 24.4 percent households do not own any land (CSRC 2003:126).

National Research Association Nepal has focused on agricultural sector has been a major source of production, income and employment opportunity in Nepal. Likewise, it is expected to narrow down regional imbalances and uplift the standard of the people below poverty line. The objectives of the Ninth plan are to achieve economic growth, prepare the foundation for industrial development and alleviate poverty and the increase in employment opportunities through converting subsistence level of agriculture profession into a commercialized one.

This improper distribution of land caused most of the farmers investing higher inputs and getting minimum return. Most of the rural farmers are producing the cereal crops as much as their family need, not for marketing purpose. The peripheral & the farmers near the big cities have been making their practices in commercial vegetable production since long ago. Some farmers in the rural area also making their efforts to produce the vegetable in commercial purpose instead of the cereal crops.

Nowadays vegetable farming is considered as a major component and produced in small and large scales. Small-scale vegetable production is done from Kitchen gardening, which helps to supply the nutritional requirement for family. The commercial vegetable production pocket areas are concentrated along with the highway due to increased in off-season production techniques. Specific production programs are being launched in consolidated pocket area particularly along highways in productions potential area around an urban center (Adhikari 2003:16).

Farmers have considered vegetable farming as their main source of income. The cropping intensity has been increased adopting seasonal and off-season vegetables. With the modernization in agriculture system, the production practices are also being changed (Bajracharya 2001:28).

The main focus is to maximize the production per unit area. Seasonal indigenous & traditional cropping practices of the farmers have been replaced by exotic and modern practices. The commercial farmers use heavy external inputs like chemical fertilizer, pesticides etc to ensure high production. The commercial production of vegetables is developing as a result of the demand of growing towns & cites. Change in food patterns the spread of information health education has led to an increased awareness of the value of fresh vegetable in the diet. This has promoted greater interest in market gardening as an essential factor in the provision of food for expanding population (DOA 2000:12-14).

The vegetable grower can make a vital contribution to the national food supply, a health and expanding market gardening industry is a safe guard against the lowering of health standards necessary for production out-put in an expanding economy.

1.2. Statement of the Problem

The purpose of the study is to identify the role of the commercial vegetable farming for poverty alleviation of the rural people/farmers. Farmers of the Chitlang VDC of Makawanpur district have made long practices in vegetable farming. More than 95 percent of the total households in the VDC are involved in commercial vegetable farming. Cabbage, cauliflower, radish, carrot and other green leaves are the main vegetable items produced for commercial purpose. This area is famous for vegetable production. They produce varieties of vegetables for market supply. They produce not

only cereal crops. Clearly, the people/farmers of the area are commercial vegetable producers. The people of the area have made long practices in vegetable farming. But no research/study has been done to identify the different problems and impacts of commercial vegetable farming in this area. It is realized that the essence of this study is to find the effectiveness of commercial vegetable farming. In this respect, the present study has the following research questions:

- What are the socio-economic characteristics of commercial vegetable farmers?
- What are the socio-economic impacts of the commercial vegetable farming?
- What kind of problems and constraints are they facing currently?
- Are they satisfied from their income from commercial vegetable farming?
- What methods are they applying?
- Are they organized or not for production and marketing?
- What is the marketing system?
- Is there any gender problem?
- What role is the vegetable farming playing in poverty reduction?

Thus, it becomes crucial to find answers to the above questions, and the study has tried to do it.

1.3. Importance of the Study

This type of study is important to know the actual condition and situation of area and people concerned. It is necessary to evaluate strength & weak sides of commercial vegetable farming. It is a good source of income for the farmers to earn in a short period of time and in less investment.

The findings of this study will be useful for research, planner, policy makers and others who are interested farmers groups involved in such activities for the replication in other areas of the country. This will helpful to remove the weakness and to carry more effectiveness in the future.

In this context, the present study may draw the attention of the related development projects, organizations, scholars as well as researchers to analyze the exiting vegetable farming practices of the commercial pocket area, farmers existing knowledge and its impacts on socio and economic environment. This study has assessed the role of commercial vegetable farming for poverty reduction.

1.4. Objectives of the Study

The general objective of this study is to know the role of commercial vegetable farming in reducing poverty in the rural area under study. The specific objectives are as follow:

1. To asses the socio-economic conditions of the commercial vegetable farmers in the study area.

2. To find out the change in socio-economic conditions of commercial vegetable farmers.

3. To analyze the problems and constraints of vegetable farming.

4. To suggest ways to improve the role of commercial vegetable farming in rural poverty reduction.

1.5. Assumptions and Limitations of the Study

This study has been made in the commercial vegetable area in Chitlang VDC of Makawanpur district. Only those inhabitants involved in agriculture farming are considered for this study. The following assumptions are made from the preliminary observation.

- The majority of the people of this locality are engaged in agriculture and commercial vegetable farming is the main occupation.
- The farming system and farmer's knowledge system is homogenous.
- The facilities of market and irrigation are same for all producers.
- There are no significance differences in fertility status of land types.
- The respondents are of same category based on commercial vegetable farmers.

The study is focused on understanding the socio-economic changes brought about in the area by vegetable farming.

All studies have their own limitations No study can be free from constraints such as resources, time, money etc. This study is no exception and its limitations are as follows:

- This study is concerned to determine the role of commercial vegetable farming for alleviating poverty in micro-perspective but theoretical implications are macro level too.
- Role of the commercial vegetable farming is compared of the last five years only.
- It was concluded within the given time frame and financial limitations
- It covered only 50 respondents who are commercial vegetable farmers of Chitlang VDC and remaining were excluded in the study.

1.6. Organization of the Study

The first chapter has dealt about the introduction of the study. It included the background, statement of the problem, objective, importance, assumption and limitation of the study. In the second chapter, it is mentioned review of literature. The third chapter has dealt with the research methods of the study. The semi-structured interviews were made along with group discussions among the commercial vegetable growers and farmers group of the locality. The information, data were analyzed and interpreted with some reference from secondary data.

The forth chapter is the main body of the study. In this part, there is description of the study area and people, including physio-geographic and socio-economic setting. It also covered the role or change carried by the commercial vegetable farming in different aspects in the society or households. It will discuss or analyze the socio-economic factors affecting by the commercial vegetable farming. The last and the firth chapter has presented the summary, conclusion and recommendation.

Chapter – Two

LITERATURE REVIEW

2.1. Concept of Poverty

Nepal in the mid 1970s was not just a very poor country but it appeared to be increasingly unable to provide adequately for its rapidly growing population, and was in a state of crisis, where less employment opportunities, ecological collapse and the elimination of certain important natural resources were serious components of continued concern (Blaikie et. al., 1979: 13) Poverty any where is threat to everywhere (Kunwar 2002:1-8).

Nepal is an agricultural country. It is not possible to develop the country economically without the improvement of the farmers. In Nepalese condition, production from less than one hector land is not sufficient to feed a family. By this account, 70 percent farmers are compelled to survive in poverty in terms of land holding (Kunwar 2002: 310-315).

Poverty is not merely an economic issue. Poverty is a starting state of facts. It does not abandon even if the friends". It is a proverb in Hebrew. A person in poverty looses his relatives and friends and all the options of getting loan also are closed. In reality, the poverty is a state of not getting the minimum needs of the life fulfilled. The poor survive in complete human indecency. There is another proverb in Spanish, "the poor man risks nothing even when he meets a thief (Kunwar 2002:15-17).

Poverty is a state of economic social and psychological deprivation occurring among people of courtiers, lacking sufficient ownership, control or access to resources to maintain standard of living (W.B., 1990).

The reflection of this thinking is found in World Development Report 1980, in which education, health and nutrition are taken as other important dimensions of poverty measurements. It was defined just in terms of low income before the end of 1970s, that is to say income poverty. But the concept has shifted towards different dimensions. Basically, it has three facts: firstly economic or income poverty (which is lack of income necessary to satisfy basic needs), secondly-human poverty (which includes lack of capabilities to take advantage of the market opportunities), and thirdly- ecological poverty, which includes degraded land, lack of clean air and water, inadequate access to natural resources (Acharya et al. 2003:20).

2.2. Poverty Alleviation Activities

Poverty alleviation has now become a well-known phrase in Nepal since 1954 GON has tried at different times to run poverty alleviation programs. These activities have mostly been in the form of rural development programs.

Shukla (1990) stated that the structure of in quality in Nepalese society in all its complexity ensures that the combined effect of exploitation, oppression and discrimination in the context of general crisis is poverty for the majority more than 42 percent of the rural population live in poverty which is based on a minimum subsistence requirements of Rupees 2 per person per day. This would appear to be a highly conservative estimate, more realistic estimates of absolute poverty would undoubtedly place at least 60 percent of the rural population in the impoverished.

Baskota (1982) has listed that after the revolution of 1950s began the village development programme, which was later included in five years plan. Then the programme was implemented in the selected remote areas

in the name of Remote Area Development Programme (RADP) and later came land reform as anti poverty programme in 1963. It was launched in three series and later included in the third plan. The concept of regional development included in 4th plan is regarded as the turning point of anti-poverty policies of Nepal. The programme was supported by other programme such as IRDP. IRDP covered 14% of the total population by implementing more than 13 project in various districts then, came SFDP as another turning point in 1975 which was implemented by ADB/N with the objectives to increase the income and employment opportunities of the rural poor by providing them credit of undertake agriculture as well as non-farm activities.

