

CHAPTER: I

INTRODUCTION

1.1 Background of the Study

In Nepal, there are different types of agriculture farming such as livestock rising, cash crop farming, cereal crop farming, horticulture etc. The climatic condition of Nepal is suitable for all types of agricultural activities lying in the sub-tropical to the cool temperate sector of Nepalese agriculture where there are great possibilities for development. The favorable soil and climatic condition of Nepal permit to grow almost all kinds of vegetable farming, which can contribute significantly to the economic development of the country. There are different varieties of vegetables. These vegetable can be divided as green vegetables, off season vegetable, tropical vegetables, sub tropical vegetable and temperate vegetable, etc. Vegetable production can take part in small scale and large scale, small vegetable production is done in kitchen garden, which helps to supply daily required quantity and nutrition requirement for an individual family, and surplus vegetable sell in local market, freely distribute to their relatives as well as neighbors. Since several years, some farmer group practice commercial vegetable pockets are concentrated specific along with high way and near the town areas. Since the period of fifth five year plan, Government has specified specific and general programs to promote and supply the fresh vegetable production. The specific production programs were emphasized to lunch in consolidated pocket area particularly high ways in production potential areas around cities.

Vegetable farms may grow large quantities of vegetable and sell them in bulk to major markets or middlemen, which requires large growing operations; farms may produce for local customers, who require a larger distribution effort; farms may produce a variety of vegetables for sale through on-farm stalls, local farmers markets, u-pick operations. This is quite different from commodity farm products like wheat and maize which do not have the ripeness problems and are sold off in bulk to the local granary. Large cities often have a central produce market which handles vegetables in a commodity-like manner, and manages distribution to most supermarkets and restaurants.

The disorganized agricultural activities are also a serious problem in Nepal. The vast area of land is misused. However, the major issue in this sector is lack of skilled and qualified manpower as well as the appropriate technology. The great effort of Nepalese farmers has become fruitless. Still, we can find the large area of land uncultivated and unutilized. In this regard, it is necessary to implement a planned policy immediately. In the absence of concrete vision and policy, the existing few agricultural entrepreneurs are also facing great problems. On the other hand, there are no such better situations created to exist as private entrepreneurs. The farmers have been doing hard labor, but they are compelled to live in a miserable condition.

Agriculture is the main profession of majority of Nepalese, who has accounted for more than 80 percent of self-employment. The economy is dominated by agriculture, so that agriculture plays a major role in the economy, which contributes 40 percent of the total GDP (CBS, 2011). And it is generally accepted that the key to economic development in agriculture prospectively. Agriculture farming in Nepal is labor intensive. The economically active population lives mostly in rural areas, people take it as the way of life.

Nepal is predominated by vast rural areas 83 percent of the people living in rural areas. So, the magnitude of poverty is much wider spread in rural areas. However, the government data indicates that poverty incidence in the country declined from 31% (CBS, 2011). Mainly facing the conflict, more than a thousand were killed and also a thousand are displaced. Rural infrastructure and government services are limited in remote areas. Over 95% of the poor people are still living in rural areas and remaining 5 percent live in urban areas. According to government data, the gap between the haves and have-nots is widened. As a result of unequal growth in per capita consumption across different income groups and geographic regions, inequality increased substantially. The poverty rate remains much higher in rural areas.

APP (1995) report shows that agriculture is the backbone of Nepalese economy, it means, it is a source of livelihood for majority of the population and the main sources of GDP, income and employment generation. It is necessary to orient the nation towards industrialization by increasing the agricultural production by modernizing and

commercializing through equitable distribution. Its multiplier effect on non-agriculture sector also increases the employment opportunity. Since ten years agriculture development contributes a sustainable basis for poverty alleviation, it should be treated as the lead sector for national development and in order to push forward sector line industry commerce, water resource, transport and energy as supplement and supportive to the agriculture sector, a well co-ordinate long term approach is needed.

Bhatta (2008) identified that Nepalese vegetable farming development has largely been influenced by the agricultural extension approaches adopted in the country. In strengthening vegetable farming extension system in Nepal, Government of Nepal (GON) introduced and practiced many extension approaches in the last four decades. The approaches like training and visit system, integrated rural development approaches, conventional approach, commodity group approach, etc. were used for the vegetable farming development.

Tamrakar (2010) analyzed that what we are facing today owes to the total lack of planning and foresight in the country's organic agriculture sector. Farmers have been applying chemical inputs in the name of commercial farming, which is hazardous to both human life and the environment. Soil fertility is degrading day by day, and people are suffering with critical diseases. If we do not become timely conscious and create awareness, the situation will be beyond our control, and become a great threat to the human existence in this country. Necessary steps must be taken immediately for preserving both the environment and its creatures by supporting (institutionalizing) organic farming. Our initiative actions in this regard can be recognition for the future generations.

MoA (2012) grow large quantities of vegetable and sell them in bulk to major markets or middlemen, which requires large growing operations; farms may produce for local customers, who require a larger distribution effort; farms may produce a variety of vegetables for sale through on-farm stalls, local farmers markets, u-pick operations. This is quite different from commodity farm products like wheat and maize which do not have the ripeness problems and are sold off in bulk to the local granary. Vegetable

is one of the basic forms of livelihood of rural people to generate income. The current vegetable growing area in Nepal is 165,638 ha. The productivity of vegetables has increased from 8 metric tons (mt)/hectares to 10.85 mt/ha within 10 years. However, the distribution of vegetables production is not uniform throughout the country, which is rather concentrated in the vicinity of large urban areas. Vegetable is one of the nutritious foods and is considered to be foods since they contain high amount of vitamins and minerals. As per the general health standard, the minimum consumption requirement of the vegetables per person is 300 grams. Vegetables also supply dietary fibers (cellulose, Hemi cellulose, and lignin), which are essential for normal peristaltic action of the intestine. In Nepal, the production of vegetables is to be encouraged and expanded because the minimum requirement of vegetable intake is very low.

MOF (2014) extended employment opportunity (full and partial) to 80 percent of the population. The development and enhancement of the productivity of this sector plays vital role in the productive employment generation and improving economic development of the country. (Interim Plan, 2010) Agriculture is the main profession of majority of Nepalese, Who have accounted for more than 80 percent of self-employment. The economy is dominated by agriculture, so that agriculture pays major role in the economy, which contributing 33.7 percent of the total GDP. And it is generally accepted that the key of economic development is agricultural products. Agriculture farming in Nepal is labor intensive. Economically active people lives in urban area, and who are economically weak lives in rural area doing agricultural farming.

Every government in Nepal has been claiming that agricultural development is in top priority, but the results are not found satisfactory. The way we can pursue agricultural development in this country, is through the use of organic agriculture. In the world context now organic agriculture is an emerging situation, so this is the right time to begin thinking about organic agriculture development in the country. For a country bestowed by nature with tremendous organic agricultural probability, this must be the right choice. Presently, it is in its infancy stage due to the lack of awareness amongst farmers, consumers, students, scholars, activists and policy makers. Even the

government of Nepal has not given any priority for Organic Agriculture (OA) development.

MoF (2014) existed in Nepal, from sub-tropical climate and plain Tarai through warm middle hills and valleys to high mountains. This allows farmers to grow varieties of vegetables successfully. Though the contribution of vegetables to overall agricultural production is low, with merely 7 percent, its role in employment generation and income to the poor people living surrounding towns and cities and along the roads is very important.

Vegetable production is now shifting slowly in commercial phase rather than other agriculture sector. Now days, the consumers are also conscious with the nutritional value of vegetable. Farmers have considered vegetable farming as their main source of income. The cropping intensity has been increased adopting seasonal and off seasonal vegetable with modernization in agriculture system, the production practice are also being changed. Vegetables and vegetable seed production can be exported, which help to supply nutritional requirement and “low value high price” crop.

In Nepal, there are different types of agriculture farming such as livestock rising, cash crop farming, cereal crop farming, horticulture and vegetable farming etc. The climatic condition of Nepal is suitable for all types of agricultural activities lying in the sub-tropical to the cool temperate sector of Nepalese agriculture where there are great possibilities for development. The favorable soil and climatic condition of Nepal permit to grow almost all kinds of vegetable farming, which can contribute significantly to the economic development of the country. There are different varieties of vegetables. These vegetable can be divided as green vegetables, off season vegetable, tropical vegetables, sub-tropical vegetable and temperate vegetable, etc. Vegetable production can take part in small scale and large scale, small vegetable production is done in kitchen garden, which helps to supply daily required quantity and nutrition requirement for an individual family, and surplus vegetable sell in local market, freely distribute to their relatives as well as neighbors. Since several years, some farmer group practice commercial vegetable pockets are concentrated specific along with high way and near the town areas. Since the period of fifth five year plan,

Government has specified specific and general programs to promote and supply the fresh vegetable production. The specific production programs were emphasized to lunch in consolidated pocket area particularly high ways in production potential areas around cities.

1.2 Statement of the Problem

The major problems facing by the economy of Basheshwor VDC is due to backward agriculture sector, low income of the people, low productivity, unemployment and poverty. The pace of industrial development is very slow it is in infant stage to lack of capital and market accessibility etc.

Sindhuli district is one of the 75 districts of Nepal. The Basheshwor VDC is surrounded by Ramechhap district is the north, Ratanchura VDC is the south, Bhubaneshwori VDC is the east and Bhimeshwor VDC is the west. It is situated between high Hills, Mountain, River, Beshi and forest/green forest in the VDC there are famous temple and also religious places, agricultural farm.

In modern day vegetable farming is done not just for the consumption in the family but also income generating purposes. In Basheshwor VDC we can find that most of the lower and middle class families are drowned in the web of the poverty. If any other family members are involved in the commercial vegetable farming the poverty situation is comparatively less than other families. So commercial vegetable farming is playing vital role to income generation in the study area.

In the context of Nepal, vegetable farming is an important and productive form of agriculture. Commercial vegetable farming is the effective to generate the income source. Vegetable farming, both main season as well as off-season, offers good opportunity to improve the economic status of the rural poor farmers. It is a good source of income for the farmers to earn in a short period of time and in less investment we can improve economic condition and that leads the overall improvement of their daily livelihood. So that, commercial vegetable farming is the one essential alternative sector for rural income generate.

The study of the vegetable farming to generate income structure of rural areas has yet not been carried out by any of the researchers in the Basheshwor VDC. So, it is believed that this study is equally useful to the interested readers, students and concern persons and among other institutions who desire to get knowledge and information about the relationship between vegetable farming and income generate. Similarly it is provide the trend of vegetable farming to generate income structure of rural residents.

Likewise the vegetable farming has support in the economic change of the Basheshwor VDC however there is no study done on the factors which has transformed their livelihood. Thus through this study researcher were find which factor in their livelihood has been changed. The researcher was study on the income generation to measure changes facts of the study area.

Therefore, this study was oriented towards investigation of the following research questions in Basheshwor VDC.

- What are the present socio - economic conditions of the households?
- What is the trend of commercial vegetable farming in the study area?
- What are the problems and prospects of Commercial Vegetable Farming in study area?

1.3 Objective of the Study

The general objective of the study is to examine and analyze the contribution of commercial vegetable farming in income generation of farmers in Basheswor VDC, Sidhuli, District whereas specific objectives are:

- i) To study the present socio - economic conditions of the households.
- ii) To examine the trend of commercial vegetable farming in the study area.
- iii) To identify the problems and prospects of commercial vegetable farming in the study area.

1.4 Significance of the Study

APP (2005) entitled the vast ecological diversity in Nepal offers a unique opportunity to grow a wide range of high-value, low-volume commodities and generate high income from limited farmlands. Vegetable farming has become popular among farming in accessible areas especially in recent year. Increased agriculture production

and poverty reduction have been accorded high priorities in the national agenda as stated in the poverty reduction strategy paper (PRSP) and agriculture perspective plan. The study intends to measure the current status of vegetable farming in the study area. It will also attempt to explore the relation between poverty and commercial vegetable farming. Income generation is the most essential factor to uplift rural people.

This study has great importance at national and local levels. It levels at the national level; it is very helpful to make plans and policies for income generation of farmers. This study has indicated some way to the future researcher to the people interested in vegetable farming.

1.5 Limitation of the Study

Each and every research work has its own limitation. Likewise, this study is also not an exception. This study is being undertaken to the time and resource constraints. This study has been carried out in Basheswor VDC of Sindhuli, District. The other limitations of the study are as follows.

- The time was limited for this research and the study was mainly confined to Basheswor VDC of Sindhuli district of Nepal. Thus, generalization of the conclusion derived from the study in national/international level may not be relevant to others.
- The study has very specific case study. So, it only deals with the importance of commercial vegetable farming for income generation in Basheswor VDC.
- The people permanently settled over the other agricultural activities (like rice farming, maize farming etc) in Basheswor VDC are excluded.
- The data is taken with the people/family who are dependent on vegetable farming in Basheswor VDC.

1.6 Organization of the Study

This study is divided into five chapters. The first chapter is introductory which includes background of the study, statement of the problem, objectives, significance of the study, limitation and organization of the study. The second chapter deals with

reviews of literature. Third chapter is concerned with methodology of the study, which included the research design, Rational of the study area, nature and source of data, universe and sample, data collection techniques and tools and methods of data analysis and interpretation procedure. Chapter five mainly concerned with data presentation and analysis which includes social–economic condition of respondents, vegetable production and related information, contribution of vegetable farming in income generation, level of income people before and after vegetable farming, and problems and prospects of vegetable farming. In the last chapter summary conclusion and recommendation are included.

CHAPTER II

LITERATURE REVIEW

This chapter deals with the literature review. The review of literature is a critical evaluation, analysis and synthesis of existing knowledge relevant to our own research problem. It is useful to develop new ideas and analytical methods in research. Through the review of related literature, the researcher gains different kinds of information and experiences from the works of others. To conduct this research some relevant literatures have been reviewed which help researcher to address research issue systematically. For this research study, following relevant studies have been reviewed.

2.1 Theoretical Review

2. 1.1 International Context

Schultz (1964) described that the man who is bound traditional agriculture cannot produce much food no matter how rich land. Thrift and hard work are not enough to overcome the niggardliness of this type of agriculture. Traditional agriculture can transform into a relatively cheap source of economic growth. He tries to show what such transformations entails and what means are required to accomplish it efficiently. Whereas the past practices have to be discarded, on the one hand, new strategies have to be developed, on the other to meet the new situation arising out of risk and uncertainty involved in agriculture transformation, It is therefore not, not only significant to introduce new factors of production and reap richer harvest, but learning from experience, what risk and uncertainty are involve is also there. Schultz asserts that transformation of agriculture predominantly depends upon the availability and price of non-traditional (modern) agricultural inputs. He says that "The supplies of these factors in a very real sense hold key to such growth." Producing and distributing these factors cheaply makes investment in agriculture profitable and farmer accept these modern inputs and learn how to best to use them. This also stimulates the saving and builds up institution to finance investment in agriculture. Schultz firmly believes that the supplies of modern have not been given due attention by economist. They are producer of the factor of production concealed under "technology change." Some of them engage in research and some in developmental activities. Some produce only

information. Finally, Schultz (1964) asserted that investment in human capital has radical social economic implications. In his direction the role of schooling is emphasized. People earn while young, skilled are formed at a relatively young age and new ideas weighted against traditional outlook through better education. Schultz wants, peasants' economics to learn lesson from industrialization. According to him: education is the best form of investment in human capital. During Soviet times, vegetable growing has developed extensively.

