

# CHAPTER I

## INTRODUCTION

### 1.1 Background of the Study

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 (Joshi, 2010).

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 moldering 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 (APP, 1995).

Agriculture extends 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 the agriculture play major role in the economy, which contributes 33.7 percent of the total GDP (MOF, 2014). 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.

In Nepal, there are different types of agriculture farming such as livestock rising, cash crop farming, cereal crop farming, horticulture and vegetable farming etc. Agro-ecological variation exists 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 (MOF 2014).

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 (Manandhar, 2009).

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 eggplant, 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 (Encyclopedia, 2015).

In Nepal, systematic research and development of vegetable cultivation started only after the establishment of government horticulture farms in sixties. In 1972, the vegetable development division in the National Agriculture Research Council (NARC) was established to coordinate research, seed production and development of vegetable crops. In 1987, NARC was given the mandate for all agricultural research including vegetable crops.

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 (MOA 2012). 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 (MOA, 2012).

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. They are concentrated specifically in the 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 consolidated pocket area particularly in high ways of production potential areas around cities.

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 “High value low volume” crops.

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. 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 (Adhikari, 2006).

## **1.2 Statement of the Problem**

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.

Dhading is one of the remote districts in the central region of Nepal. Although the district is located at the border of Kathmandu valley in Bagmati Zone, many parts of it are still inaccessible by road. The district has poor development infrastructures like roads, electricity, and others. Most of the populations are based on subsistent agriculture and have low income for basic livelihood.

According to the CBS of the Dhading, where among the total household (33773) of the district, 7609 household are growing Chili on the 71.2(ha), 7826 household growing Onion on the 105.5(ha), 3152 household are growing Garlic on the 7.1(ha),

326 household are growing Ginger on the 3.2(ha). Similarly there 1005 households are growing Cauliflower on the 13.1(ha), 435 households are growing Cabbage on the 5.6(ha), 4266 households are growing Tomato on the 46.7(ha). And likewise other households are holding different spices and different plantation and other sides (CBS 2011).

In Gajuri Rural Municipality though most of the lower and middle class families are drowned in the web of the poverty, the socio-economic condition of the commercial vegetables farmers is better than that of other crops and cereals farmers. So commercial vegetable farming is playing vital role to income generation in the study area.

The prospects and problems of vegetable farming has yet not been carried out by any of the researchers in the Gajuri Rural Municipality. That's why the researcher is interested in this topic.

### **1.3 Objective of the Study**

The general objective of the study is to identify the prospects and problems of commercial vegetable farming in Gajuri Rural Municipality, Dhading. The specific objectives are:

- i) To examine social and economic status of the selected households.
- ii) To assess status and prospects of commercial vegetable farming
- iii) To analyze the major problems of commercial vegetable farming.

## **1.4 Significance of the Study**

The national level policy makers can use the study report to formulate effective plan and policies to intensify the development in vegetable farming.

Gajuri Rural Municipality can use the study finding to identify the need of local farmers and launch various programs as necessary.

Various NGOs/INGOs can get relevant information regarding the need of farmers of the study area and can launch effective programs.

Likewise, it is believed that this study will be equally useful to the interested readers, students and concern persons and among other institutions who desire to get knowledge and information about prospects and problems of vegetable farming.

This study also serves as a source of information for other researcher to conduct similar type of study.

## **1.5 Limitation of the Study**

The study has to be conducted within limited time frame.

The study was confined to certain geographical area i.e.Gajuri Rural Municipality of Dhading district, Nepal. Thus, the findings of the study can not be generalized.

The study was focused on some specific aspects of agriculture only. It has only identified the problems and prospects of vegetable farming.

The data was taken only with the people/family who are dependent on vegetable farming in Gajuri Rural Municipality.

## **1.6 Organization of the Study**

This study had been divided into five chapters. The first chapter is introductory which includes background of the study, statement of the problem, research questions, rational of the study, 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 for the selection of the study area, nature and source of data, Universe and sampling procedure, data collection techniques and tools and methods of data analysis and interpretation procedure. Chapter four is 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 i.e. chapter five summaries, conclusion and recommendation has been 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 Conceptual Review**

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. (Joshi, 2014)

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. (Hessayan, 1985).

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).

## **2.2 Theoretical Review**

The traditional production in Nepal is labor intensive with small field sparsely planted with seeds of mixed genetic type. Plants grown are also under tillage system of traditional agriculture. Even most of the big farmers of the country have not applied capital intensive technique. Now the big farmers of the Tarai area are going to use capital intensive technique also such as tractor, chemical fertilizer, improved seeds and plant protection materials etc. In modernization agricultural animals' power and machinery are substituted for human labor than mechanical power replaced animal power. The increased use of agricultural inputs also modernized also substitute both land and labor (Adhikari, 2006)

As Nepal is predominantly agricultural country there are many literatures available regarding the agriculture production, cultural practices, marketing, different sector of agriculture and policy in national level. Agriculture and rural development are intrinsically interrelated elsewhere in the developing countries, especially true for a country like Nepal. It has claimed by the scholars that, for Nepal, agriculture is and will remain a major contributor to the sustenance, employment and development of the poor as well as the better-off sections of the population for a long time. Even in Japan, which is now a well-known as an industrialized developed county, the number of people relying on agriculture sector did not reduce a long period between 1870 and 1940. Such number did not decline even until the 1960s, although non-agarics employment grew substantially by that time. In countries and areas such as Taiwan, Kenya, Thailand, Costa Rika, Columbia, and Punjab (India), it was the development of agricultural sector that chiefly led to economic growth and overall prosperity among the people (Sharma, 2009).

