

CHAPTER – I

INTRODUCTION

1.1 Background of the Study

The history of mankind shows that men learnt to domesticate animals from the very early stage of civilization. Many theories have been put forward in attempt to explain the beginning of the domestication of animals. Some believe that domestication was practiced to satisfy the need of man. Others believe that animals were first domesticated for use as sacrifice. Farmer has been adopting livestock farming for milk, meat and manure for agricultural activities. Livestock farming carried on for the purpose of milk and its product is called dairy farming. Dairy farming has been an important aspect of livestock farming carried in our country. Animal husbandry and crop rising have been two important interdependent components in most of the countries. This view is based on evidences collected from excavation of the world, which show that animal husbandry and agriculture went together in early Neolithic sites. (Zeuner, 1963)

Dairy farming has been carried out for thousands of years. Historically it has been one part of small, diverse farms. In the last century or so larger farms doing only dairy production has emerged. Large scale dairy farming is only viable where either a large amount of milk is required for production of more durable dairy products such as cheese, butter, etc. or there is a substantial market of people with cash to buy milk, but no cows of their own. (http://en.wikipedia.org/wiki/Dairy_farming)

Dairy farming is a class of agriculture, where female cattle, goats, or other mammals are raised for their milk, which may be either processed on-site or transported to a dairy for processing and eventual retail sale.

In most Western countries, a centralized dairy facility processes milk and dairy products, such as cream, butter, and cheese. In the United States, these dairies are usually local companies, while in the southern hemisphere facilities may be run by very large nationwide or trans-national corporations (such as Fonterra).

Dairy farms generally sell the male calves borne by their mothers for veal meat, as dairy breeds are not normally satisfactory for commercial beef production.

Many dairy farms also grow their own feed, typically including corn, alfalfa, and hay. This is fed directly to the cows, or stored as silage for use during the winter season. Additional dietary supplements are added to the feed to improve milk production. (http://en.wikipedia.org/wiki/Dairy_farming)

Nepal is small landlocked hilly country, situated between China and India. Its area is about 147 thousand sq. km. Geographically Nepal is divided into three regions the Himalayan region, the Mountains/Hills region and the Terai region. 75% of the land area is covered by hill and mountain. The Himalayan region is mainly characterized by limited cultivable lands along with forests. Politically the country is divided into 14 Zone and 75 districts. In Nepal, the economy is dominated by agriculture. In the late 1980s, it was the livelihood for the more than 90% of the population, although only approximately 20% of the total land area was cultivable, it accounted for, on average, about 60% of the GDP and approximately 75% of exports. According to statistical information on Nepalese agriculture (2008/2009) only 65.6 % of people depend on agriculture and 21% of land is cultivated whereas 6.99% of land is uncultivated. (LRMP, 1996)

Economically Nepal is one of the poor and underdeveloped countries of the world. Most parts of its land are still in rural stage. Different type of rugged rural features dominates our country. The lack of transportation, communication and other modern facilities of life are the common phenomena. Absolute majority of the people of the country still depend on traditional profession of agriculture. Livestock keeping is considered as the second important profession followed by the most of farmers.

Livestock Farming is one of the significant components of Nepalese agriculture. It has been taken as the second important economic activity. Manure from livestock is valued for crop productivity. Livestock is fed from crop residues, grass in farm etc. About 30.0% of GDP is contributed by livestock. Livestock also plays an important role in gross income of rural households.

Buffaloes, cows and yak (female yak) are the main domesticated dairy animals. In high hills yaks are the major domesticated species. Buffaloes and cows are found in Terai as in hilly region. According to livestock statistic published by ASD in 1996 the total heads of cattle and buffaloes were 7.00842 and 3.3022millions respectively. Only 11.1% of total cows were milkable. The number of improved breeds of cows and buffaloes kept by people is increasing more and more. It has been realized that the promotion of dairy farming is one of the effective measures of improving the household economy of the majority of farmers of the country. It also helps to improve people's health. But the lack of efficient and regular market to sell milk and milk products at high remunerative price has been the factor hindering the promoting of dairy farming in the country. (Dhakal, 1999)

The present study is concerned with the commercial dairy farming of Pithuwa-3 Village Development committee of Chitwan District. Among the 36 VDCs, Pithuwa is one of the popular VDC of Chitwan district. There are also some indigenous communities, various ethnic group which co-relate their individual values and cultures like Tharus and Darais. It is one of the most beautiful places of the Eastern Chitwan. The people inhabiting Pithuwa VDC are predominantly peasant farmers cultivating mainly food and cash crops such as rice, maize, wheat, beans, lentils, mustard and vegetables. This village is also famous for banana farming, poultry farming, dairy farming and bee keeping. The economy of the VDC is based on agriculture and dairy farming. The total area of Pithuwa VDC is 13.8 km². Pithuwa is located west to the Kayer River, East and North to Ratnanagar Municipality and South to Jutpani VDC. (<http://pithuwa.info/>)

This district has lots of rural areas that can be developed as best destination for farmer who wants to keep commercially livestock. Among those beautiful and highly potential area for commercial dairy farming Pithuwa VDC, Pithuwa -3 area is one of them. The total population of the Pithuwa VDC-3 is 2063 where as 929 male and 1134 female. The total number of household is 468 in Pithuwa VDC-3. The VDC is well known for dairy farming in Chitwan district. Different breed of cows, buffaloes and calves could be seen very often. Six milk collection centers are available in whole Pithuwa VDC. Only one milk collection center is available in Pithuwa-3 VDC, which center collects 1,800 liters of milk daily.

It is observed that out of the total production of milk in the VDC, most of the amount is supplied from improved breed of cows. The general condition of the natural environment of this VDC is favorable for the promotion of dairy farming. Having the facility of green grass and leaves for fodder, has been one of the most effective facilities available in the VDC for dairy farming. Besides, there is milk collection center which is providing Dana/ Chokkar.

1.2 Statement of the problem

Agriculture is very important for developing countries like Nepal. Most of the people depend in agriculture occupation, which has large impact on economic level of country. The diverse climatic condition of Nepal has huge potentiality of different types of farming. Almost all the districts have practiced different type of farming among which Chitwan district is suitable for it due to its plain land infrastructure, access of feeding materials (Green grass, Crop residue and dana chokker).

Pithuwa which is one of the biggest VDC of Chitwan district has practiced dairy farming due to all these facilities. Most of the people are based on agriculture and dairy farming in this village. They kept cow and buffalo for various propose like; milk, money, to cultivate land and dung. But they don't know how to commercialize dairy farm. Because they have not got well training and opportunity towards it, that's why they kept livestock by using indigenous knowledge. Their people have lots of enthusiasm for work but they have not good skill or knowledge. That why there is big problem in dairy farming to commercialize. However, one of the important visible problems is dairy farmers are not getting right price of milk. Commercial dairy farming is easy in this VDC because of its easy transportation, information technology, due to large number of labor available in village, fertile land and also indigenous knowledge of local people.

There are still lots of work to be done to promote this sector of agriculture. Pithuwa VDC-3 is an encouraging VDC of chitwan District. Farmer in this VDC is gradually attracted towards this sector of agriculture, but it is carried on mostly in traditional ways. Improvements in different aspects of dairy farming are required to be done. There are lots of problems being faced by the people attracted to this occupation.

-) Have they got any training opportunity in this industry?
-) How many milk chillers center and milk collection center does this study area contain?
-) Do these commercial dairy farming proves themselves as true helper to the people?
-) Are people engaged in other activities besides milk producing?
-) How many dairy animals each household containing?
-) What is your average monthly income from this field?
-) Is milk price is reasonable?
-) How is the veterinary service in there?
-) Among two, local breed and improved breed which is more preferred?
-) Besides milking these livestock are there any other benefits from them?
-) What are the problems and prospects of this industry?
-) Who is the responsible to develop this sector as commercialized?

These are the questions that are to be answered during my study. This present study is conducted to reveals the potentialities of commercial dairy farming in this VDC and analyzing problems related to it.

1.3 Objectives of the study

The general objective of the study is to analyze the problems and perspects of commercial dairy farming in Pithuwa-3 VDC. Followings are the specific objectives of the present study:

- i. To analyze the present status of infrastructure of dairy farming in study area.
- ii. To analyze the impact of the dairy farming in study area.
- iii. To examine the problems and prospects of commercial dairy farming in the study area.

1.4 Significance of the study

Dairy farming has been playing important role in the socio-economic life of rural people. In spite of the significance of dairy farming, only few studies have been made to evaluate the role of village livestock farming in rural economy. Lack of essential information has made it difficult for maker and researcher to set priorities for livestock development.

Nepalese economy is based on agriculture and livestock, agriculture contribute 55% of the GDP of the country, whereas livestock contribute 30%; so the livestock is also a major component of national economy. Scientific plan should be chalked and implemented for its promotion and development. The arts of rearing dairy animals has still been the matter of complement to agriculture and side occupation of rural families of course institutionalization and commercialization of this sector of agriculture have been done only at a negligible scale. The price of milk to be received by the producers is one of the basic factors of dairy farming. The rate of present price of milk paid to the producers is less remunerative. They do not find the rearing of dairy animals profitable. They are not encouraged to promote it. (MoF, 1995)

This study is significant because agriculture and livestock farming has given top priority in any five years plan and annual budget of the government. The tenth plan also aimed to expand the market of agriculture product. One of the sources of farmers is livestock farming. Thus to achieve the objectives of tenth plan regarding agriculture and livestock production, it is necessary to know about the problems and prospects of livestock farmers. The present study has aimed to discuss about the current status of infrastructure of dairy farming in study area. This study may useful to understand the livestock situation and problem they are facing. Poverty reduction is the main objectives of the tenth plan. To achieve the target of current plan individuals, policy makers, local government and other related institutions should be conscious about the situation.

The importance of this study will light out the prospect, problem and role of commercial dairy farming in rural economy of Pithuwa-3 VDC. The study will focuses on the suggestion for the development of dairy farming in Pithuwa VDC. The

planners, policy makers and organization (NGOs, INGOs and Government) may be also benefit in policy formulation.

1.5 Limitation of the Study

Each and every study has its own limitation. This study has also some limitation. This present study has been based on limited people of Pithuwa-3 VDC of Chitwan district. So this study was covered only single village development committee. And the generalization may not valid to other villages of the country. The unit of sampling adopted in this study is very small. The sampling of gathering data from the household is by using the simple random sampling. The sampling unit does not cover all the population and number of dairy farming. The study has been intensive rather than extensive.

1.6 Organization of the Study

The study has been divided into five chapters. The first chapter presents the introduction, statement of the problem, objectives, significance and limitation. The second chapter is related to the review of related literature. The third chapter presents about the methodology adopted while collecting data. Likewise, Fourth chapter deals about the overview of the study area, analysis and interpretation of Survey data and also examine the problems and prospects of commercial dairy farming. The fifth chapter is related to the conclusion part of the study. It contains the summary, findings and suggestions.

CHAPTER – II

LITERATURE REVIEW

Literature review is important to conduct any research work , so for this study different available books, journals, previous research works, reports, articles, plan & policies, other published / unpublished documents related with the subject will be reviewed.

2.1 Conceptual Review on Dairy Farming

A dairy is a business enterprise established for the harvesting or processing (or both) of animal milk – mostly from cows or goats, but also from buffaloes, sheep, horses, or camels – for human consumption. A dairy is typically located on a dedicated dairy farm or in a section of a multi-purpose farm (mixed farm) that is concerned with the harvesting of milk.

Terminology differs between countries. For example, in the United States, the entire dairy farm is commonly called a "dairy." The building or farm area where milk is harvested from the cow is often called a "milking parlor" or "parlor." The farm area where milk is stored in bulk tanks is known as the farm's "milk house." Milk is then hauled (usually by truck) to a "dairy plant," also referred to as a "dairy", where raw milk is further processed and prepared for commercial sale of dairy products. In New Zealand, farm areas for milk harvesting are also called "milking parlours", and are historically known as "milking sheds." As in the United States, sometimes milking sheds are referred to by their type, such as "herring bone shed" or "pit parlour". Parlour design has evolved from simple barns or sheds to large rotary structures in which the workflow (throughput of cows) is very efficiently handled. In some countries, especially those with small numbers of animals being milked, the farm may perform the functions of a dairy plant, processing their own milk into salable dairy products, such as butter, cheese, or yogurt. This on-site processing is a traditional method of producing specialist milk products, common in Europe.

In the United States a dairy can also be a place that processes, distributes and sells dairy products, or a room, building or establishment where milk is stored and processed into milk products, such as butter or cheese. In New Zealand English the

singular use of the word dairy almost exclusively refers to a corner shop, or superette. This usage is historical as such shops were a common place for the public to buy milk products.

As an attributive, the word dairy refers to milk-based products, derivatives and processes, and the animals and workers involved in their production: for example dairy cattle, dairy goat. A dairy farm produces milk and a dairy factory processes it into a variety of dairy products. These establishments constitute the global dairy industry, a component of the food industry. (<https://en.wikipedia.org/wiki/Dairy>)

Though Animal husbandry includes the feeding, management and breeding of domesticated animals it is not a single entity but a combination of several disciplines (Nutrition, physiology, behavior, and genetics) interacting with and equally dependent on Agriculture Technology, Agriculture Economics, Agriculture Engineering and Human cultural and social phenomena. The interdependency of crop enterprise and livestock production is as age old recognition and the same is evidenced by the livestock providing motive power and manures the basic infrastructure for crop enterprise. The livestock is benefited by agricultural products and by products of the farms. (Gopala, and Lal, 1985)

Malla(2062) opinions that livestock play key roles in many farming systems; indeed in principal complexity of agriculture has to do with the type of animal raised and with the relative emphasis giving to food crops and feed crops. And a veterinary practitioner with ides can alter the economic and health aspect of rural community blighted by animal disease. (Malla, 2062)

Livestock are animals which are kept on a farm for productive purposes. These may mean the sale of meat, meat, eggs or wool or may concern the use of these stock products at home. In addition to these saleable commodities, other products such as hides, manure, draught and social prestige can be included when livestock are kept for home use.