Hessayan (1985) analyzed that commercial vegetables require adopting of cultivation methods and techniques for season adjustment of planting time. For instance, some summer vegetables can be planted in the hill pocket areas about two months earlier in cold winter season than the normal season of planting, which is possible by raising seedlings under polythene tunnels, where temperature is raised for seed germination of tomato, brinjal, sweet pepper, beans and cucumber and harvested for consumption during winter season. Greenhouse farming technique is effective to avoid frost, excessive winter cold, and strong wind and raise temperature even during winter season. Plastic tunnel, polythene house and glasshouse are generally used as greenhouse farming techniques for controlling environment. It is reported that plastic film technology enables vegetable crops to mature 5 to 20 days earlier than normal, increases yield by 30 to 50 percent, increases output value by 40 to 50 percent and prolongs harvesting period of vegetables by 40-60 days. It has always positive effect on controlling diseases, insects, weeds, soil moisture etc.

Mellor (1996) developed a model related to Agriculture Development and he believes that at any point of time agriculture of an economy found to be one of the following three phases; traditional agriculture, technologically dynamic agriculture low-capital/labor intensive technology and technologically dynamic agriculture high-capital/labor saving technology. Modern western world where only a tiny fraction of people, more than one percent actually grow food. Everybody else gets to eat without getting their hands dirty or ever seeing a hoe or a bug. Those people can then turn to other industries and careers which generate income for the individuals, the communities and the state/nation (via taxes, fees, and fines). Farming the old way is hard work, and there is a real understanding of "No workie, no eatie". Take that away,

and you have to create a new work incentive and lifestyle that does something with all that extra energy young men have that is no longer being used in a productive manner. Young men and boys tired from a day hoeing crops or digging irrigation ditches or hand shoveling a field simply don't have much energy for things like gangs, crime, and destructive behaviors. Reproduction and dissemination of material in this information product for educational or other non-commercial purposes are authorized without any prior written permission from the copyright holders provided the source is fully acknowledged.

J.M Association (2008) discussed the potential and existing practice of agriculture in the nation is very much heterogeneous in terms of the variation in agro ecological and physiographic characteristics. High Himalayas is feasible for cattle and sheep rearing whereas hills carry potentiality in horticulture development. Tarai is feasible for various types of grain vegetable, and cash crops. Nevertheless, the fragmented land holding and household based farmland operation practice constrained mechanization of the sector in the country. Whatever be the potential and comparative advantages in this sector, Nepalese farmers are operating their small holdings land for their subsistence purpose. Almost mixed farming practices of vegetable, grains and fruits production combine with a small number of livestock raising are the prevalent pattern in Nepalese farm regardless of the different agro-ecological region.

Encyclopedia (2016) described the term vegetable in its broadest sense refers to any kind of plant life or plant product; in the narrower sense, as used in this study, however, it refers to the fresh, edible portion of a herbaceous plant consumed in either raw or cooked form. The edible portion may be a root, such as rutabaga, beet, carrot, and sweet potato; a tuber or storage stem, such as potato and taro; the stem, as in asparagus and kohlrabi; a bud, such as brussels sprouts; a bulb, such as onion and garlic; a petiole or leafstalk, such as celery and rhubarb; a leaf, such as cabbage, lettuce, parsley, spinach, and chive; an immature flower, such as cauliflower, broccoli, and artichoke; a seed, such as pea and lima bean; the immature fruit, such as egg plant, cucumber, and sweet corn (maize); or the mature fruit, such as tomato and pepper. The popular distinction between vegetable and fruit is difficult to uphold. In general, those plants or plant parts that are usually consumed with the

main course of a meal are popularly regarded as vegetables, while those mainly used as desserts are considered fruits. This distinction is applied in this article. Thus, cucumber and tomato, botanically fruits, since they are the portion of the plant containing seeds, are commonly regarded as vegetables. This article treats the principles and practices of vegetable farming. For a discussion of the processing of vegetables, see the article food preservation. For information on nutritive value, see nutrition: Human nutrition and diet.

2.1.2 National Context

Kunwar (2001) examined although vegetable farming or gardening is not a new topic but commercialization of vegetable farming, gender role and its impact on women is really important and measurable. It is obvious that it increases the workload of women but it is not clear whether they are benefited or not. In the urban fringe where agriculture is the occupation for the livelihood and source of cash income, vegetable gardening appears as one of the productive enterprises for cash generation and is considered as cash crops. Vegetable growers get higher profit margin from vegetable farming as compared to that of cereals crops and other economic activities.

Adhikari (2006) explained Nepalese economy is largely characterized by disguised unemployment and subsistence farming with limited prospects for modernization and commercialization of agriculture. Nowadays awareness and motive towards cash crop cultivation and economic activities among the farmers have remarkably increased. Many farmers have also commercialized their farming like vegetable production. It helps rural women in utilizing their local resources and spare time to earn cash income. Thus, it is necessary to investigate whether it empower them socially and economically. Farmers in the urban fringe are responding by shifting their crops to vegetables that have a higher market value. For example, in the past in study area, potato and cucumber were cultivated for home consumption only. Now, the potato and cucumber fields are expanding so that some of the crop can be sold. Productions of tomato, cauliflower, cabbage, radish, leafs (Sag) etc. are also increasing. In the same vein, the workload of women also has been increasing day by day. In this regard, this study investigates women's problems in commercial vegetable farming. Gender role in farming is one of the important factors. Unless the women farmers are

empowered, they cannot have decision making power on the activities of vegetable production and marketing; their social and economic status may not be improved. Although the women farmer of different countries can play and are playing the vital role to improve the living condition of the families but they are not considered as 'peasant'. The majority of the agricultural inputs and agricultural skill development training and extension activities are being provided to the men farmers ignoring women as agricultural producers. Therefore, an analytical study on women vegetable farmer in different vegetable production activities and marketing may help in the process of empowering women.

Sharma (2009) described Nepali agricultural market is traditional. The organizations which are working on agricultural market are also being neutral. Some participatory organization (like *Shajha*) are busy for selling salt, sugar, seeds, manure etc. rather than to promote the farmers saving. Some organizations are buying milk, sugarcane, jute, tobacco, tea, coffee etc. But here is the lack of organized market for crops production, so that the farmers are deprived of getting fixed price. The production and productivity is less because of less output in agriculture. Actually Nepalese agriculture market can be found in different forms like daily, weekly, monthly, or in *hatbazar*. But now a day's market is being enlarged in some of the cities. People are running some systematize vegetables and fruits collection center to promote the agricultural market smoothly.

Sharma (2009) pointed out Lack of national market, lack of infrastructure, loss in distribution, small transaction, inability of delivery, lack of coordination are the key feature of Nepalese agricultural market. And difficulties of transport and collection, lack of market information, lack of storage facility, lack of institutional credit, presence of middle man, lack of grading and standardization, adulteration lack of farmer's organization are the major problem of agricultural market in Nepal. The Nepalese agricultural market is affected by import of Indian production. In order to improve Nepalese agricultural system, import of Indian yield should be checked and ensure the transportation of yield of small farmers, systematized agricultural market should be established in every district.

Tripathi (2009) analyzed the potential and existing practices of agriculture in the nation are very much heterogeneous in terms of the variation in agro ecological and physiographic characteristics. High Himalayas is feasible for cattle and sheep rearing whereas hills carry potentiality in horticulture development, Tarai is feasible for various types of grain vegetable, and cash crops. Nevertheless, the fragmented land holding and household based farmland operation practice constrained mechanization of the sector in the country. Whatever be the potential and comparative advantages in this sector, Nepalese farmers are operating their small holdings land for their subsistence purpose. Almost mixed farming practices of vegetable, grains and fruits production combine with a small number of livestock rising are the prevalent pattern in Nepalese farm regardless of the different agro-ecological region.

Manandhar (2009) analyzed a readily saleable crop that is grown and gathered for the market (as vegetables or cotton or tobacco is called the cash crop (Collins English Dictionary)). Major cereals are rice, maize, wheat and millet of which rice is the main staple food. Sugarcane, oilseeds and potato are categorized as cash crops. Apple, oranges, mango, banana etc. are the main fruit crops. Potato, cabbage, cauliflower, beans, tomato, etc. are major vegetables and there is increasing trend of growing vegetables in the areas with road and market facilities.

Pokhrel (2011) described agriculture in the Kathmandu city cannot be ignored while thinking and executing for overall development in Kathmandu city is essential for integrated urban-rural development, poverty alleviation and urban food security. Nepal and the major suggestion/recommendation to increase crop productivity includes the need of establishment of farmers level cooperative for agricultural inputs supply, effective extension service, soil conservation and fertility restoration

Bhattarai (2012) evaluated the issues in agriculture development in terms of four law motion in agriculture as- (i) the questions of 'Prime mover' in agricultural development (Lenin seems to use the term 'carries of technical process' interchangeably for 'prime mover'); (ii) the operation of the law of socialization in agriculture; (iii) characterization of 'peasant proprietorship'; and (iv) differentiation of the peasantry. As described by him, land (the basic material element of agricultural

production) and labor (the principal source of value in all production are the basic conditions of factors of agricultural production. Besides, irrigation and modern inputs are the other factors of agricultural production. The absolute measure of level and growth of agricultural production is of crucial significance for a society dominated by use-value production.

Joshi (2014) studied the characteristics of the developed farming are as high degree of specialization, full market oriented, capital intensive, developed land resources, facilities for machinery keeping, maintenance and storage, low labor inputs, high technology, high input level, quality seeds, sophisticated management, proper timing of activities, few constraints due tradition or taboos, high output per area per labor high and quick returns to cash outlays, high quality and uniform outputs, efficient agri-business network and likewise well-developed credit and banking facilities, existence of extension advisory service, farmers organization association, well developed research back up and training facilities, developed early warning system (weather, disease, outbreak) efficient communication network, easy access to market information, good road and developed transport network and the same facilities are relatively easy access input and their fast delivery, protected prices subsidies, tax reduction facilities for investment, access to water, electricity, sanitary, facilities and access to medical care, education facilities, etc

From the above mentioned review of literature researcher has got familiar about the commercial vegetable farming and it is aspects. Every vegetable farming requires investment access to irrigation, adequate land, soil, climate, man power, pests and technical support the reviewed studies helped to frame this study considering the various intrigate elements of commercial farming which contribute to the socio-economic aspect of the farmers.

2.2 Empirical Review

2.2.1 International Context

Metodika (1964) stated that during the past 50 years, agricultural development has been successful in emphasizing external inputs as the means to increase food production. This has greatly increased global consumption of agricultural product but

it became apparent that aggregate increase in food production inputs such as pesticides, chemical fertilizer, farm machinery and animal feed stuffs. Pesticides, chemical fertilizer, farm machinery and mechanical method of controlling pest weeds and diseases, in organic fertilizer have substituted for livestock manure, compost and nitrogen fixing cropping information for management decision comes from input suppliers, researcher and extension rather than from local sources and fossil fuel have substituted for locally generated energy sources.

FAO (1975) studied that vegetable area was 5100 hectares and in 2002 it reached 8000 hectares. However, because many smallholders lacked knowledge on production technology and because they were attracted to short term benefits, many smallholders overused chemicals to increase crop yields. This resulted in many consumers being poisoned and in time spurred the first experiments to be held on safe vegetables production in 1989. In 1995 a trial protocol for safe vegetables was established and in 1996 a safe vegetable program was implemented. This has offered a more sustainable opportunity for smallholders and the area used for safe vegetable production has gradually increased; in 2000 it accounted for 4.5 percent of the total area used for vegetables grown in the Hanoi district.

FAO concerned about high levels of poor quality and adulterated pesticides on sale in developing countries. Surveys repeatedly show that without training, farmers are unable to make good crop decisions: recognition of pests and their predators is generally low, leading to decisions to spray to kill any insect; knowledge of product selection, application rates and timing is poor; different products are often combined in the belief that the effect will be greater; re-entry periods after spraying and essential harvest intervals are not known; and without knowledge of alternatives, farmers will often assume that the only solution to pest problems is to spray more frequently. From a consumer's point of view, few developing countries are able to monitor pesticide residues, particularly for produce grown for home consumption: most countries do not have laboratories for even simple residue testing. Season-long field level training in IPM can help farmers to become better decision-makers, and to greatly reduce pesticide use while reducing risks to their own health and environment, producing safer products for consumers, maintaining yields, and increasing incomes.

Markov (1966) has stated during Soviet times, vegetable growing has developed extensively. It developed with particular rapidity after the collectivization of agriculture. In 1930 the area under vegetable cultivation was 1,146,000 ha, that is, it had increased 1.8-fold since the pre revolutionary period. In 1939 the Eighteenth Party Congress resolved to establish large vegetable and livestock farms near Moscow, Leningrad, Kharkov, and Gorky, as well as near the urban centers of the Donets Basin, the Kuznetsk Basin, and the Far East. These farms were to supply urban centers fully with vegetables, particularly potatoes.

Rubtsov (1970) described the main kinds of vegetables popularly transported in Nigeria included tomatoes, pepper, onion and okra. There were no clearly defined routes for any particular produce, apart from the common pattern of transport from north to south and market forces dictated the handlers' choice of market. On average the produce normally spent four to five days in transit. There were two main modes of transport available: rail and the road system; however transporters used the road system for their regular and long distance haulage. Major vehicles used for transport were Mercedes, 911 lorry, canter, fuel tanker, pick-up van, buses and articulated trucks. None of the transporters owned the vehicles and they were usually rented at the market where the fresh vegetables were purchased. It was the desire of most of the transporters to use the 911 lorry. This was because of its capacity and its superior ventilation. The 911 lorry and other articulated trucks could carry between 250 to 300 baskets or jute bags load of fresh produce (about 7500 and 9000 kg). The major problem normally encountered was the no availability of the vehicle when most needed. In order not to lose their produce, transporters resolved to use any kind of available vehicle, even passenger bus. The containers (baskets) for transport were usually arranged in five to six layers inside the vehicle with planks (wood) in between these layers. In other words, direct stacking of the baskets was not possible. Some transporters used leaves to separate the layers, which normally did not prevent compression of the produce from the weight (load) of those on top. This practice was thus one of the sources of mechanical damage to the produce. In the case of produce packed in jute bags, for example, onions, the bags were usually stacked on each other inside the vehicles. One problem observed was the restriction of ventilation, which

usually resulted in produce rot, caused by the high level of physiological activities of the produce.