The Eighth Five Year Plan (1990) provides view of eighth plan objective and policies that the plan gave special emphasis to the rural sector as it was committed to spend 70 percent of the development budget to the rural areas. The plan also had the aim of preparing the plan on a "bottom up" approach rather than a "top down" approach. The main aims of the plan were as follows:

- Sustainable economic development
- Abolishing poverty.
- Removing regional imbalance

Only in the eighth plan was poverty alleviation made a main objective. The following policies were to be adopted to alleviate poverty.

- To develop a simple produce for identification of undeveloped areas and poor families and use it uniformly across all sectoral programmes.
- To carry out self targeted and targeted programmes for the poor.

- To increase the access of the poor to the means of production.
- To make intuitional arrangement for extending necessary support to the task of poverty alleviation.

The Ninth Five Year Plan (1997-2002) provides the view poverty alleviation as its first objectives that the plan aimed to reduce the national incidence of poverty from 45 percent in 1997 to 32.5 percent by 2002 and down to 10 percent by 2017. Among the proposed set of programmes to achieve this objectives are: effective implementation of land reform program, provision of subsidized agricultural inputs, and improvements in agricultural marketing system and employment promotion.

Almost all of the Nepalese poverty focused polices are concentrated on an increase in agricultural productivity, an expression of off-farm employment opportunities, a reduction in the rapid rate of population growth, development of measures to provide direct rapid to the millions of poor people today and tomorrow (Chhetri et at. 2001:9) and more recently is to increasing the access of poor marginalized group to sharp down the regional, gender and ethnic disparities (GON, 2003).

Nepalese poverty alleviation policies have been focused on the expression of off-farm employment opportunities. The policies are formulated and implemented to expand the productive employment opportunities in the field of agriculture, industries, with the special emphasis of bigger investment in rural area for the development of non-agricultural activities like development and renovation of infrastructure, expansion of agriculture through the use of electricity, cottage industries based on local energy resources (GON, 1992).

A number of poverty alleviation programs have been implemented throughout the country without much achievement. The enhanced skills are not utilized properly for income generating activities and other service related sectors, and the loans taken for income generating activities are not invested on that purpose (Rijal 1999: 135).

2.3. Agriculture in Nepal

Nepal's APP (1995) has stated that 'as the year 2000 draws closer, the people of Nepal Stands poised to enter the new country on a track of prosperity. They now have the resources to experience the same greatly accelerated growth enjoyed in many parts of East, Southeast, and South Asia. Past decades have provided an increasingly educated public, multiplicity of complex institutions, and a substantial physical infrastructure. The time has come to convert that past development in to rising living standards for all through dynamic growth. The Agricultural Perspective Plan (APP) is designed to do just that.

John W. Mellor architect of twenty-year. Agricultural Perspective Plan of Nepal has revealed (Why not effective the Foreign Aid in Nepal for Poverty Alleviation 1990) that unless the agriculture development implemented, the poverty alleviation is not possible. He reiterated the words of Martin Ravallion, expert of the World Bank: "A very powerful association between the rate of growth in the agriculture sector and the rate of decline in absolute poverty. The faster agriculture growth, the more rapidly to poverty percentage declines.

Shrestha (1996) stated that Nepal's economic development rest virtually on the progress of agriculture as it provide not only food, fiber and employment to people that also is a source of foreign exchange in the

country. However, because of many rural households having too small areas of farming land, agricultural production as such is not enough to meet family requirements unless they are supported through other means of income.

According to SAAPE (2003) the country needs support with regard to raising its technical as well as financial capabilities in creating adequate marketing infrastructures such as wholesale markets and warehouse processing industries to strengthen the bargaining power of farmers.

2.4. Commercial Farming System

Kunwar (2002) mention that especially after the collapse of the communism from Eastern Europe, people hesitate to accept the continue farming system under government mechanism. People are free to get benefits by their individual efforts rather in-groups, the feeling of community. As an alternative, the private commercial farming system could play a role for high productivity with high profit. This modern is proposed to implement leasing individual land parcels to the big ones as commercial farming.

Benefits Model of Commercial Farming

- Possibility of private farming combining scattered small parcels of land into big plots.
- Appropriate to develop infrastructure for irrigation, fencing and land development to increase production and productivity.
- To increment of opportunity for the employment and selection of such jobs due to the creation of new jobs in transportation, marketing and processing and the labor prefer to work with the leased families instead of working in the private land.

- Easy to find out the alternative jobs for additional employment opportunity for the family.
- Emergence of new clients for the banks.
- No additional investment for the government in the irrigation, roads, electricity and others.
- Possibility of farm mechanism and increment in income.
- Single cropping in hundreds of hectares land facilities to provide processing, marketing facilities and protect the commercial farming.
- Increment of government revenue.

2.5. Agricultural Planning and Sector Polices

Most of the poor line in rural areas, work in the agricultural sector and fall into the small and marginal farmers category. Sixty to seventy percent of all farmers in Asia are small and marginal farmers cultivating 29-50 percent of total arable land and contribution some 30-35 percent of the total agricultural production. By and large, small farmers are engaged in substance agriculture. Generally, they eke out an inadequate living from farming and their basic concern is survival. Agriculture is a way of life, rather than just an economic activity they work mostly in harsh and risky environments and face more economic, social and political barriers then do larger, farmers. Natural calamities, namely famine and pestilence, disproportionately affect them. They are frequently accused of being irrational, fatalistic and conservative in their attitudes to farming. These factors have lead to several misapprehensions about this group, and have kept them out of the mainstream of agricultural development. The development of this segment of the farming production has been considered more as a “humanitarian” goal rather than as a true economic necessity (D’Silva and Bysouth 1992).

2.6. Economic Performance

Agriculture grew 3.0 percent in FY 2005, contributing 1.25 points of GDP growth. It achieved this fair performance despite the fact that paddy production (which accounts for almost 205 of agricultural GDP) fell by 3.7 percent due both to a poor monsoon, and to a decline in the cultivated area in response to low prices after a bumper crop a year earlier. This outweighing factor was significantly strong production of winter crops, such as where, maize, sugarcane, and jute, due to better winter weather (ADB 2006).

2.7. Vegetable Production in Nepal

In Nepal, systematic research and development started only after the establishment of governmental horticulture farms in the sixties. In 1972, the vegetable development division in the national agriculture research council (NARC) was established to coordinate research, seed production and development of vegetable crops (AVRDC, 1992). Agriculture Development Policy of G/N is based on the Agriculture as a lead sector for poverty alleviation and for increasing employment in the country. Agricultural marketing has been considered as an integral component to raise production and to provide strong forward linkages. To promote vegetable production, the ninth five-year plan has the commercial vegetable production program and off-season vegetable program.

Commercial vegetable production will be launched in pocket areas with consideration to economies of scale in production. Off-season vegetable production program will be launched for the production of market-oriented vegetables in the pocket areas in and around North South highways. The program includes formation of horticultural trade promotion and linking

with wholesale market centers. The total areas coverage, production and productivity of vegetable in Nepal is 1,40, 177 ha 13,432,567mt and 9.577mt/ha respectively. Among the five development regions, the central development region is at the topmost level from the point of view of coverage, production and productivity (DADO 2000).

National Research Association Nepal has focused on agricultural sector has been a major source of production, income and employment opportunity in Nepal. Likewise, it is expected to narrow down regional imbalances and uplift the standard of living of the people below poverty line. The objectives of the Ninth Plan are to achieve high economic growth, prepare the foundation for industrial development and alleviate poverty the increase in employments opportunities through converting substance level of agricultural profession into a commercialized one (Gurung, 2000).

Tindal (1989) in 'Commercial Vegetable Growing' focused on causes of commercial vegetable production and effective ways. In may parts of the tropic today, the commercial production of vegetables is developing as a result of the demand of growing towns and cities. Changes in the food patterns the spread of information health education has led to an increased awareness of the value of fresh vegetable in the diet. This has promoted greater interest in marketing gardening as an essential factor in the provision of food for extruding populations. As the general improvement in the standard of health in many tropical countries, continues to the problems of procedures of local food crops will became acute in the remaining years of this year. About the better production way it is has further emphasized many market gardens employ only family labour, it is difficulty for such units to expand unless some form of co-operation is adopted. It has also mentioned along with other important points as the

greatest needs in most developing countries appear to be as follows: the development of co-operative methods of production and marketing.

The vegetable grower can make a vital contribution to the national food supply; a healthy and expanding marketing guarding industry is a safeguard against the lowering of health standards necessary for productive output in an expanding economy.

PAC and BPSO (1994) have showed marketing system of vegetables in traditional vegetables in the Eastern Hills of Nepal. Ministry of finance in Economic Survey of Nepal (1999) has stated clear data of vegetable production including agricultural production from 1982 to 1999. In the year 1982/1999 the vegetables production is 125.52 thousands metric tone.