In Nepal, systematic research and development started only after the establishment of government horticulture farms in sixties. In 1972, the vegetable development division in the National Agriculture Research Council (NARC) was established to coordinate research, seed production and development of vegetable crops. In 1987, NARC was given the mandate for all agricultural research including vegetable crops and has done the illustrate work in the field. This is the result of his long staying visits to different ecological belts of Nepal. In the study, starting from the general survey of Nepalese agriculture, he has also explained some of the socio-economic condition, vegetable farming techniques, marketing aspects and consumption of vegetable production in country and also studied about the possibility of introducing some suitable Japanese vegetable in different ecological belts of Nepal.

In some years, the government declares the subsidy on quality seed to ensure food security through increased productivity but in the whole fiscal year there is neither mechanism developed nor execution.

Similarly, with regard to access to credit, the so called Agriculture Development Bank changed its policy to invest in non-agricultural portfolio and some other commercial bank like, Mega Bank which has alternative name for plough to power (to promote small scale business), but speaking truly it's no more than slogan (Dinesh Pandey 2016).

There are several instances of such nature. Weak policy formulation, implementation, monitoring, evaluation and revision system together with inconsistency in agriculture is an important issue which has created frustration among farm families and out migration of youth from rural areas.

Agriculture in Nepal is characterized by low productivity which is mainly due to predominance of traditional farming practices, heavy reliance on weather conditions and poor infrastructure development. Agriculture has been one of the pillars of the development since I was a child. On an average, in spite of two decades of investment, there is only decimal (about 3 percent) progress in Nepalese agriculture.

To conclude that it would not be wrong as Nepal's agricultural policies are made without their serious engagement which was also stressed in recently held program called 'Nepal Economic Summit 2014 – Destination Nepal for Investment.' It is high time for the government of Nepal to look into these issues critically and get the policies implemented properly so that Nepal can once again entrench as an agriculturally self-sufficient country where farmers feel secure and embrace farming as means of business and not merely a way of living (Dinesh Pandey 2016).

## **2.3 Policy Review**

Nepal is small but extremely diverse country with more than 24.8 million people at present. Agriculture in Nepal is contributing 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 (UNDP, 2008).

Agricultural economics of rural Asia has always been centered on small farms that include maintenance and use of livestock. In this sense, almost all farmers in Asia are mixed farms. In Nepal, particularly in the mountain and hill areas, reliance on livestock had traditionally been even higher. Livestock has provided a sort of famine insurance

and has been important form of asset accumulation for the poor (Midterm evaluation of APP, 2005).

Agriculture development policy of Government of Nepal is based on the agriculture perspective plan (APP). (APP, 2005) has identified Agriculture as a lead sector for poverty alleviation and for increasing as a backward linkage. To promote vegetable production, the ninth five- year plan has the commercial vegetable production will be launched in pocket areas with consideration to economic of scale in production of market oriented vegetable in the pocket areas in and around the North South Highways. The program includes formation of horticulture trade promotion and linking with wholesale market centers.

There are five interrelated objective and six essential strategic moves embodied in the APP. Following are the objective and strategy of the app.

### **Objective**

- ) To accelerate the growth rate in agriculture through increased factor productivity.
- ) To alleviate poverty and achieve significant improvement in the standard of living through accelerated growth and expanded employment opportunities.
- ) To transfer the subsistence-based agriculture into a commercial one through diversification and widespread realization of comparative advantage.
- ) To expand opportunities fo an overall economic transformation by fulfilling the pre condition of agricultural development.
- ) To identify immediate, short-term and long term strategy for preparing periodic plans and programs in future.

## Strategy

- ) A technology based green revolution in agriculture becomes the initial engine of accelerated growth.
- ) Accelerated agriculture growth creates a demand pull for the production of high value commodities in agriculture, as for nonagricultural commodities, with consequent large multiplier effects on other sector of the economy.
- ) Broadly based high employment growth then becomes the mechanism by achieving societal objectives.
- ) Public policy and investment focus on a small number of priority, building on past investment human capital and physical institutional infrastructure.
- ) A *package approach* to development is introduced, which in Nepal's case would be differentiated for the plain, hills and mountains and would recognize the powerful complementary between public and private investment and priorities, and would ensure their condition.
- ) To achieve broad participation, the strategy is regionally balanced and explicitly the *participation of women*.

The APP is expected to have a powerful effect on economic growth in Nepal. The plan is designed to add two percentage points to the country's agricultural growth and this increase, combined with a 0.5 percent decline in the rate of population.

The Agriculture Development Strategy (ADS) 2014 has the following vision: "A self-reliant, sustainable, competitive, and inclusive agricultural sector that drives economic growth and contributes to improved livelihoods and food and nutrition security." In order to achieve its vision the ADS will accelerate agricultural sector growth through four strategic components related to governance, productivity, profitable commercialization, and competitiveness while promoting inclusiveness (both social and geographic), sustainability (both natural resources and economic), development of private sector and cooperative sector, and connectivity to market infrastructure (eg agricultural roads, collection centers, packing houses, market centers), information infrastructure and ICT, and power infrastructure (eg rural electrification, renewable and alternative energy sources). The acceleration of inclusive, sustainable, multi-sector, and connectivity-based growth is expected to result

in increased food and nutrition security, poverty reduction, agricultural trade competitiveness, higher and more equitable income of rural households, and strengthened farmers' rights.

For the purpose of the ADS, the agricultural sector goes beyond the domain of only one central agency such as the ministry of agriculture and development (MOAD). The ADS refers to the broader agriculture is that:

- a) Includes crops, livestock, forestry and fisheries.
- b) Includes irrigation, and agricultural and rural infrastructure.
- c) Includes production, trades, processing, and Marketing.
- d) Spans across different ministries and agencies
- e) Includes not only government agencies but farmers and their organizations, private sector enterprise and their organizations and NGOs.

The assessment of the agricultural sector aimed at identifying the key issues that need to be considered in the new agricultural development strategy. The identification of key issues are Productivity, Competitiveness, trades, commercialization and Infrastructure.