The World Bank (1983) stated that larger farmers adopt innovation involving higher fixed cost at higher rate. All classes of farmers eventually adopt innovation, which are neutral to scale but larger farmer is typically among the early adaptors. This is also evident that the intensity of adoption may be higher on smaller farmers under the certain condition while in other case the opposite is observed. The conflicting evidence stem from the fact is that farm size is a surrogate for the number of factors.

Diariodecuyo (2012) described Argentina: between 15 and 17 percentages more tomatoes were planted, while less acreage was given to the cultivation of garlic and unions. Key to the tomato's success is that an increasing number of growers put in a request for drip irrigation, also known as trickle irrigation. This technique pushes up efficiency by as much as 50 percentages. Drip irrigation is an irrigation method that saves water and fertilizer by allowing water to drip slowly to the roots of plants. It is done through narrow tubes that deliver water directly to the base of the plant. Of one 100 liters irrigated this way, 90 percentages actually reaches the root of the plant, as opposed to 55 percentages in normal irrigation.

2.2.2. National Context

Shrestha (2007) evaluated particularly the pocket areas along the roads and surrounding of large cities such as Kathmandu urban region, Pokhara, etc have got benefits from growing commercial vegetables, where there is high demand due to their hub centre of business, beaurocratic and tourism. Panchkhal (Kabhre), Tistung, Palung and Daman (Makawanpur), Ranipauwa (Nuwakot), Basantpur, Hile and Sidhuwa (Dhankuta) and many pockets along the east-west highway are important locations where farmers have successfully grown commercial and-seasonal vegetables. In addition, many large Teraicentre and Indian border cities are also demanding centre of seasonal vegetables.

UNDP (2008) contributed that 65% employment of the economically active population. The share of agriculture in GDP is about 38%; more than 80% of the rural

population depends heavily on agriculture sector for their employment and about 65% of the total income of rural households comes from agriculture. As more than 80% rural population depending on agriculture and they are mostly fall below poverty line, poverty alleviation without agricultural development is not possible in Nepal. Realizing this fact, the government of Nepal has set a principal development objective of poverty reduction through agricultural development for the Tenth Plan (2002-2007). To achieve the objectives, APP has identified livestock, high value crops, agribusiness and forestry as its priority outputs. Commercialization of agriculture is essential for alleviating poverty in Nepal and it is realized that agriculture can only be commercialized by effective uses of information and communication technologies, giving the farmers a commercial orientation. Shah *et al.* (2004) has described According to the Horticultural Research Center, commercial vegetable system and production technologies for tomato, onion, cucumber, cabbage, cauliflowers etc have been developed and recommended for farmers.

Joshi (2010) examined Agriculture plays a vital role in evolution of agrarian culture in Nepal from ancient times. It has always been a major sector of economy of the country from ancient time to date. The total area of land available for agricultural activities is estimated as 25, 98,970 ha. This is second biggest type of land use after forest in the country. Gross Domestic Product (GDP) of the nation contributed by the agricultural sector is NRS 1, 83,357 million in FY 2060/61. Agriculture sector was contributing 39% of GDP in 2060/061 reducing from 51.22% in 2042/043. This reduction was because of development of other non-agricultural sector of production of the country.

MOAC (2010) reported that Nepal is an agriculture-based country where more than 65% of the population engages in agriculture for livelihood and agriculture shares about 33% of its GDP at current price and 35% at 2000/01 constant price. Pokhrel & Pandey (2011) Weather variability comprising of intermittent drought, submergence, flood, intensive, hot and cold waves and irregular pattern of precipitation are considered as major parameters of changing climate having by and large adverse impacts in various aspects of agricultural system, its productivity and food security in different agro-ecological zones of the country. In the late 1980s, it was the livelihood

for more than 90 percent of the population, although only approximately 20 percent of the total land area was cultivable, it accounted for, on average, about 60 percent of the GDP and approximately 75 percent of exports.

MEDEP (2010) discussed that more than two hundred vegetable species are grown in different places under various climate zones of Nepal. Experiences have shown that commercialization of existing farming practices with adoption of technologies for off-season vegetables production can improve the livelihood of the farmers.

MOAC (2011) said that area, production and productivity of vegetable in 2008/09 was 208,108 ha, 2,538,904 mt. and 12.2 mt/ha. Compared with productivity of 30 mt/hectare in other countries, the productivity is very low. There is an ample room to improve productivity of vegetables in Nepal. One of the reasons is inadequate supply of high yielding and/or improved seeds in general and hybrid seeds in particular. Seed production of traditional vegetables like broad leaf mustard, local beans, pumpkin, etc. have been practiced by farmers since time immemorial. It got a formal structure when government horticulture farms were established in early sixties. Commercial production of vegetable seed started formally only in FY 1974/75 in Bhaktapur with radish seed prepared. As commercial vegetable farming grew, the demand for the vegetable seeds started growing rapidly as the importance of quality seed (in commercial farming) started to be recognized. The demand for vegetable seed started increasing as a result of increasing demand for the fresh vegetables by the house hold consumers as well as by the agro-processing industries. Till mid 1990s the domestic demand for the vegetable seeds hovered around 770-850 mt. per year, which reached around 1,168 mt. in the year 1996/97. At the start of the 21st century the annual domestic demand for vegetable seed reached around 1,444 mt. but again witnessed a growth of around 33% to reach 1,932 mt. by the year 2008/9.

Pokhrel (2011) identified Nepal's resource base for agriculture is severely limited by the nature of the terrain. Only 3.1 million hectares or 21% of the total land area is cultivated and there is no significant potential for expansion, Due to high population pressure, the average landholding is declining over the years. Poverty, food insecurity, social and economic inclusions are the major problems, especially in the rural areas of

Nepal. The mountain agriculture is traditionally composed of elements of self-sufficiency. Nepali hill farming includes the field crops, livestock; horticulture, forest and beekeeping cover the risk against famine and other natural disaster.

MoF (2014) got that top priority in all the five-years plans. Different theoretical model have been employed as if Nepal is one of the experimental sites to verify the models whether they actually work. Nepal is established as a heavily aid receiving developing country. Thousands of foreign experts and Nepalese elites have exercised for agriculture development. Donors have supported us in Generating technologies and extending them widely in rural communities. Their interest also has been shaping our development in many ways. Different approaches and strategies were employed for manpower and technology development and for wider research and extension. The development and enhancement of the productivity of this sector plays vital role in the productive employment generation and improving economic development of the country. The economy is dominated by agriculture, so that agriculture pays major role in the economy, which contributing 33.7 percent of the total GDP. And it is generally accepted that the key of economic development is agricultural products. Agriculture farming in Nepal is labor intensive. Economically active people lives in urban area, and who are economically weak lives in rural area doing agricultural farming.

WB (2014) showed the vegetable sector in Nepal has grown rapidly over the last 10 years, primarily through producers diversifying away from staple crops (rice, maize etc.), although a slight growth in yield has also contributed to growth. Between 2000 and 2010 overall vegetable production increased by an average of 6.9% per annum (45% overall) keeping well ahead of overall average population growth of 1.47% over the same time period. The most significant factor in this increase was the area cultivated (33.2% increase – 4.6% annually), however the total arable land area has not increased over this time period, indicating that vegetables are displacing other crops.

Gurung *et al.* (2016) evaluated the number of farmers growing different kinds of vegetables is increasing, the production and supply of vegetables in the market is also regularly increasing. There have been improvements in the access of agri-inputs in vegetable cultivation, production technologies and marketing channels to market their

produce. However, the area under vegetable cultivation is very small, there has been an increase under the area of vegetable cultivation and shift from subsistence farming to commercialize. Also it was observed that majority of the sample households were found increased their income through vegetable cultivation in the study area.

UK aid (2016) reported present according to the 2009-10 Nepal Vegetable Crops Survey, vegetable farming is very common, and an important source of subsistence for over 3.2 million families (69% of all households) in Nepal – 17% of which are female-headed⁸. However the majority (90%) of producers have less than 0.5 hectare (ha) of land available to them and grow mainly for subsistence, with only 18% growing for the market and only 5% deriving their main income from vegetables (7% in the hills and 4.5% in the Terai). For 12% of growers, vegetable farming (income and consumption) sustains them all year round, with a further 37% being sustained for 4-6 months. Vegetables can be grown year-round, including in the off-season for staple crops such as rice, maize and potatoes. This provides an opportunity for increased income generation for producers through intensifying cropping patterns.

2.3 Research Gap

From the above mentioned review of literature researcher has got familiar about the commercial vegetable farming and its aspects. In study area of people are yet in need of supplying nutrition and have no alternatives of regular income generation. The people in the study areas, especially the young generation, due to lack of income generation source and full time employment, have to run about for employment in urban areas even outside country. In the agricultural sector on the other hand, the available production resources are not utilized properly as it could be some of these are potential land for high value crop production, irrigation resources.

The existing problem in Basheswor VDC is how to generate income for subsistence, and eliminate poverty? Other problems are to identify the role of vegetable crops in income generation and poverty reduction. Due to Hilly production of cereal and cash crops is below subsistence level where the alternative cultivation of vegetable needs to be required. However, the cultivation of vegetable takes much care and expenditure in selling. But being poor, the farmers of rural area have not practiced it as they lack

technical knowledge. Being a profitable occupation than other traditional occupation, vegetable production has better prospects in the Hilly region as well as in the study area. It has not increased to required extent, as it entailed transportation problem, lack of scientific knowledge, lack of cold storage, existence of different kinds of disease. Farmers grow vegetable for self-consumption and least for commercial view.

CHAPTER III

RESEARCH METHODOLOGY

3.1 Research Design

It is the design for the collection of the data. It is a work plan outstanding to the objective of the research. For this study, the study was carrying out both on the basis of exploratory and descriptive research method. The study has been focus on to investigate the vegetable farming in income generation of rural people. The purpose of the study is to describe the income generation of the farmer from the vegetable farming in the household level of Basheswor VDC of Sindhuli district.

This research has been based on descriptive method used for the qualitative and quantitative data obtain during the study. On the other hand, the researcher has analyzed the amount of the interdependence of various characteristics and activities that are influenced by the vegetable farming. In such situations, the researcher has used the exploratory method. Researcher also tried to look into the problem by exploring the views of different set of household, as well as by exploring different literatures related in the study.

3.2 Rational for the Selection of Study Area

The present study is carried out in Basheswor VDC of Sindhuli district, which is located in the Central development region in Janakpur Zone. Most people are depending on agriculture for their livelihood. About 55% land is covered by agriculture land. The economic status of this district is normal. Agriculture is the main occupation of this VDC. Paddy, maize and wheat is the main crop in lower area of Basheswor and livestock rearing is the main occupation for high area people. That is why this location is selected to study for contribution of commercial farming in income generation of farmers and other study area is select for this study because it is accessible for the researcher.

3.3 Nature and Sources of Data

The study has been based on both qualitative and quantitative data. Both secondary and primary sources of data and information have been applied. Primary data has been generated by field study, house hold survey, key informant and interview. Secondary

data is used to present the background of the study and supplement and complement the findings of the study. Secondary data were collected from various sources such as books, journals, website, and previous thesis on the subject and government publications.

3.4 Population, Sample and Sampling Procedure

In Basheshwor VDC was selected for the study where about 732 households, where total population is 4822. (VDC profile 2073).

Among them 50 household were selected by using quota sampling and simple random selection techniques. Personal interview has been taken from the selected household. From each household hold one respondent was selected for interview. There are nine wards in VDC, the sample will be taken from the 5 wards (1,2,3,7 and 9) equally i.e. 10 household from each ward, and other 4 wards will be excluded because of no more people are involved in the commercial vegetable farming .

3.5 Techniques and Tools of Data Collection

Following techniques and tool were applied to collect data from the field.

3.5.1 Household Survey

The household survey has been conducted in order to collect qualitative and quantitative facts about socio-economic status of people living in the study area, income situation and the contribution of commercial vegetable farming in upliftment. For that the researcher used household survey form as the tool.

3.5.2 Observation

Certain information has been collected observation method. Photographs of the area were taken to important observed information was noted for study. Researcher observe vegetable farming activities such as, collection, selling goods, house pattern etc and guess the situation of economic status. The researcher used observation checklist as the tool to observe vegetable farming in the study area.

3.5.3 Focus Group Discussion

Focus group discussion was carried out with local stakeholders to get information about the past and present condition of their economic status etc. People who have been residing in the study area for at least 15 years were selected for this purpose. The major stakeholder involved in FGD includes Aama Samuha, teachers, local politicians, farmers, social workers and other key persons. Six participants were included in the focus group discussion. The FGD questions were used as the tools for it.

3.6 Methods of Data Analysis

After the collecting of data from the household survey, field observation and focus group discussion, those data were analyzed and interpreted both descriptively. The statistical data was analyzed by using simple statistical tools like frequency, percentage etc and the qualitative data was analyzed descriptively. For more clarity, those data were presented in the form of table necessarily.

CHAPTER IV

DATA ANALYSIS AND PRESENTATION

4.1 Description of the Study Area

In this chapter, It is analyzed the collected data regarding the objectives. Vegetable farming in income generation and social status of farmers is the main subject of this study. Sindhuli district is one of the 75 districts of Nepal. Spatially it is located between 26°55' and 27°22' North latitude, and between 85°15' to 86°25' Eastlongitude. It has the altitude of 168 m to 2797 m. The district lies in hill covering an area of 2491 Sq Km.The district is bordered by Udaypur and Siraha in the East; Rautahat, Makwanpur and Kavrepalanchwok the West; Ramechhap and Okhaldhunga in the North, and Sarlahi, Mahottari and Dhanusha in the South. Sindhulimadi is the district headquarters of Sindhuli..According to CBS (2013), the major land use are as follows: cultivable land/grass is 71842 Ha (29.50%),forest is 136302 Ha (55.96 %), shrub land is 25708 Ha (10.56 %), barren land is 8442 Ha (3.47 %), and water bodies is 1268 Ha (0.52 %). The total number of community forest user groups is 421 and that of leasehold forestry user groups is 411. Community forest covers 70628.26 Ha; Leasehold forest covers2704.98 Ha and Government forest covers 85438.76 Ha. There are many small and big rivers and streams in the district. These water resources are mainly used for drinking water, irrigation schemes. Sunkoshi, Roshi, Bagmati, Tawa, Kamala, Marin, waksu, Chadaha, Bandijor, kyankhola, Gaumati, Kokhajor, Dhanaman, Simle, Bitijor, Arun, Kukurkhola etc. are the majorwater resources. There are also several ponds including Panchakanya and kyaneshwor Kunda.The district has four physiographic zones with three types of climate. They are: a) subtropical b) Warm temperate and cool temperate. The maximum rainfall occurs in the district from the month of June to September. The average annual rainfall for the year 2012 was recorded to be 1822 mm (CBS2013) According to the NAPA (2010), the overall vulnerability of Sindhuli district is estimated as moderate level with the vulnerability index of 0.567. The district's vulnerability is high on landslide, moderate on GLOF, ecology and rainfall and low to very low on draught and flood (MoE, 2010).Sindhuli: The political boundary of the Sindhuli Road is somewhat rectangular in shape touching both mid-hill and Tarai districts of Nepal. The district is situated nearly 408

km east of Kathmandu in terms of the existing road network through the East West Highway (EWH). Sindhuli Road has brought this district closer to Kathmandu city by more than 250 km. Nearly 60 percent of the VDCs within the district have roads, some of which are strategic roads, while others are district or village roads. In 2008 the district had a population of 326,534. There are a total of 53 VDCs and one municipality (Kamalamai) in the district. In terms of poverty incidence, more number of poor live in this district than rest of Nepal. The incidence of poverty reported in the aforementioned SEA study was 60.3percent in 2003/04, nearly double that of the national average.