Since livestock are kept for their product are kept for their products, good husbandry demands that they are cared for in such a manner that they will produce to the highest possible level with the management available. This means that the housing

and feeds should be these which will provide for optimum production. As long as the needs of the animals are met, these need not be lavish nor extensive as excess will increase the costs of production and may, in fact, be counter-productive. For example; feeding a dairy cow so much that it becomes fat does not make economic sense and is neither good for the cow nor its productivity.

Production will also be affected by the interactions of the animals with their stockman. It has been shown that dairy cows give more milk, pigs grow faster and chickens produce more eggs and meat when they are managed by good stockmen who take the time to work with and observe the animals and who really like the animals with which they work.

In addition to his desire to make his stock easier to handle through his management techniques the husbandman must always bear in mind that he has a responsibility to the animals. These animals are confined, so it is his responsibility to provide all their needs including suitable housing, clean, fresh feed in adequate amounts, clean, fresh water in clean containers and freedom from disturbing outside influences and predation. Today's domestic livestock are very different from their wild area counterparts and because of selective breeding by farmers are often unable to exist without human care. Since man has created this dependence. It is his responsibility to care properly for his stock. In some instances, such care may in itself be distressful for instance. Calves are castrated to reduce injuries from fighting. Chickens are dubbed to stop other birds from pecking at their combs and pigs are docked to prevent other pigs from biting them. These operations are distressful but less than the consequences if they are not carried out. (Nitt, 1983)

2.1.1 Milk Marketing and Market Structure

The market structure for dairy products may be separated into three segments: the rural or informal component, the urban or formal component, and the export market component. The rural component of dairy marketing comprises the over 90% of farm households with dairy animals where most of the milk produced is consumed within the households either in the form of fresh milk (usually boiled) or in the form of traditional dairy products. Some products are traded directly with consumers (raw milk) or through traditional collecting agents for consumption in urban areas or export to India. In the urban component of dairy marketing, most of the dairy products

consumed in households and at restaurants and hotels are purchased from rural producers through several market networks. Milk-marketing agents include both private dairies and Dairy Development Cooperation (DDC) supported outlets. In some smaller cities, some households may also produce, consume, and sell dairy products. Fresh and pasteurized milk, yoghurt, cream, butter, ghee, cheese, and ice-cream are the main products of both the private and the public dairy industries.

The dairy product of the DDC market is growing. Some high-value products like dried milk, cheese, and ice cream are also imported for sale in addition to the locally produced dairy products.

2.1.2 The Public Sector

The DDC was established in July 1969 under the Corporation Act of 1964 to consolidate formal dairy development activities. A network of milk collection and chilling centers was established that feed into 'milk supply schemes' (MSS) to form the so-called national milk grid. Currently there are five MSSs, in Kathmandu, Biratnagar, Hetauda, Pokhara, and Lunbani, and a cheese production scheme under the Dairy Product Production and Marketing Scheme.

Milk Producer Associations (MPAs) manage the milk collection centers and have expanded their operations in recent years. The DDC supports the MPAs with management and accounting assistance. A fixed commission is also provided to MPAs on the basis of the solid content of the milk they supply to the chilling centers. The commission covers not only the marketing cost involved in the collection and transport of milk, but also the overheads for the operations of their cooperative institutions.

Pasteurized milk is sold in half-liter plastic packs. Milk is distributed by truck to milk booths and shops, and most sales take place in the morning. The booths are privately operated and receive a commission from the DDC, while the shops are owned and operated by the DDC itself. As of 1998, there were 400 booths, 11 shops, and 2 dealers operating under the DDC.

There are currently 12 cheese production centers (of which 6 are located in the high mountains) operating in different parts of the country. These cheese production centers collect milk from the network of 25 milk producer cooperative associations.

2.1.3 Private Dairies

Many large and small dairies have been established in the private sector. The Nepal Dairy was the first dairy established in Kathmandu, followed by the Himalayan Dairy of Lalitpur. Currently, the Sita Ram Gokul Dairy in Kathmandu has the biggest milk processing facility (100,000 l/day) among the private dairies. Most of the private dairies are situated in the CDR and clustered in and around Kathmandu. Notable private dairies outside Kathmandu are the Namo in Dharan, the Ram Janaki in Janakpur, the Jai Ganesh in Chitwan, the Pan/Panthi in Pokhara, the Pandav- Pabitra in Butwal, the Gurudev in Nepalganj, and the Western Himalayan Dairy near Mahendranagar. The processing facilities and working conditions in these private dairies vary widely from simple cream separator dairies to well-established dairies with a collection network and processing facilities. Cheese industries have also been established in the private sector.

The private dairies have distribution and sales systems similar to those of the DDC, with booths located in urban areas as well as direct sales from their plants. Some dairies compete with the DDC on milk routes and secure quality milk paying a premium price. The small private dairies pay contractors to collect their milk and some have their own dairy farms. It is believed that about 35% of the market share is controlled by private dairies.

2.1.4 Policy Issues and Implication for Dairy Farming

There has been no clear long-term policy or concerted effort on the part of the government to perceive the dairy sub-sector as potentially rich in its comparative advantage to transform the rural economy. Existing policies and programmes are weak in addressing the number of problems faced by smallholder dairy farmers in different ecological settings.

Given the inability of the formal dairy organization to handle the surplus milk during the flush season, the milk holiday is becoming an annual phenomenon for a large majority of smallholder dairy farmers and will continue to be so in the future unless timely measures are taken to formulate and implement both short and long-term plans and policies. The problem is compounded by weakness in existing national dairy policy that keeps the producer price of milk constant across the seasons while at the

same time allowing the import of cheap skimmed milk powder. Under the existing DDC-dominated price structure, there is little scope for adjusting market price according to seasonal fluctuations in price and consumption. Policy failure arises from the fact that while farmers are facing regular milk holidays consumers have not found the milk available in the market whenever they want to buy. This paradox suggest that there is a need for a substantial shift in policy and priority towards diversification of dairy products, through a strong marketing strategy together with quality improvement.

The DDC has been operating at a loss. Restructuring the operation and function of the DDC with a view to making it a self-sustaining institution will have far- reaching implications for sustained improvement in the dairy sector. Success will also depend strongly on how well the government can mobilize the National Dairy Development Board (NDDDB) to provide strategic direction to HMGN for planning, implementation, monitoring, and evaluation in the area of dairy development, thereby increasing the participation of the private sector and smallholders.

Dairy development should be an integral part of mountain community development. The national interest has always been guided by political interest in terms of where DDC coverage is increased, with little or no attention paid to the development of a minimum complementary infrastructure such as road and other support and input services that are important for sustained dairy development.

Currently, there is no established mechanism for monitoring and evaluating the milk producer cooperatives operating in different parts of the country. Such a system would have important implications for restructuring towards their sustainability.

In the past, most of the animal breeding development programmes have been supply driven with no attention being paid to the farmer's requirements from dairy development. Because the present area of rangeland is inadequate to meet the feed demand of the increasing livestock population, sustained improvement in dairy development will require a greater use of high- quality forage and purchased concentrates along with improve grassland. More emphasis on the farming of buffalo and crossbred cattle is also required.

The supply-and-demand projections based on the current state of technology and infrastructure have shown that the country is likely to experience a net deficit in milk supply in the future. The implication of a deficit in milk supply over the projected period is clear.

On the supply side, there is a need to increase the participation of a large number of smallholder dairy farmers in the formal market. To achieve this, restrictive policies and regulations must be relaxed. Also, measures need to be taken to reduce high transaction costs due to poor infrastructure and information systems and a poorly developed market for inputs and outputs. On the demand side, diversification of dairy products with emphasis on quality and a strong marketing drive will be important, along with proper analysis of consumer demand for dairy products. (Sharma, and Banskota, 2015)

2.2 Empirical Review on Dairy Farming

With the financial support of UK's Development for International Development (DFID), Practical Action Consulting (PAC) of Nepal has been implemented the dairy component of Market Access for Smallholder Farmers (MASF) in 30 village development committee (VDC) and municipalities of four districts of Nepal- Chitwan, Tanahu, Gorkha and Dhading. The objective of two-year project is to reduce poverty of smallholder farmers in Nepal through improving the incomes of 10,000 smallholders' dairy farmers.

One of the MASF project site is Panchayan Dairy Cooperative in Pithuwa VDC. At the dairy resource center, the cooperative had kept dairy cow and calves of different breeds. The calves were bred there and cow were milked twice a day and sent to the cooperative's own chilling station. The chilling station and milk collection centre services the surrounding villages. Not only was the cooperative able to collect and chill the milk but they had also installed a feed mill where they made high-quality feed for cows. It was really impressive to see how the project has helped the cooperative members. Panchayan Dairy cooperative is truly an example-setting dairy cooperative that shows the success of MASF project in Nepal. (Tamang, 2012)

The ecology of any area carries a special significance of the development of area itself. Different rural areas have different potentialities for the development of

economic activities. Economic activities based on local resources are highly sustainable and beneficial for the economic employment of the rural communities. The promotion and development of animal husbandry can be regarded as highly valuable economic activity for rural areas. A farmer in a rural area gets work only 4 to 5 months in a year, in his/her farming activities. Most of the farmers in our country do not get work for all the year round. They consume a substantial part of what they produce and most of them would have very little agricultural product remaining to sell. Generally, they cannot maintain their families from their agricultural occupation. Besides food crop cultivating system of Nepalese agriculture, other branches of agriculture like animal husbandry, dairy farming should be developed. Rearing cattle and other animals has been common feature of Nepalese agriculture. They are kept for organic manure, milk, meat for domestic consumption. Commercialization of animal husbandry has still been matter if future; but in some have great potentialities of developed in commercial line. Different parts of the country have great potentialities of development of dairy farming. The proper development of dairy products is required for the country in improving the economic condition of rural people. (Dhakal, 1999)

The demand for the dairy product in the country is increasing along with the rapid growth of population. Thus, the market for dairy product is considerable in the country. It is the time to think of the development of dairy farming in different part of the country. The development of this sector of economy should be started in a planned way. HMG should work in developing infrastructural and institutional facilities and encouraging people in adopting dairy farming.

To sustain and improve the dairy processing industry in Nepal, it must become competitive in terms of cost production and quality. Trained manpower should be available in the private sector; raw milk pricing should be based on the quality and fixed by a free market system with little intervention from the government. Extension Services should be backed up with more research and animals and product quality. Government policy should encourage the private sector to diversity the products in collaboration with or in joint venture while the external partners from the developed countries to explore market using their brains name and diversity their products. (Silwal, 2009)

The livestock sector strategy under the APP emphasized milk and meat production as it had assumed these outputs to be largely demand-driven in line with increasing population and growing income status of the people. The government has recognized these products as having import substitution potential. According to Agriculture Ministry spokesperson Hari Dahal “However, adversely, livestock production slipped although the population rate and the income status of the people went up.” (<http://www.ekantipur.com>)

According to Ministry records (2010), there are 7.2 million cattle contributing to the total dairy production. Of the total milk production, cow milk accounts for 13 percent while buffaloes contributing 26%. Annual milk production in the country is 1.49 million tons of which cows contribute 430,000 tons and buffaloes contribute the rest. The second three-year interim plan (2010-11 to 2012-13) has targeted an agriculture growth rate of 3.9%. The plan aims to increase dairy production to 1.77 million tons and meat to 287,000 tons. (<http://www.ekantipur.com>)

According to Cow farm of Dolakha, Nepal (2011) the Kalinchowk Cow Farm (P) Limited is in the process of developing an integrated organic cow farm in Bonch Village Development Committee (VDC) of the Dolakha district. The farm is one of the largest cattle farms in Asia. The farm is under construction. This farm will be a landmark project in the history of Nepal’s agriculture development. The company has the main objective of producing at least 150,000 lit. of milk daily by farming 10,000 hybrid cows. It aims to plant fodders and develop a pasture in an area of 2,000 hectares. Despite being an agricultural country, Nepal is facing a shortage of about 400,000 liter of milk daily. As per the government’s reports, the country imports milk and dairy-based products worth billions of rupees every year. In addition to this, the country imports meat items and seeds amounting to hundreds of thousands of rupees annually. Commercialization of the agriculture sector and the increase in its production and productivity could be a solution to this problem. Promotion of organic farming and integrated agriculture development may alone address the problem of food insecurity in the country. This company has envisaged the goal that is in line with Nepal’s 20-year Agriculture Perspective Plan and the ongoing campaign for socio- economic transformation of the Federal Democratic Republic Nepal.

Department of Livestock services under the ministry of Agriculture and co-operative of HMG/N aims in developing the livestock sector by diversification and commercialization as an income generating and prosperous farming. The objectives of DLS in dairy sector include increasing production of milk, assisting in quality improvement of milk, helping in market identification and management, encouraging livestock based industries and developing human resource in the sector. In Nepal, women are actively involved in livestock production. Fodder collection, grazing and milking are generally performed by both women and man, whereas activities like feed preparation, feeding, cleaning sheds and preparing milk products are women's domain ([www.cowfarmof Dolakha,nepal](http://www.cowfarmofDolakha,nepal))

Buffalo has been an integral an integral part of livestock agriculture in Asia for over 5000 years producing draft power milk meat and hides. Even today this animal proved to be economically significant to small and landless rural poor (Dhakal, 1999)

Budhathoki, M (2007) opinions that the livestock sector is very complex with many crosscutting issues interrelationship with other sectors; it is a very important part of the agriculture sector and key role to play in the country's development and poverty reduction. He mention the Tenth Year Dairy Development Plan (Type DP) 1990-2000 progress that the DDC set its own price for milk based on commercial considerations, this has not yet materialized. Although the DDC has been responsible for formulating and executing pricing policy in practice it has to obtain government approval before implementing any price change.