ADS is living strategy owned by the GON and ADS leading stakeholders. Through regular monitoring and periodic review and evaluation, the details of the ADS will continuously evolve and improve. An external five year review of the ADS will be commission and widely discussed by GIN and civil society. However, the ADS will be reviewed and revised just after the endorsement of new constitution.

Government has or is using subsidization as a strategy to address issues including (i) supply of Fertilizer (ii) Technology, seeds and, irrigation, (iii) Transport to remote area. However use of subsidy has not been consistent, nor has it always has been effective in delivering policy goals, nor clear benefits to the agricultural sector and farmers(ADS,2014).

There a tension between policy promoting co-operatives and also commercialization. Enterprises register under the companies act pay corporate tax, and their employees pay income tax, while those registered under the co-operatives act do not resulting in disincentive or full commercial development and rural employment generation, and constraining fiscal revenue. Company are required to comply with various legislation

including regarding accounting, employment and contract, while co-operative responsibility is limited(ADS,2014).

A few new environmental challenges and opportunities have emerged in recent years which were not prominent and identified at the time of APP preparation. Those are the threats from climate change; climate induced natural disaster such as erosion, landslide, flood, drought cold waves and heat waves; opportunity for carbon finance and the needs of preparedness for disaster risk management such as early warning and insurance. Similarly, importance and usefulness of geographic information and remote sensing technology in planning for agriculture development was not realized(ADS,2014).

A review is recommended of the land act and its enforcement, of the functioning of the land use council, of the legal framework for land use and zoning policies, of ownership/tenancy rights and of the legal aspects of farmland use for non agricultural purposes and/or keeping farmland fallow, etc(ADS,2014).

There is a need to review the compatibility of the legal frame work of public enterprises (PE) operating in the agricultural sector to their actual functions and the need of the sector. The key issues that have been defined hitherto include the affiliation of the PEs in the sector to different ministries which affects coordination and mobilization; the relation between the functions of the PEs and similar private sector enterprises and the question whether government involvement is required in each case; possibility of privatization of functions of PEs; the agricultural Ministerial oversight over cooperatives outside the agricultural sector; the need of legal framework for PE intervention in price control and supply guarantee; the possibility of PPP in PEs(ADS,2014).

## **2.4 Empirical Review**

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 (Shah *et al.* 2004). The Center has identified 38 varieties of 22 vegetables. Vegetables seed and seedlings are also being produced and distributed to the farmers by different horticultural research stations. For instance, there are 6 improved varieties and 5 hybrid varieties of off-season tomato produced in the country. Off-season tomato can be grown at 400-1,800 masl from June to December. Likewise, 10 suitable varieties of cauliflower are identified (Shrestha

2003). By virtue of having diversified agro-climatic conditions (terrains climates, soil, moisture supply, temperature, frost, dew, etc), those varieties of vegetables can be or are being grown successfully in different parts of Nepal. 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 (Shrestha, 2007).

With the majority of people in Nepal employed in agriculture, the program looked heavily to agriculture development and built skills to fit market opportunities, particularly in the off-season. The project established 81 market collection centers in carefully selected pocket areas in all 15 districts of the Midwest region. Without such centers, many farmers would not be able to sell their increased production. These local input service providers were often small shopkeepers or agriculture input suppliers selling seeds and agricultural machinery in the area. The project built their expertise, enabling them to serve as private sector intermediaries who connected farmers with potential markets, offered technical advice, and sold all the appropriate inputs such as drip irrigation technology, seeds and fertilizers (USAID, 2015).

The formal labor hiring practices in Nepal are quite limited, small holding and subsistence farming is characteristics of family based agricultural activities Labor exchange on to one labor exchanges between farm house hold is a common practice in the hills too supplements the farm labor. Wage payments don't occur in this system of labor contact. With the majority of people in Nepal employed in agriculture, the program looked heavily to agriculture development and built skills to fit market opportunities, particularly in the off-season. The formal labor hiring practices in Nepal are quite limited, small holding and subsistence farming is characteristics of family based agricultural activities. The unequal distribution of land in the tarai has probably led to move labor to force work wage. There in the hills, where there is less disparity in land holding lass then 2parsent of work force are wage works. Common practice in the

hills too supplements the farm labor. Wage payments don't occur in this system of labor contact. Mutual relationships within the community are the basis for labor exchange. In ensure the timely supply of the labor at the peak labor requirement. These types of mutual labor arrangement system are named as 'Parma' whereas casual labor arrangement is none known as 'Jyala'.

The 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 (MOAC, 2011).

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.

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 (Pokhrel, 2011).

Agriculture development in Nepal has passed through various models of development. In each model, horticulture and livestock sector have got the priority. With a view to put agriculture into a high growth path, APP was implemented. However, it failed to relate the development activities with the institutions responsible to implement them (Thapa, 2007).

The aggregate agrarian process in Nepal is characterized by low technical level of production, pre-capitalist (or semi-feudal) relations of production, disarticulation with other sectors of economy- particularly industry, and a general state of stagnation and retardation (Bhattarai, 2011).

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. Terai 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 practice s 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 ( J.M Association, 2008).

Unquestionably, women play a significant and crucial role in all realm of life throughout the third World. In addition to farm work, in which they are actively involved with men, the burden of almost all the household chores falls on them. But despite the global consensus as to their vital role both on the farm and in the household, their importance in and contribution to agriculture are not adequately

reflected in the available statistics which perhaps obscure more than they reveal (Das,1995).

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 (Sharma, 2009).

The disorganized agricultural activities are 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. Every government in Nepal has been claiming that agricultural development is in top priority, but the results are not found satisfactory (Tamrakar, 2010).