The Basheshwor VDC is surrounded by Ramechhap district is the north, Ratanchura VDC is the south, Bhubaneshwori VDC is the east and Bhimeshwor VDC is the west. It is situated between high Hills, Mountain, River, Beshi and forest/green forest in the VDC there are famous temple and also religious places. There are many big and small rivers passing through this area. Among them, Sunkoshi, Bandijorkhola, Haibarkhola, Sungurekhola are the majors ones.

For that it analyzes the socio and economic characteristics of the respondents, the issue of vegetable farming in income of farming the study area.

4.2 Socio-Economic Characteristics of the Respondents (Vegetable Farmers)

Socio economic characteristics of the vegetable farmer is important to study for finding out their present status of social and economic life, the socio economic characteristics of the respondents was analyzed and interpreted interns of their caste, sex, age, marital status, educational status and so on. The detail of is discussed in following section.

4.2.1 Respondents by Caste

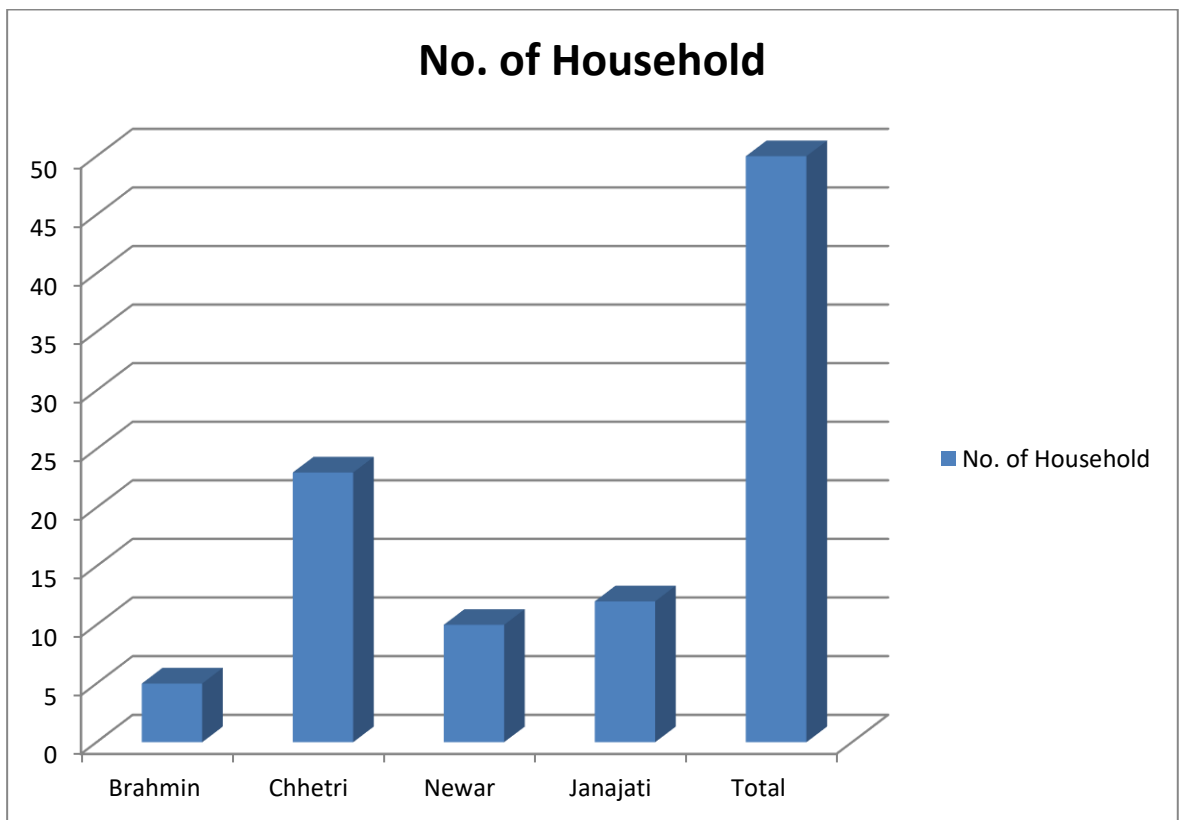
Caste is a social phenomenon which distinguishes one person from another on the basis of ethic based variables. Cast composition is one of the important social characteristics of the respondents because it plays vital role on commercial vegetable farming in the study area. Different castes are residency on the study area. The caste structure of the respondents on vegetable farming is given the table below.

Table 4.1
Respondents by Caste

Castes	No. of Household	Percentage
Brahmin	5	10
Chhetri	23	46
Newar	10	20
Janajati	12	24
Total	50	100

Source: Field Survey, 2017

Figure 4.1
Respondents by Caste



Source: Based on the Table 4.1

The table 4.1 and figure 4.1 showed the caste respondents. Data shows that 10 percent were Brahmin and 46 percent were Chhetri. In this way, 20 percent were Newar 24 percent respondents were Janajati. Among them caste and ethnicity Chhetri were highest then other caste and Brahmin was less participation in the vegetable farming.

4.2.2 Respondents by Sex

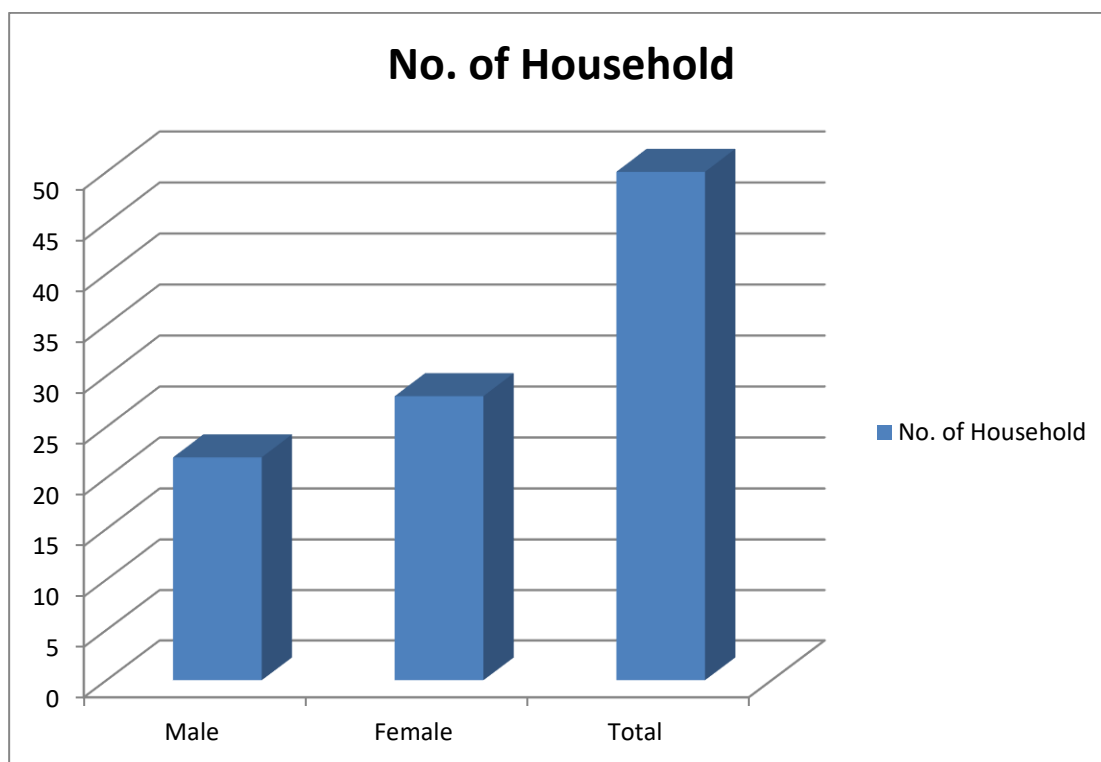
Sex is a biological variable. Sex determines the certain characteristics of the people as man and women or so on. In the case of vegetable farming, we can see the differences of participants in term of sex. The sex structure of respondents in vegetable farming of Basheshwor VDC is given in the table below.

Table 4.2
Respondents by Sex

Sex	No. of Household	Percentage
Male	22	44
Female	28	46
Total	50	100

Source: Field Survey, 2017

Figure 4.2
Respondents by Sex



Source: Based on the Table 4.2

Table 4.2 and figure 4.2 showed portray sex composition of the respondents. Data shows 44 percent of the respondents were male and 46 percent were female respondents in this study. Majority of the respondents were female.

4.2.3 Respondents by Age

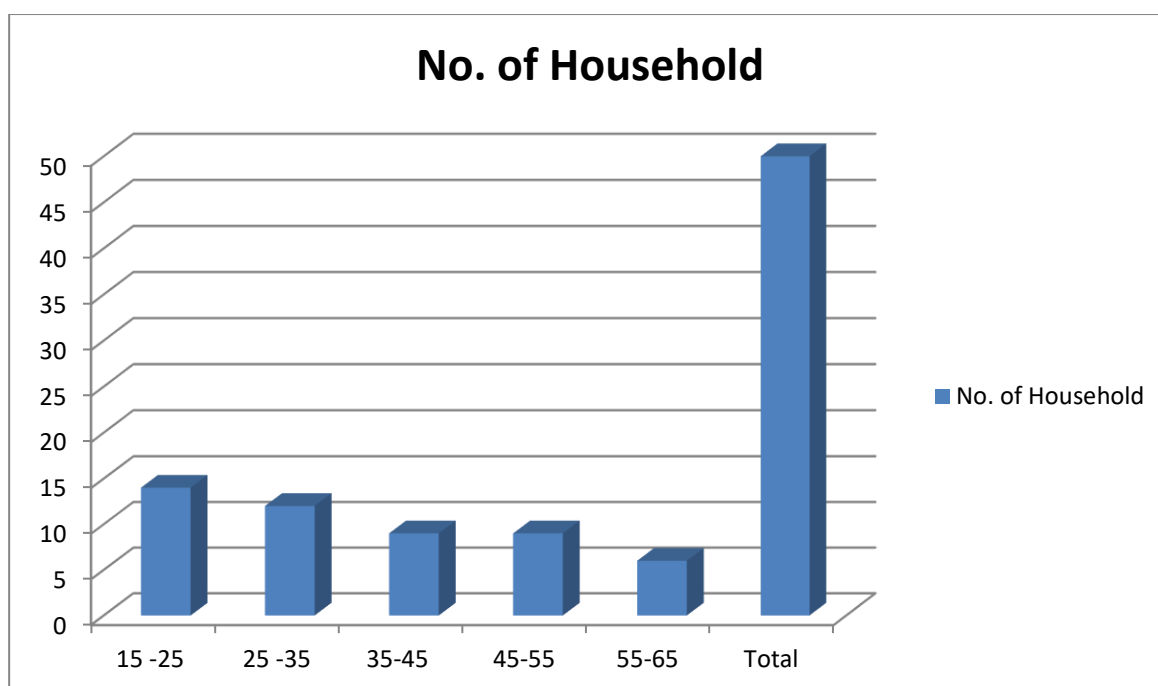
Age determines the participation of the people in any work and so does in farming. The respondents were found as different age group. The age structure of them is presented in following table.

Table 4.3
Respondents by Age

Age Group	No. of Household	Percentage
15 -25	14	28
25 -35	12	24
35-45	9	18
45-55	9	18
55-65	6	12
Total	50	100

Source: Field Survey, 2017

Figure 4.3
Respondents by Age



Source: Based on the Table 4.3

Table 4.3 and figure 4.3 showed the age composition of the respondents. Data shows that 28 percent were between 15-25 years and 24 percent were between age group 25-35. In the same way, 18 percent were between age group 35 between 45 years age

group. Similarly, 18percent were between age group 45 -55 years and only 12 percent were between age group 55 to 65. It shows that majority of the respondents were between age group 15 to 25 and minority on age group 55 to 65.

4.2.4 Respondents by Marital Status

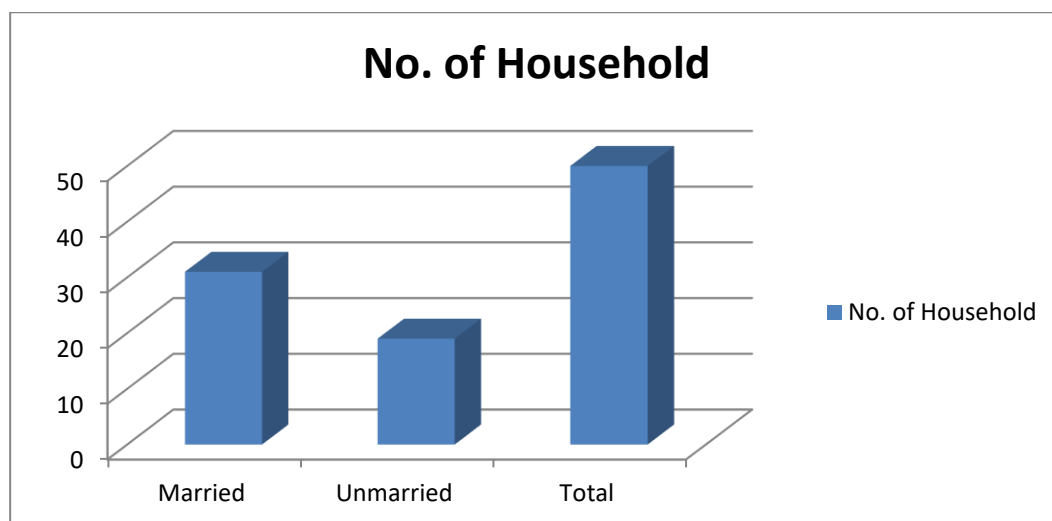
Marital status presents whether a person is single or married. It is also a variable that determines socio economic structure of the respondents. The marital status of the respondents is given in the table below.