The National Co-operative Development Board (NCDB) was contributed from the National co-operative Development Board Act, 1992. The Board's role is to promote and develop co-operatives. Developing countries have been facing other major problems like economic impact of WTO agreement on the dairy sector. (Budhathoki, 2007)

After the review of different literature it can be conclude that dairy farming is good opportunity to uplift of economic status and one of the major occupations that can contribute to the economic development of the nation. As from the reviewed literature conceptual background of the dairy farming, history, milk marketing and market structure, policy issues and implication for dairy farming can be known. Beside,

information relating dairy farming trend and current status can be studied. Thus, Nepal which has very large amount of labor unemployment and under employment will find commercial dairy farming an attraction. Moreover the problem of periodical unemployment will also get mitigated because of the commercialization of the farming their safe keeping and feeding style resulting in the requirement of the relatively high labor input agriculture farming is increasingly becoming popular and non organic farms could turn into organic farm. Protect of soil fertility, increased organic farming and the resulting benefits to all human and living things is possible through commercialization of dairy farming

CHAPTER - III

RESEARCH METHODOLOGY

3.1 Research Design

To achieve the objectives of this study, different research methodologies have been used. This study had carried out mostly on the basis of descriptive research design as the study was done focusing on present status of infrastructure of dairy farming and skill and knowledge towards the commercialization of dairy farming in the study area. The study had also carried out to exploratory research design to find out the problems and prospects of dairy farming in study area. This study categorized as both descriptive and exploratory research design.

3.2 Rationale of the selection of the study area

The proposed site for this study is Pithuwa-3 Village Development Committee. It is situated in Chitwan District. The study area is at the easily accessible distance and is cost benefit. Agriculture has been the main occupation of rural people. However, for the last two decades the growth of dairy farming is below satisfactory level. In-addition, it can assist in the improvement of rural economy. Furthermore, Pithuwa-3 VDC has high potentiality of dairy farming development.

Few families have started commercial dairy farming. This is the primary reason for selection of the proposed site. The study had helped to find out the problem, prospect and importance of commercial dairy farming.

3.3 Nature and sources of data

The nature of data for the study is qualitative and quantitative. The collected data are both qualitative and quantitative. Both primary and secondary data sources are used to examine and analyze the study area. The study is mainly based on primary data. The primary data have been collected through structured questionnaire. Interview and direct apparition also have been applied to collect primary data, whereas secondary data has

been collected from milk collection center, books, report, newspaper, Central Bureau of Statistics (CBS), District Development Committee (DDC). Data collected are both in qualitative and quantitative nature as needed. Qualitative data like photos, observation and interview were collected and quantitative data like number of commercial dairy farmer, socio-economic impact related data etc. also have been collected.

3.4 Population, Sampling Procedure

It is not possible to interview all the households of the village. So data are collected under sample survey. The procedure of gathering data from the household is by using the random sampling first of all, Name and address of the dairy farmer's data are collected from dairy. According to the Pithuwa Milk Product Co-operative Ltd information 166 households being engaged in non commercial dairy farming, 28 household being engaged in commercial dairy farming and there are 6 milk collection center available. The total number of household is 468 in Pithuwa VDC-3. Fifty households (30%) taken out of the one hundred sixty six households engaged in non commercial dairy farming another fourteen households (50%) taken out of the twenty eight households engaged commercial dairy farming in the village are chosen by using simple random sampling in this study. Six dairy's staff has been selected for purpose of the study.

3.5 Data Collection Techniques and Tools

To collect primary data, the structured questionnaire, semi or unstructured, interviews and observation methods has been applied.

3.5.1 Household Survey

To generate accurate and realistic data structured questionnaire was prepared to be asked to fill up by local people, where as those respondents who are unable to fill up the questionnaire, the question were asked to the respondents and the answer were filled up to collect the required information. The format of the questionnaire is in annex1.

3.5.2 Key Informant Interview

The primary data was also collected from the key informants using the semi or unstructured questionnaire interview method on the basis of prepared checklist. Information was being collected from key informant interview with six staff of different milk collection centers. Information related to role played by dairy co-operatives in development of by improving the social economic condition of rural farmers was collected by this method. It has also helped to examine the problems and potentialities of commercial dairy farming in study. The format of the questionnaire is in annex 2.

3.5.3 Observation

Observation approach was used to observe the real scenario of the local life which helped the research to understand the socio- economic gap prevailing in the study areas. Commercial and non commercial dairy farm had observed or visited for trace out overall condition of their available road and shed, sanitation management of shed, waste management of livestock and store system of milk. For that check list method has been used. The format of the check list is in annex 3.

3.6 Method of Data Analysis

Data collected have been analyzed with the help of computer program, where simple statistical tools like table, graphs, have been used for data analysis and Descriptive methods has been used for qualitative data.

CHAPTER- IV

PRESENTATION AND INTERPRETATION OF SURVEY DATA

The collected data and information were edited, categorized and chaptered in the presentable form (Tabular, Figure and Graph) and such edited to interpretation the chapter has been organized as:

4.1 General background of the study area

4.2 Status of Dairy Farming infrastructure

4.3 Impact of Dairy Farming on Social-Economic Conditions

4.4 Problems and Prospects of Commercial Dairy Farming in Pithuwa VDC-3

4.1 General background of the study area

The Chitwan District is one of 75 Districts of Nepal and is located in the southwestern part of Narayani Zone with Bharatpur the fifth largest city of Nepal, as its district headquarters. It covers an area of 2,218 km² (856 sq. mi), and in 2011 had a population of 579,984 (279,087 male and 300,897 female) people. Bharatpur is a commercial and service Centre of central south Nepal and merger destination for higher education, health care and transportation of the region.

The district takes its name from the Chitwan Valley one of Nepal's Inner Tarai valleys between the Mahabharat and Siwalik ranges, both considered foothills of the Himalayas.

Bharatpur is located on the banks of the Narayani River, and is the main town with numerous shopping zones where people come from all over the district and neighboring districts.

Now there are about 36 Village Development Committees, each of which has nine wards or villages and one sub-Metropolitan city, Bharatpur. The Ratnanagar, Khairhani and Chitwan municipalities have more than nine wards or urban areas.

Chitwan is one of the few remaining undisturbed vestiges of the Tarai region, which formerly extended over the foothills of Nepal.

Pithuwa is the most developed village development committee in Chitwan District in the Narayani Zone of southern Nepal. According to 2011 Nepal census survey it had a population of 12,579 (5696 male & 6883 female) people living in 2,898 individual households. Pithuwa is located west to the Kayer River, East and North to Ratnanagar Municipality and South to Jutpani VDC. Most people of this VDC are immigrants of Gorkha and Dhading districts. At present the VDC has no elected representatives and is run by secretary appointed by Central Government. It lies in constituency region no. 2 along with Ratnanagar Municipality & Jutpani VDC. The total population living here are the more emigrated from the hills, especially from Gorkha and Dhading districts. Here are also some indigenous communities, various ethnic groups which co-relate their individual values and cultures like Tharus and Darais. Jana Jagriti Higher Secondary School one of the High School of the VDC which is the sole provider of higher education and periphery since about 5 decades. It is one of the most beautiful places of the Eastern Chitwan. It is close to the famous tourist place such as Sauraha and Chitwan National Park.

4.1.1 Electricity

Electricity is very important for human life, in this VDC easily available of electricity.

4.1.2 Communications

Pithuwa is connected with GSM, CDMA connection by Nepal Telecom and Spice Nepal. Land lines are common in this VDC. Almost each VDC is provided with land line or CDMA phone. CDMA and GSM mobile phones are common in many villages and towns due to easily available.

4.1.3 Internet

Pithuwa is connected with [ADSL](#) which is much faster as compared to dial up. Recently, Wi-Fi has been made available by [Broadlink](#) in this VDC. Pithuwa has print Medias like Chitwan post, etc to name a few. At present Chitwan has above twelve stations like kalika FM Synergy FM etc.

4.1.4 Languages

Chitwan district have people from different caste, Bahun, chhetri, Newar, Gurung, Magar. Major languages used in this district are Nepali, Gurung, Magar, Newar and different type of language speaks here.

4.1.5 Topography

Chitwan is one of the inner Terai there are hill and Tarai in the Chitwan district but in the study area, there are almost plain area. So, all the dairy farmer use bicycle for sell their milk.

4.1.6 Climate

The season is dominated by two distinct wind systems; namely the south easterly monsoon in the summer characterized by heavy rain and warm temperature and we sterile disturbance in the winter with occasional showers. The average temperature in the rainy season is 27⁰ c. generally the summer month are warm and pleasant and winter month are cold. Hence rain occurs during the month of July, august and September particularly in the winter month in the mountain areas, the unable to disperse atmospheric pollutant to the outer atmosphere laterally and vertically. According to meteorological station of Chitwan, there was 7 to 30 D.C. temperatures in winter season and 16 to 40 D.C. in summer season.

4.1.7 Population of Age Group

According to the CBS-2014 data total 12579 populations is in Pithuwa VDC. There population is one of the main fundamental elements of development sector. Energetic people can change the sand into the gold. Here is the population of Pithuwa VDC

Table 4.1: Population of Age Group

Age Group	Pithuwa	
	Population	Percent
0-14	3542	28.2
15-59	7639	60.7
60 above	1398	11.1
Total	12579	100

Source: CBS-2014

Above data indicates that economically active and non-active population of Pithuwa. In the context of Nepal, 60.7 percent people are economically active (15-59 Age).

According to above data we can say that there was huge population and most of the people are old age and some were young and some were child. If those people have got knowledge and skill about commercial dairy farming they definitely can do the best in this sector. So that government should have to know about it.

4.1.8 Population by Caste

Pithuwa is a VDC in Chitwan district among 5 districts in the Narayani zone of Nepal. Different cast of people were lived in Pithuwa VDC. This is shown below in tabulated form.

Table 4.2: Population by Caste

Caste	Total	Male	Female
Cheetri	2431	1103	1328
Brahman-hill	5131	2328	2809
Magar	614	265	349
Tamang	856	388	468
Kumal	124	60	64
Newar	895	418	477
Kami	651	285	366
Rai	24	10	14
Gurung	848	386	462
Damai/Dholi	373	373	215
Sarki	268	123	145
Gharti/Bhujel	156	72	84
Chepang/praja	25	11	14
Others	66	33	33
Total	12472	5855	6828

Source: CBS 2014

According to CBS (2011) this VDC have 2989 household, with total population of 12579 in which male are and 5855 female are 6828. From the given table it can be determined that this VDC is mainly dominated by Brahman community as followed by Cheetri, Newar, Tamang, Gurung, Kami, Magar respectively.

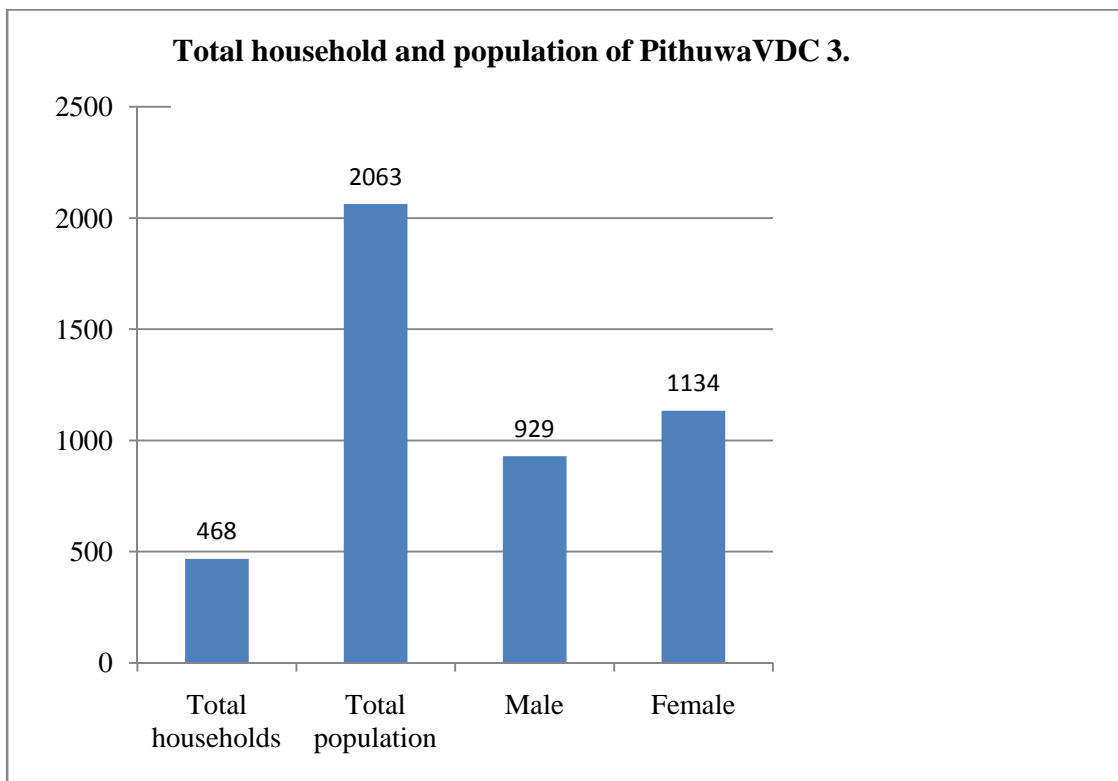
Therefore we can say that different cast group of people live together in Pithuwa VDC. If those cast group get training about commercial dairy farming then they can

increase economic condition through that sector. So that it should have to be done for change of dairy farming in Pithuwa.

4.1.9 Total households of Pithuwa VDC- 3

On the basis of CBS report it can be studied that Pithuwa-3 have female population more than the male population. That is given below.

Figure No.4.1: Total Household and Population of Pithuwa VDC- 3



Source: CBS, 2011

Above chart is prepared in accordance to the data presented by CBS, which were total household number 468, total number of population 2063 in which male population 929, female population 1134.

Most of the people of this area have engaged themselves in the agriculture sector, beside that people are in different other sectors like animal husbandry, army service, involved in different official jobs. Therefore we can say that those household populations should

have to be involved in commercial dairy farming for their change into the economic status.

4.1.10 Literacy Status of Pithuwa VDC

In these day people more educated than before. Different project and plan are implemented for reduce illiterate rate. Here is literacy status of Pithuwa VDC given below.