2.8. Commercial vegetable production

The production may expand of possibly even higher roles the predicted because high value crops have strong export potential indeed: their development requires an export diverse strategy. It shows great potential as provide of off-season vegetable (APP, 2001)

There are three categories of programs for vegetable production:

a) The special program includes production of fresh vegetable for commercial purpose the production areas are consolidate near cities or where there is easy to access to them by roads. There are many such pockets in the country where improved seeds, bank credit, training tension support etc are available to special program farmers.
b) The general programs supply the local market as well as market patronized by farmers. Some, extension support is given, but not as much as in the special programs.
c) In the last priority programs, the farmers produce their traditional vegetables without any external support. Kitchen garden program

composite vegetable seed packets are supplied to the farmer under the general and the least priority program.

Statistics shows that about 14000 ha. Is under vegetable production, with an annual production of about one million tons (GCP/EP 1994). There includes all three programs. Generally the government policy is not to increase the hectare under vegetable cultivation but to bring more and more. Area under the special program from the general and least priority areas. The productivity for special general and least priority program are 15mt, 9.5 mt and 5.8 met per hectare respectively (GCP/NEP, 1994). Thus, the total production of the vegetable will increase by increasing productivity rather than area. In this last 15 years, there was more than 24% increase in production while there was increased by only 38%. The production may expand at possibly even higher rates the predicted because high value crops have strong export potential indeed; their development requires an export diverse strategy. It shows great potential as provider of off-season vegetables (APP, 2001).

Vegetable production in Nepal is increasing, a result of the growing population, rapid urbanization, the export potential of vegetable seeds and people's awareness of the nutritional value of vegetables. Vegetables are now considered a high-value crop and vegetable is becoming a sustainable source of income for farmers. However, availability of fresh vegetables is only just over 56 g per person per day, which is far below the recommended level of 200g (AVRDC 1999: 53).

Certain vegetable has been grown in Nepal since very primitive time. However, systematic research and development started only after the establishment of government horticulture farms in the sixties. In 1972, the vegetable development division in the national Agriculture Research Centre, Now the Nepal Agriculture Research Council (NARC) was established to co0conditiona research, seed production & development of

vegetable crops in Nepal. In 1987, NARC was given the mandate for an agricultural research, including vegetable crops (AVRDC 1992:142).

2.9. The Demand for Vegetable

The vegetable demand maybe domestic or international. However, for vegetables specially are green vegetables that are perishes within a few days or hours, only the domestic demand is taken into consideration. But the products which can be stored for a longer period of time like brinjal, ginger, potato, dry onion etc. can have international market. In this regard one can take the import of dry onion, brinjal etc. from the Indian markets. On the other hand the valley sends the vegetables like green onion cauliflower etc. to the adjoining Terai markets like Hetaunda, Bharatpur etc. Therefore, the cauliflower, green onion and garlic producers in the valley have no problems for their products. However, unlike the cereal grains it is not possible to look for the international markets for the Nepalese vegetables (Dhungana 1982:62).

2.10. Marketing System and Channels

One of the important government polices in the eight five-year Plan is to improve the agricultural marketing system through government and private sector participation (PDC 1992). The plan recognizes that unless appropriate marketing infrastructure is developed and other related support is provided, it will not be possible to increase vegetable production and consumption (Thapa 2000: 146)

Basically, there are two types of vegetable markets:

a) Producer's supply market or the collection centres located in the vicinity of production pockets; producers or middlemen bring vegetables to such markets for sale to wholesalers.
b) Consumer markets located near major urban centres.

Farmer→ Retailer→ Consumer

Farmer→ Consumer

Farmer→ Wholesaler→ Retailer → Consumer

2.11. Conceptual Framework for Commercial Vegetable Framing & Economic Upliftment of Farmers

The conceptual framework for the present study has been based on the reviewed literature. Conceptually, the present study is designed to find out the socioeconomic condition of the people and impact of the vegetable farming in the study area. For the conceptual framework, the ideas are taken as vegetable farming for income generation, commercial production of vegetable. For large-scale production, utilization of resources is essential. When resources are efficiently utilized than the large-scale production is possible. For large-scale production more people should be employed. Production creates demands and consumption. Production increases the income. Incensement in income gives incentive to invest on productive activities, education, health, housing and other necessities. Finally, which may reduce the poverty. The following figures will make it more clear.

Figure 2.1 Conceptual Framework of the Role of Commercial Vegetable Farming in Poverty Reduction

Chapter – Three

Chapter - Three

RESEARCH METHODOLOGY

3.1. Research Design

A descriptive as well as an analytical research design was adopted in order to analyze and interpret the quantitative and qualitative data collected from the concerned field. Such a research design is helpful to fulfill the above-mentioned target.

3.2. Selection of Study Area

The research site of this research was the Chitlang VDC of Makawanpur District. This VDC is located in the western part of the Makawanpur District. According to CBS 2058, the total population of this VDC is 7736 among them 3935 are male and 3801 are female. The total population is organized into 1174 households. In this VDC most of the farmers growing vegetables for commercial purpose and sale their vegetables in different market centers. The main occupation of the people is agriculture. This area is selected to find out the role of commercial vegetable farming in poverty reduction and the socio-economic changed brought about by commercial vegetable farming.

3.3. Nature and Source of Data

Different types of data and information were collected and analyzed in this study. The present study is depend upon the primary and secondary data. Primary data were collected by interviewing vegetable farmers. The secondary data were obtained from different books, journals, research reports, relevant magazines, newspapers and electronic resources.

3.4. Population of Sample Size

The present study was done in Chitlang VDC. It was not possible to interview the entire vegetable farmers in the study. Therefore, sampling method is adopted for the study.

Table 3.1: Sample Size Distribution

Ward	Total HHs	No. of veg. faming households	Sample HHs (10%)
1	68	60	6
2	108	90	9
4	178	119	12
6	169	109	10
9	174	131	13
Total	697	509	50

Source: Field Survey 2006

Among 9 wards of the VDC five wards (i.e. ward no 1,2,4,6 & 9) were taken only for this study. The total number of households within the five wards were 697 and 509 households were found of commercial vegetable farming. Out of them only 50 (10%) households were selected with the method of simple random sampling. Thus, the selected households represented the sample of the present study.

3.5. Tools and Techniques of Data Collection

Both primary and secondary data were used for this study.

3.5.1. Primary Data Collection

Various types of tools and techniques were used to collect primary data for this study as the following way:

3.5.1.1. Household Survey

Both structured and semi-structured questionnaires were used for household survey. The survey was taken from the sampled members of selected households by adopting door-to-door approach.

3.5.1.2. Key Information Survey

Key informant survey was used to collect additional information about the impacts of the commercial vegetable farming on socio-economic uplift is the major agenda for key informant survey. It was taken as individual basis. Researcher has taken as a verification of data collected by different methods i.e. Household Survey, Focus Group Discussion.

3.5.1.3. Focus Group Discussion

The focus group discussion was conducted in each selected ward. In the discussion researcher has tried to participate all the members of concerned area.

3.5.2. Secondary Information

Various types of secondary information were collected from different sources. The VDC office DDC office, National Census Report, Published and unpublished literatures, articles, newspapers and Internet were used as the major source of secondary information.

3.6. Data Analysis and Presentation

The systematic analysis was done by using qualitative as well as quantitative tools and techniques. The quantitative data obtained from structured questionnaire were processed through validation, editing and coding. Secondly this processed data were presented in tabular form. Finally, the data were interpreted with additional information. Simple statistical tools such as percentage and ratios were used to present the findings. Besides this, cartographic techniques such as graphs, diagrams, maps and pie charts were used to supplement presentation of the findings of the study.

Chapter – Four

SOCIO-ECONOMIC CONDITION IN THE STUDY AREA

4.1 An Overview of Study Area

4.1.1 Location

Chitlang VDC is one of the VDCs of Makawanpur district. It lies in the hilly region. This VDC is surrounded by hills and it is a small valley of high altitude. It is located at an altitude of maximum 2400 meters and minimum 5600 ft. Its neighboring VCDs are Phakhel VDC in the east, Bajrabarahi VDC in the west, Markhu VDC in the South and Kathmandu District in the north (Map 4.1). The VDC cover an area of 17473 ropani. The population of Chitlang is 7,736, among them 3935 are male and 3801 are female. The total number of households is 1,174.

4.1.2. Settlement Pattern

No urban area in this VDC, 100% people live in rural areas. The VDC is divided into nine wards and the households not less than 60 in each ward. Ward no. 6 & 9 is highly dense than others.

Map 4.1: Map of Study Area (Chitlang VDC)

4.1.3. Social Character

The main ethnic community is that of the Newar, followed by the Taming, Brahmin, Chhetri, Sarki, Magar, Kami, Damai and other community (CBC 2058). The following table shows clearly the distribution of population by ethnicity.

Table 4.1: Population Distribution by Ethnicity of Chitlang VDC

Ethnicity	Population	Percentage
Newar	4668	60.4
Tamang	985	13.0
Chhetri	635	8.0
Brahmin	670	8.6
Magar	282	3.6
Damai	61	0.8
Kami	78	1.0
Sarki	312	4.0
Others	45	0.6
Total	7736	100.0

Source: Plan Nepal, Makawanpur, 2062.