Table 4.4
Respondents by Marital Status

Marital status	No. of Household	Percentage
Married	31	62
Unmarried	19	38
Total	50	100

Source: Field Survey, 2017

Figure 4.4:
Respondents by Marital Status



Source: Based on the Table 4.4

Table 4.4 and figure 4.4 showed the marital situation of the respondents. It shows that 62 percent were married and 38 percent were unmarried. Among those respondents married was high involved in vegetable farming.

4.2.5 Respondents by Educational Status

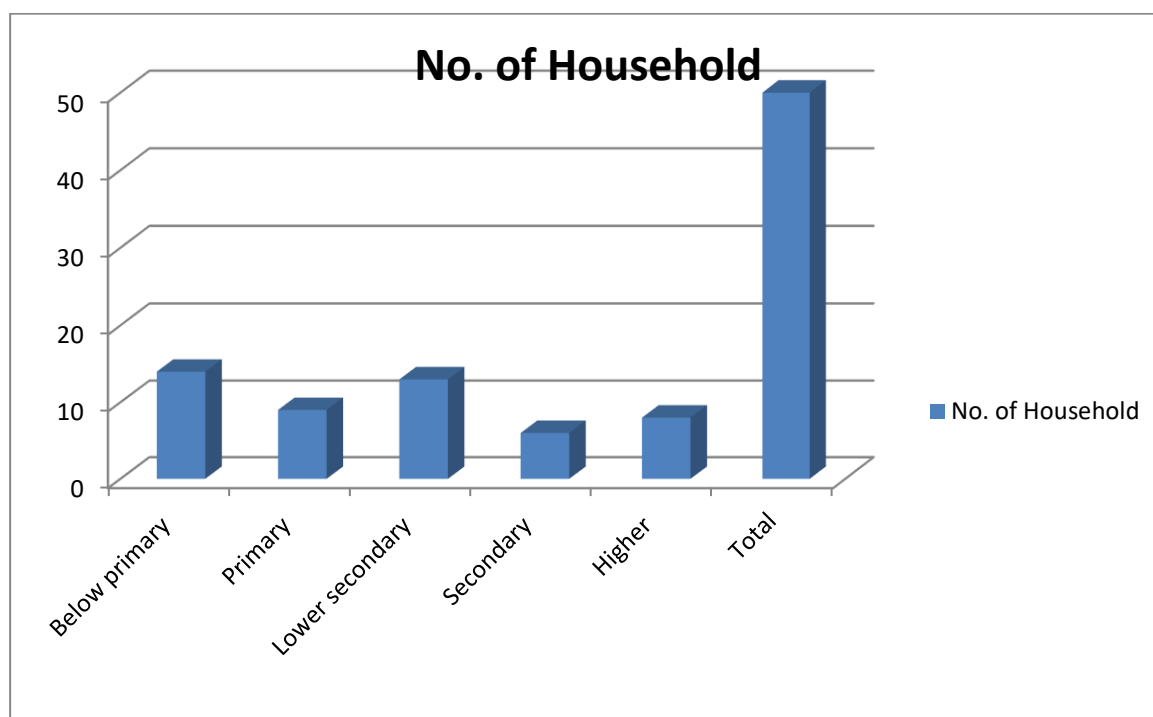
Education plays key role to the development of any of the aspect of human life including agriculture. Educated people do better in agriculture than the uneducated. The educational status of the selected respondents is presented in the following table.

Table 4.5
Respondents by Educational Status

Education	No. of Household	Percentage
Below primary	14	28
Primary	9	18
Lower secondary	13	26
Secondary	6	12
Higher	8	16
Total	50	100

Source: Field Survey, 2017

Figure 4.5
Respondents by Educational Status



Source: Based on the Table 4.5

Table 4.5 and figure 4.5 showed the educational status of the respondents. Data shows that 28 percent respondents were below primary; similarly 18 percent were passed primary. In the same way, 26 percent were passed lower secondary level and 12 percent were passed secondary levels and remaining 16 percent were passed higher

secondary level. Among them below primary and lower secondary passed respondents are highest than other level.

4.2.6 Respondents by Occupation

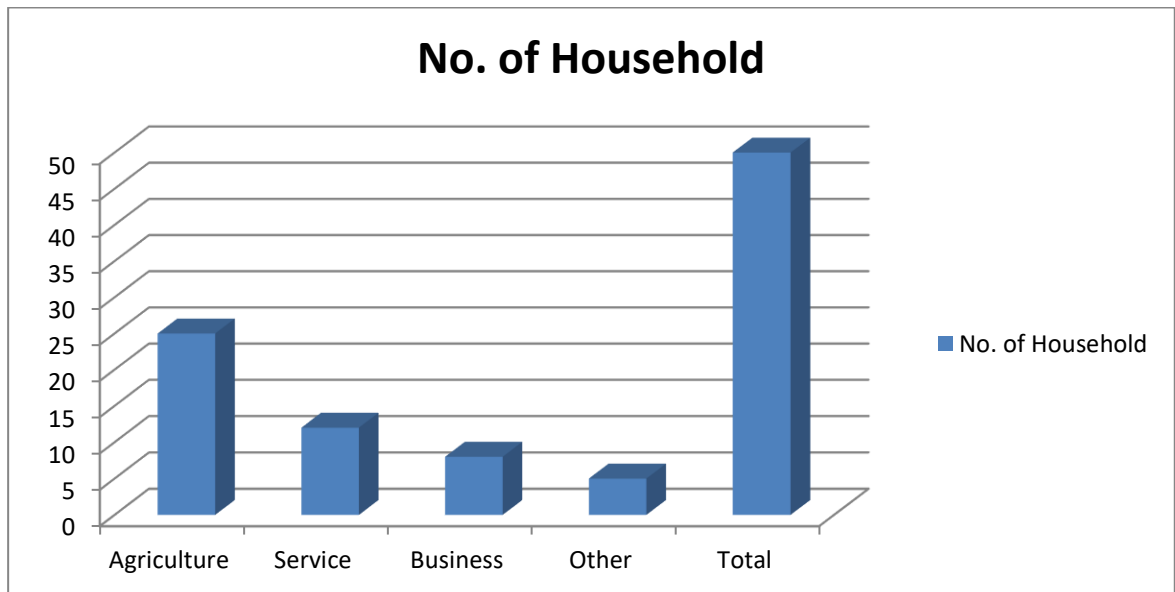
Occupation refers to the main way of income of a family or a person. It is another variable of socio, economic aspect. The occupational status of the respondents is presented in the given table

Table 4.6
Respondents by their Major Occupations

Occupation	No. of Household	Percentage
Agriculture	25	50
Service	12	24
Business	8	16
Other	5	10
Total	50	100

Source: Field Survey, 2017

Figure 4.6
Respondents by their Major Occupations



Source: Based on the Table 4.6

Table 4.6 and figure 4.6 showed the occupation of the respondents 50 percent of the respondents were involve in agriculture and 24 percent are made service sector as occupation, In the same way 16 percent involve in business and 10 percent were involve in other occupation like labor and work both near area and abroad.

4.2.7 Respondents by Family Size

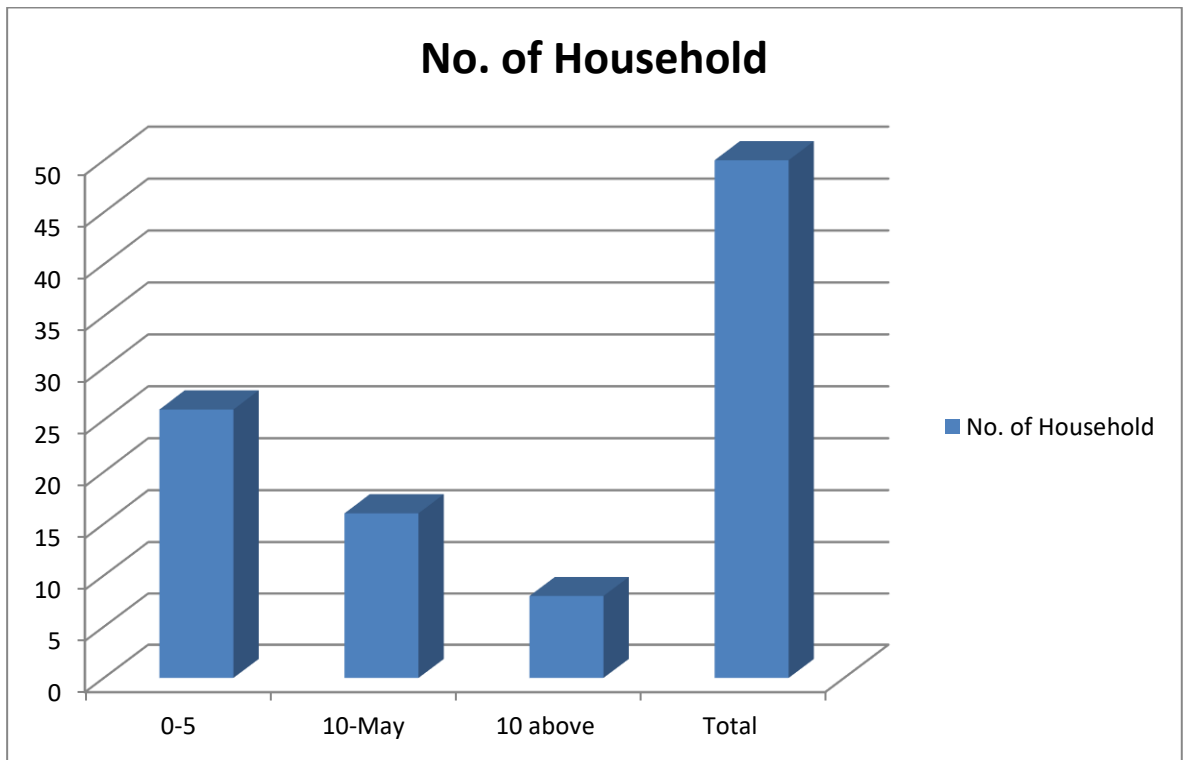
Family size refers to the number of family members is a family. It also determines the socio-economic life of the people. The survey of family size in the family size in the selected area is presented in the table below.

Table 4.7
Respondents by Family Size

Family size	No. of Household	Percentage
0-5	26	52
5-10	16	32
10 above	8	16
Total	50	100

Source: Field Survey, 2017

Figure 4.7
Respondents by Family Size



Source: Based on the Table 4.7

Table 4.7 and figure 4.7 explain the respondents by family size. Data show the 52 percent respondents have 0 to 5 family members; similarly 32 percent respondents have 5 to 10 family members, and 16 percent have above 10 family members. High respondents have 0 to 5 numbers of family members.

4.2.8 Respondents by Landholding Size

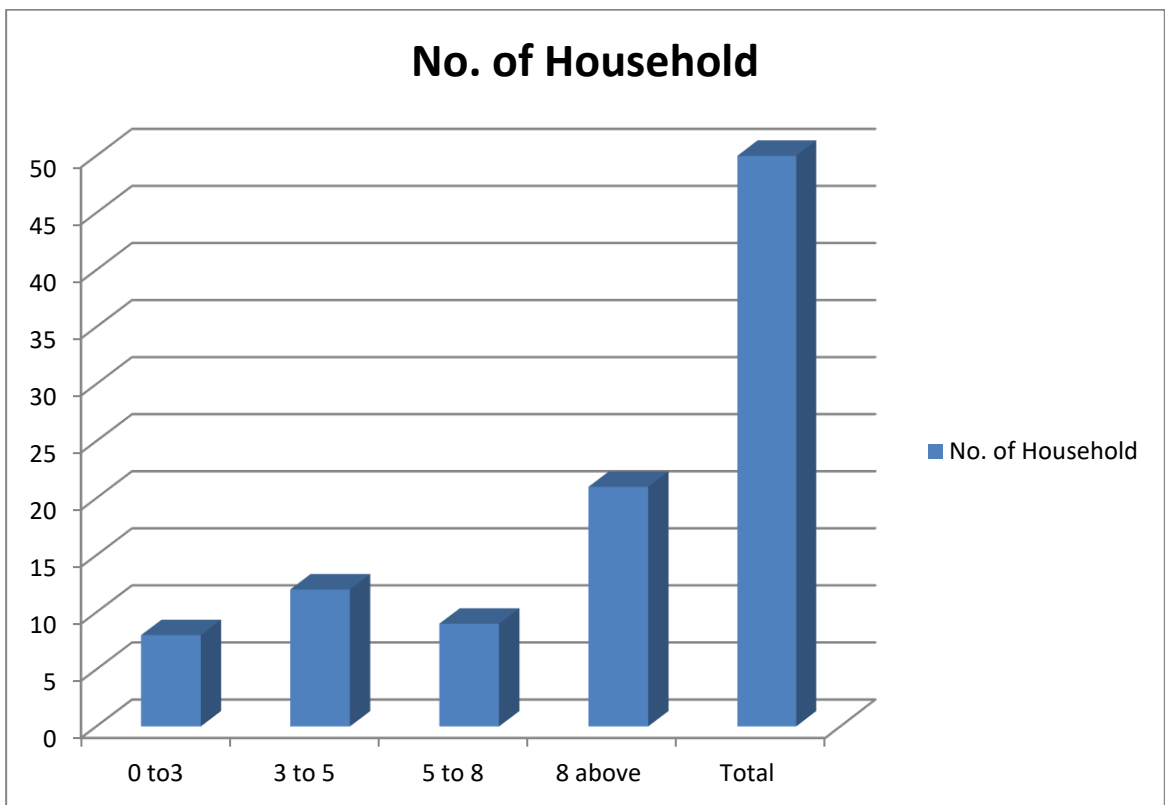
Land provides the shelter for every living plants and creatures. Landholding size refers to the quantity amount of the land that one holds. The landholding size of the respondents in Basheshwor VDC is presented below.

Table 4.8
Respondents by Landholding Size

Land Holding Size (Ropani)	No. of Household	Percentage
0 to3	8	16
3 to 5	12	24
5 to 8	9	18
8 above	21	42
Total	50	100

Source: Field Survey, 2017

Figure 4.8
Respondents by Landholding Size



Source: Based on the Table 4.8

Table 4.8 and figure 4.8 show the respondents by land holding size; data show that 16 percent have 0 to 3 ropani land and 24 percent have 3 to 5 ropani. In the same way, 18 percent have 5 to 8 ropani land, and 42 percent have more than 8 ropani. It shows that most of the respondents have 8 above ropani land.

4.3 Vegetable Farming in the Study Area

The study area Basheshwor VDC of Sindhuli has a good trend of vegetable farming. Nearly 44percent people of the village involved in commercial vegetable farming in the study area. The followings tables show the situation of vegetable farming in the study area.