Poverty in Nepal is deep and complex, and only a concerted effort to improve public interventions while mobilizing community initiative holds hope for a reduction in poverty. The report further says "Poverty is more widespread and deeper in file more remote areas in the mid- and far- western development regions and mountain belt. Poverty in rural Nepal is too deep and too entrenched to be rapidly or widely alleviated. Still a steady, sensitive effort at combating and reducing it can bring progress in the new century. It has given the following causes for the expansion and deepening of poverty in Nepal:

1. Sluggish growth rate of overall economy in the face of rapid population growth.
2. High inequality in asset and income distribution aggravated by a lopsided dualistic development process.
3. Massive unemployment and under-employment.
4. Low human Development status- high illiteracy and lack of access to basic education, health care drinking water, and means of sanitation for the majority of the population.
5. Low productivity and gross inefficiency in management of available resources.
6. High inflation relative to the rise in income for fixed income groups.
7. Gender discrimination causing high incidence of poverty among women and female- headed households. High indebtedness and heavy dependence on informal credit from moneylenders at exorbitant rates of interest.(World Bank,2005)

The following are the characteristics of the developed commercial farming (a) High degree of specialization, full market orientation ,(b) Capital intensive, developed land resources, (c) facilities for machinery keeping, maintenance and storage,(d) low labor inputs,(e) high technology, high input level, qualities seeds, (f) Sophisticated management, proper timing of activities, few constraints due tradition or taboos, (g) High output per area per labor high a and quick returns to cash outlays, (h) High quality and uniform outputs, (i) Industrial type of collecting, transport and processing, well developed marketing channel, (j) Efficient agri-business network, (k) well developed credit and banking facilities, (l) existence of extension advisory service, farmers organization associations (m) well developed research back up and training facilities, developed early warning system (weather, diseases outbreak), (n) Efficient communication network, easy access to market information, good roads and developed transport network, (o) Relatively easy access to input and their fast delivery, (p) Protected prices subsidies, tax reduction facilities for investment,(q) Access to water, electricity, sanitary facilities and (r) access to medical care, education facilities, etc. (Hessayan,1985).

Moreover, Nepal is a country having many burning problems for the agriculture production. Soil erosion, mountain desertification, environmental degradation, declining of soil fertility and crop productivity, depletion of natural resources, increased compulsion of using dung as a fuel in rural areas etc. are the major

problems. The need of the country is to be self-sufficient for food, shelter and clothes. It is only possible, if efforts from all sides go jointly by applying all possible resources for the development of soil fertility and productivity of the country. In the process of attaining higher levels of food production for matching the demand of growing population during the past 4 decades, emphasis was laid on intensive agricultural practices. With the increase in crop yields from modern farming techniques reaching a plateau in most of the countries and the environmental problems due to excessive use of chemical fertilizers and pesticides becoming a matter of concern, the need for sustainable agriculture is increasingly being felt, the world over. In the view of resurgence of interest in alternate in a recent year, organic farming has been considered to be a sound and viable option in most of the countries. In this direction, the recommendations of the Atlanta Conference of 1981 on “Organic Farming” have acted as catalysts in triggering interest in the organic agricultural systems across the world (Dahama, 1997).

Bhattarai (2012) has described 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 (Shrestha, 2010). Vegetable production requires more management than crop cereals. The labor management system of different landowner is viewed as important factors of this study.

### **Challenges and Issues of Vegetables Farming**

**Production related issues:** Low scale –lack of commercialization; dependency over traditional crops and local varieties having low yield, ineffective extension services, lack of irrigation, inadequate support for production.

Districts in the eastern region are mostly designated for cash crops and spices and MAPs under ODOP program. Four districts; Illam (for Kiwi), Bhojpur (for orange), Siraha and Saptari (for mango) are designated as fruit growing areas but not a single district designated for vegetable production.

Lack of transport infrastructures to link the production pocket areas, particularly in the hills and mountains.

Very few collection centers and the limited centers are not well organized.

Lack of cold warehouses. Bumper crops often results losses to the farmers due to sharp decline in prices.

Poor post harvest operations; substantial losses during transportation, poor storage, grading and sorting etc.

Inadequate development of vegetable and fruit based industries; poor value added activities of the products.

Incidence of multiple taxes (barriers) during transportation of goods.

Too many change of hands in completing the export process.

Use of pesticides and agro-chemicals are not monitored properly (importers often raising issues of PRA and PRM).

Lack of harmonization of quality standards and test and certification mechanisms for meeting the SPS standards of the importing countries.

Poor coordination between the research institutions, extension services and the farmers groups (Ojha P, 2016).

## **2.5 Literature Gaps**

From the above mentioned review of literature researcher has got familiar about the commercial vegetable farming and its various aspects. Every vegetable framings 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 integrate elements of commercial farming which contribute to the socio-economic aspect of the farmers.

The study of Bhattarai (2012) present the four law motion of agriculture development. Similarly the study of Shrestha (2007) , Pokharel (2011) and Devkota (2004) present the contemporary state of vegetable production, its marketing and promotion, its problems and perspectives and so on. So after reviewing those previous studies, I came up of with both theoretical knowledge of commercial vegetable farming and the methodological and analytical aspects of this kind of research. The previous studies significantly has helped the researcher by providing idea on how to carry out the study on commercial vegetable farming, what to study on it and how to present the both primary and secondary sources of data in an analytical and interpretative way . In conclude vegetable farming is quite difficult but pleasing occupation which provides many benefits to the famers without requirement for high investment of moneys in other business. That's why the charming of vegetable farmings is increasing day by day.