Table No.4.3: Literacy status of Pithuwa VDC

Description	No.	Percent	Male	Percent	Female	Percent
Can't Read	2668	22.6	743	14.1	1925	29.6
Can Read Only	259	2.2	125	2.4	134	2.1
Read and Write	8860	75.1	4417	83.1	4443	68.3
Not Stated	6	0.1	3	0.1	3	0.0
Total	11793	100	5288	100	6505	100

Source: CBS-2011

Above data shows that there is 22.62 percent people were cannot read. The people who can read and write were reported Pithuwa are 75.12 and 2.19 percent people who can read only in this VDC. Literacy rate of male is greater than female, in which male were 83.52 percent and female were 68.301 percent .This data reveals that literate people are more than illiterate.

In pithuwa VDC most of the people were literate which is good point for provide dairy farming related program and opportunity. Those literate people were easily can grab the opportunity and they also can apply that. Therefore we can say that there is highly prospect of commercial dairy farming.

4.2 Status of Dairy Farming Infrastructure

In this section status of dairy farming infrastructure of study area are interpreted. Generally sample populations are tabulated on the basis of their availability of infrastructure and secondary data also included.

4.2.1 Land Use Pattern of Chitwan

Land uses of Chitwan district mainly consists of agriculture, forest and land mainly agricultures land are of two types Khet and Bari. This is given below in tabulated form.

Table: 4.4: Land Use Pattern of Chitwan

S.N.	Types of Land	Occupied are (in Ha.)	Percentage
1	Agriculture land	46894	58.38
2	Forest land	19882	24.68
3	Other land	13602	16.94
Total		80318	100

Source: DDC, Office, Chitwan 2008

In above table, agriculture and land in Chitwan district comprises approximately 46894 ha (58.38%) of total land agriculture land being converted into urban land (housing and residential area) over last (10 to 15) years.

According to above data Pithuwa VDC is suitable for commercial dairy farming. Dairy farmer easily can get food and fodder for their livestock animal. Therefore we can say that there is high prospect of commercial dairy farming.

4.2.2 Number of Livestock

Farmers have been keeping livestock for many year cow and buffalo are major source of income from livestock in this area. Almost all the farmers have kept cows. According to cow in regarded as goddess so, cows have dominated the total livestock but before they used to have one or two cows. And they used to consume milk and sell other, farming as substantial purpose. But after the establishment of dairy co-operatives farmers have started keeping more cows and buffalo because now they have realized that dairy farming is an important source of earning because it is less prone to climatic change there are drastic changes in the keeping the cattle's before most of farmers used to have local cows and buffaloes and less improved cows and buffaloes.

Table No. 4.5: Number of Livestock

S.N	Particulars	Population of Dairy animal	Percentage (%)
1	Improved breed cow	165	66.27
2	Non improved breed cow	8	3.21
3	Improved breed buffalo	23	9.24
4	Non improved breed buffalo	53	21.28
	Total	249	100

Source: Field Survey, 2015

In this table, people are keeping the improved breed cow are greater than other dairy animals. In improved breed dairy animals, people are keeping cow (66.27%) more than buffalo (9.24%) and in non improved breed dairy animals; people are keeping buffalo (21.28%) more than cow (3.21%).

In study area, there people basically kept improved breed cow than local breed cow and buffalo. Because they were getting more benefit from improve breed. So that farmer kept

improved breed cow and buffalo more than local breed. Therefore we can say that, it has been in developing level of dairy farming if its ratio grows in this way one day it will make big change in dairy industry in study area.

4.2.3 Milk Collection Centers

Efficient and regular market is another influencing factor in the development of dairy farming of an area. This facility in this VDC is provided by the milk collection centers running here. The milk collection centers collect the milk from different parties of the village and transport it to Kathmandu and Pokhara if any strike for 3/4 days than they transport to the chilling center located at Madhapur in Pithuwa. There are six milk collection centers (Panchayan, Pithuwa, Guransa phool, Janakalyan, Bhadrakali, Himchuli milk cooperative product limited) in Pithuwa VDC established by DDC. In study area Pithuwa milk cooperative product Ltd. collects 1800 lit milk per day and transport almost 1800 liters milk to the Kathmandu and Pokhara.

Most of the people were having dairy animals as major income source in study area. Dairy farmer sold their milk production to the milk collection center. In this way farmer were supplying the demand of those milk collection center and those dairy also give them money. Therefore we can say that those dairy also help to promote dairy farmer in study area.

4.2.4 Breeding Center

There is only one breeding center available in this VDC. This is provided by Panchayan Milk Produce Co-operative Ltd. Few local villager also provided this facility but that is just for local breeding. Nowadays, most of the farmers are having improved breed livestock through Panchayen facility that's why in these days they are getting more benefit from this sector.

In study area day by day large number of dairy farmer has been demanding improve breed of dairy animals which demand was supplied by Panchayan milk product co-operative ltd. MASF (Market Access for Smallholder Farmers) project was implemented program in study area by Panchaya milk product co operative Ltd .

4.2.5 Availability of Transportation

Transportation is one of the most important elements for dairy industry. It helps to develop dairy industry and also to many other sector. In study area graveled (kacchi) and pakki road facility is available. And daily rout vehicles (Bus, Tempo, Rikshawa, Truck, Jeep etc) also available for up-down service. Daily milk tankers have take whole milk from collection center and deliver to Kathmandu. It was possible just because of access of road in there.

Most of the farmers were used bicycle, bike and riksha to transport their milk product in dairy. Daily collected milk from dairy farmers has transported to Kathmandu and Pokhara by tanker. In this way availability of transportation play main role to promote dairy farming in study area.

4.2.6 Family Size

Members of the immediate family may include a spouse, parent, brother and sister, and son and daughter. Member of the extended family may include grandparent, aunt, uncle, cousin, nephew and niece, or sibling-in-law.

Family sizes of the sampled population were determined from the sample respondents who were representing household having commercial dairy farming and non commercial dairy farming households. Except the 6 informal interviewers, the following table shows the family size of the respondents:

Table No. 4.6: Family Size

Family member	No. of Respondents	Percentage (%)
Below 4	16	25
4-6	33	51.56
Above 6	15	23.44
Total	64	100

Source: Field Survey, 2015

From the above table it can be determined that family having 4-6 members were of 51.56% respondents, whereas family whose members were less than 4 were 25% of respondents and remaining 23.44% members were from the family whose members were more than 6. Above table shows that 4-6 family member number was more than other family member.

It means that there were labor supply was high because most of the respondent have 4-6 member in their family. In the contest of village family member help each other to do work. That's why there is a big possibility to commercialize dairy farming.

4.2.7 Age Structure

Most of the people are based on agriculture and dairy farming in Pithuwa -3. All age group of people were involved in dairy farming and staff of different dairy in study area. During the study sample were chosen from the various age backgrounds, so the sampled respondents are separated here below in four different categories i.e. below 30, 31-45, 46-60 and above 61 which is presented in tabulated form.

Table No.4.7: Age Structure

Age-group (Year)	No. of Respondents	Percentage (%)
Below 30	13	20.31
30-45	26	40.63
45-60	20	31.25
Above-60	5	7.81
Total	70	100

Source: Field Survey, 2015

Above table explains that from the total respondent age below 30 were 20.31%, age group 30-45 was 40.63%, age group 45-60 was 31.25% and age group above 60 were 7.81% respondents. From the sampled population it can be determined that mid-aged people and young people are more than the old and enthusiastic population aged 30-45.

So, it shows that there were many enthusiastic people. If they have got good skill and knowledge for commercialization in this field then other people also appreciates it and also they can improve their economic condition. So that we can say that there is highly prospect of commercialization of dairy farming.

4.2.8 Sex Structure

Population is the major component of any research. During the study some people are selected as sample population, such sampled population sketches our real report. Gender is the range of physical, biological, mental and behavioral characteristics pertaining to, and differentiating between, masculinity and femininity. Depending on the context, the term may refer to biological sex (i.e. the state of being male, female or intersex), sex-based social structures (including gender roles and other social roles), or gender identity.

During the study, respondents were both male and female, questionnaire were asked to respondents randomly without pre mind-set whether to ask for male or female. So the sample population composition of this study and findings of the respondent's gender has been presented under the table;

Table 4.8: Sex Structure

Streams	No. of Respondents			
	Male	Female	Total	Percentage (%)
Respondents having commercial dairy farming	10	4	14	20
Respondents having non commercial dairy farming	20	30	50	71.43
Respondents from different milk collection centers staff	5	1	6	8.57
Total	35	35	70	100

Source: Field survey, 2015

Table presented above shows the sampled population for the study, which shows that respondents from household having commercial dairy farming and non commercial dairy farming 20% and 71.43% respectively and respondents from different milk collection center staff are 8.57%.

From the above table it is known that male and female respondents are fifty-fifty. It is the good point for commercialization of dairy farming in study area.

4.2.9 Major source of income

Nepal is an agriculture country. Most of the Nepal's people are farmer. In these day people are interested to change their traditional farming system into the commercial farming. In study area farmers are gaining more profit from commercialization of dairy

farming than other income source. So that, respondent number of having dairy farming is more than other occupation. They were distributed in following table on the basis of their involvement in different source of income.

Table No. 4.9: Major source of income

Income source	No. of the respondents	Percentage (%)
Commercial dairy farming	14	21.87
Non commercial dairy farming	23	35.94
Job holder	8	12.5
Agriculture	19	29.69
Total	64	100

Source: Field Survey, 2015

. According to above data, sampled population 35.95 percentage respondents' major source of income was non-commercial dairy farming, 29.69 percentage respondent's major source of income was agriculture, 21.87 percentage respondent's major source of income was commercial dairy farming and 12.5 percentage respondent's major source of income was job holder in different sector.

From the response of respondent most of the farmers are involving in dairy farming than other sector. It means there is highly prospect of commercial dairy farming. For good result farmer should be trained and other need facility should be provided from related sector. Then dairy farming could be take position as main occupation of study area.

4.2.10 Type of Dairy Farming

The household of Pithuwa VDC have two types of dairy farming. One is registered and another is unregistered. Most of their farmers have unregistered dairy farming, because of having lack of knowledge and lack of opportunity towards dairy farming. They were

keeping livestock for just self consume and traditional continuity. But few of them household have registered dairy farming in different type of name. They run their dairy farming as a commercially.

Table No. 4.10: Type of dairy farming

S.N	Description	Households	Percentage (%)
1	Registered	28	43.75
2	Unregistered	36	56.25
	Total	64	100

Source: Field Survey, 2015

According to this table 43.75% households have registered and 56.25% household have unregistered dairy farming.

In study area unregistered dairy farming was little bit more than registered dairy farming. If government and policy maker made good policy and program towards in the favor of farmers then there is big possibility to commercialize in this sector.

4.2.11 Feeding Materials

The major source of green grass in the Pithuwa VDC is grass land. Crop residues are also important sources which contribute half of the total required daily nutrient (TDN) for livestock in the VDC. Crop residues like rice straw, wheat straw, maize stokers etc. are used for fodder. In the study area people are also manage feeding materials of TDN from dairy cooperatives like Dana/Chocker etc.

Table No. 4.11: Feeding materials

Perticulars	Response	Percentage
From dairy	9	14.06
Self manage	10	15.63
All of above	45	70.31
Total	64	100

Source: Field Survey, 2015

In this table shows that 70.31% people are managing feeding materials from combine of dairy and self, 15.63% people are managing from self only and 14.06% people are managing from dairy only.

In study area dairy provided feeding materials and farmers were also managing feeding materials by self. There dairy farmer also involving in agriculture that's why they get easily feeding materials. So, that is the prospects of commercial dairy farming in study area.

4.2.12 Participation on Training about Livestock farming

Farmers are participating on training or not participating training is big matters in dairy farming activities. If farmers have trained obviously they can do dairy farming in a better way to commercialize and If not they can't. In this study few respondent have got training and most of the respondent have not got training. They were distributed in following table on the basis of their participation in training about commercial dairy farming.

Table No. 4.12: Participation on Training about Livestock Farming

S.N	Discription	Households	Percentage
1	Trained	23	35.94
2	Untrained	41	64.06
	Total	64	100

Source: Field Survey, 2015

According to this table 35.94% respondents have got opportunity of training related to the commercial dairy farming while 64.06% respondents have not got any opportunity of training.

In study area most of the respondent had untrained but some of the respondent had got trained. It means there was most of the respondent having dairy farming just because of continuity of for father traditional trend through traditional method and they hadn't got any opportunity to participate training about commercial dairy farming. So that, it is the major problem in this sector and it should be solve for improvement in this sector.

4.2.13 Milk Production

The total production was less in liters before the involvement of the rural farmers in dairy co-operation because milk was produced for consumption purpose and selling nearby but after the involvement in co-operation the milk production has been drastically increased because they have found the marketing facilities, many more knowledge and skills to commercialize this sector. In study area now days people have keeping improve breed dairy animals more than local breed that's why farmer produce more milk than some year ago. Milk production of study area is presented in tabulated form.

Table No. 4.13 Milk Production

S.N	Per day milk production (Litter)	No. of household	Percentage (%)
1	Below 10	25	39.06
2	10-20	13	20.31
3	20-30	10	15.63
4	30-40	7	10.94
5	40 to Above	9	14.06
	Total	64	100

Source: Field Survey, 2015

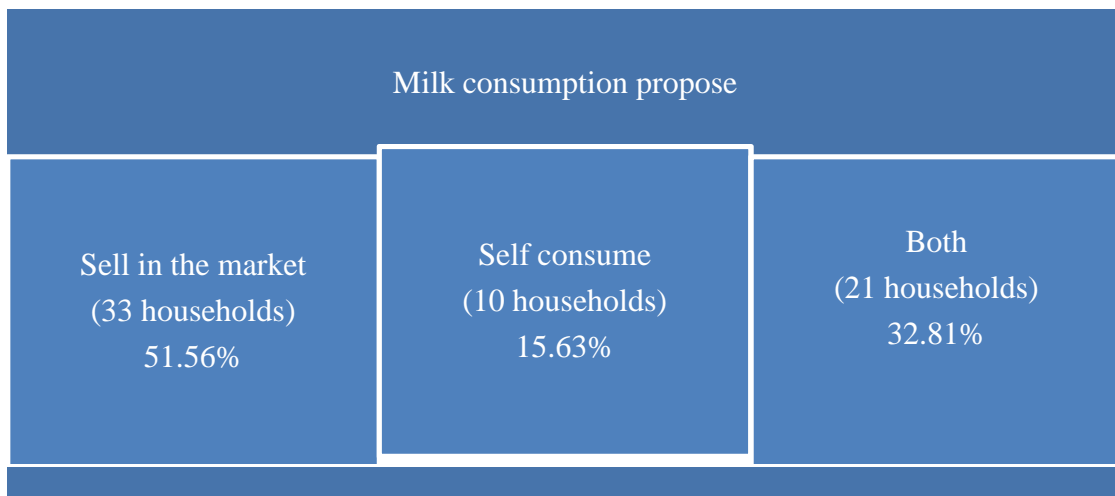
Above table describe that from the total number of households 39.06% households have below 10 litters, 20.31% households have 10-20 litters, 15.63% households have 20-30 litters, 10.94% household have 30-40 liters and 14.06% household have 40 to above litter milk produced in per day.