4.3.1 Source of Labor Supply for Vegetable Cultivation

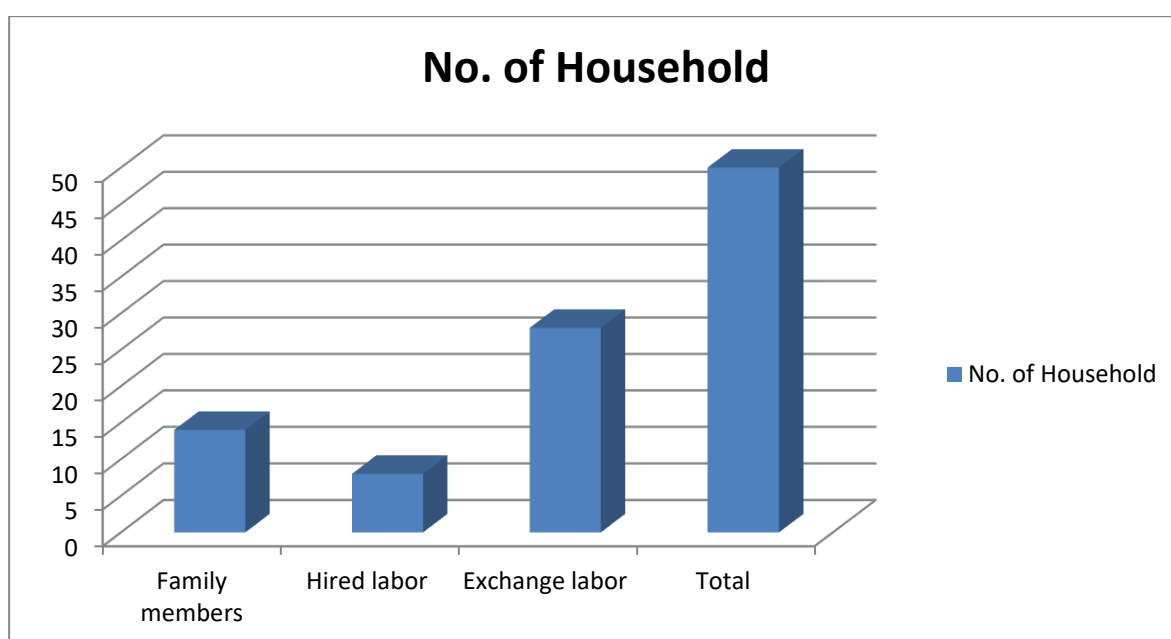
Labor is the prime source of any agricultural production. For the vegetable cultivation, skilled labors are required. The source of labor supply determines the range of commercial vegetable cultivation. The detail of the source of labor supply for vegetable cultivation is presented in the table below.

Table 4.9
Source of Labor Supply for Vegetable Cultivation

Sources	No. of Household	Percentage
Family members	14	28
Hired labor	8	16
Exchange labor	28	56
Total	50	100

Source: Field Survey, 2017

Figure 4.9
Source of Labor Supply for Vegetable Cultivation



Source: Based on the Table 4.9

Table 4.9 and figure 4.9 showed the sources of labor supply in vegetable farming. Data shows that 28 percent use family members as labor worked themselves and 16 percent hired from market. In the same way, 56 percent provide labor by exchange.

4.3.2 Practice of Vegetable Farming in the Study Area

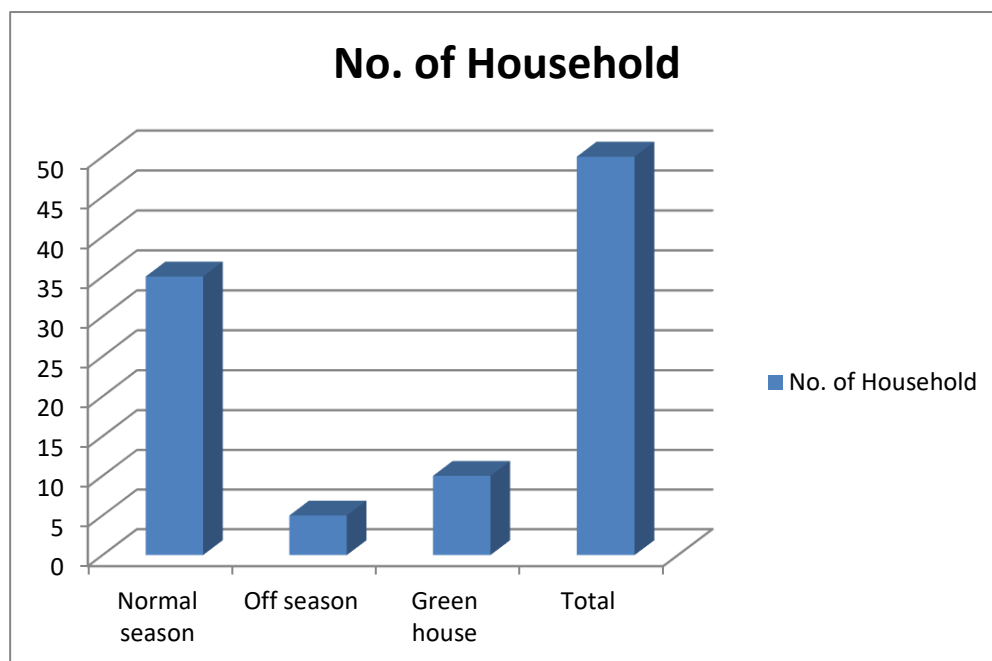
The practice refers to the farming activities in different temporal basic. The respondents are found to grow/practice vegetable farming more in the specific time than that of the other. The survey of the practice of very farming in the study area is presented in the table below.

Table 4.10
Practice of Vegetable Farming

Season	No. of Household	Percentage
Normal season	35	70
Off season	5	10
Green house	10	20
Total	50	100

Source: Field Survey, 2017

Figure 4.10
Practice of Vegetable Farming



Source: Based on the Table 4.10

Table 4.10 and figure 4.10 showed the vegetable farming season of respondents. Data shows that 70 percent grow in normal season and 10 percent grow in off season. Only 20 percent grow by using greenhouse. It shows that most of the farmer grow vegetable during normal season.

4.3.3 Situation of the Vegetable Farming in Study Area

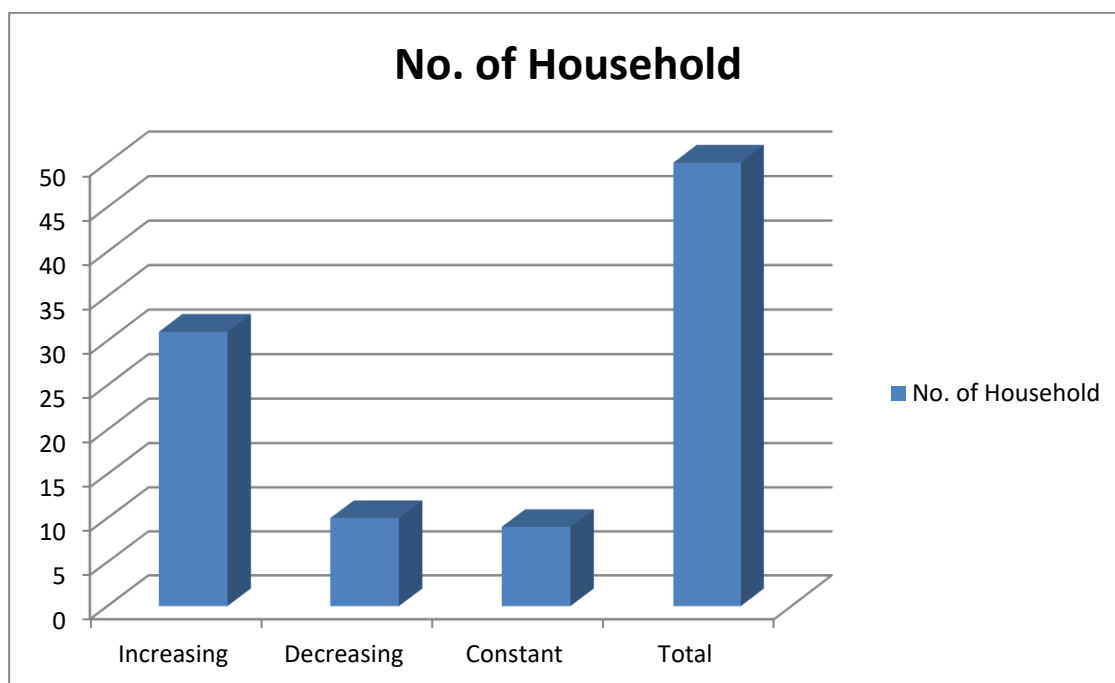
The situation simply refers to the current state of vegetable farming. It also presents the rise and fall in production as well as the constant rate of production. The present situation of the vegetable farming in the study area is given in the following table:

Table 4.11
Vegetable Farming in Study Area

Situation	No. of Household	Percentage
Increasing	31	62
Decreasing	10	20
Constant	9	18
Total	50	100

Source: Field Survey, 2017

Figure 4.11
Vegetable Farming in Study Area



Source: Based on the Table 4.11

The table 4.11 and figure 4.11 shows the situation of vegetable farming in the study area. The data included in the table shows that 62 percent have increased their production and 20 percent have decreased their production decreasing .However, 18 percent of them were found to be constant in their farming. In conclusion, it shows that the situation of farming is in increasing ratio.

4.4.4 Respondents by Getting Irrigation Facility

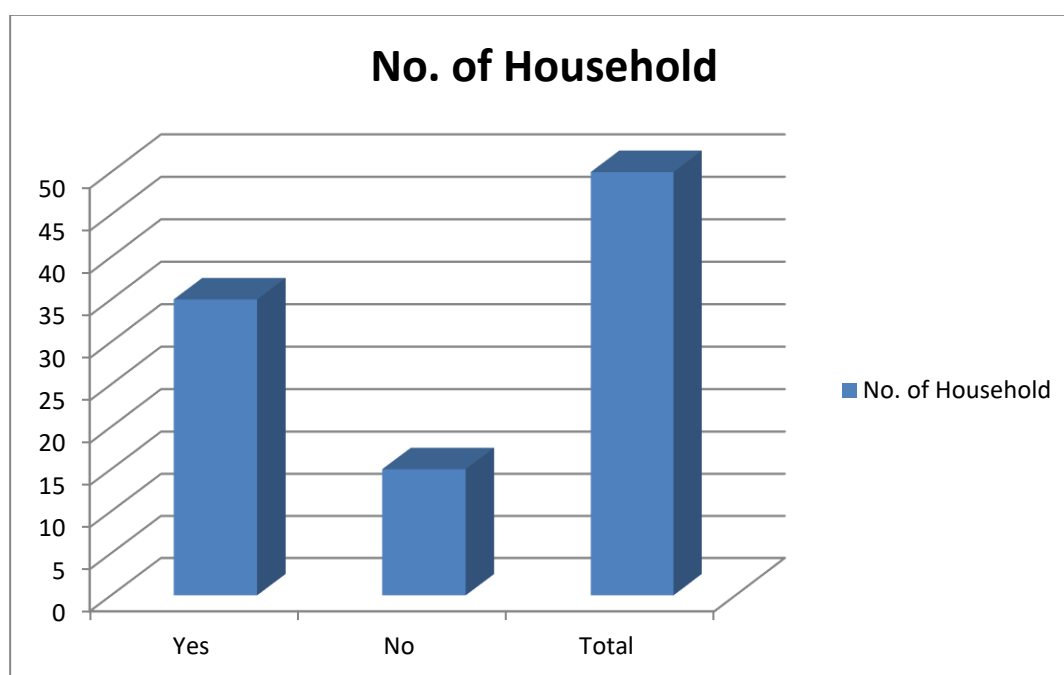
Irrigation facility is the first and for most element for the vegetable farming. However, most of the agricultural fields, in our context, are beyond the facility of irrigation. The description of irrigation facility in the study area presented in the table below.

Table 4.12
Respondents by Getting Irrigation Facility

Respondents by Getting Irrigation Facility	No. of Household	Percentage
Yes	35	70
No	15	30
Total	50	100

Source: Field Survey, 2017

Figure 4.12
Respondents by Getting Irrigation Facility



Source: Based on the Table 4.12

The table 4.12 and figure 4.12 shows that the 70 percent of the farmers had irrigation facility and only 30 percent of them did not have irrigation facility. It means the majority of the farmers got irrigation facility in their vegetable farming.

4.3.5 Agent of Providing Support to Respondents

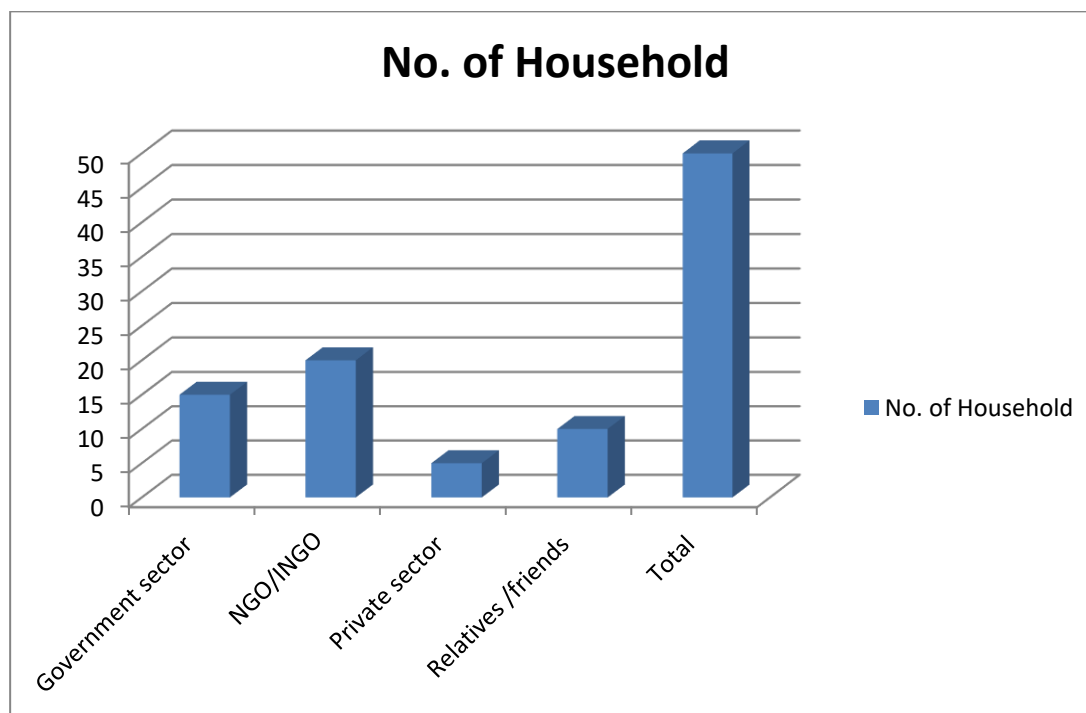
The farmers require support and aid in their farming. They are supported by different organizations and people. The description of the agent providing support to respondents is given in following table.