4.1.4. Education

There are 4 primary schools, 1 lower secondary schools and 2 secondary schools. Among the total population 39% are illiterate and 61% are literate. Among them 1.16% has passed SLC, 0.5% passed I.A. and 0.23% has passed B.A and above.

4.1.5. Infrastructure Facilities

There is no pitched road within the VDC. Only 12 km. Gravel and 35 km trail road is constructed in the VDC area. It is 78 km. to Kathmandu but no pitch road facility to the VDC.

Electricity is available in each ward but not available in all households. Some of the households are not jetting electricity facility till now. This VDC has provided telephone facility.

4.1.6. Economic Structure

Agriculture is the main occupation, employing nearly 93.6% of the working population. Most of them are involved in commercial vegetable farming. Chitlang is well known for vegetable farming. Only 6.4% are involved in business, government and private services, foreign job and other employment (GDFC, 2061/62).

4.1.7. Crops and Livestock

People of this VDC grow more vegetable crops than cereal crops. The main cereal crops of this VDC is wheat, paddy and maize. This VDC is famous for vegetable farming. Most of the people in this VDC grow vegetable. Main vegetables are cabbage, cauliflower, garlic, potato, radish, carrot and other green leaved vegetables. This VDC is also famous for cheese from goat milk. There is a sheep and goat, which was established in 2001 B.S. This area is fertile for fodder plans and fruit farming. People of this VDC have started fisheries, which is the bright indication of economic upliftment.

4.1.8. Land Resource & Land Use

The total area of Chitlang VDC is 14473 ropani, out of which agriculture land is 7873 (54.4%) ropani forest area is 5900 (38%) ropanies and 1100 (7.6%) ropanies is widow land.

Table 4.2: Land Use Patterns

Land use category	Area (Ropani)	Percentage
Agriculture	7873	54.4
Forest	5500	38.0
Grazing	1100	7.6
Total	14473	100.0

Source: VDC Profile Chitlang, 2058.

4.2. Social Condition of Respondent's Households

4.2.1. Population Distribution by Ethnicity of Respondents Households

Caste and ethnicity plays an important role in people's occupation in our traditional society. We can find people's occupation highly influenced by caste and ethnic groups, which they belongs. Population distribution by ethnicity is given in the following table:

Table 4.3: Population Distribution by Ethnicity

Ethnic group	Households		Total Population	
	Number	Percent	Number	Percent
Newar	18	36.0	144	37.0
Tamang	13	26.0	108	25.0
Chhetri	7	14.0	56	15.0
Brahmin	5	10.0	40	9.0
Magar	4	8.0	32	8.0
Kami	2	4.0	16	5.0
Dami	1	2.0	8	1.0
Total	50	100.0	404	100.0

Source: Field Survey 2006

Table 4.3 shows that adoption of vegetable farming in the caste system. In the study area most of the commercial vegetable grower were Newar and followed by Tamang. It was found from this study, out of 50, 18 respondents were Newar and its categories were 36%, 13 households were

Tamang and its categories were 26 %, 7 households were Chhetri and its categories were 14% and followed by Bahun 10 %, Magar 8 %, Kami 4 % and Damai 2 % were adopted vegetable farming. Caste system also plays vital role to of adopt new idea and practice. The major occupation of Newar & Tamang was not agriculture but they were motivated by economic factors and which brought changed in socio-economic condition from vegetable farming production. So, at present the occupation is not depended upon caste, every caste can easily adopt any occupation and can their socio-economic conditions. It is shown in pie chart below.

4.2.2. Age Composition of Respondents

This was considered to know the age group of respondents. The age of household head or respondents is very important in case of time engagement, labour contribution, idea sharing and decision making process. Table 4.4 has presented the agewise distribution of respondents.

Table 4.4:Agewise Distribution of Respondents

Age (Year)	Respondents	
	Number	Percentage
< 25 years	6	12.0
26-50	29	58.0
>50	15	30.0
Total	50	100.0

Source: Field Survey 2006

Above table 4.4 shows that the higher percent (58%) was found in the age group of 26-50 years, followed by the age group of above 50 years that was 30 percent. Respondents of below the age of 25 years was 12 percent only. Respondents of age group of26-50 years are found high and the age group of below 25 years are found less then other age groups. Vegetable crops need special and specific care and management for better return.

From this study, middle age household head or respondents group were found busy in vegetable farming rather than relatively very old age and younger. From the above table we conclude that the respondents of productive age group were found more in commercial vegetable farming.

4.2.3. Educational Status of Respondents

Educational status of persons plays a vital a role in the occupancy & socio-economic development, awareness and practice become easy from education. Generally higher educated persons are found holding their occupation more efficiently and conveniently. They can take any decision quick and better than uneducated. The percent of literate are found in greatest number than higher education.

Table 4.5: Educational Status of Respondents

Educational level	Respondents	
	Number	Percentage
Illiterate	7	14.0
Literate	26	52.0
Middle/lower Secondary	6	12.0
SLC/Secondary	6	12.0
Collage/Above Secondary	5	10.0
Total	50	100.0

Source: Field Survey 2006

Above table 4.5 shows the educational level of household heads from this study, the literate and illiterate percentage was found 26 (52%) and 7 (14%) respectively. Among educated group majorities were found literate and in second position 7 (14%) were illiterate. 6 (12%) out of 50 in middle level, 6 (12%) out of 50 in SLC and Secondary and 5 (10%) in collage level. Education is an important component to change towards vegetable production was found positive and shows need of education is felt compulsory for better knowledge of vegetable cultivation.

4.3 Economic Condition of Respondent's Households

4.3.1 Landholding Size of the Respondents

Majority of the people having here depends upon agriculture and it is the main source of their income. More than 93% of the people living her are engaged in commercial vegetables production as their main profession. So, the land possession have, is an important factor of economic status. The distribution of land is not equitable. The landholding situation of the respondents is presented below in table 4.6.

Table 4.6: Landholding Size of the Households

Landholding Size (In Ropani)	Respondents	
	Number	Percentage
Below 5	10	20.0
5-10	13	26.0
10-15	10	26.0
15-20	8	16.0
20-25	6	12.0
25 above	3	6.0
Total	50	100.0

Source: Field Survey 2006.

The table 4.6 shows that the households having land below than 5 ropani is 20 percent. Households having 5-10 ropani land is 26 percent. Household having 10-15 ropani land is 20 percent. Data shows that only 6 percent households are having above than 25 ropani land. The land distribution in this location does not seem equal/homogenous. Most of the land distributed within the respondents were utilized to grow vegetables. The majority of farmers grow high value crops rather than cereal crops.

4.3.2. Trend in Land Used for Vegetable Production

Land utilization in vegetable production is one of the major components for the production as well as income. The trend of the land used in vegetable production is shown in table 4.7.

Table 4.7: Trend in Land Used for Vegetable Production

Trend of land used	Respondents	
	Number	Percentage
Increased	47	94.0
Constant	3	6.0
Decreased	0	0.0
Total	50	100.0

Source: Field Survey 2006.

Above table 4.7 shows that out of 50 members respondents, 47 (94%) have replied that the situation of land use for the vegetable production is increased. Only 3 (6%) out of 50 respondents reported that the land used for vegetable production is constant and on one respondent is found in reply of decreased of land used for vegetable production. This table indicates that income from vegetable production is higher than from the cereal crop, that's why the trend of land used for the vegetable production is increased.

Chapter - Five

THE ROLE OF COMMERCIAL VEGETABLE FARMING TO CHANGE THE SOCIO-ECONOMIC CONDITION OF RESPONDENTS HOUSEHOLDS.

5.1. Change in Social Condition of Respondent's Households

5.1.1. Student Dropout from the School Education

Student’s dropout from school education depends on household family income. Children of high-income households were found less dropout from the school than low income households.

Table 5.1: Dropout from School Education

Change	Respondents	
	Number	Percent
Increased	0	0.0
Decreased	43	86.0
Constant	7	14.0
Total	50	100.0

Source: Field Survey 2006.

Table 5.1 shows that the situation of student's dropout from the school education. According to the respondent's reporting dropout rate is highly decreased after commercial vegetable farming. Out of the 50 respondents 43 (86%) respondents agreed that the student's dropout rate from school education is decreased. Only 7 (14%) respondents out of 50 respondents has reported, dropout rate is constant. No one respondents is found to reporting that the dropout rate is increased.

5.1.2. Progress in Child's Education after Vegetable Farming

Income helps to make children's education progressive. Farmers are able to increase their income from seasonal and off-season vegetable production. Vegetables growers have increased their expenditure in children's education. Because of high income children are not send to fieldwork. They are able to buy educational materials. Respondents have felt that their children's education is more progressive after the commercial vegetables production, which is shown in the following table:

Table 5.2: Progress in Child Education After Vegetable Farming

Parameter	Respondents	
	Number	Percentage
Yes	50	100.0
No	00	00.0
Total	50	100.0

Source: Field survey 2006.

Above table 5.2 indicates that all respondents were positive toward the commercial vegetable production help to make children's education more progressive. 100% respondents have felt their children have progressed in school education after the commercial vegetable farming.

5.1.3. Vegetable Farming Helps to Get Education

Vegetable farming is good income generating job. Which can give economic return. It can also change the socio-economic condition of vegetable grower. The table 5.3 shows the perception of respondents towards farming vegetable helps to get education.