In Pithuwa -3 milk production was low because just few dairy farmers were involved in high ratio milk production. That is also the problem of this area so it should be solve by breeding system. Because if dairy farmer kept improve breed dairy animal then they produce more milk than local breed so that in this way we can promote high milk productivity in this area.

4.2.14 Milk Consumption

Most of the households of Pithuwa have started dairy farming from the commercial point of view. Some people started dairy farming for sell milk product in the market, self consume and both propose. This is shown below in graph.

Graph No.4.1 Milk consumption



Source: Field Survey, 2015

Above graph shows that, out of the total 64 sampled households; 51.56% households have sold milk in the market, 15.63% household have self consumed the milk and 32.81% households have consumed milk by both (sell in the market and self consume).

In study area market facility was available that's why there most of people were sold milk in the market and they improved economic status. That is the prospect of commercial dairy farming in study area.

4.2.15 Place of selling milk

Bedside's co-operatives, the member of cooperatives sell milk in various sectors. This is because people believe if milk is sold by only in dairy co-operatives then during milk holidays they suffer from the problem of marketing. If they continue to sell in other place then during milk holiday also their milk will not be wastage. So, the large numbers of dairy farmer were selling milk in milk collection center and few numbers of farmers were selling milk in direct market or distribute self to households. Here are different place of selling milk in tabulated form.

Table No. 4.14 Place of selling milk

S.N	Type of milk selling place	Household	
		Number	Percentage (%)
1	In milk collection center	35	54.69
2	Distribute self to households	13	20.31
3	Direct sell in market	6	9.38
4	Self consume	10	15.63
	Total	64	100

Source: Field Survey, 2015

Above table shows, 54.69 percent of milk produced by the respondent was sold to the milk collection center. Similarly, 20.31 percent of milk produced was sold to the households by themselves and 9.38 percent of milk produced was sold directly to market. Whereas remaining 15.63 percent of milk product was self consume at home.

Therefore, from field survey we can say that collection centre purchase more milk than others. So, there is good market available for selling milk. And also it is the plush point of prospects of dairy farming to commercialize.

4.2.16 Milk price

According to farmers of Pithuwa VDC-3 in these day dairy farmer were not getting suitable price. In this sector farmer invest big amount so they want their favorable output. Milk price is fixed by quality of milk so if farmer produce good quality of milk than they can get nice price. So farmer is always trying to be best to make good quality of milk. The milk price is given bellow of study area, in tabulated form.

Table no. 4.15 Price rate of Milk

Milk rate per litter (Rs.)	Respondent	Percentage (%)
Below 40	8	12.5
40-43	11	17.19
43-46	13	20.31
46 -49	15	23.44
49 to Above	17	26.56
Total	64	100

Source: Field Survey, 2015

Above table illustrate, the price rate of cow milk varied according to the quality of milk. The highest price was Rs 49 to above per liter (26.5%) and most of the respondent has sold their milk in same rate occupying the highest percentage in table. Similarly, respondent who had sold their milk below Rs 40 per liter has least percentage (12.5%) in the table according to the field survey 2015. Therefore, we can say that people are willing to pay high price for quality product.

According to the respond of respondents, we can say that some people are willing to pay high price for quality product. Because of most of the farmer were having local breed dairy animal and applying traditional method. So, they were produce low quality of milk and that why they were gating lower price of rate. Therefore, we can say farmer

have to apply modern knowledge, skill, opportunity and equipment to produce quality of milk for commercialization of dairy farming.

4.2.17 Loan Amount

In study area the farmer were invest in this sector 23 respondent were manage from completely self, 41 respondent were manage from loan and partial loan . Most of them have invested through self manage and partial loan but few of them have invested completely loan in livestock farming. If farmer invested through self they were managing from own saving and borrowing without interest from relatives/villagers. And if farmer invested through completely loan they were managing through different financial sources co-operative, rural bank/agriculture bank and borrowing from relatives/villagers. Here is loan amount in tabulated form.

Table no.4.16 Loan amount

S.N	Loan Amount	Respondent	Percentage (%)
1	Below 1,00,000	15	36.58
2	1,00,000-5,00,000	13	31.71
3	5,00,000-10,00,000	5	12.19
4	10,00,000-15,00,000	3	7.32
5	15,00,000-20,00,000	3	7.32
6	20,00,000 to Above	2	4.88
	Total	41	100

Source: Field Survey, 2015

Above table illustrate, the farmer involved in livestock farming and amount of loan taken by them. Here, 36.58 percent of respondent has withdraw the loan amount below 1, 00,000 and 4.88 percent of respondent has withdrawn the loan above 20, 00,000.

According to the above data we can say that total of the 64 respondents 41 respondent were take lone but remaining 23 were not managing self. It shows that respondents are more comfortable with small amount of loan than bigger amount of loan for livestock farming in study area. Therefore, we can say that loan facility is one of the major problems of there if loan facility is easily provide to farmer then they can invest big amount in this field and also they can get good profit from it.

4.2.18 Interest Rate of loan

In study area 43 farmer have got loan through different bank and people that's why there was differences between their loan interests and 23 respondent were manage self. Most of the farmer have got loan through co-operatives and Agriculture bank which gave loan in low interest rate. It is because they want to promote farmer in agriculture sector. Here are different interest rates of loan in tabulated form.

Table no. 4.17 Interest rate of loan

S.N	Interest rate of loan (%)	Respondent	
		Number	Percentage (%)
1	Free (0)	8	19.51
2	Below 10	13	31.71
3	10-15	15	36.59
4	15 to Above	5	12.19
	Total	41	100

Source: Field Survey, 2015

Above table illustrate, interest rate for loans that farmer taken from the different institution. Here, 36.59 percent of respondent has taken loan with the interest rate between 10-15 percent. Similarly, 12.19 percent of respondent has taken loan with the interest rate above 15 percent. Therefore, interest rate between 10 to 15 percent for loan is popular than others in study area.

Different bank and co-operative are giving loan in different interest rate, which is the most problem of commercial dairy farming. If related bank and institute have pay in favor of dairy farmer then lots of people could encourage in this sector to develop. That's why bank and institution should have to provide affordable interest rate of loan to farmer in study area.

4.3 Impact of Dairy Farming

Dairy farming has been developing as an easier mean to obtain regular cash income than food and cash crops. This sector is also less affected by climatic variation. Food and cash crops demand on nature and prices of such products do not remain stable when the price of food and cash fall; it cannot cover the cost of production so there are various reasons for preferring this dairy sector is regular earning income. According to some respondent of study area believe that keeping dairy animals in home simply means maintain tradition because this has been doing by their forefather's. And some respondent regards that dairy animals are kept for manure. This might because respondent might have lot of land for cultivation. Remaining other respondent believe that dairy animals are keep for selling and consuming milk and milk items because it impacts to education, income, employment, agriculture farming train etc of respondent. The impact of dairy farming in the study area has been defined below.

4.3.1 Changes in Education Status

All dairy farmers have known importance of education and as well as the way of increase in income level. They feel that without education they cannot increase their income and expectancy. In this study area some little bit changes have shown in education sector before and after having dairy farming. It is attempted to find out that how it change in education sector.

Table No.4.18 Change in Education Status

SEX	Before				After			
	Literate	%	Illiterate	%	Literate	%	Illiterate	%
Male	19	46.34	8	12.5	21	35.59	2	40
Female	22	53.66	15	65.22	38	64.41	3	60
Total	41	100	23	100	59	100	5	100

Source: Field Survey, 2015

In Above table, after the involvement in commercial dairy farming their literate rate (Male 35.59% and Female 64.41%) is highly increase than before (Male 46.34% and Female 53.66%) involvement in this sector and illiterate rate is also decreasing after (Male 40% and Female 60%) than before (Male 12.5% and Female 65.22%).

In study area according to the respondent most of the people were literate after than before having commercial dairy farming. Therefore, we can say that there people's education was changing through commercializing of this sector. That's why; it is one of the prospects of this sector.

4.3.2 Change in Skill

Dairy farming has been playing important role in the socio-economic life of rural people. In this sector, if farmer want to increase their benefit level then they should have to change their traditional skill into suitable or good skill by commercialize it. In this study area their farmer's skill is better before having commercial dairy farming than after it. Here are some changes in skill due to dairy farming in tabulated form:

Table No.4.19 Change in Skill

S. N	Skill	Before			After				
		Having	Not having	Total	Having	%	Not having	%	Total
1	State of safe keeping	0	14	14	11	78.57	3	21.43	14
2	Complete feeding style	0	14	14	13	92.86	1	7.14	14
3	Arrangement of sanitation	0	14	14	8	57.14	4	28.57	14
4	Way of feeding accurate medicine amount	0	14	14	13	92.86	1	7.14	14

Source: Field Survey, 2015

Above table describe that before there was no one good skill used in that farm but after it become commercialize most of the dairy farmer having good skill. So that, after commercialization of dairy farming the skillful respondent percentage of safe keeping 78.57%, complete feeding style was 92.86%, Arrangement of sanitation was 57.14% and way of feeding accurate medicine amount was 92.86% farmer were in there. And not having skilled respondent percentage of safe keeping 21.43%, complete feeding style was 7.14%, Arrangement of sanitation was 28.57% and way of feeding accurate medicine amount was 7.14% farmer were in there.

Therefore, we can say that in after having commercial dairy farming many people are becoming skillful farmer than before it. According to the respondent due to the having commercial dairy farming farmer have got that related training and they applied that skill. That was batter than in before. It is one of them prospect of having commercial dairy farming.

4.3.3 Involvement in Institution

Nowadays, in this study area many commercial dairy farmers are involved in different types of group than after it. Day by day farmers are getting more benefit from it so that they are involving many groups to save money or many more propose.

Table No.4.20 Involvement in Institution

S.N	Name of group	Before	Total	%	After	Total	%
1	Co-operative	7	14	50	14	14	100
2	Female saving group	5	14	35.71	14	14	100
3	Group of cast	5	14	35.71	8	14	57.14

Source: Field Survey, 2015

From the given table, it can be determined that dairy farmer's involvement in different institution was low in before than after it commercialized. So that before the percentage of farmer's who involvement in co-operative 50%, female saving group 35.71% and group of cast was 35.71%, but after that all of farmers are involved in those group.

From the response of respondent, we can say that more farmers are involving in different group and institution after having commercial dairy farming. Because in after farmer were gaining more income than before. Then they involved in different group to save those amounts and when needed to get easily. So that it is one of them prospect of having commercial dairy farming in this area.

4.3.4 Change in Income

Day by day most of the farmers are involving in commercialized dairy farming that's why they make good money from it. Before having non commercial dairy farming

farmers were did not get much benefit from it and they just having it for self daily propose only not for make money. Today, their commercial dairy farmers use the earned income from selling milk is spend in various household purposes mostly the earned income is spend for the cattle itself and self over is spend in domestic purpose, education purpose etc. So that their income also changed by trend of commercialization.

Table No.4.21Change in Income

Income (Rs. /Month)	Before	%	After	%
Below 30,000	14	100	6	42.86
30,000-60,000	0	0	2	14.28
60,000-90,000	0	0	3	21.43
90,000 to Above	0	0	3	21.43
Total	14	100	14	100

Source: Field Survey, 2015

Above table explains that, there were total 14 respondent had earned below thirty thousand in before having commercial dairy farming but in after 42.86% respondent earned below thirty thousand, 14.28% respondent earned thirty- sixty thousand, 21.43% respondent earned sixty-ninety thousand, and remaining 21.43% respondent earned ninety thousand to above.

In the response of respondent the ratio of earning from commercial dairy farming was increasing before than after. Most of them farmer were aware about improve breed and techniques of increase more milk production. That why they applied that and getting more benefit from that than before. Therefore, we can say that commercial dairy farming is one of the most prospective occupations in that area.

4.3.5 Change in Assets

Most of the commercial dairy farmers spend their dairy income on domestic purpose either that is fulfill basic need facilities or the education purpose and in other sector like to add up in improved cattle. And they also spend their income in many more additional assets.

Table No.4.22 Change in Assets

S.N	Additional assets	Before	Total	%	After	Total	%
1	Bike	1	14	7.14	10	14	71.42
2	Cycle	5	14	35.71	14	14	100
3	Mobile	2	14	14.29	14	14	100
4	Refrigerator	0	14	0	9	14	64.29
5	Grazing land	3	14	21.43	14	14	100
6	Jewelry	3	14	21.43	14	14	100
7	House	0	14	0	6	14	42.86
8	Computer	0	14	0	10	14	71.42
9	Water pump	2	14	14.29	14	14	100
10	Grass cutter	0	14	0	14	14	100
11	Car	0	14	0	3	14	21.43
12	Tractor	0	14	0	5	14	35.71

Source: Field Survey, 2015

Above table explained that few respondents had few assets in before but in after they brought most of the assets. Before commercialize of dairy farming there respondent have no additional asset like; refrigerator, house, computer, grass cutter, car and tractor. But after having commercial dairy farming they brought most of them.

According to the responds of respondent, we can say that farmer purchasing power has highly increased through commercial dairy farming. If related sector or supporter support towards them then farmer can do best in this sector. So, they can get more profit than before they had. And purchasing power also increased in high. Therefore, we can say that it is emerging the most prospective occupation in that area.