Table4.13
Agent of Providing Support to Respondents

Agents Providing the Support	No. of Household	Percentage
Government sector	15	30
NGO/INGO	20	40
Private sector	5	10
Relatives /friends	10	20
Total	50	100

Source: Field Survey, 2017

Figure 4.13
Agent of Providing Support to Respondents



Source: Based on the Table 4.13

The table 4.13 and figure 4.13 shows the agent of providing support to respondents. Data shows that 30 percent from government sector and 40 percent from NGO sectors. In the same way 10 percent from private sector and 20 percent from relatives and friend. NGO sector support is high in commercial vegetable farming.

4.3.6 Respondents Selling Vegetable by Place

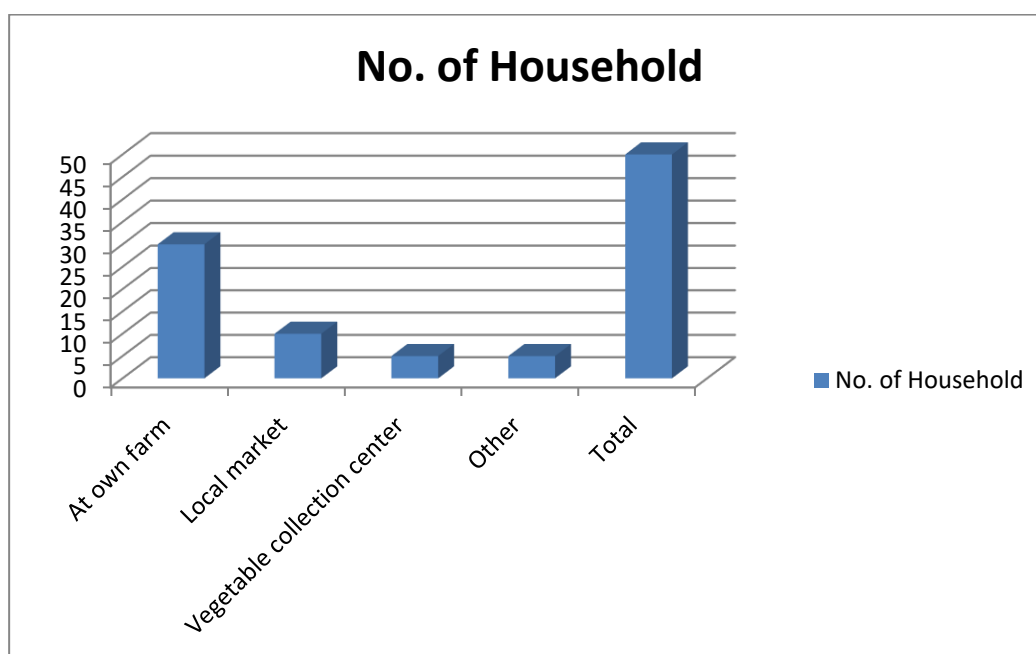
The products of vegetable farming need proper place for its marketing and distribution. The place of vegetable selling and the number of respondents is given in the table below.

Table 4.14
Respondents Place by Selling Vegetable

Where do you sell vegetable	No. of Household	Percentage
At own farm	30	60
Local market	10	20
Vegetable collection center	5	10
Other	5	10
Total	50	100

Source: Field Survey, 2017

Figure 4.14
Respondents Place by Selling Vegetable



Source: Based on the Table 4.14

Above table 4.14 and figure 4.14 show the place where respondents sell the vegetable. Data show that 60 percent sell from farm and 20 percent sell from local market. In the same way 10 percent sell from vegetable collection Centre and 10 percent sell in other places.

4.4 Contribution of Vegetable Farming in Income Generation

Nepalese economy is based on agriculture. 38% GDP is occupied by agriculture (CBS 2011). Among them vegetables covers 12% in GDP including cash crops. Vegetable farming has contributed in a great extent for income generation of the farmers. The information about it is discussed in following ways.

4.4.1 Respondents by Annual Income

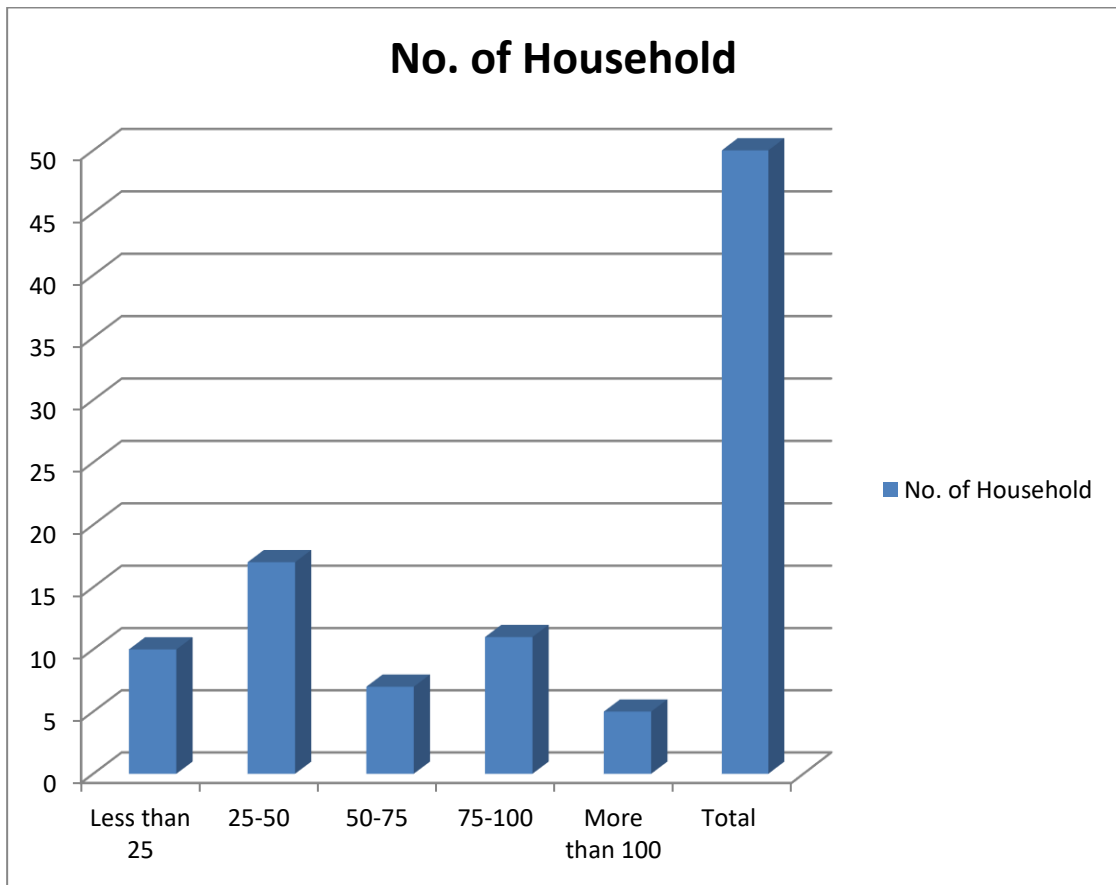
The income structure of the respondents is different due to various aspects. The general annual income of the respondents is presented in the table below.

Table 4.15
Respondents by Annual Income

Annual income in (000)	No. of Household	Percentage
Less than 25	10	20
25 to 50	17	34
50 to 75	7	14
75 to 100	11	22
More than 100	5	10
Total	50	100

Source: Field Survey, 2017

Figure 4.15
Respondents by Annual Income



Source: Based on the Table 4.15

Above table 4.15 and figure 4.15 explain the annual income of the respondents. Data shows that 20 percent earn less than 25 thousand and 34 percent earn more than 25 to 50 thousand. In the same way, 14 percent earn 50 to 75 thousand. In the same way 22 percent earn 75 to 100 thousand. Only 10percent earn more than one hundred.

4.4.2 Respondents by Annual Income from Vegetable

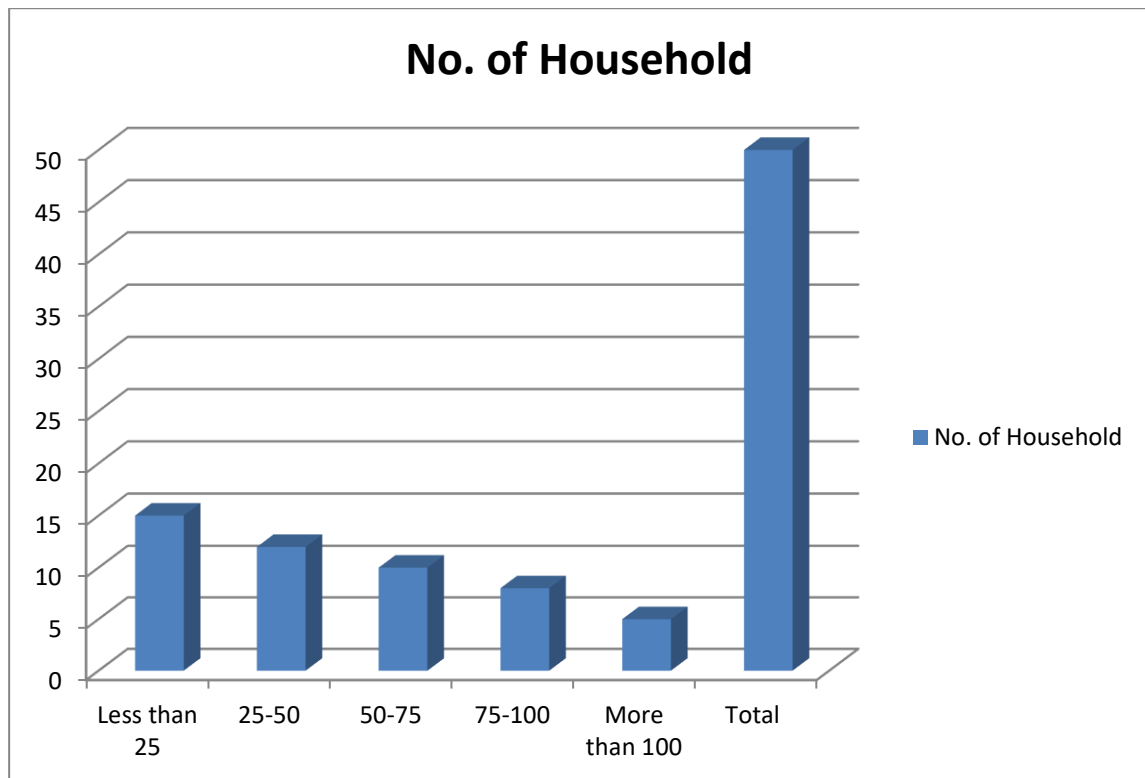
The farmer involved in vegetable farming owns several amount of money from their farm. The annual income of the respondents only from vegetable is reflected in the given table.

Table 4.16
Respondents by Annual Income from Vegetable

Annual income from vegetable(000)	No. of Household	Percentage
Less than 25	15	30
25-50	12	24
50-75	10	20
75-100	8	16
More than 100	5	10
Total	50	100

Source: Field Survey, 2017

Figure 4.16
Respondents by Annual Income from Vegetable



Source: Based on the Table 4.16

Above 4.16 table and figure 4.16 indicated the annual income of respondents by vegetable. Data shows that 30 percent earn less than 25 thousand and 24 percent earn 25 to 50 thousand. In the same way, 20 percent earn 50 to 75 thousand and 16 percent earn 75 to 100 thousand. Only 10 percent earn more than one hundred. It shows the income is very low.

4.4.3 Knowledge and Skill for Vegetable Farming

Farmers have traditional skill of farming though it needs training for vegetable production. They need training on managing pests, pesticides. The following table shows the situation of having training.

Table 4.17

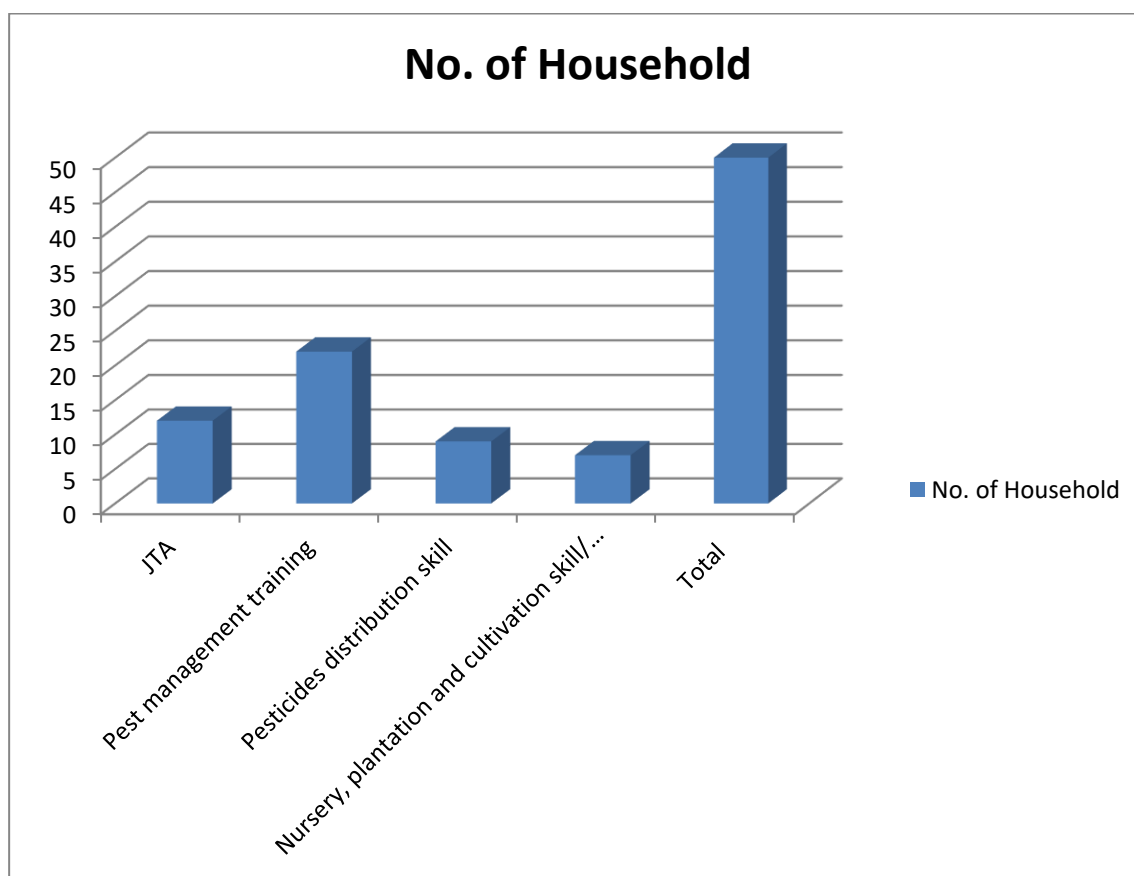
Knowledge and Skill of the Farmers for Vegetable Farming

Having knowledge and skill	No. of Household	Percentage
JTA	12	24
Pest management training	22	44
Pesticides distribution skill	9	18
Nursery, plantation and cultivation skill	7	14
Total	50	100

Source: Field Survey, 2017

Figure 4.17

Knowledge and Skill of the Farmers for Vegetable Farming



Source: Based on the Table 4.17

The above 4.17 table and figure 4.17 showed that only 24 percent of the respondents got JTA training. In contrast, 44 percent of the total respondents were to get pest management training. Similarly 18 percent of them had pesticides distribution skill, only 7 percent of them had got nursery and plantation knowledge. However all of them had basic cultivation skill.