Table 5.3: Respondent's Perception of Contribution of Vegetable Growing in Education

Acceptance	Respondents	
	Number	Percentage
Yes	47	94.0
No	0	0.0
I don't know	3	6.0
Total	50	100.0

Source: Field Survey 2006.

Above table 5.3 shows that, 47 respondents out of 50 were agreed with vegetable farming helps to get education, which consists 94 percent and only 3 respondents which consists 6 percent out of 50 were found in I don't know categories. From this discussion, commercial vegetable grown farmers group were able to send their children in school for education. According to the information taken from respondents they can earn more income from vegetable production than cereal crops.

5.1.4. Source of Drinking Water

We need clean and enough drinking water source for our good health. Most of the people in the rural area are found deprived from the clean drinking water sources. Natural sources of drinking water are found unsafe and the people are unable to invest for making water sources clean & enough. According to the respondent's report of study location there was no safe & enough drinking water facilities before commercial vegetable farming. Now it is increased in their earning from vegetable production and they were able to manage the safe and enough drinking water facilities. The table 5.4 presented below shows the condition of source of drinking water.

Table 5.4: Source of Drinking Water

Source of water	Before		After	
	Number	Percentage	Number	Percentage
Pipeline	7	14.0	39	78.0
Kuwa (Small Pond)	23	46.0	8	16.0
Khola (Stream)	12	24.0	0	0.0
Well	8	16.0	3	6.0
Total	50	100.0	50	100.0

Source: Field Survey 2006.

Table 5.4 indicates that the people of Chitlang were facing problem of drinking water before commercial vegetables farming. Before commercial vegetable farming only 7 (14%) Out of 50 households were facilited with Pipeline drinking water facility. 23 (46%) out of 50, 12 (24%) out of 50 and 8 (16%) out of 50 used to go Kuwa, Khola and Well for drinking water respectively. The condition is changed after commercial vegetable framing and 39 (78%) out of 50, 8 (16%) out of 50, 0 (%) out of 50 and 3 (6%) out of 50 respondents are found using from pipeline drinking water, Kuwa, Khola and Well respectively. Above data indicated that the drinking water facilities in the study area is improved.

5.1.5. Use of Toilet

Most of the people in rural area we find having no toilet. Generally poor household members use to go jungle, stream bank or open field. Because of low education level and income, they are unable to invest for toiled construction. After increasement in income people of the study area are found more aware about health & sanitation. The following table 5.5 shows the condition of toilet facilities of respondents before and after vegetable farming in the study area.

Table 5.5: Toilet Use Before and After Commercial Vegetable Farming

Type of toilet	Before		After	
	Number	Percentage	Number	Percentage
Permanent	3	6.0	17	34.0
Temporary	23	46.0	33	66.0
Not used	24	48.0	0	0.0
Total	50	100.0	50	100.0

Source: Field Survey 2006.

Table 5.5 shows that before commercial vegetable farming 24 (48%) respondents were found having no toilet facility. The temporary type of toilet was found with 23 (46%) and only 3 (6%) respondents were found having permanent types of toilet facility. The case was found just inverse after commercial vegetable farming. 33 (66%) respondents out of 50 respondents were found having temporary type of toilet facility, 17 (34%) respondents were found having permanent type of toilet and respondents having no toilet facility were found 0 percent. It indicates that the types of toilet using habits of the people directly depends on their earning.

5.1.6. Consultation for Treatment

According to the respondents report of study location most of the people of that area were visited first to the unscientific health workers such as Dhami/Jhankri or Janne for treatment of their disease. Hospital and other scientific health centers/institution had not been given priority by the people of that area. But at present the situation is changed after commercial vegetables production practices, which is shown in the following table.

Table 5.6: Consultation for Treatment

Treatment	Before		After	
	Number	Percentage	Number	Percentage
No where	12	24.0	0	0.0
Dhami/Jhankri/Janne	33	66.0	9	18.0
Health Centre/ Clinic	3	6.0	22	44.0
Hospital	2	4.0	19	38.0
Total	50	100.0	50	100.0

Source: Field Survey 2006.

Above table 5.6 shows that at past 33 (66%) out of 50 respondents used to visit Dhami/Jhankri/Janne and only 2 (4%) out of 50 respondents used to go hospital for their treatment. But at present only 9 (18%) out of 50 respondents are found that they to visit Dhami/Jhankri/Janne, 22 (44%) out of 50 respondents visit health center or clinic and 19 (38%) out of 50 respondents go to visit hospital for their treatment. This is the changed situation brought by commercial vegetables farming.

5.1.7. Respondent's Housing Condition Before and After Vegetable Farming

Housing condition may represent the economic status of the people. Low-income families are found unabled to maintain their house as their requirement. According to the information provided by the respondents of the study area before commercial vegetable farming their annual income was very low & the condition of their houses was very poor. But the condition after started commercial vegetables production is changed and their annual income is high & housing condition is improved. Table 5.7 shows the housing condition of the respondents before and after vegetable production.

Table 5.7: Housing Condition of the Respondents

Types of house and roofing	Before		After	
	Number	Percentage	Number	Percentage
House:				
Hut	13	26.0	1	2.0
Kachcha	35	70.0	27	54.0
Pakka	2	4.0	22	44.0
Total	50	100.0	50	100
Roofing:				
Khar	38	76.0	5	10.0
Tin	9	18.0	13	26.0
Paccka	3	6.0	32	64.0
Total	50	100.0	50	100.0

Source: Field Survey 2006.

Table 5.7 indicates that the condition of housing & roofing of respondents before vegetable farming was found very poor. Out of 50 respondents 13 (26%) reported that they owned hut, 30 (70%) respondents owned Kachha houses and only 2 (4%) owned Paccka house. The roofing condition of 38 (76%) respondents house was found of Khar, 9 (18%) was Tin & only 3 (6%) respondents houses were found of Zink sheet. But the situation of housing & roofing condition of respondents is found changed after commercial vegetable production out of 50, only one (2%) is found of hut type, 27 (54%) are found of Kcchha type and 22 (44%) are found of Paccka type houses of respondents in the study area. Above data shows that the poverty situation is found reduced after the commercialization of vegetable production in that area.

5.1.8. Commercial Vegetable Farming Generates Employment

In rural area we find most of the people are unemployed. Our subsistence agricultural farming system is not able to provide the full employment to the people depend upon the agriculture. Farmers of the study area have changed their subsistence agricultural farming system into commercial farming system. After starting the commercial vegetable production the situation of farmer of study area is found changed, now they are employed and economically benefited. Table 5.8 shows the acceptance of respondents towards the role of commercial vegetable farming the generating the employment.

Table 5.8: Commercial Vegetable Farming Generates Employment

Employment condition	Respondents	
	Number	Percentage
Whole household family (Full employment)	28	56.0
Partial employment of household members	9	18.0
Employed external persons	13	26.0
Unemployed household	0	0.0
Total	50	100.0

Source: Field Survey 2006.

Table 5.8 shows that the 28 (56%) out of 50 respondents family members are fully employed in vegetables farming. 18 percent respondents family members are found partially employed in vegetable production. 26 percent respondent's family members are fully employed and they hire external persons/workers.

5.1.9. Change in Workload of Women of Respondents Households After Commercial Vegetable Farming

Generally we find the division of work among male and female is unequal. In the rural area workload of women greater than the men. Women of poor family have to work hard for their daily life because male people spend their time in playing cards, out visits, gathering and other non production purposes. Because of bad habit like drinking alcohol, smoking and playing card male people do not work hard. But after commercial vegetable farming the habit of the men is changed and they work-hard for vegetable farming. They are motivated by the income from vegetable and have started working hard. They have felt more responsible toward family and the workload of the women of their family is reduced. Following table 5.9 has presented the condition of workload of women of the respondent's household.

Table 5.9: Workload of Women of Respondent's Household After Commercial Vegetable Farming

Condition of workload	Respondents	
	Number	Percentage
Decreased	39	78.0
Constant	8	16.0
Increased	3	6.0
Total	50	100.0

Source: Field Survey 2006.

Table 5.9 has shown the situation of the women's workload in the respondent's family. According to 78 percent respondent's reporting workload of women is decreased. 16 percent respondents reported that the workload of women is constant and according to the 6 percent respondents report workload of women is increased. Majority of the respondent's are found in favour of the workload of women is decreased after commercial vegetable faming.

5.1.10. Trend of Vegetable Consumption

It is important factor that the consumption of quality and quantity of fresh vegetable in daily life. Who are most sensitive for health, they feel need of vegetables in their daily food, which help to maintain balance diet. Vegetable is essential and cheap sources of energy, which provide vitamin, minerals and so on. Below maintained table presented the trend of vegetable consumption of respondents households in the study area.

Table 5.10: Vegetable Consumption trend After Vegetable Production

Trend	Respondents	
	Number	Percentage
Increased	48	96.0
Constant	2	4.0
Decreased	0	0.0
Total	50	100.0

Source: Field Survey 2006.

Table 5.10 shows that 48 (96%) out of 50 respondents were found who's habit of using fresh vegetables is increased. Only 2 (4%) out of 50 were found of constant habits of using fresh vegetables, which indicates the health condition of the people in that area has certainly improved and they have saved their medicines expenses and economically they are benefited.