4.3.6 Change in Employment Structure

Nepal is a developing country and most of the people's main occupation is agriculture. Large numbers of people are engage in agriculture field but it never grows up properly. In this study area most of the people have been kept livestock since many years ago. Some years ago farmer kept livestock for self propose but nowadays people are becoming skillful and knowledgeable through many training opportunity and other many more opportunity. That's why large number of people is getting employment in this field after than before it commercialized.

Table No.4.23 Change in Employment Structure

Employee	Family member				Labor			
	Before	%	After	%	Before	%	After	%
1	10	71.43	2	14.29	3	21.43	6	42.86
2	4	28.57	1	7.14	1	7.14	5	35.71
3 to Above	0	0	11	78.57	0	0	3	21.43
Total	14	100	14	100	14	100	14	100

Source: Field Survey, 2015

So from the above table it can be determined that commercial dairy farming had given employment to many household member and labor. Before commercialization of dairy farming, additional employee number were 1, 2, and 3 to above where family member of percentage serially 71.43%, 28.57, and 0 percentage household has got employment and likewise 21.43%, 7.14%, and 0 percentage household provided

employment to labor. And after commercialize of the dairy farming, additional member was 1, 2, and 3 to above where family member of 14.29%, 7.14%, and 78.57% household has got employment and likewise 42.86%, 35.71%, and 21.43% household provided employment to labor.

In the response of respondent commercial dairy farming has provided good employment opportunity to the family member and local labor. Therefore, we can say that most of the family member and labor were getting employment in that area which is good advantage of commercial dairy farming.

4.3.7 Change in Occupational Structure

In some year ago most of the people were involving in agriculture farming as a main occupation but nowadays, most of the people are educated and they knew about how their economic status will increase. So that farmer is starting commercial dairy farming as a main occupation. Now in study area most of the respondents were changing their occupation into commercial dairy farming. In study area, before commercialization of dairy farming there farmer's occupation has agriculture 42.86%, Business 14.29%, Job holder 21.43% and Labor 21.43% but after that those respondent's occupation has change into commercial dairy farming.

According to the response of respondent we can say that commercial dairy farming is more profitable than other occupation. Because now days most of the people are being educated and familiar to the modern technology. So they are being able to do commercialize in dairy farming. So it is one of the most suitable occupation and that why it's hugely prospective in that area.

4.3.8 Change in Food Sufficiency

Now in study area most the people engaged in agriculture activity and there production is increasing day by day. So, the food sufficiency period is better than before commercialization of dairy farming. The change in food sufficiency period due to commercial dairy farming is given below.

Table No.4.24 Change in Food Sufficiency

Food sufficiency period (Month)	Before	%	After	%
Below 6	9	64.29	0	0
6-12	5	35.71	3	21.43
12- Above	0	14.29	11	78.57
Total	14	100	14	100

Source: Field Survey, 2015

Above data shows that, before commercialization of dairy farming, of the total 14 households 64.29% household had enough food only for below 6 months period whereas those who have food for 6-12 months period were only 35.71% household. But in after, of the total 14 households 21.43% household had enough food for 6-12 months period whereas those who have food for 12 to above month period were 78.57% household.

According to the response of respondent in after having commercial dairy farming those respondent food sufficiency time period was highly increased than before it because farmer were starting agro farming altogether dairy farming and they produce more than before by using the animals wastage. Therefore we can say that in study area has highly prospective of commercial dairy farming.

4.3.9 Change in Fertilizer Use

Farmer is carrying on dairy farming along with agriculture. Livestock supports the agriculture in many ways. Livestock is a part of agriculture which has been taken as one of the important sources of rural income. All the farmers are cannot afford required quantity of chemical fertilizer for their fields. The need of fertilizer is fulfilled by compost manures which is prepared from dung. So, livestock seems to be indispensable for increasing overall agricultural production and for uplifting the economical status of the farmer. Change in fertilizer use has mentioned in the table.

Table No.4.25 Change in Fertilizer Use

Fertilizers	Before	%	After	%
Chemicals	8	57.14	2	14.29
Compost manures which is prepared from dung	6	42.86	12	85.71
Total	14	100	14	100

Source: Field Survey, 2015

Above data shows that, about 57.14% household's respondent were used chemical fertilizers and 42.86% household's respondent were used compost manures in before the commercialization of dairy farming. But after only 14.29% household's respondent used chemical fertilizer and 85.71% household's respondent used compost manures. In short it supports to fulfill the need of chemical fertilizer.

Therefore, we can say that the commercialization of dairy farming impact is positive in agriculture field also. In dairy farming farmer produce not only milk production they also produce animal dung which can use in their agriculture farming as in fertilizer. Which activities can be reducing chemical fertilizer use in study area. That why it is the one of the most important occupation and it proves that there are huge prospect of commercial dairy farming.

4.3.10 Change in Pesticide Use

Farmer is use pesticide to increase their agriculture production. But they don't know about its bad effect. In study area after having commercial dairy farming farmer are more conscious about it than before it. This is presented in tabulated form.

Table No.4.26 Change in Pesticide Use

Pesticides using ratio	Before	%	After	%
Increased	7	50	2	14.29
Decreased	3	21.43	8	57.14
Remain same	4	28.57	4	28.57
Total	14	100	14	100

Source: Field Survey, 2015

Above table shows that, in before the household number of pesticide used ratio increased, decreased, and remain same are serially 50%, 21.43%, and 28.57% households. But in after the pesticide used ratio was increased, decreased, and remain same are serially 14.29%, 57.14%, and 28.57 households.

According to the response of respondents commercialization of dairy farming has positive impact on pesticide using practices on agriculture. Farmer were using dung and piss of those dairy animal in there agriculture farm. Which practices was reducing Pesticide use. Therefore it proves that there is highly prospect of commercial dairy farming.

4.3.11 Change in Farming Structure

In study area, farming structure has changed into organic farming. In before having commercial dairy farming more people have non organic farm but in after people are becoming educated about which farm is suitable, what is good or bad so many farmer are changing their faming trend into organic farming. The following table clearly shows how many farmers are changed their farming structure.

Table No. 4.27 Change in Farming Structure

Kind of farming	Before	%	After	%
Organic farming	4	28.57	10	71.43
Non-organic farming	8	57.14	2	14.29
No change	2	14.29	2	14.29
Total	14	100	14	100

Source: Field Survey, 2015

According to above data, before the commercialization of dairy farming there farming structure was organic farming, non organic farming, and no change in farming which ratio has 28.57%, 57.14%, and 14.29% household. But after their farming structure was organic farming, non organic farming, and no change in farming which ratio has 71.43%, 14.29%, and 14.29% household.

According to the response of respondent little number of farmers has just started organic farming. If that ratio increased their farmer can earn extra money and they can be healthy also. This change ratio of farming structure indicates that there farmers are conscious of their health and getting extra benefit from agriculture farming. Therefore, we can say that it has huge prospect in that area.

4.3.12 Change in Agriculture Production

Agriculture is the backbone of rural economy. It is the basic economic activity of rural people of the Nepal. Similarly Pithuwa VDC is no exception. People in Pithuwa VDC have given equal importance in crop production and dairy farming. Because Livestock also helps the agricultural activities by supplying compost manures which is prepared from dung. In return agriculture provides feed and feeding materials for dairy animals and other. In that way commercial dairy farming helps to agriculture farming. The change in agriculture production of study area is given below.

Table No.4.28 Change in Agriculture Production

Production status	Before	%	After	%
Increase	3	21.43	10	71.43
Decrease	9	64.29	2	14.29
Remain same	2	14.29	2	14.29
Total	14	100	14	100

Source: Field Survey, 2015

According to above table, before commercialization of dairy farming there agriculture production ratio has increased in 21.43% household, decreased in 64.29% household, and remained same in 14.29% households. But after their agriculture production ratio has changed than before, which was increased in 71.43% household, decreased in 14.29% household, and remained same in 14.29% household.

Due to the commercialization of dairy farming number of household in agriculture production ratio has increased. Decrease agriculture production ratio household has become well then before. Therefore, we can say that the increasing production ratio of agriculture is another aspect of prospect of commercial dairy farming in study area.

4.3.13 Change in Source of Feeding

In study area before having commercial dairy farming there farmer were managed feeding materials of livestock from jungle in maximum than other sector. But after they were managed feeding materials from Cropland + Market/Dairy in maximum. It is shown below in tabulated form.

Table No.4.29 Change in Source of Feeding

Source of feeding materials	Before	%	After	%
Jungle	7	50	0	0
Cropland	5	35.71	0	0
Market/Dairy	0	0	0	0
Cropland + Market/ Dairy	2	14.29	14	100
Total	14	100	14	100

Source: Field Survey, 2015

Above data shows that, before the commercialization of dairy farming there people were managed feeding materials of dairy animals from jungle 7 household, cropland 5 household, market/dairy zero household, and cropland + market/dairy 2 household. But after it's changed, the total numbers of 14 household were managed feeding materials from just only cropland + market/dairy for their dairy animals

. In short the commercialization of dairy farming impact is positive in source of feeding. That why, we can say that it has huge prospect in study area.

4.3.14 Number of Dairy (Milk Collection Center)

In study area, before commercialization of dairy farming there is rare number of milk collection center. Because of in that time farmer has no knowledge about commercial dairy farming and its benefit also. That's why they kept dairy animals just for self propose and ritual trend. But in after many people were aware by through local development committee, NGO, INGO program provided training and many more opportunity for them. So that, farmer were encouraged by those activity than they started dairy farm and formed milk cooperative center. Now there are 6 milk cooperative centers established. One of them Panchayan milk coopertative is very famous in there dairy industry and it is also the milk chilling centre. Many organizations lunched their program

through Panchayan in Pithuwa VDC. So after in this VDC have six milk collection centers which is good impact of commercialization of dairy farming.

4.4 Problems and Prospects of Commercial Dairy Farming

In study area has many kinds of problem and prospect of commercial dairy farming. The problem and prospect of commercial dairy farming in study area can be summarized as follows.

4.4.1 Problems of Commercial Dairy Farming

There are some problems for the development of commercial dairy farming in Pithuwa VDC-3. Because of these problems dairy farming is not developing matching the potentiality of local environment. The main problems are:

4.4.1.1 Low Price of Milk

Farmers always demand for increasing the price of milk. According to them water is more expensive than milk. The price of milk is very less comparison to their expenditure for their animals. Besides these problems this dairy sector has lot of prospects in future. Farmers have been keeping dairy animals since long and they will continue to do in future also. There are losses of potentialities rural farmers. This sector can be strong means for development.

The major reason being agriculture and dairy farming are complementary to each other. Animal's manure is useful in agriculture. It helps to produce more crops and the diversity the crop as animals manure soil more fertile. If more animals are kept more dung is produced which results in more production. If more crops are produced the farmers will have more crop residue and grain to feed animals. Due to more fertile land improved grass and other feeding materials are likely being grown in this area. If the private sectors are encouraged in this field to keep the milk power plant or to diversify the product then it can competitive with international market and reduce the import of dairy product. Then the problem of milk holiday can be solved and the secured marketing

facilities can be provided to the rural farmers. The availability of marketing facilities meant rapid growth of dairy development.

The climatic condition of the area is pleasant. It is neither too cold nor too hot. The suitable climate helps of this area helps for quick development of dairy farmers. Both the breed either local or improved grass or fodder can be grown.

The availability of proper condition of road also helps for further development of dairy farming. Road helps not only to transport the milk for selling purpose but also for exchanging, selling and buying of improved breeds from one place to other can be done through the vehicles.

Dairy farming is less affected by climatic variation than agriculture field so many farmers are attracted toward this sector is position sign for healthy competition. Rural milk producers produce good quality competition milk producers produce good quality and hygienic milk as a result it will have positive effect on human health and as well product can be diversified and can compete with international market.

4.4.1.2 High Cost of Milk Production

Dairy farming in Nepal is still dominated by non-commercial farmers, so the production cost of milk is generally higher than in neighboring India. And also free entry of milk production into Nepal. The dairy sector should have to produce milk at a competitive price even within Nepal, commercial farmers rearing more than three buffaloes or five cattle are producing milk at a lower cost than the farmers rearing a single animal. It is possible to reduce production cost by improving management through better feeding, breeding and health care.

According to the Response of respondent dairy farmer has invested large amount for dairy animals but they were not getting much profit than invested amount. From the observation of this field we can say that farmer were invested big amount in shade, related equipment, labor and feeding materials but in returns they haven't got much profit. So farmers were not happy. That why they were wanting dairy should have increase the milk price. It was just possible when the policy maker, government and related sector

should make a good policy towards the farmer and apply in this sector. Therefore, we can say that dairy farming was in critical condition in study area. For make a good change milk price should have be increase, and also loan giver should provide loan in favor of dairy farmer. Similarly farmer should have to trained and developed good skill or knowledge to increase in quality and quantity of milk production. This is the major issue of the dairy sector that should have to be solve for the development of dairy sector

4.4.1.3 Lack of Insurance Facilities

Most of the farmers complain about the lack of insurance of animals. Farmers buy improved breeds taking loan from different sources but it the animals die or become sick then there is no facilities of repayable. So dairy farmer were getting big loss and many other new comer were afraid about this. If insurance facility provides properly then dairy farmer get encourage doing best in this field.

Policy maker and government should have to made good policy, rules and regulation. And Insurances company also should have to be work in favor in dairy farmer. That can be make big new change in dairy farming. Many new comer should get encourage in this filed by those good system. Therefore, we can say that it was the biggest problems of this field and that should have to need solve.

4.4.1.4 High Price of Animal Feed:

In study area dairy (milk collection center) provide the animal's feeding materials but price of those feeding materials (Dana/ choker) is high. Dairy animals need balanced feed and choker for maintaining their milk production. Because of high price of animal's feed farmers can't buy balanced feed for animals. As dairy animals are finally fed with homemade feed, the milk productivity of animal's changing from time to time. Proper feeding system only can produce good quality and quantity of milk otherwise farmer cannot able to produce that. That why feeding materials provider should have to be in favor of dairy farmer and price of milk also have to be increase in favor of dairy farmer. In this way dairy farmer can maintain the feeding style. Therefore, we can say that for development of dairy sector in this area this problem should have to be solved.