## 2.6 Conceptual Framework

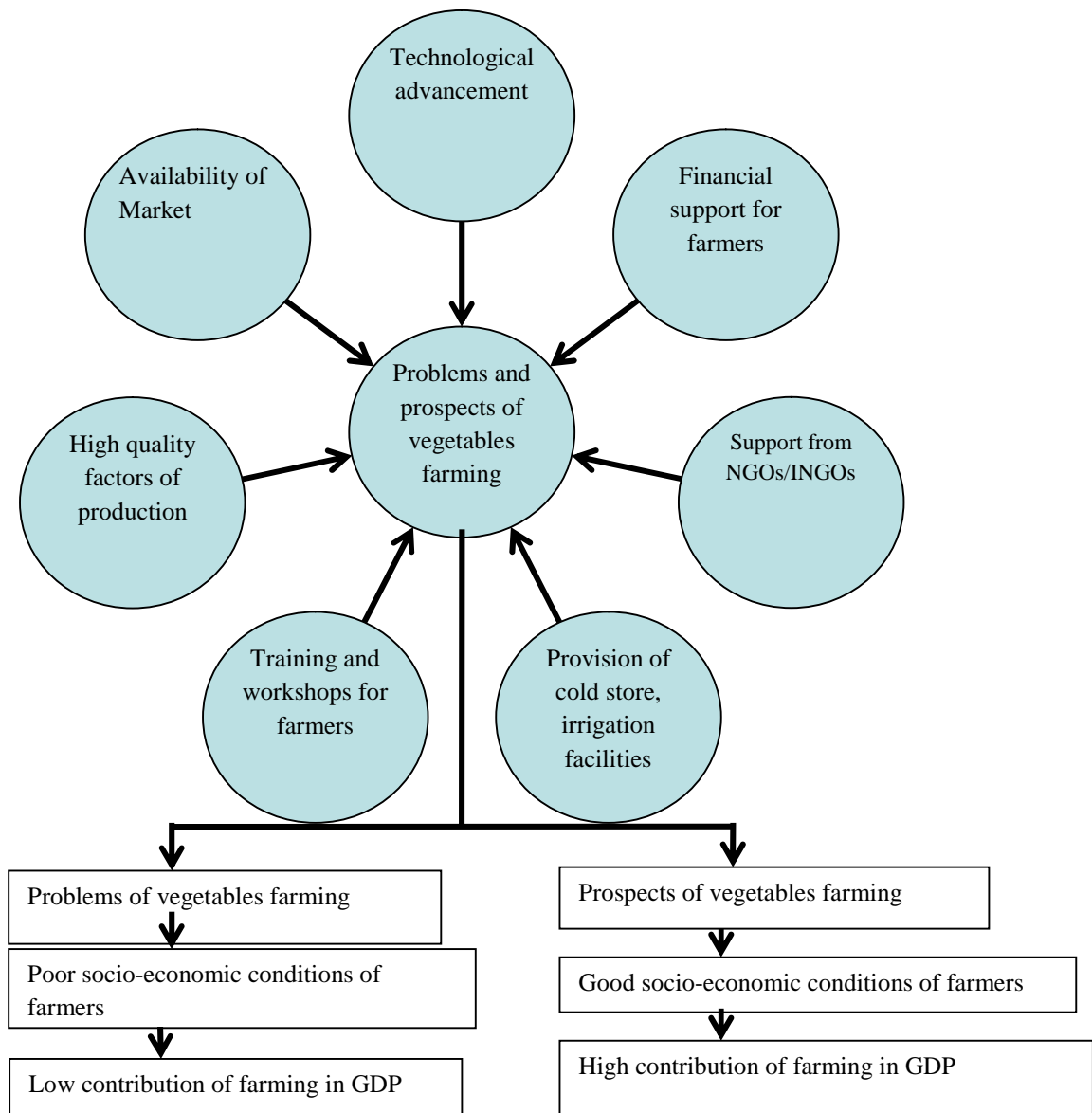


Fig.1.1 Conceptual Framework showing relationship of Independent and Dependent Variables

## CHAPTER III

### RESEARCH METHODOLOGY

Methodology is the hardcover of the study. So it needs to be empirical defined to conduct the study. Thus in this study the following methodology has been addressed to fulfill the objective.

#### 3.1 Research Design

Research design is the design for the collection of the data. It is a work plan as per the objective of the research. Qualitative and Quantitative research design was used to conduct the study. The purpose of the study was to describe the prospects and problems of vegetable farming in Gajuri Rural Municipality of Dhading district.

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 Qualitative and Quantitative research design method. Researcher has 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 was carried out in Gajuri Rural Municipality of Dhading district, which is located in the Province-3 of Nepal. Though this district is connected with the capital city of Nepal, Kathmandu, most of the people are dependent on agriculture for their livelihood. About 64.5% land is covered by agriculture land. Majority of the household has low family income level. Agriculture is the main occupation of the Rural Municipality. Paddy, maize and wheat, seasonal as well as off seasonal vegetable is the main production of farming in Gajuri Rural Municipality.

### 3.3 Nature and Sources of Data

The study was based on both qualitative and quantitative data. Both secondary and primary sources of data and information was obtained and used. Primary data was generated by field study, house hold survey, key informant and interview. Secondary data was used to present the background of the study and supplement and complement the findings of the study. Secondary data was 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

Gajuri Rural Municipality is selected for the study where there are total 2223 households among which 476 households are doing vegetable farming. There are total 9 wards in Gajuri Rural Municipality. The sample size from each ward is calculated using proportional sampling 10% from each ward. After that the calculated sample from each ward were selected using simple random sampling. Total 50 household were selected for the study. Source of relevant data was respondent from the selected households. From each household hold one respondent was selected for interview.

#### Calculation of sample size

**Total household dependent on farming: 476** (Field Survey, 2018)

**Desired sample size: 50**

Ward no	Total household	Sample size
1	61	7
2	81	9
3	70	7
4	50	5
5	70	7

6	71	7
7	30	3
8	43	5
<b>Total</b>	<b>476</b>	<b>50</b>

### **3.5 Tools and Techniques of Data Collection**

Following techniques and tool was used to collect the data from the field.

#### **3.5.1 Household Survey**

The household survey was 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. The format of household survey is in ANNEX I.

#### **3.5.2 Observation**

Certain information was collected from observation method. Researcher observed 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. The observation checklist is attached in ANNEX II.