4.4.4 Problems Faced by the Respondents Regarding Vegetable Farming

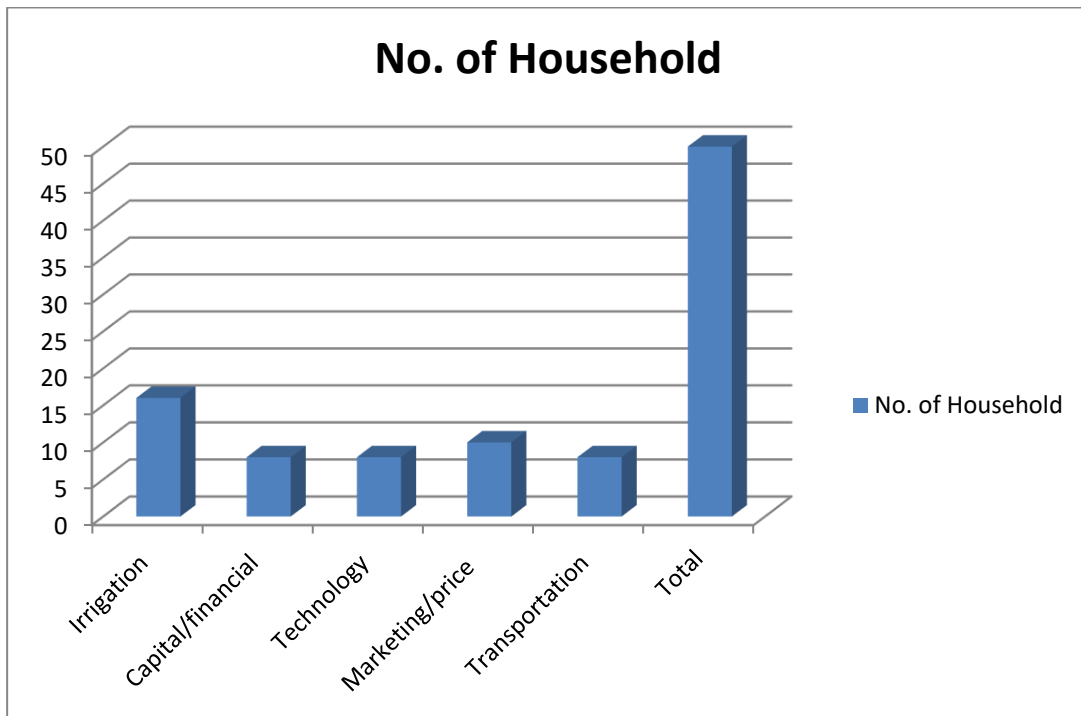
The vegetable farmers face different types of problems of their vegetable farming. In this study the researcher surveyed the types of the problems that the farmers face in their farming, the presentation of which is given problems are related to the soil, technology, investment, labor, marketing, and so on. The major problem found in the study area is given in the following table.

Table 4.18
Problems Faced by Regarding Vegetable Farming

Problem	No. of Household	Percentage
Irrigation	16	32
Capital/financial	8	16
Technology	8	16
Marketing/price	10	20
Transportation	8	16
Total	50	100

Source: Field Survey, 2017

Figure 4.18
Problems Faced by Regarding Vegetable Farming



Source: Based on the Table 4.18

Above table 4.18 and figure 4.18 show the problems faced by farming regarding vegetable farming. Data shows that 32 percent faced irrigation and 16 percent faced capital. In the same way, 16 percent faced technology and 20 percent faced problem of getting reliable price and 16 percent faced the problem of transportation.

4.5 Problems and Prospects of Vegetable Farming in the Study Area

At present, many farmers are being attracted in commercial vegetable farming. However, they have been facing an ample number of problems with various prospects of farming in the study area. The description of which is discussed below.

4.5.1 Problems of Vegetables Farming in the Study Area

From the focus group discussion and observation of the field, many problems related to the commercial vegetable farming are found in the study area. The major problems as mentioned by the participants of FGD and as found from the observation are as follows:

Many farmers were uneducated, so there is the problem of technical and skill based knowledge on how to get better cultivation and have higher production.

- Another problem is related to the lack of appropriate fertilizers and proper pesticides to be used in vegetable farming.
- The farmers have financial problems as well to invest in their farming, as the result of which the production rate was marginal in the study area in relation to other areas.
- Similarly, the farmers have been facing the problems of marketing and promotion of the products in the study area. Sometimes the price of vegetable is very low because in tarai vegetable production cost is low. At that time most of the farmers go in loss.
- Lack of enough plain land.
- High labor cost.

4.5.2 Prospects of Vegetables Farming in the Study Area

From the focus group discussion, field observation and household survey, it becomes clear that many people of Basheshwor VDC of Sindhuli are interested and fully involved in vegetable farming. They have their own prospective in their farming. The major prospective of there are presented below:

- It provides the satisfaction to the farmers and gives them a means sustaining their life.
- Facilities of collection center: there is collection Centre in village so there is no problem of collection Centre.
- Government and non-government sectors have supported in vegetable farming in the study area.
- People show interest in commercial vegetable farming.
- It became the main income source and income generate from the village.
- The farmers are found to see long term future in their farming.
- They have taken vegetable farming as the major occupation.
- The farmers have strong enthusiasm and good determination to be enjoyed in their farming.

CHAPTER V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

Based on the findings of the study it can be concluded that the “Commercial Vegetable Farming at Basheswor VDC of Sindhuli District” focused on vegetable farming in income economic and socio status of farmers. Vegetable production is now slowly getting into commercial phase rather than other agriculture sector. Now a day, the consumers are also conscious with the nutritional value of vegetable. Farmers have considered vegetable farming as their main source of income. The cropping intensity has been increased adopting seasonal and off seasonal vegetable with modernization in agriculture system, the production practice are also being changed. Vegetables and vegetable seed production can export, which help to supply nutritional requirement and “low value high price” crop. The general objective of the study is to examine and analyze the vegetable farming in socio and economic status of farmers. It has the following specific objectives, to identify the socio-economic characteristics of the respondents, to explore the contribution of commercial vegetable farming in income generation and identify the problems and prospects of vegetable farming in the study area.

This study used exploratory and descriptive research design. This study is a socio-economic study of the objectives of the study has been fulfilled by using exploratory cum descriptive research design.

The study is based on both secondary and primary data and information. Secondary data were used to present the background of the study and supplement and complement the findings of the study. Secondary data were collected from various sources such as books, journals, previous theses on the subject and government publications.

Basheswor VDC was selected for the study where about 732 households. Among them 50 household were selected by using purposive randomly section techniques. Personal interview has been taken from the selected household. From each household

hold one respondent was selected from interview. There are nine wards in VDC each of the VDC 5 respondents were selected.

Structured questionnaire, focus group discussion and observation were used for collecting data from the selected households. The field survey was conducted after passed this proposal.

The household survey has been conducted in order to collect qualitative and quantitative facts about socio-economic status of people living in the study, contribution of vegetable farming in income generation of farmers. Certain information has been collected observation method. Researcher observe agriculture activities such as farming, selling goods, house pattern etc, and guess the situation of economic status. Collected data and information were presented by using simple mathematical and statistical tools such as table, percentage etc.

5.2 Conclusion

This is the study on Commercial Vegetable Farming at Basheshwor VDC of Sindhuli District. The study had three major objectives. It aimed to examine the present socio economic conditions of the household in the study area, to analyze the trend of commercial vegetable farming in the study area, and to explore the problems and prospects of vegetable farming in the study area. After the systematic analysis and interpretation of the collected data, this study came to the conclusion that there was a good practice of vegetable farming in the study area. Nearly 44% people of the Basheshwor VDC were involved in commercial vegetable farming. The labors for farming were supplied by labor exchange to the great extent. Most of the vegetable were farmed in normal season. The study showed the increasing rate of farming by 62%.

In the same way, the study also concludes that vegetable farming had contributed in a great extent for income generation of the farmers. The majority of the farmers owned 25 to 50 thousands rupees annually from their farming. Farming tended them to sustain their life as well as to save few amount for future savings as well.

Regarding the problems and prospects of vegetable farming, the study concludes that the major problem was of irrigation. Besides, the other problems were financial

support, technological knowledge, marketing, pricing and transportation. Similarly, lack of plain land, problem of using fertilizers and pesticides, labor cost, etc were more common problems. However, the farmers got satisfaction from their farming. They had the facility of collection center, support of government and non-governmental agencies, keen interest on farming and farming has become the main source of income generation. In this way, this study presents a clear picture of problems and prospects of vegetable farming in the selected area..

5.3 Recommendations

Most of the farmers of this area have their own domestic animals bull, cow, buffalo and goat. They are using the waste of animal as fertilizer for their agriculture production. The main purpose of animal husbandry is milk production and meat. Before starting vegetable farming in study area life of people was difficult. Harmful chemical fertilizer and pesticides for human body and soil used in this area was in minimum level and quantity of organic fertilizer was high ago 8-10 years. But, nowadays the quantity of chemical fertilizer and pesticides is increasing production. Mainly they are using chemical fertilizer and pesticides on potato, zinger, akabare, tomato, banda, kauli flower. It brings in changes in income though it needs to be improved. May be these Recommendations are useful for the future researcher, local farmer and policy makers on the local level and national level. For the improvement the followings things need to do which are as follows;

- The government has to make further policy research and developmental studies to cultivate the vegetable through the development of commercialized agriculture in study area. So, the farmers will have more opportunities and practices in vegetable farming.
- The traditional pattern of agricultural system of this area should be modernized by using modern tools, technology and highly productive crops and healthy seeds by the farmers. Then, they will have high production with relatively less amount of investment.
- Local Governmental Institutions (VDCs/ DDC) should also implement policies and programs for promoting sustainable vegetable farming towards market oriented organic production systems in coordination with

concerned institutions. As a result of which, the local level developments become sustainable through constant farming.

- In steep land there is necessary to plan fruit because there is difficult to cultivate vegetable. So more attempt should be given to plain the land before planting.
- Government should be provided loan in zero percent for the construction of cold store though farmers can store their products and sell the in off season. So that the farmers will have economic efficiency in their occupation.
- The concerned authorities should give facilities to poor people by identifying them and purchase these poor people production by government during season. As a result, even the poor will have access in vegetable farming.
- Organic farming, including market oriented organic vegetable farming should be promoted in study area to attract the urban consumers and the agro-tourists. Farmers need to be trained in organic practices, such as composting, vermin-composting, green mentoring, etc. The governmental and non-governmental agencies should train them for their good practices in the farming and using pesticides and fertilizers.
- Using chemical fertilizers and pesticides is increasing on agriculture it may harm on crops, environment and human health so farmers must be discouraged encouraging them to use organic fertilizers and pesticides for better production and soil conservation. So, awareness on health should be provided by the concerned agencies.
- Agro-processing and storage facilities are lacking in Basheshwor VDC. Considering farmer's needs and possibilities, studies are needed towards the establishment of agro-product processing and storage structure. So the farmers will get more benefits from their products and they will keep them safe and fresh for a long.
- The more serious problems of vegetable farming found in the study area should be addressed by the government, local agencies, non-governmental organizations and the farmers themselves, so the farmers will be capable enough to get better production.

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2. How much money do you earn from your vegetable farming? (yearly)
 - a) Less than 25 thousands b) 25 to 50 thousands c) 50 to 75 thousands
 - d) 75 thousands to 1 Lakh e) More than 1 Lakh
3. Are you satisfied from this income?
 - a. Yes b. No
4. Where did you get knowledge and skills about the vegetable farming?
 - a. Government office b. NGOs/INGOs/Private sectors c. Relatives
 - d. Own experience. E. If others please specify
5. Have you ever got training opportunity for vegetable farming/cultivation?
 - a) Yes b. No

If yes, please specify.
6. Who gave the training?
 - a. Government b. Cooperatives c. NGOs/INGOs
 - d. Private sectors e. if others please specify
7. What are the sources of labor supply for vegetable cultivation?
 - a. Family member's b. Hired labor
 - c. Exchange labor d. If others specify
8. Generally in which season do you have grown vegetable?
 - a. Normal season b. Off season c. if others please specify
9. What is the yielding situation of the vegetable farming?
 - a. Increasing b. Decreasing c. Constant d. if others specify
10. Do you have irrigation facility in your field?
 - a. Yes b. No

II. Problems and prospects of commercial vegetable in the study area.

1. Do you have face any problems regarding vegetable farming?
 - a. Yes b. No
2. Which types or problems do you face?
 - a. Irrigation b. Capital/financial c. Technology d. marketing
 - e. Transportation f. If others please specify
3. Who really support to identify and supply improved inputs such as seed, fertilizers, pesticide and others?
 - a. Government sector b. NGO/INGO c. Private sector
 - d. Relatives/friends e. If others please specify

4. Where do you often go to sell your vegetable farm product?

b. At own farm

b. Local Market

c. Vegetable collection center

d. if others please specify

ANNEX - II
CHECKLIST FOR FGD

1. Why are you interested in vegetable farming?
2. How much amount of money do you spend for vegetable in a year?
3. Whether you have profit from vegetable farming? If so, could you tell, how much amount you obtain as the profit in a year?
4. Have you faced any problem in vegetable farming in your farm? What are the major of yours?
5. Have you ever received any financial and technical support from the government and District Agriculture Office?
6. Do you have adequate knowledge of planting, cultivating, harvesting and using pesticides in vegetable farming? If you have them how did you get such knowledge, please share your idea.
7. Have you got an access of market in your locality to sell the vegetable products?
8. Do you want to give continuity to vegetable farming? How long will you be engaged in farming?
9. How does vegetable farming contribute in your income generator?

Thank you for Participation.
(The end)