5.2. Change in Economic Condition of Respondent's Households

5.2.1. Respondent's Annual Income Before and After Commercial Vegetable Production

In the sample study, it shows that significance portion of the income is covered by vegetables sales. According to of the information taken from respondents, their annual earning is highly increased commercial vegetable farming. They have reported that the vegetable farming is more profitable

than the cereal crops and other agricultural activities. People of the study area easily say that their income level is highly increased and they are stratified with the earning from the vegetable production. Table 5.11 shows the comparative annual income before and after commercial vegetable production.

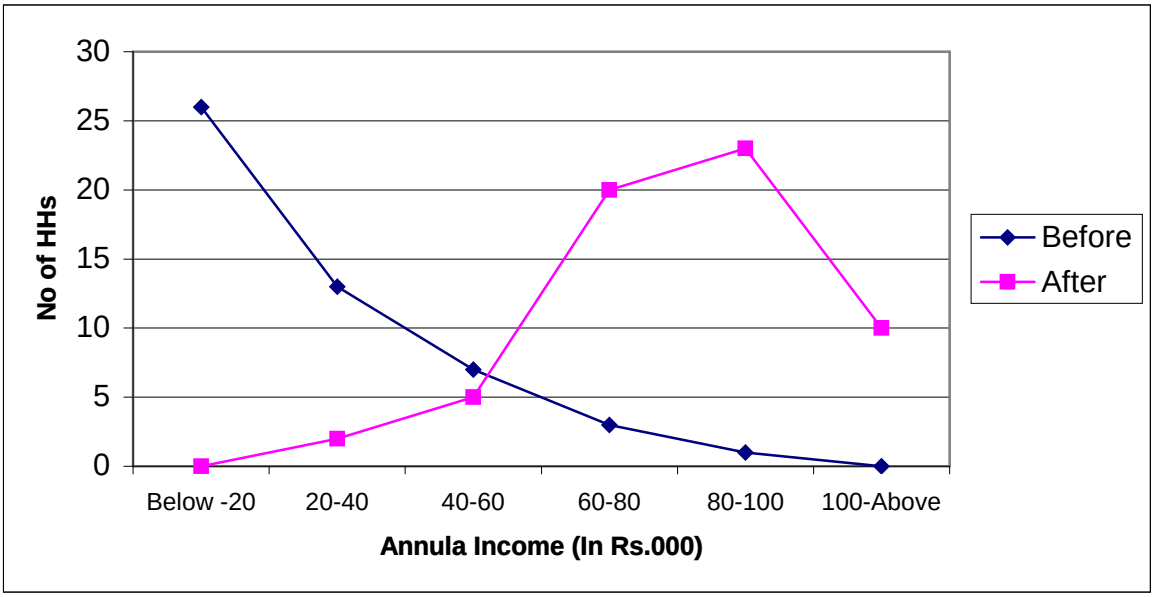
Table 5.11: Annual Income Before and After Vegetable Farming

Annual income (in Rs. '000)	Before		After	
	Number	Percentage	Number	Percentage
Below -20	26	52.0	0	0.0
20-40	13	26.0	2	4.0
40-60	7	14.0	5	10.0
60-80	3	6.0	20	40.0
80-100	1	2.0	23	26.0
100 and Above	0	0.0	10	20.0
Total	50	100.0	50	100.0

Source: Field Survey 2006.

Table 5.11 states that among 50 sampled households 26 (52%) households were found annual earning of less than 20 thousand and no one (0%) household was found above Rs.1, 00,000 annual earning before vegetable farming. Data shows that the annual earning of respondents is found greatly increased after vegetable farming. Out of 50 respondents HHs 20 (40%) households earn 60-80 thousands rupees, 13 (26%) households earn 80-100 thousands rupees and 10 (20%) households earn above 100 thousands rupees annually. No one household is found of earning less than 20 thousands rupees per annum after commercial vegetable farming. The table indicates that the income of the sampled households is found largely increased after commercial vegetable farming in the study area.

Figure 5.1: Change in Respondent's Annual Income



5.2.2. Respondent's Food Sufficiency Before and After Commercial Vegetable Farming

Most of the people of the study area are found having small piece of landholding. Their cropping pattern was not commercial. They used to grow low value crops, which was insufficient to feed them for whole year. At present cropping pattern is changed and they grow high value crops (i.e. vegetable) in commercial scale. Nowadays their earning is high and they are able to save large amount of money from their annual income. According to the respondents reporting economic status of the people in the study area is greatly improved. Table 5.12 presents the changed condition of food sufficiency of respondents households.

Table 5.12: Respondent's Food Sufficiency Before and After Commercial Vegetable Farming

Food sufficiency (months)	Before		After	
	Number	Percentage	Number	Percentage
Below -3	10	200.	0	0.0
3-6	14	28.0	0	0.0
6-9	12	24.0	0	0.0
9-12	9	18.0	2	4.0
12& surplus	5	10.0	48	96.0
Total	50	100.0	50	100.0

Source: Field Survey 2006.

Table 5.12 represents that the food sufficiency situation is inversely changed after commercial vegetable farming out of 50 respondents households 45 (90%) respondents were unabled to make their earning to meet their food requirement for whole year. Only 5 (10%) respondents were abled to make earning for their food requirement in a year. But after commercial vegetable farming out of 50 respondents 48 (96%) respondents households earn more income than their yearly requirements of foods. At present no food insufficiency problems among 50 respondents households in the study area.

5.2.3. Respondent's Major Source of Income

The income source of a household plays the major role in upliftment the socio-economic status of that family. Living standard of the people depends upon their main source of income. Respondents of the study area have making the high income from vegetable farming. Table 5.13 shows the major source of income.

Table 5.13: Respondent's Major Source of Income

Source	Before		After	
	Number	Percentage	Number	Percentage
Vegetable	0	0.0	50	100.0
Cereal crops	31	62.0	0	0.0
Livestock	6	12.0	0	0.0
Business	7	14.0	0	0.0
Service	2	4.0	0	0.0
Other	4	8.0	0	0.0
Total	50	100.0	50	100.0

Source: Field Survey 2006.

This table shows that the major source of income is found changed after vegetable farming of the people of the study area. Before vegetable farming out of 50 respondents 31 (62%) are found of agriculture is their major source of income. No one was found as of vegetable major source of income before vegetable farming. After vegetable farming 100 percent respondents of the study area were found of vegetable is their major source of income. From the above information we can declare that vegetable framing is highly profitable than the other occupation and the people of that area have accepted vegetable farming as their major source of income.

5.2.4. Utilization of Income from Vegetable

Utilization of income shows that the area of the expenditure. Farmers utilized their income primarily in food, children education, cloths, medicine and daily-required goods as they earn more than they utilize in other sectors. Such as purchase cultivable land, improve the housing conditions, built toilet, livestock shed if they earn other more use for additional functions like expenditure in business, saving in bank, land purchases in urban areas and purchase fixed assets. Table 5.14 shows the sector of utilization of earned money from vegetable farming.

Table 5.14: Utilization of Income Coming From Vegetable Farming

Area of expenditure	Respondents	
	Number	Percentage
Food and Daily use expenditure	50	100.0
Land purchase for cultivation	23	46.0
House construction/improvement	43	86.0.
Health and sanitation	45	90.0
Children's education	50	100.0
Land purchase in urban area	3	6.0
Bank balance	31	62.0
Livestock purchase	15	30.0
Social function	42	84.0

Source: Field Survey 2006, Note: Total no of respondents is 50.

Table 5.14 indicates that every family utilizes the income in food, cloth, daily use goods and education activities. 90% respondents utilize the income in health & sanitation. 86% respondents utilize the income for improvement of housing condition. 84% respondents utilize the income in additional social function. 62% respondents have started to keeping in bank balance. These all activities show vegetable farming is being a profitable and income generating enterprises among the farmer's groups. It shows that the poverty level of commercial vegetable farmers is reduced.

5.2.5. Changes Experienced by Respondents After Commercial Vegetable Farming

According to the information provided by the respondents of the study area it is found that the commercial vegetable farming has carried changed in the socio-economic conditions of the people. Table 5.15 indicates the changed experienced by the respondents.

Table 5.15: Changes Experienced by Respondents after Vegetable Farming

Sectoral change	Positive change	
	Number	Percent
Economic status	50	100.0
Educational Status	46	92.0
Health situation	39	78.0
Social condition	43	86.0

Source: Field Survey 2006, Note: Total number of respondents is 50.

Above table indicates that the economic status of respondents household is found positively changed. 50 (100%) respondents reported that their income is increased. 48 (92%) out of 50 respondents have reported that their children's education is improved. 39 (78%) out of 50 respondents have reported that their health condition is improved because of increased in fresh vegetables consumption. Out of 50 respondents, 43 (86%) are found who have expended their some portion of income in social work. From the above table we can find that the role of vegetable farming is positive and the poverty situation of the study area is reduced.