#### **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 were residing in the study area for at least 15 years were selected for this purpose. The major stakeholder those were involved in FGD includes Aama Samuha, teachers, local politicians, farmers, social workers and other key persons. About 10 participants were included in the focus group discussion. The FGD questions were used as the tools for it. The FGD checklist is attached in ANNEX III.

### **3.6 Method 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 statistically and descriptively. The statistical data were analyzed by using simple statistical tools like frequency; percentage etc and the qualitative data were analyzed descriptively. For more clarity, those data are presented in the form of table as necessary.

## CHAPTER IV

### DATA ANALYSIS AND PRESENTATION

In this chapter, the collected data are analyzed according to the objectives. The role of vegetable farming in income generation and social status of farmers is the main subject of this study.

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

#### 4.1 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 in terms of their caste, sex, age, marital status, educational status and so on. The detail of which is discussed in following section.

##### 4.1.1 Caste Structure

Caste is a social phenomenon which distinguishes one person from another on the basis of ethnic based variables. Different castes are residing on the study area. The caste structure of the respondents in the study area is given below.

**Table 4.1: Respondents by Caste**

<b>Castes</b>	<b>No. of Respondents</b>	<b>Percentage</b>
Brahmin	18	36
Chhetri	15	30
Dalit	9	18
Tamang	8	16
Total	50	100

*Source: Field Survey, 2018*

Above table show the respondents' caste. Data shows that 36% were Bramin and 30% were Chhetri. In this way, 18% respondents were Dalit whereas 16% were thakuri. Brahmin were highest and Tamang were lowest in number.

#### 4.1.2 Sex Structure

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 Gajuri Rural Municipality is given in the table below.

**Table 4.2: Respondents by Sex**

Sex	No. of Respondents	Percentage
Male	24	48
Female	26	52
Total	50	100

*Source: Field Survey, 2018*

Above table shows sex composition of the respondents. Data shows 48% of the respondents were male and 52% were female respondents in this study. Both male and female seems equally involved in vegetable farming in the study area.

#### 4.1.3 Age Structure

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

**Table 4.3: Respondents by Age**

<b>Age Group</b>	<b>No. of Respondents</b>	<b>Percentage</b>
15 -25	5	10
25 -35	8	16
35-45	11	22
45-55	18	36
55-65	8	16
Total	50	100

*Source: Field Survey, 2018*

Above table show the age composition of the respondents. Data shows that 10% were between 15-25 years and 16% were between age group 25-35. In the same way, 22% were between age group 35 between 45 years age group. Similarly, 36% were between age group 45 -55 years and only 16% were between age group 55 to 65. It shows that majority of the respondents were between age group 45 to 55 and minority were of age group 15 to 25.

#### **4.1.4 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**

<b>Marital status</b>	<b>No. of Respondents</b>	<b>Percentage</b>
Married	39	78
Unmarried	11	22
Total	50	100

*Source: Field Survey, 2018*

Above table indicate the marital situation of the respondents. It shows that 78% were married and 22% were unmarried. It shows that most of the respondents involved in vegetable farming were married.

#### 4.1.5 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**

<b>Education</b>	<b>No. of Respondents</b>	<b>Percentage</b>
Below primary	19	38
Primary	14	28
Lower secondary	9	18
Secondary	6	12
Higher	2	4
Total	50	100

*Source: Field Survey, 2018*

Above table shows the educational status of the respondents. Data shows that 38% respondents were below primary; 28% were primary. In the same way, 18% had passed lower secondary level, 12% had passed secondary levels and remaining 4% had passed higher secondary level. It shows below primary level respondents are highest than other level.

#### 4.1.6 Occupational Status

Occupation Refers to the main source 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 following table.

**Table 4.6: Respondents by their Additional Occupations**

<b>Occupation</b>	<b>No. of Households</b>	<b>Percentage</b>
Farming + Service	22	44
Farming + Business	12	24
Farming + Other	9	18
Farming only	7	14
Total	50	100

*Source: Field Survey, 2018*

Above table show the occupation of the respondents. 44 % of the households were involved in Service, 24% in business, 18% in other occupation like labor within the country and abroad whereas 14% household depends only in farming.

#### **4.1.7 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 data of family size in the selected area is presented in the table below.

**Table 4.7: Respondents by Family Size**

<b>Family size</b>	<b>No. of Household</b>	<b>Percentage</b>
1-5	23	46
6-10	25	50
10 above	2	4
Total	50	100

*Source: Field Survey, 2018*

Above table explain the respondents by family size. Data show the 46% respondents have 1 to 5 family members; similarly 50% respondents have 6 to 10 family members, and 4% have more than 10 family members. Majority of respondents have 6-10 family members.

#### 4.1.8 Landholding Status

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 Gajuri Rural Municipality is presented below.

**Table 4.8: Respondents by Landholding Size**

<b>Land Holding Size (Ropani)</b>	<b>No. of Household</b>	<b>Percentage</b>
<3	16	32
3 to 5	24	48
6 to 8	7	14
>8	3	6
Total	50	100

*Source: Field Survey, 2018*

Above table shows the respondents by land holding size. Data shows that 32% have less than 3 Ropani land and 48% have 3 to 5 Ropani. In the same way, 14% have 6 to 8 ropani land, and 6% have more than 8 ropani land. It shows that most of the respondents have 3-5 ropani of land.

#### 4.1.9 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 4.9: Knowledge and Skill of the Farmers for Vegetable Farming**

<b>Having knowledge and skill</b>	<b>No. of Household</b>	<b>Percentage</b>
JTA	5	10
Pest management training	6	12

Pesticides distribution skill	5	10
Nursery, plantation and cultivation skill/ knowledge	34	68
Total	50	100

*Source: Field Survey, 2018*

The above table shows that only 10 % of the respondents got JTA training, 12 % had got pest management training, 10% had pesticides distribution skill and 68 % had nursery and plantation knowledge/skill.