4.4.1.5 Verities of Milk Production

Most of the farmer consume milk product to sell in the market and self propose. They also produce many items of milk like ghee, curd, Mahi etc. In this study the number of farmer who produced different items of milk was high. Few people are selling those product and many people are not selling because they produce those item only for self-consumption propose. So that it needs to diversification by commercialize. If dairy farmer or dairy produce many items of milk then they can able to get more profit from it. But in study area many dairy farmer were producing just milk item and other items produce just for self consume. Very few dairy farmers were producing other items of milk for sell. Therefore we can say that it is the one of the problem in this sector and it should have to need solve.

4.4.1.6 Different Diseases Problem in Livestock Animals

According to the farmers, in study area some dairy animals have been found attacked by disease. Various types of disease have been seen likewise Foot and Mouth disease, Pneumonic form, Mastitis, Sterility or infertility, Abortion etc. Out of those fever occupies the highest position. It indicates high label of poor health among other dairy animals. It is due to poor nutrition and management. Both, internal and external parasitic disease are observed in the improve breed dairy animal. Low quality feed, use of rotten grass, large use of straw poor sanitation are seen to be the causes of disease.

The district veterinary hospital is responsible for providing medical services. Animals are mostly carried to the hospital for treatment, insemination and also for usual vaccination. Technicians and even doctor visit stall. At emergencies technicians visit dairy farms. It cost expensive per visit. For artificial insemination farmers take their animal to the hospital. It does not cost, but medicine is costly.

Low quality technical and medical service has made some of the dairy animals in danger and hence the animal husbandry itself. Some suffered abortion; it is because of the lack of proper technical trainings to technicians. Most of the farmers complain about the service of medical workers and suggest for its improvement. The stall, it's type, physical

condition, sanitation and milking is responsible for health condition of animals. A sunny, dry, ventilated and clean stall helps the dairy animal to resist diseases. Therefore, we can say that this problem should have to need solve.

4.4.1.7 Insufficient Veterinary Services

The proper veterinary services and facilities are not available in the villages. There is lack of trained veterinary doctor and technicians. Thus most of the problem of dairy farming is lack veterinary facilities. And if they need facilities than they have to come to main city to by medicine and if they prefer to call them in village then heavy amount have to be paid in village for simple advice and medicine facilities. So the farmers fear to keep improved dairy animals because if they die of lack of treatment then the farmers have to bear heavy loss, and sometimes farmers by veterinary drug in shops and feed their animal sometimes these impacts negatively to their animals. So that, those rare clinic and there's medicine cannot provide required service all over the VDC. In want of reliability of surrounding required number of farmers hesitate to take the risk of dairy animals keeping. That why it is the big problem in study area which should have to need solve.

4.4.1.8 Insufficiency of Technical Knowledge

There is no uniformity in the type, size and standard of shed. Some farmers are with permanent stall and other of temporary. A permanent stall reflects to a large investment in construction. Farmers are seen to construct the stall without thinking the standard size. It shows unnecessary investment on fixed input that makes husbandry more expensive.

Tool and equipments necessary for farms are grass cutter, bowl, bucket, chain, pipe, etc. Especially, farmers use this equipment without buying except grass cutter. Grass cutters are two kinds one is power driven and another is hand driven. The former is costly and rare, where as the latter is usual. So that their farmer are untrained or unskillful to make shed and for use or choose necessary equipments that's why they are in loss.

It is one of the major problems of commercial dairy farming sector of this VDC. Dairy farmers are ignorant of technical knowledge of dairy farming. Besides, technical services relating to dairy farming are not available regularly. Training program should be conducted to impart technical knowledge to the concerned farmers. So that we can say that this is the one of the major problems and it should have to need solve.

4.4.1.9 Problem of Milk Holiday

The processing sector (DDC and private) has a limited capacity to absorb all the milk offered by dairy farmers especially during the flush season. The terminology "milk holding" is used for the days which milk is not bought from the producer's. This is one of the most important problems faced by the milk producer's milk holidays have grown to 2 to 3 days in a week and it seems that it may continue even in the lean season. At present the amount of uncollected milk is very small about two percentage of the total offer but it may increase in further and further if the efforts for the increase in processing capacity and the consumption are not pushed forward. At present the trend for milk offer is higher than the consumers demand trend. So most demanded of milk in the market, there are not milk holiday in any co-operatives. Therefore we can say that it is the most unwanted problems of study area which should have to be needed to solve by government and striker.

4.4.2 Prospects of Commercial Dairy Farming

The prospect of commercial dairy farming in Pithuwa VDC is high due to availability to milk market, seasonal feeding, water supply, loan facilities etc. Many people are attracted to animal husbandry mainly cows and buffaloes husbandry for the supply of milk and milk products and sale as well as domestic consumption. If, there happen crop failure due to the natural calamities, cows and buffaloes help to the farmer to manage their families live. Buffalo and cow husbandry is closely associated with agriculture land and own forest. It depended on the availability of forage and fodder. So, cultivated land is essential sources of forage and fodder for them. These facilities have led the development of dairy farming and agriculture together.

Agriculture is the main occupation of majority of the people of this VDC. Many families keeping dairy animals have taken it as complimentary to agriculture. Agriculture products like straw, crop residues etc also serve as the feed for animals. The development of dairy farming is highly affected by the availability of water. The quality of water affects the health of animals. Water is also required to clean animal stall. There is availability of clean water in the well and the water tank to be used. And there are also available many water canals which is one of the basic components of good grazing and crops land.

Some potentiality of commercial dairy farming in the study area can be explained as follow.

4.4.2.1 Availability of Milk Collection Centers

The milk collection centers collect the milk from different parties of the that village and transport it to Kathmandu and Pokhara if any strike for 3/4 days than they transport to the chilling center located at Madhapur in Pithuwa. There are six milk collection centers (Panchayan, Pithuwa, Guransa phool, Janakalyan, Bhadrakali, Himchuli milk cooperative product limited) in Pithuwa VDC established by DDC. Therefore we can say that those accesses of dairy can be helpful for increase the number of dairy farmer. So, it is one of the most important prospects of commercial dairy farming in study area.

4.4.2.2 Accessibility of Markets

There are six milk collection centers available. Pithuwa VDC is in the developing process so that there also available some tea stalls, hotels and homes for bye milk. In study area Pithuwa milk cooperative product limited is in the accessible place for all milk sellers. According to respondent of this field survey 64.81% household sold their milk product in milk collection center, 24.07% household sold their milk product to villagers and 11.11% household sold their milk product in market. There's accessibility of milk collection center and local market are helping to promote commercial dairy farming. Therefore, it has been in one of the prospect of study area.

4.4.2.3 Reducing the Demand of Chemical Fertilizer

Farmer is carrying on dairy farming along with agriculture. Livestock supports the agriculture in many ways. Livestock is a part of agriculture which has been taken as one of the important sources of rural income. The entire farmers in this Pithuwa VDC-3 were not used required quantity of chemical fertilizer for their fields. The need of fertilizer is fulfilled by compost manures which is prepared from dung. So livestock seems to be indispensable for increasing overall agricultural production and for uplifting the economical status of the farmers.

Livestock also helps the agricultural activities by supplying draught power to plough crop land and transporting crop by cart. In return agriculture provides feed and feeding materials for dairy animals and other. Grain and crop residues have been used to feed all sorts of livestock. Crop field has been a subsidiary source of green grass and also fodder for livestock. According to the response of respondent most of the commercial dairy farmer (85.71%) have been changing in fertilizer using practice which was reducing the demand of the chemical fertilizer. So that it is becoming main occupation in study area.

4.4.2.4 Increasing Demand of Dairy Products

Demand of the dairy product is also increasing due to the over population growth. Milk and its products are used by people for their domestic consumption and for markets. The supply of dairy products is not sufficient for market. In these day dairy has lunched new container having extra capacity of milk collection in study area. That why those dairy were demanding more milk production which was good aspect of this field. So, the increasing demand of dairy product is another aspect of developing commercial dairy farming in study area.

4.4.2.5 Good Facility of Water Supply

There is available facility of water either in the Pithuwa VDC-3 or in the green fodder and crop land. Water is important component for developing dairy animals in the country. In study area canal is available near to the crop land. Green fodder contains

various nutritional element and crop residues also contribute half of the total required TDN (Total Digestible Nutrient) for animal's feed. Those are highly necessary to maintain animal health and production. Green fodder also increases the production of milking animals. That's why animal give more milk. There was also available drinking water tank. It was helping to dairy farmers by fulfilling the need of overall required demand of water. So water supply facilities in the crop lands and green fodders and available of drinking water tank increase the prospect of dairy farming in study area.

4.4.2.6 Increasing Employment opportunity

In study area most of the labor service necessary for husbandry is supplied by farmers themselves and it does not cost to them. Few farmers are hiring some labor. Otherwise most of theme's family members are involve in dairy farming. This is plush point to take more benefit from this field. So it gives employment opportunity to the unemployment family member and local labor. Therefore, we can say that It is one of the good aspect of the commercial dairy farming in study area.

4.4.2.7 Increasing Agricultural Farmer

Traditionally, People are adopting animal husbandry and agriculture as their main occupation in the village. Similarly, in Pithuwa VDC dairy farmer were adopting agriculture and dairy farming together. Farmers were using their compost manures or wastages (Dung) of livestock in crop land for fulfilled the need of fertilizer. That's why in these days there's cereal crop production is growing a little bit high than before years. So that, it was becomes one of the good prospect in study area.

4.4.2.8 Changing as Source of Income

Most of the people in the study area were involved in keeping livestock and agriculture beside some of them are found to be engaged in different other sector as well. Among of them commercial dairy farming was emerging level in study area. In this study 14 people were engaged commercially in dairy farming and remaining 50 were involved in non commercial dairy farming.

According to the response of respondents that time period of starting dairy farming as a commercially below 2 year was 35.71% household, 2-4 year was 28.57% household, 4-6 year was 21.43% household and 6 to above years was 14.29% household .

Therefore, we can say that most of the farmers have just started commercial dairy farming in study area and its ratio is increasing in year wise. This is positive prospect of commercial dairy farming in study area.

CHAPTER V

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary:

Agriculture is the main source of employment in Nepal which provides food for the fast growing population. Due to this reason the development planners in Nepal have laid down much emphasis on agriculture development programs for the provision of better agricultural inputs, land reform, land resettlement, agricultural credit, agricultural extension services, irrigation etc. In spite of these planned efforts, improvement in the agricultural sector is rather disappointing. In these days commercialization of dairy farming is becoming major source of income, where many farmers have been attracted towards it. Unfortunately, the commercialization of dairy farming has not been able to gain reasonable returns from the production process. Thus this study has made attempts to analyze the impact of the dairy farming in study area and examine the problems and prospects of commercial dairy farming in the study area.

In this research first chapter introduced the background of the study, statement of the problem, objectives of the study, significant of the study, limitation of the study and organization of the study.

In second chapter was included the many different literature review. Different hand books, URL, magazine, thesis etc. were review for this chapter.

The third chapter was explored the research methodology. The study is done in the Pithuwa VDC-3 with the major objective to find out the problems and prospects of dairy farming in this area. Study was done visiting this area, from where different primary data were collected using questionnaire, informal interviewing with, different people have been selected as sample population for the study, for sampling procedure 20 percentage households having commercial dairy farming, 71.43 percentage households having non commercial dairy farming, and 8.57 percentage were staff from different milk collection center to get the information and needed primary data.

After the research different findings were obtain which were analyzed and presented in chapter fourth. There were General background of the study area, status of dairy farming infrastructure and impact of dairy farming were analyzed and examined the problem and prospect of commercial dairy farming in study area.

From this study of dairy farming in Pithuwa VDC-3 fourteen household have started to keep more improved animal because they get loan from co-operatives and Agriculture Development Bank (ADB) in minimum interest rate. Those farmers who are left i.e. 10% prefer to keep improved breed but fear rules them because they don't have insurance policy and if animals die then for they have to bear heavy loss. Most of the farmers and milk collection center are complain about milk holiday milk holidays lies flush season where the majority of milk is wasted. So they want to get rid of this problem.51% of the farmers prefer to sell raw milk because it is easy way and also make milk products but for self-consumption.

All farmers regard that income can be earned from this sector but half of sometime the earned income is not sufficient for feeding animals and for their treatment. So they want to increase in price of milk. They regard that water is more expensive then milk eighty percentage of people feel secured when they are involved in dairy co-operatives.

Some farmers know about the ghee making and card making in traditional crude methods. Sometime they produced those items just for only self consume or requirement, but sometimes they produced for make money. Dairy farmers get regular income from this sector. So after involvement in cooperatives most of the farmers have started to send there. They send their children in school either in boarding or government, most of them becoming educated by taking adult education and many more related training. This shows that they have understood the importance of education.

Sixty four (91%) household are involved in dairy farming by commercially fourteen (20%) household and none commercially 50 (71.43%) household. People who involved commercially their income increase through selling milk from dairy cooperatives people have utilized income into buying additional assets like bike, cycle,

mobile, refrigerator, grazing land, jewelry, house, computer, water pump, grass cutter and etc. After the increase in income level, the most of the rural people are satisfied after getting involved in the dairy farming. This not only has increase the socio economic status of people but those dairy farming have helps a lot in increasing the participation opportunity, which is the provided by government and other organization towards the rural development.

There are some problems in dairy farming, dairy farmers and dairy cooperatives in the study area that is 6 milk collection centers and their farmers find milk holiday as the major problem. The next problem that the farmers face is low price of milk all 91.43% (64) household farmer and 8.57% (6) dairy staff also regard that the price of milk should be increases. Next problem is related with the lack of training about commercial dairy farming only 35.94% respondents have got training but 64.06% respondents have not got training because of lack of information, lack of opportunity, and due to ignorance. In order to minimize this problem of farming people express need of good government policy and some of the farmer express the need of dairy animals insurance.