5.2.6. Source of Loan Taken by Respondents Before and After Commercial Vegetable Farming

Low-income households may take loan more from different source than the households of high income. Income of subsistence agricultural farmers is very low so they have to take loan at high rate of interest instead of saving. But incase of commercial vegetable farmers the transaction is found just inverse, which is presented on the following table 5.16

Table 5.16: Source of Loan Taken by Respondents Before and After Commercial Vegetable Farming

Source of loan	Before		After	
	Number	Percentage	Number	Percentage
Local money lender	34	68.0	2	4.0
Financial institution	13	26.0	5	10.0
No loan	3	6.0	43	86.0
Total	50	100.0	50	100.0

Source: Field Survey 2006.

Table 5.16 shows that the source of loan was local money lender by 68 percent, which was the main source of the loan of the members. But after the commercial vegetable farming demand of loan from local money lender is reduced to 4 percent. It is remarkable that 86% respondents do not need loan after the commercial vegetable farming because their income is increased. Thus we came to know that the economic status of the respondents is positively changed.

5.2.7. Respondent's Perception of the Role of Commercial Vegetable Farming

Source of income is the important factor to uplift the socio-economic status of a household. Strong & regular source of income certainly helps to bring positive change in the different aspects such as health, education infrastructure and economic condition. After beginning the commercial vegetable production people of the study area are focused able to earn more money than before. They are able to invest in different sectors. Their demand for loan is decreased and increased in saving. From the observation we can know that the living standard of the people in that area is improved. Below given the table has presented the perception of respondents in the study area.

Table 5.17: Respondent's Perception of the Role of Commercial Vegetable Farming

Area (indicator) of change	Respondents	
	Number	Percentage
Increase in income from vegetable farming	50	100.0
Change in major source of income	50	100.0
Decreased in children school dropout rate	47	94.0
Improved in living standard	43	86.0
Improved in health condition	39	78.0
Positive changed in habit	37	74.0
Development of socio-economic infrastructures	50	100.0
Increased in saving	48	96.0
Decreased in demand of loan	43	86.0

Source: Field Survey 2006, Note: Total number of respondents is 50.

Table 5.17 has presented that the positive role of the commercial vegetable farming, which is accepted by the respondents households. 100 percent respondents have changed their major source of income i.e. commercial vegetable farming. 94 percent respondents reported that the children school dropout rate is decreased. 86 percent respondents accepted that their living standard is improved. Similarly, the major of respondents accepted that the improved in health condition, change in habit (positive) development of socio-economic infrastructures, increasement in saving and decreased in the demand of loan after commercial vegetable production. Thus we can say that commercial vegetable farming has played a important role to reduce the poverty in the rural area.

5.3. Information about Market, Fertilizers and Pesticides

5.3.1. Marketing

Marketing is the important factor to make commercial vegetable farming successful. The vegetable programme is not more concentrated and lunched from the government for long-term development strategies. The production of the vegetable is perishable so it should be manage to

preserve for certain period. Which is not possible without large investment. Due to open border outer product easily enter in our country, which is directly effect the Nepalese product.

This area is situated near Kathmandu. So the main market for this area is Kathmandu, Kalimati wholesale market. From this area vegetables are transported by mini truck and van. Mostly two types of marketing channels are in existence.

- Producer-Consumer
- Producer-Wholesaler-Retailer-Consumer

5.3.2. Fertilizer

The most commonly used fertilizers are chemical fertilizer in this area. The traditional type of compost making decomposing is not in use in this area. In this area we found that the animal husbandry has given less priority. Most of the farmers are not awarded about the negative effects of chemical fertilizers.

5.3.3. Pesticides

It is found that the farmers in the study area are not well known with the application and handling of chemical pesticides. Like chemical fertilizer, pesticides are also used by most of the farmers insect pest control. The heavy use of toxic chemicals has adverse effect on environment, health and nutritive value also.

Chapter -Six

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1. Summary

This study attempts to explain the study of role of commercial vegetable farming in rural poverty reduction in Chitlang VDC of Makawanpur district. This is one of the commercial vegetable production pocket areas of Makawanpur District. In this study household heads was the target population for questionnaire. For this study, 50 households of the universe are taken for the sample from different wards of the VDC of each ethnic group by simple random sampling. In this purpose, case study research method is used. This study was carried out by collecting primary data through semi-structured questionnaire interview with sampled respondents, farmers group discussion, observation and field visit along with some secondary data from related source. Household heads and representative of household heads all are male. Focus group discussions were conducted with vegetable grower farmer group members. During discussion data were found regarding production, marketing and cash with key-informant, from them knowing the historical background and since started vegetable farming that is integral part of the life. Mainly the informations related with social and economic changed were given top priority which occurred after commercial vegetable farming.

In Chitlang VDC, eleven castes and ethnic groups were found. Among them, Newar is the main dominating caste. The second largest population was found of Tamang 93 percent and followed by Chhetri 11 percent, Brahmin 8 percent, Magar 4 percent, Dalit 2 percent and other 1 percent (Plan Nepal, Makawanpur Report 2062).

The majority of the respondents were found in age group of 40-60 followed by the age group of 20-40. Majority of the household members were 20-39 years which contribute 37 percent, the second most dominant household group is below 20 years, contributed 29 percent and by the group of 40-59 years which contributed 22 percent. The share of economically active population is found highest.

- Among the total sampled households 14 percent is found illiterate and 86 percent literate. Among literate respondents 10 percent have got higher education. Nearly 95 percent of respondents were found with the perception of vegetable farming helps to get education.
- After the commercial vegetable farming started the earning level of the respondent household is increased and the children's school dropout trend is decreased. 86 percent respondents were found they accepted the children school dropout rate is decreased. Remaining 14 percent respondents were found that the rate of school dropout is same.
- All respondents were found agree with their children's education is progressive after commercial vegetable farming.
- The field survey shows that the 34 percent respondents use permanent toilet, 66 percent use temporary toilet and no respondent is found not using toilet. Before commercial vegetable farming there were 48 percent respondents not using toilet.
- Trend of vegetable consumption is found increased. 94 percent of sampled population were found of increased the vegetable consumption
- In the field survey it is found that the 78 percent respondents are using pipeline drinking water at present which was only 14 percent

at past. 24 percent sampled population who were used to drink stream water at past is reduced to 0 percent at present.

- 38 percent respondents go to hospital for their treatment which was only 4 percent at past.
- Most of them have 5-10 ropani of land, which was accounted for 26 percent and followed by 0-5 ropani 20 percent and 10-15 ropani 26 percent, which was accounted for 20 percent and above 25 ropani was 6 percent only.
- According to the reporting of 94 percent respondents the trend of land use for commercial vegetable farming is found increased.
- According to the respondents reporting housing condition is improved. 44 percent households were found having Paccka houses that were only 4 percent at past. 64 percent houses of respondent were found roofing by zinc sheet, which was only 6 percent at past.
- Annual income of the people in the study area is found increased. 52 percent households were found of annual income less than 20 thousand before vegetable farming but after vegetable farming that is 0 percent. 40 percent households were found of annul income Rs 60-80 thousands after vegetable farming. 20 percent households were found of annual income above one lakh, which was 0 percent at past.
- Food sufficiency of respondent's households is changed after commercial vegetable faming. After vegetable farming 96 percent households earn more than their yearly requirements for food, which was only 10 percent at past.
- People of the study area were found that they utilized their income from vegetable farming for various purpose. Every household was found to utilized their income in food and in children education,

more than 46 percent of household utilize their income in land purchase for cultivation, 84 percent of households utilize their income in social activities. 62 percent respondents have saved/deposited their income in the Bank.

- All household heads have experienced that their economic status is positively changed. 92 percent respondents experienced that their children's education is progressive. 86 percent respondents experienced that social condition is improved.
- The commercial vegetable farming has created full employment to the 56 percent respondents household members, 18 percent respondents households members were partially employed and 26 respondent's households have provided employment to the external persons.
- 78 percent respondent replied that the workload of women is decreased after commercial vegetable farming.
- 86 percent of the respondents households do not take loan from any source of loan after vegetable farming
- This study indicates that the living standard of respondents household members is improved. After commercial vegetable farming their socio-economic status is found uplifted.
- In this study area farmers were found aware about marketing network. The main markets are Katmandu (Kalimati) and Hetauda. Sometimes some farmers of this area send their products at Birgunj and Butwal also. Most of the common marketing channel is producer - wholesaler - retailer - consumer type.
- 50 percent respondents reported that they were facing problems of irrigation, quality and improved seeds and fertilizers (chemical and organic) facilities. According to the information provided by the

respondents all the farmers of the study area were lacking technical services such as storage, transportation and the new technology and tools.

- Trend of using pesticides and chemical fertilizers is found increased.
- No technical and financial supports were provided from the government sides.

6.2. Conclusion

Chitlang VDC is known as a commercial vegetables production pocket area of Makawanpur District. Most of the farmers are found as commercial vegetable producers in this VDC. They grow vegetable in all seasons of the year. At present, vegetables have been their main source of income. Farmers of this area are getting more income than the income they earned before. The subsistence farming system is replaced by commercial vegetable farming. This study has found that the socio-economic conditions of the vegetable farmers in the area is found positively changed. No food insufficiency within the household of vegetables farmers. Housing condition is improved. Every household has a good toilet facility. Trend of daily fresh vegetables consumption is increased. Most of the respondents accepted that their health condition is improved after daily consuming the fresh vegetables. They felt no problems to send their children in school and college for education. This study has concluded that the respondent's households do not depend on local moneylenders and financial institutions for loan, because they are able to save earning themselves. The purchasing power or capacity of the farmers of this area is found increased. Most farmers in this area are found busy any time. Vegetable farming has generated employment to the household members in this area. Because of the full time engagement in vegetable farming, habit of gambling and

drinking alcohol of the people are controlled. Workload of female members is found reduced.