## **4.2 Status and prospect of Vegetable Farming in the Study Area**

The study area Gajuri Rural Municipality of Dhading has a good practice of vegetable farming. Cent percent people of the respondents seems involved in commercial vegetable farming in the study area. 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.

### **4.2.1 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 farming in the study area is presented in the table below.

**Table 4.10: Practice of Vegetable Farming**

<b>Season</b>	<b>No. of Household</b>	<b>Percentage</b>
off season only	32	64
normal season	12	24
Green house	6	12
Total	50	100

*Source: Field Survey, 2018*

The table above shows the vegetable farming season of respondents. Data shows that 64% grow in off season and 24% grow in normal season. Only 12% grow by using greenhouse. It shows that most of the farmer grow vegetable during s normal season.

#### 4.2.2 Situation of the Vegetable Production

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: Situation of vegetable Farming in the Study Area**

<b>Situation of production</b>	<b>No. of Household</b>	<b>Percentage</b>
Increasing	33	66
Decreasing	8	16
Constant	9	18
Total	50	100

*Source: Field Survey, 2018*

Above table shows the situation of vegetable farming in the study area. The data included in the table shows that 66% have increased their production and 16% have decreased their production decreasing .However, 18% of them were found to be constant in their farming. In conclusion, it shows that the situation of farming is in increasing ratio.

#### 4.2.3 Contribution in 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 4.12: Respondents by Annual Income**

<b>Annual income in (000)</b>	<b>No. of Household</b>	<b>Percentage</b>
Less than 25	5	10
25-50	8	16
50-75	10	20
75-100	13	26
More than 100	14	28
Total	50	100

*Source: Field Survey, 2018.*

Above table explains the annual household income of the respondents. Data shows that 10% households earn less than 25 thousand and 16% earn 25-50 thousand. In the same way, 20% earn 50 to 75 thousand and 26% earn 75 thousands to 1 lakh. Highest percentage of the respondents i.e. 28% had household income more than one lakh per year.

#### **4.2.4 Annual Income from Vegetables**

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 4.13: Respondents by Annual Income from Vegetables**

<b>Annual income from vegetable(000)</b>	<b>No. of Household</b>	<b>Percentage</b>
Less than 25	1	2
26-50	15	30
51-75	20	40
76-100	9	18
More than 100	5	10
Total	50	100

Source: Field Survey, 2018.

Above table indicate the annual income of respondents by vegetable. Data shows that 2% earn less than 25 thousand and 30% earn 26 to 50 thousand. In the same way, 40% earn 51 to 75 thousand and 18% earn 76 thousands to 1 lakh. Only 10% earn more than one lakh per year from vegetable farming. It shows the income is very low.

### 4.3 Status and Problems of Vegetable Farming in the Study Area

The respondents are facing the various problems regarding the commercial vegetable farming. In our visit, we found the irrigation problems, capital or financial problems, Transportations problems, technological problems, problems of middle man, place for selling, labor supply problem and problems of supporting agencies etc. In this chapter we are analyzing the major problems of respondents as follow.

#### 4.3.1 Problems Faced by the Respondents in 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 4.14: Problems Faced by Respondents in Vegetable Farming**

<b>Problem</b>	<b>No. of Household</b>	<b>Percentage</b>
Irrigation	11	22
Capital/financial	13	26
Technology	12	24
Marketing/price	9	18
Transportation	5	10
Total	50	100

Source: Field Survey, 2018.

Above table shows the problems faced by farmers regarding vegetable farming. Data shows that 22% faced irrigation problem and 26% faced capital/financial

problem. Similarly, 24% faced technological problems, 18% faced problem of getting reliable price and 10% faced the problem of transportation

### 4.3.2 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 4.15: Source of Labor Supply for Vegetable Cultivation**

Sources	No. of Household	Percentage
Family member's	10	20
Hired labor	31	62
Exchange labor	9	18
Total	50	100

*Source: Field Survey, 2018*

Above table show the sources of labor supply in vegetable farming. Data shows that 20% use family members worked themselves and 62% hired labor from market. Similarly, 18% provide labor by exchange.

### 4.3.3 Status of 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 descriptions of irrigation facility in the study area presented in the table below.

**Table 4.16: Respondents by Status of Irrigation Facility**

Irrigation Facility	No. of Respondents	Percentage
Yes	39	78
No	11	22

Total	50	100
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Source: Field Survey, 2018

The above table shows that the 78% of the farmers had irrigation facility and only 22% of them did not have irrigation facility. It means the majority of the farmers got irrigation facility in their vegetable farming.

#### 4.3.4 Agent of Providing Support

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

**Table 4.17: Agent Providing Support to Respondents**

Agents Providing the Support	No. of Respondents	Percentage
Government sector	11	22
NGO/INGO	21	42
Private sector	10	20
Relatives /friends	8	16
Total	50	100

Source: Field Survey, 2018

The table above shows agents providing support to respondents. Data shows that 22% of the respondents are provided support by government sector, 42% by NGO/INGO sectors, 20% by private sector and 16% by relatives and friend. Most of the respondents seems being supported by NGO/INGO sector.

#### 4.3.5 Place for Selling Vegetable

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 4.18: Respondents by Place for Selling Vegetable**

<b>Where do you sell vegetable</b>	<b>No. of Respondents</b>	<b>Percentage</b>
At own farm	2	4
Local market	5	10
Vegetable collection center	43	86
Total	50	100

*Source: Field Survey, 2018*

Above table show the place where respondents sell the vegetable. Data show that 4% sell from farm and 10% sell from local market. Most of the respondents 86% sale from vegetable collection Centre.

#### 4.3.6 Middle man presence in the commercial vegetable Farming.

In vegetable farming of rural area of Nepal middle man is essential for collecting and transporting the vegetable in market. Kalimati, and balkhu vegetable market is conducted such middleman. But nowadays farmer are cheated by those person regarding the product price.