There is also some prospect of dairy farming, like availability of collection center, accessibility of market, reducing the demand of chemical fertilizer, increasing demand of dairy product, good facility of water supply, increasing employment opportunity, increasing agricultural farmer and changing as source of income.

After the research different findings were obtain which were analyzed and presented in fifth chapter.

Besides having lot of problems this commercial dairy farming is a strong means for sustainable development and it is a best means for development because it helps to cherish the local people.

5.2 Conclusion

This study gives a clear picture of the situation of commercial dairy farming in Pithuwa VDC-3. The roles played by co-operatives are into two things. Firstly, fostering us feeling among the rural farmers. Secondly, providing marketing facilities to rural milk

produces dairy co-operative have made the farmer to unite themselves in groups and farmers to feeling of togetherness. This sector has significant impact on the quality of life. Number of people has changed their economic and social life. Though the study the researcher has found that commercial dairy farming has lot of potentiality instead of having lot of problems in this sector, like of institutional facilities insufficient veterinary facilities low price of milk holiday etc. This is also serious problem for commercialization of dairy farming. They are not getting proper support from state sector. These problems hinder in development of this sector but these problems have solution.

5.3 Suggestions

In study area, dairy farming has been playing significant role to up lift the economy of rural farmers. For commercialization of dairy farming in a sustainable way the following suggestion can be suggested.

Action to be taken:

1. Farmer should be educated and encouraged to increase the number of animals but simultaneously they must be aware of the quality of the animals. They should be trained in modern technology of commercial dairy farming and they should manage proper shed for their cattle's. Before taking training for producing good quality of milk and about veterinary service farmers should be more careful about their health and hygiene. Because if they aware of proper knowledge about it then they can handle it in a right way. The Government and cooperatives should encourage farmers to keep improved breed of dairy animals whose productivity is higher than that of local ones cooperatives should provide breed of animals on subsidy under its specific programmed. This kind of opportunity or facility can be big opportunity for dairy farmer. Dairy cooperative, VDC, project planner and dairy farmer also should have to coordinate each other for make good program and implementation which can be fruitful for all. In this way it could be make good change in dairy sector.

2. Farmers should provide good quality of feed and fodder for dairy animals. Because milk production from dairy animal depends upon the feed they get. They also should have made aware of giving good quality based feed and fodder to their cattle's and buffalo's as well as encourage them to produce improved grass. Fodder grass and other feed that are cheaper in price. Because of having good knowledge and skill towards the feed and fodder means being good dairy farmer. When dairy farmer give qualitative food and fodder to their dairy animals they can able to produce qualitative milk so they should have that knowledge and skill. Dairy farmer should be facilitated by insurance policy, quick and easy credit facility if that happen it creates good things in study area. This kind of program should have provided through dairy cooperative. This kind of task can increase quality of milk and it encourage new comer in this field which is plush point for dairy farmer to get the high amount of milk rate and development of dairy industry.

For Further Research:

-) Potentiality of dairy development in Nepal.
-) Achievement of dairy co-operatives and its impact on people.
-) Dairy development: A sustain sector.
-) Research on dairy development and its marketing.

REFERENCES

- Dhakal, K.H. (1999). *Development of dairy farming*. Unpublished dissertation submitted to Central Department of Geography, Tribhuvan University. Kathmandu.
- Gopala, C., Lal, G. (1985) *Livestock and poultry enterprises for rural development: Role of dairy farming in the rural development*. Tamilnadu, Agriculture University (1985) P. 24-26.
- Joshi, A. (1998). *Study on constraints to women's participation in semi-commercial dairy farming for income generation*. Unpublished dissertation submitted to Central Department of Sociology / Anthropology, Tribhuvan University.
- Malla. B., M.(2062). *Handbook of animal husbandry & animal health care: Guidelines on disinfection in animal husbandry for prevention and control of zoonotic disease by veterinary public health*. Unit of the World Health Organization, Geneva. P. 1-3.
- MoF, (1995). *Economic survey HMG/N* Kathmandu: Ministry of Finance (1994).
- Nitt, J., I. (1983). *Livestock husbandry techniques: introduction*. Frogmore, St. Albans, Herts AL2 2NF And 36 Golden Square, London W1R4AH. P. 1-3.
- Sharma B., and Banskota K. (2015). *"Smallholder dairy farming in nepal: characteristics, constraints, and development opportunities"*. Centre for Resources and Environmental Studies (CREST). 2014.
- Tamang, K. (2012, December 18). *Safari to new era*. Retrieved from website <http://practicalaction.org/blog/category/where-we-work/nepal/page/3/> on August 10, 2014.
- Upreti, C. B. (2068). *Cattle & buffalo husbandry technology*. Khumaltar: Nepal Agriculture Research Council Cow and Buffalo Research station.

Zeuner, F. E. (1963). *A history of domestic animals*. Great Land Port street, London: Hutchinson and Company Limited.

References for URL

About pithuwa. (n.d.). Retrieved August 31, 2014 from website <http://en.wikipedia.org/wiki/pithuwa>.

About dairy. (n.d.). Retrieved 15, August 2015 from website <https://en.wikipedia.org/wiki/Dairy>

Contribution of livestock to AGDP declines. (n.d.). Retrieved August 15, 2014 from website <http://www.ekantipur.com>.

Farm under construction, (n.d.) Retrieved May, 27, 2014 from website www.cowfarmofdolakha.np

History of dairy farming. (n.d.) Retrieved August 20, 2014 from website http://en.wikipedia.org/wiki/Dairy_farming.

Statistical information on nepalese agriculture, (n.d.). Retrieved August 16, 2014 from website <http://en.wikipedia.org>.

Annex 1

Questionnaires for Households Survey

Questionnaire for first objective:

1. Personal Introduction:

Name:

Age:

Sex:

Family members:

2. What is your major income source?

a) Commercial dairy farming

b) Non commercial dairy farming

c) Job holder

d) Agriculture

d) Other

3. If major income source is commercial dairy farming, since how long have you been keeping livestock?

S.N	Livestock as occupation (Years)	Number
1	Below- 2	

2	2-4	
3	4-6	
4	6 to Above	

4. What kind of dairy farming do you have?

a) Registered

b) Unregistered

5. If registered, what is your dairy farming's name?

.....

6. Livestock detail:

S.N.	Livestock	Improved Breed	Non Improved Breed	Total
1.	Cow			
2.	Buffalo			

7. From where do you get the main feeding materials for your livestock?

a) From forest

b) From dairy

c) Self managed

d) All above

8. Have you got training about commercial dairy farming?

a) Yes b) No

9. If yes, from which organization?

a) Dairy co- operative P.ltd b) NGOs c) INGOs d) Other

10. If no, why?

a) Due to ignorance b) Lack of information c) lack of opportunity

11. How many liter milk you produce per day?

S.N.	Per day milk production (Litter)	Produce (Litter)
1	Below 10	
2	10-20	
3	20-30	
4	30-40	
5	40 to Above	

12. How do you largely consume the milk?

- a) Sell in the market b) Self consume c) Both

13. Where do you sell milk?

- a) In milk collection center
b) Distribute self to households
c) Direct sell in market

14. How much price do you get per liter of milk sold?

- a) Price of cow milk Rs..... /-
b) Price of buffalo milk Rs.../-

15. Which product do you produce except milk?

- a) Ghee b) Curd c) Mohi d) All of above

16) Do you sell that product?

- a) Yes b) No

17. How did you invest in livestock farming?
- a) Self invest only
 - b) Completely loan
 - c) Partial loan
18. If self invest only, how did you manage?
- a) From your own saving
 - b) Borrowing without interest from relatives/ villagers
 - c) Other
19. If you invest through loan, from which financial source did you get loan?
- a) Co- operative
 - b) Rural Bank/ Agriculture Bank
 - c) Borrowing from relatives/ villagers
 - d) Other

20. How much did you get loan?

Loan Amount	Number
Below 1,00,000	
1,00,000-5,00,000	
5,00,000-10,00,000	
10,00,000-15,00,000	
15,00,000-20,00,000	
20,00,000 to Above	

21. How much rate of loan interest did you get?

- a) Free b) Below 10% c) 10%-15% d) 15% to Above

Questionnaire for second objective

22. Change in education status:

S.N.	Family member	Before		After	
		Literate	Illiterate	Literate	Illiterate
1	Male				
2	Female				

23. Change in skill due to dairy farming:

S.N.	Skills	Before		After	
		Having	Not having	Having	Not having
1	State of safe keeping				

2	Complete feeding style				
3	Arrangement of sanitation				
4	Way of feeding accurate medicine amount				

24. Involvement in institution due to dairy farming:

S.N.	Name of group	Before	After
1	Co-operative		
2	Female saving group		
3	Group of cast		

25. Change in income due to dairy farming:

Income (Rs./Month)	Before	After
Below 30,000		
30,000-60,000		
60,000-90,000		
90,000 to Above		

26. Change in assets due to dairy farming:

S.N.	Additional assets	Before	After
1	Bike		
2	Cycle		
3	Mobile		
4	Refrigerator		
5	Grazing land		
6	Jewelry		

7	House		
8	Computer		
9	Water pump		
10	Grass cutter		
11	Others		

27. Change in employment structure due to dairy farming:

Employee	Before	After
Family member		
Labor		

28. Change in occupational structure:

S.N	Occupation	Before	After
1	Agriculture		
2	Business		
3	Commercial dairy farming		
4	Job Holder		
5	Labor		
6	Other		

29. Change in food sufficiency due to commercial dairy farming:

S.N	Food sufficient period (Month)	Before	After
1	Below 6		
2	6-12		
3	12 to Above		

30. Change in fertilizer use:

Fertilizers	Before	After
Chemicals		
Compost manures which is prepared from dung		

31. Change in pesticide use:

S.N	Pesticides	Before	After
1	Increased		

2	Decreased		
3	Remain Same		

32. Change in farming structure:

S.N	Kind of farming	Before	After
1	Organic farming		
2	Non- organic farming		
3	No change		

33. Change in agriculture production:

S.M	Production status	Before	After
1	Increase		
2	Decrease		
3	Constant		
4	Don't know		

34. Change in source of feeding:

S.N	Source of feeding materials	Before	After
1	Jungle		
2	Cropland		
3	Market/dairy		
4	Cropland + Market/Dairy		

35. How many dairy (Milk collection center) available in your area before and after having dairy farming?

a) In before.....

b) In after.....

Questionnaire for third objective:

36. Do you always get market to sell the milk you want?

a) Yes b) No

37. How far is milk selling center?

a) Below 200m b) 200-400m c) 400-600 d) 600-800m e) 1km to above

38. Are you satisfied from selling rate of milk?

a) Yes b) No

39. If no, why?

a) Rate of feeding materials is higher than selling rate of milk

b) Rate of labor wage is higher than selling rate of milk

c) Purchasing power of goods is higher than selling rate of milk

d) All of above

40. Do you felt difficulty to get loan?

- a) Yes b) No
41. If yes, what kind of difficulty did you face?
- a) High interest rate b) Lengthy process c) Far from access d) Other
42. Did you get problem in feeding to your livestock?
- a) Yes b) No
43. If yes, what kind of problems did you face?
- a) Forest is away from this place
- b) Shortage of Dana/chocker in dairy
- c) Lack of grazing area
- d) Lack of straw and grain
- e) All of above
44. Did you produce other milk items along with milk?
- a) Yes b) No
45. If yes, did you sell those items?
- a) Yes b) No
46. Did you get benefit from Agriculture after having livestock?
- a) Yes b) No
47. If yes, what benefit did you get?
- a) High production of organic vegetables
- b) Decreasing of using pesticides and chemical fertilizers
- c) Land become fertile

d) All of above

48. Do you think improved breed is better than local breed livestock?

a) Yes b) No

49. If yes, why you think improved breed is better than local breed livestock?

a) Daily production of milk is high b) The milking capacity is longer

c) Good quality of milk d) All of above

50) If no, why?

a) They need more care than local breed

b) They need big amount of feeding materials

c) High cost than local breed

d) All of above

51. What type of diseases act upon animals?

.....

52. Is any facility of medicine and doctor available here for those sick animals?

a) Yes b) No

53. How it plays role to improve economic condition and reduce unemployment problem?

.....

54. What types of problems did you face in this farming?

.....

55. Do you want to suggest others to start commercial dairy farming?

a) Yes b) No

I. If yes, why?

- a) To become self employee
- b) To get more benefit by utilized of available resources
- c) To develop agriculture farming
- d) Easy for anyone to practice
- e) All of above

II. If no, why?

- a) It needs good knowledge and skill
- b) It needs hard labor
- c) It needs appropriate environment
- d) All of above

56. In your opinions what should be done to solve the problems of this sector and encourage those farmers or new comers?

.....

57. What do you think about who is the responsible to develop this sector as commercial dairy farming?

- a) Government b) Dairy co-operative c) NGOs/INGOs D) All of them

(Thank you for your precious time)

Annex 2

Guideline for Key Informant Interview

1. Introduction.

Name of organization:

Date of establishment:

Sex (Respondent): a) Male b) Female

2. In your opinion is this place suitable for dairy farming?

a) Yes b) No

3. If yes, why it is suitable?

.....

4. If no, why it is not suitable?

.....

5. Which is main problem in this dairy?

a) Milk price b) capacity of milk collection c) Milk holiday
d) Transportation e) All of above

6. What should be done to solve that kind of problem?

.....

7. What should be done by government or related sector for dairy farmer or this sector to make commercialize?

.....

(Thank you for your valuable time)

Annex 3

Observation Checklist

1. Shed condition:

a) Cemented b) Not Cemented

2. Sanitation management of shed:

a) Good b) Average c) Poor

3. Types of Road:

- a) Kachchi Road
- b) Pakki Road

4. Waste management of livestock:

- a) Good
- b) Average
- c) Poor

b) Store system:

- a) Good
- b) Average
- c) Poor

Annex 4

Photo Gallery



Chilling Center (Panchayan Milk Cooperative Ltd. Pithuwa -7 Madhapur)



Pithuwa Milk Cooperative Ltd. Pithuwa-3



Cow farm of Pithuwa VDC-3



Cow farm of Pithuwa VDC-3