Being the commercialized area, the application of chemical fertilizer and pesticides is also high, which has enhanced the immediate productivity but has negative effect in environment and heath, which creates the problems in sustainable development. Previously the farming system was cereal based with low cropping intensity and application of pesticide and chemical fertilizer was very less but it is found just inverse at present. Though it needs to orient the vegetable farmers about the preparation and use of the organic/compost fertilizers in the farm. There is further possibility of controlling the use of chemical fertilizers and pesticides.

From this sturdy it is concluded that the socio-economic condition of the farmers can be uplifted through the change in subsistence cereal based farming system into commercial farming system. The scenario of commercial vegetable production and marketing is found very positive. To the further expansion of commercial vegetable farming, government agencies and concerned body most be responsible.

6.3. Recommendations

Commercial vegetable has played crucial role to uplift the life standard of the rural farmers. However, some improvements are still needed in this area. Sustainability of commercial vegetable farming is necessary to reinforce its role in the rural economy, for this purpose the following recommendation can be implemented.

6.3.1. Recommendations for Planners

- The study area is the commercial vegetable production pocket area. So for the sustainability of the vegetable production, the emphasis should be given to organic vegetable framing avoiding the chemical fertilizers.
- The Integrated Post Management (IPM) and Farmer's Field School (FFS) should be conducted in vegetable crops to minimize the use of pesticides.
- Infrastructural facilities should be improved for transportation and proper marketing.
- There is no storage facilities for predicable vegetables. So that farmers are in risk of huge loss. Therefore proper storage (cold stores) facilities is needed recently.
- There is no farmer's co-operative and group efforts. Only private sector involvement is found. That is why it will be better to establish Farmer's Cooperative as soon as possible.
- It seems that the presence of government sector to support the vegetable grower farmers is very low in the area and various problems and constrains which is facing by the farmers are still unsolved. Concerned bodies should responsible and recently must be solved those problems and constraints.

6.3.2. Recommendations for Researchers

- The national level study/research is necessary for further expansion of commercial vegetable farming in the area and outside.
- A Study would be conducted on environmental impacts of heavy uses of chemical fertilizers and pesticides in commercial vegetable farming.
- A Research would be held on the extension of vegetable markets.

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APPENDIX -I

Role of Commercial vegetable Farming in Poverty Reduction

Questionnaire for interview with respondents

1. General Information: Interview Date:

Location of Interview:

Name of Respondent: Age:

Ward No.: Tole:

Caste/Ethnicity: Religion:

No of family member: Male: Female:

Eduation: Marital Status:

2. Social Aspects:

a) Household Types: Single Joint

b) Age & Sex of respondent's households members:

Age (Year)	Male	Female	Total
<25			
25 - 50			
> 50			
Total			

c) Education of the respondent's households members:

S.N.	Eduation level	Male	Female	Total
1.	Illiterate			
2.	Pre-Primary & Primary			
3.	Lower Secondary			
4.	Secondary			
5.	S.L.C.			
6.	I.A above			

d) Dropout form the school education Commercial Vegetable farming:

Increased Constant Decreased

e) Progress in Child's Education After Vegetable farming:

Yes No

f) Does vegetable farming help to get education ?

Yes No

g) Toilet use before and after vegetable farming:

	Before	**After**
Permanent		
Temporary		
Not used		

h) Trend of vegetable consumption after vegetable farming:

Increased Constant Decrease

i) Source of drinking water:

Source	Before	After
Pipeline		
Kuwa (Small Pond)		
Khola (Strem)		
Well		

j) Consolation for treatment:

Treatment	Before	After
No where		
Dhami/Jhankri		
Clinic/Health Center		
Hospital		

3. Economic aspects:

a) Landholding size of the respondents:

Below 5 ropani 5-10 ropani
10-15 ropani 15-20 ropani
20-25 ropani 25 and above

b) Trend in land used for vegetable production:

Increased Constant Decreased

c) Respondent's housing condition before and after vegetable farming:

Housing condition	Before	After
Hut		
Kachcha		
Pokka		
Khar		
Tin		
Pakka		

d) Annual income before and after vegetable production:

Income Rs. (in '000)	0-20	20-40	40-60	60-80	80-100	100 above
Before						
After						

e) Food Sufficiency before and after vegetable farming:

Food Sufficiency (Month)	Before	After
Below 3		
3-6		
6-9		
9-12		
12 above		

f) Utilization of income coming from vegetable farming:

Food and Daily use expenditure
Livestock purchase
Health and Sanitation
Children's education

Land purchase in urban area
Bank balance
House construction/improvement
Social function
Land purchase for cultivation

g) Major source of income:

	Before	**After**
Vegetable		
Cereal crops		
Livestock		
Business		
Service		
Other		

4) Change experience by respondents after vegetable farming:

Sectoral change	Positive	Negative	Not Changed
Economic statues			
Educational Status			
Health sanitation			
Social condition			

5) Source of loan before and after commercial vegetable farming:

Source of Loan	Before		After	
	Yes	No	Yes	No
Local moneylender				
Financial Institution				
No loan				

6) Gender related questions:

a) Does commercial vegetable farming has generate employment?

Yes No

if yes, what kind is it?

i) Full employment (Whole household members)
ii) Partial employment
iii) Employed external persons
iv) Unemployed households members

b) Workload of women after vegetable farming:

Increased Constant Decreased

7. Respondent's perception in the role of commercial vegetable farming:

	Yes	**No**
Increased income		
Changed in major source		
Decreased in children school dropout rate		
Improved in living standard		
Improved in health condition		
Positive changed in habit		
Development of socio-economic infrastructures		
Increased in saving		
Decreased in demand of loan		

8. Application of fertilizers and pesticides used for vegetable farming:

Organic Chemical

9. Demand of vegetable in market:

Increasing Constant Decreasing

10. What is your future planning?

----

11. Are you satisfy with vegetable farming?

yes No

12. What should be change to make vegetable farming more profitable?

----

13. Do you have comments and suggestions about this system of vegetable farming and concern bodies?

APPENDIX - II

A Successful Vegetable Grower

Salikram Manandhar is an exceptional character within the Manandhar family born in 2003 B.S Chitlang VDC, Ward No. 5, Chakucha Tole of Makawanpur District. He has no son and daughter; only two (husband and wife) members are in his family. His education is just lower secondary level. Economics status of his family was very poor. Trade is the traditional occupation of the Manandhar's families. But his family did not followed the trading occupation.

Saligram spent 20 years of his life in politics. When he became to know politics is a dirty game then he frosted from it and started vegetable farming in commercial scale in age of 43. He is the beginner of commercial vegetable farming in the Chilang VDC of Makawanpur District.

Manandhar grew 30 qt. vegetable (Cabbage, Cauliflower, Garlic and Brinjal) amounted Rs. 45,000. in his 5 ropanies land at first time in 2049. Next year he added 10 ropanies land in leased for vegetable farming and grew 100 qts. vegetable and earned Rs. 150,000 in cash. After few years he became a model vegetable grower in Chitlang and most of the villagers followed him. He extended his vegetable farming and earned Rs.150, 000 to 200,000 annually. He is a wise and careful commercial vegetable grower. His vegetable farming technique is sustainable because he use organic fertilizer and pesticides in his farm. He is a quality seed producer also and does not depend upon the outsides for seeds and fertilizers.

Manandhar is an innovative farmer also. He has properly utilized his income from vegetable. He has started fish farming. He has invested his

income from vegetable for preparing ponds for fishers in 7 ropanies of his land. There are 6 lakhs seed fishes into two ponds and expected amount Rs. 9 lakhs income from its selling. Within a short period he became a rich among the villagers.

Nowadays many experts of vegetable farming and fish farming visit and request him to handle training to the rural farmers in the other parts of the country. He requests to all poor and unemployed people not to go foreign countries for labour, we can grow gold in our own land and we can make Japan to Nepal through the commercialization of subsistence farming system.

APPENDIX- III

Productivity of Vegetable and Cereal Crops in Chitlang

Crops	Area (Ha)	Produciton (Mt)	Productivity (Mt/Ha.
Paddy	5750	17250	3
Maize	15367	29135	2.35
Wheat	4300	12556	2.92
Vegetable	1785	49173	27.53
Millet	2800	3136	1.12

Source: District Agriculture Development Office (DADO) Makawanpur.2060.

APPENDIX –IV

Area, Production and Yield of Vegetable in Nepal

Year	Area (Ha)	Produciton (Mt)	Yield (Kg/Ha)
2001/01	157162	1652979	10518
2001/02	161048	1738086	10792
2002/03	165988	1799973	10844
2003/04	172586	1890100	10952
2004/05	180823	2065193	11421

Source: Ministry of Agricultural and Cooperative 2004/05

APPENDIX – V: PHOTOGRAPHS