**Table 4.19: Respondents by: Middle man**

<b>Middle man</b>	<b>No. of Respondents</b>	<b>Percentage</b>
Yes	10	20
No	40	80
Total	50	100

*Source: Field Survey, 2018*

The above table shows that people are denied the presence of middle man. 80% people are rejected the middleman where as only 20% people are accepting the agent. This result shows that middle man is not desired by the respondents. According to our focus group discussion with people, middle man take huge amount of profit than farmer. On the other hand consumer is also paying double price than that of farmer's selling rate.

#### **4.4 Prospects and Problems of Vegetable Farming in the Study Area found from observation and FGD**

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.

##### **4.4.1 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 Gajuri Rural Municipality of Dhading are interested and fully involved in vegetable farming. They have their own prospectives in their farming. The major prospectives of there are presented below:

- i. **Farmers Satisfaction:** It provides the satisfaction to the farmers and serves them as a means of sustaining their life.
- ii. **Availability of th collection centre :** There is some vegetable collection Centre in the village though it may not be feasible for all the farmers.
- iii. **Support:** Government and non-government sectors have supported in vegetable farming in the study area.
- iv. **Interest of farmers:** People show interest in commercial vegetable farming.
- v. **Source of income generation:** It became the main income source of income generation for the village.
- vi. **Future oriented:** The farmers are found to see long term future in their farming.
- vii. **Farming as major occupation:** They have taken vegetable farming as the major occupation.

#### 4.4.2 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:

- i. **Slope land:** Some part of the land in the study area are not plane so it is impossible to use tractor as a result of which, the production cost is high in the study area.
- ii. **Irrigation problem:** There is lack of irrigation in some area. So it is possible to cultivate vegetable only in rainy season.
- iii. **Irrational use of Fertilizers and pesticides:** Fertilizers and pesticides are used excessively in the study area because they think that without using them it is impossible for commercial vegetable cultivation.
- iv. **Labor cost:** Labor cost is high so production cost is also high therefore it is difficult to refund cost.
- v. **Lack of Education:** Lack of education 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.
- vi. **Financial Problem:** 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.
- vii. **Marketing Problem:** 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 of market availability of terai vegetable whose production cost is low. At that time most of the farmers face major loss.

## **CHAPTER V**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Summary**

The study “Problems and Prospects of Vegetable Farming in Rural Area of Nepal “A Case Study of Gajuri Rural Municipality Dhading District” focused on role of vegetable farming in socio economic status of farmers. The general objective of the study was to examine and analyze the problems and prospects of vegetables farming in the study area. The specific objectives was to identify the socio-economic characteristics of the respondents, to analyze the status of commercial vegetable farming in the study area, to examine the role of vegetable farming in the income generation, to analyze problems faced by the farmers and to analyze the perspects of vegetables farming in the study area.

Exploratory as well as descriptive research design was used to conduct the study. Structured questionnaire, focus group discussion and observation were used for collecting data from the selected households. 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.

Based on the study it can be said that vegetable production is now slowly getting into commercial phase rather than other agriculture sector. 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.

## **5.2 Conclusions**

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. Cent percent farmers of Gajuri Rural Municipality were involved in commercial vegetable farming. The labors for farming were supplied by hiring to the great extent. Most of the vegetable were farmed in off season. According to 66 % respondents the trend of vegetables production is increasing.

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 51 to 75 thousands rupees annually from their farming. Farming has helped them to sustain their life as well as to save few amounts for future as well.

Regarding the problems and prospects of vegetable farming, the study concludes that financial and technological problems were major problems. Besides those the marketing, price, transportation and irrigation problems were other problems faced by the farmers. Similarly, lack of plain land, excessive use of fertilizers and pesticides, labor cost, etc were more common problems. Still the farmers are getting satisfaction from their farming. They had the facility of collection center, support of government and non-governmental agencies. The main important thing is that the farmers have 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 Implications**

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. The trend of using chemical fertilizer and pesticides has increased tremendously since 8-10 years so the production has also increased. Mainly they are using chemical fertilizer and pesticides on potato, zinger, akabare, tomato, banda, cauliflower. It has brought

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 of commercialized vegetable farming so that 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 (Rural municipality) 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.
- 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 by 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 Gajuri Rural Municipality. 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.

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**PART II: Questions Related to Contribution of Commercial Vegetable Farming  
in Income Generation of the Farmers:**

- 1. How much your total annual income?**
  - a) Less than 25 thousands
  - b) 26 to 50 thousands
  - c) 51 to 75 thousands
  - d) 76 thousands to 1 Lakh
  - e) More than 1 Lakh
- 2. How much money do you earn from your vegetable farming? (yearly)**
  - a) Less than 25 thousands
  - b) 26 to 50 thousands
  - c) 51 to 75 thousands
  - d) 75 thousands to 1 Lakh
  - e) More than 1 Lakh
- 3. From 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
- 4. Have you ever got training opportunity for vegetable farming/cultivation?**
  - a) Yes
  - b. No

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



**ANNEX II**  
**CHECKLIST FOR OBSERVATION**

1. Practice of Nursery in vegetables farming
2. Plantation and Cultivation Practices
3. Irrigation Facility
4. Use of Advanced Technology
5. Pesticides and Fertilizers Using Practices
6. Availability of Cold Storage Facilities
7. Quality of Seeds, fertilizers and other supplies needed in vegetables farming
8. Availability of Markets
9. Support system of farmers

## **ANNEX III**

### **CHECKLIST FOR FGD**

#### **Prospects and Problem of Vegetable Farming in Rural Area of Nepal**

##### **(A thesis conducted in Gajuri Rural Municipality, Dhading)**

1. Why are you interested in vegetable farming?
2. How much amount of money do you spend for vegetable in a year?
3. Do you have profit from vegetable farming? If so, can 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 generation?

Thank you for Participation.

(The end)